A

A Personal Skill of Caring for Oneself

►Self-care Development

ABC

►Autism Behavior Checklist

Abecedarian Project

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Synonyms

Early intervention; Prevention of mental retardation

Definition

The Abecedarian Project was an early intervention project conducted by Craig Ramey and Francis Campbell on a mostly African-American sample of children at-risk for academic failure. The children have been followed from preschool into early adulthood with positive intellectual results.

Description

Ramey and Campbell conducted a prospective longitudinal study on approximately 50 children born between 1972 and 1977 [1]. The children were considered to be at risk for intellectual delays and academic problems because they were born to mostly young single mothers living in poverty. Children were screened for inclusion based on the number of risk factors they faced, including low parental education, father absence, receiving welfare, etc. The researchers randomly assigned 50+ matched children to a no-intervention control group as well. The goal of the preventive intervention was to prevent cognitive delay or non-biologically based mental retardation. Additional areas of interest included academic and social outcomes ranging from preventing grade retention to preventing teen crime.

Interventions for the preschool group included intensive pre-literacy work on language, learning, self-help, and motor skills. The children were also provided medical care at the intervention preschool site. Treatment children were exposed to high quality preschool with low adult/child ratios for the first 5 years of life. Interestingly, at kindergarten, both the intervention and control children were then randomly assigned to a school age (SA) intervention plan. This SA intervention consisted of assigning children to a home/school teacher who helped children with school work at home and at school. They also advocated on behalf of the families for social services, medical care, etc. The SA intervention continued for 3 years. This study design resulted in four groups that could be compared at the study's end: Preschool + School Age Interventions (PSA), Preschool + No School Age (PNSA), No Preschool + School Age (NPSA), and No Preschool + No School Age (NPNSA) intervention.

During preschool, children were assessed on language, cognitive, perceptual-motor and social developmental tasks from 6 to 54 months of age. By 18 months of age, the intervention group had reached national averages on all tests and far surpassed the control group, which declined by 18 months of age to below national averages.

When assessed at 12 and 15 years of age [2], the PSNSA group still showed academic and intellectual advantages over groups that had not received early preschool intervention. For example, IQ scores for PNSA were average 95 points while the NPNSA group averaged 90. The NPSA group had advantages over the NPNSA group, but overall, later school age interventions were inferior to those conducted during the preschool years.

The children were assessed again between ages 16–21 [3] in order to determine whether they had a better quality of life, including fewer criminal behaviors. However, there were no significant differences found between the groups in numbers, types, or severity of crimes committed. The authors suggest that to prevent crime, interventions must

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involve systematic work with families, not just their children.

The most recent assessment was in 2002 and examined the children at age 21 [4] to examine overall life outcomes. They found that the preschool intervention group versus the control group experienced fewer grade retentions (31 vs. 54% were retained) and was assigned to special education less frequently (24 vs. 47%). The preschool intervention group obtained more total years of education, attended college more, had fewer teenage pregnancies, and were better at reading and math. The NPSA group had better results than the NPNSA group, but weaker than those for children who had received the earliest intervention services. There were no differences between groups for violence and law breaking behavior.

The Abecedarian Project is considered by many to be an exemplary human experiment illustrating the power of brain plasticity in the early years. Their early work set the foundation for current movements like *Zero to Three* (www.zerotothree.org), and *First Five* (http://www.ccfc.ca.gov/default.asp), which provide resources, education, and materials about early brain development and emphasize the need for early stimulation to enhance developmental outcomes.

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Abilify

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Synonyms

Aripiprazole (generic name); Atypical antipsychotics; Partial dopamine agonist

Definition

Abilify (Abilify) is an atypical antipsychotic medication indicated for acute and maintenance treatment of adult as well as adolescent (13–17 years of age) patients with Schizophrenia. The medication also is indicated for acute and maintenance treatment of manic and mixed episodes associated with Bipolar I Disorder with or without psychotic features in adult and pediatric (10–17 years of age) patients [1].

Description

Abilify was developed by Otsuka Pharmaceutical in Japan and jointly marketed in the United States with Bristol-Myers Squibb [1]. Clinical trials sponsored by the manufacturer have resulted in the Food and Drug Administration (FDA) approving the use of Abilify as an atypical antipsychotic [1–3]. The FDA first approved Abilify for the treatment of adult Schizophrenia in November, 2002. The medication received additional approval by the FDA for the acute and maintenance treatment of manic and mixed episodes associated with Bipolar I Disorder, with or without psychotic features in adults September 2004 and March 2005, respectively. All of the adult trials were double-blind, placebo-controlled studies of 4–6 weeks' duration. Abilify also was approved by the FDA in November, 2007 for treating adolescents (13–17 years old) with a primary diagnosis of schizophrenia. The efficacy and safety of Abilify for use with this population was based on a manufacturer-sponsored 6-week, double-blind, randomized, placebo-controlled, multi-center study, with 302 ethnically diverse pediatric patients. Patients met DSM-IV criteria for schizophrenia and had a positive and negative syndrome scale (PANSS) $\geq$70 at baseline. In this trial, two fixed doses of Abilify (10 mg/day or 30 mg/day) were superior to placebo in the PANSS total score, the primary outcome measure of the study. The 30 mg/day dosage was not shown to be more efficacious than the 10 mg/day dose. Maintenance efficacy in pediatric patients with Schizophrenia has not been systematically evaluated. In February 2008, following a 4-week, double-blind, placebo-controlled study with 296 pediatric patients from multiple sites, the medication received approval for the acute treatment of manic and mixed episodes associated with Bipolar I Disorder in patients 10–17 years old. Participants in the trial met DSM-IV criteria for Bipolar I Disorder manic or mixed episodes with or without psychotic features and had a young mania rating scale (YMRS) score $\geq$20 at baseline. Both fixed dosages of Abilify (10 mg/day or 30 mg/day) were superior to placebo in change from baseline on the Y-MRS total score. Based on a similarly designed clinical trial (n = 197 pediatric

patients) the FDA approved Abilify in May, 2008 for the maintenance treatment of pediatric Bipolar I Disorder.

The most common side effects exhibited in pediatric clinical trials included somnolence, extrapyramidal problems, fatigue, nausea, akathisia, tremors, and headache [4]. In addition, pediatric patients with Major Depressive Disorder who receive Abilify as an adjunctive treatment may experience initial worsening of their symptoms of depression and/or the emergence of suicidal ideation and behavior [1, 5]. This is particularly problematic with the early use of the medication or during changes in dosage. Abilify is available in 2, 5, 10, 20, and 30 mg tablets and also may be administered as an intramuscular injection or as an orodispersible tablet [1]. The recommended target dose for pediatric patients is 10 mg/day with subsequent increases at 5 mg increments [1]. The medication may be administered without regard to meals and is primarily metabolized by the liver [4].

Similar to other atypical antipsychotic medications (e.g., clozapine, risperidone), Abilify's exact mechanism of action is not fully understood [6, 7]. However, the receptor interactions due to Abilify are understood to be unique and dissimilar to other atypical antipsychotic medications [6, 7]. It has been proposed that the antipsychotic efficacy of Abilify appears to be mediated through either dopamine-serotonin partial agonists and/or by working through the mechanism of "functional selectivity" [8]. Abilify likely exerts its effect by combining a partial agonist of dopamine D_2 and serotonin 5-$HT1_A$ receptors and a potent antagonist at serotonin 5-$HT2_A$ receptors [6, 7, 9]. Two biochemical responses are likely the results of Abilify's partial agonism [10]. First, when postsynaptic dopamine levels are too high, Abilify competes as an agonist thereby dulling positive psychotic symptoms while at the same time avoiding the movement disorders typically associated with nonspecific dopamine antagonism. Simultaneously, Abilify reduces dopamine release and synthesis which produces a neurotransmitter stabilizing effect which blunts excess activity until neurotransmission can be returned to preferred levels. It is hypothesized Abilify's partial agonist activity at 5-$HT1_A$ receptors and antagonist activity at 5-$HT2_A$ receptors contributes to lowered risk for extra pyramidal signs as well as improvements in cognition and negative symptoms [9]. Further reported benefits of Abilify compared to other atypical antipsychotics include a lower incidence of weight gain and sedation, and an absence of elevation in levels of serum prolactin [7].

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Ability Grouping

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Synonyms

Setting (Great Britain); Streaming (Great Britain); Tracking

Definition

Ability grouping is a term referring to a wide variety of school practices that group students for instruction according to one or more measures of academic ability or achievement including their grades, teachers' recommendations, measured IQ, standardized or locally developed achievement tests, etc.

Description

Ability grouping is intended to foster homogeneity in academic ability within educational environments. Ability

grouping can occur within classrooms, between different classrooms or educational programs within schools, or even between schools, as is exemplified in countries like Germany. Sometimes students in different ability groups receive basically the same curriculum, with those in higher-ability groups just moving somewhat faster or covering topics in greater depth. In other situations, classes of different ability levels are presented with very different subject matter, such as math classes covering general math or calculus [5].

In the United States, as well as in many other countries, the nature and extent of ability grouping typically varies with students' age. Specifically, in the U.S. within-class ability grouping is quite common in the early elementary grades. So, for example, students are often placed in small within-class groups, based on their existing skills, to learn how to read. However, as students get older, and most strikingly in high school, between-class ability grouping becomes typical. In the last century, it was quite common for high schools in the U.S. to track students, that is to divide them into completely separate tracks explicitly designed to provide a strong academic focus to academically-talented students, a "general education" for less academically-oriented students, and vocational training for students heading into the workforce immediately after graduation. Now, high school students are more likely to enroll in individual classes that are more or less challenging with other students who are more or less advanced academically, rather than in completely separate tracks or programs, allowing them to match their classes to their individual academic interests and strengths. However, often scheduling and other considerations seriously constrain such choices, creating a situation in which high- and low-ability students are not typically found in the same classrooms.

Although various forms of ability grouping are extremely widespread, ability grouping, especially in its stronger forms, is very controversial. Those favoring ability grouping argue that it allows teachers to target instruction more precisely to students' existing skills than do heterogeneous grouping practices. It is also sometimes argued that students will learn better in academically-homogeneous environments. Specifically, one major concern is that low-ability students in an instructional group will not only limit the kinds of material that can be presented but will slow other students' progress. Arguments favoring ability grouping also sometimes suggest that it will protect the self-esteem of low-achieving students by sparing them constant direct comparison with their academically stronger peers. In addition, ability grouping, combined with the provision of a different curriculum for higher- and lower-achieving students, is sometimes seen as helpful in preparing students who will begin work immediately after school to do so effectively.

In contrast, those opposing ability grouping point out its many disadvantages [2, 3]. For example, they argue that it is not easy to accurately and fairly assess achievement and/or ability and that research shows that factors like socioeconomic background and/or minority group membership sometimes influence placement in ability groups. In addition, they highlight research showing that teacher quality, instructional processes, and the classroom climate are often more favorable to learning in classes containing high-achieving students than in those containing mainly low-achieving students, which means that ability grouping is likely to further impede the progress of initially low-achieving students. They also point out that ability grouping in schools generally increases racial, ethnic, and socio-economic segregation there, due to the consistently found co-variation between socio-economic status, minority group membership and common measures of academic ability and achievement. Thus, they argue that ability grouping undermines the potential of schools to serve a constructive role in preparing students to function effectively in the diverse societies in which many of them will live as adults.

Generally speaking, reviews of the research on ability grouping conclude that *within-class* ability grouping has a modest positive impact on achievement compared to both within-class heterogeneous grouping and whole-class instruction [6]. However, reviews of the research on *between class* ability grouping come to conflicting conclusions. Those focusing on experimental studies, which typically do not involve situations in which higher-achieving groups are presented with very different subject matter than lower-achieving groups, suggest that this practice has no clear overall effect on academic achievement, although one review concludes that it may have a small positive impact on the achievement of initially high-achieving students. In contrast, reviews emphasizing correlational studies, which often are conducted in situations involving some degree of curriculum differentiation, generally suggest that ability grouping at the class or school level has a clear and sometimes substantial negative impact on the achievement of initially lower-achieving students. Some also suggest a modest positive impact of ability grouping on the achievement of initially higher-achieving students.

The fact that many studies of between-class ability grouping suggest either no achievement advantage to it and/or negative effects on initially low-achieving students led to strong calls to abolish such practices, and quite a number of schools and school districts in the U.S. moved in this direction during and after the 1990s.

However, such efforts often meet strong resistance from both teachers and from parents, especially the parents of relatively high-achieving students. Some studies have documented very good results from de-tracking efforts, with markedly improved achievement for many students and no negative impact on initially high-achieving students. On the other hand, it is also clear that such efforts often cause a great deal of strife and they sometimes have unintended negative consequences, such as when the de-tracking of Japanese schools led many high-achieving students to leave the public school system for private schools.

Relevance to Childhood Development

Ability grouping influences students' social and academic experiences. Ability grouping influences their social development by commonly undercutting the potential for students to interact with and develop friendships in school with those from other racial, ethnic, and social class backgrounds. Such a consequence is important because the formation of such friendships appears to have a positive impact on students' intergroup attitudes.

Whether or not ability grouping is practiced also impacts students' academic experiences in predictable ways. Specifically, the research literature strongly suggests that classes with high-ability students tend to be better learning environments than those with large concentrations of low-ability students for a wide variety of reasons related both to the individual characteristics students bring with them and to the kinds of learning environments schools are likely to provide to initially higher- and lower-achieving students [1, 4].

The policy problem posed by ability grouping for those concerned with child development is twofold. First, some forms of ability grouping, such as within-class grouping, appear likely to have modest positive academic effects but negative social effects, because they are likely to reinforce students' predisposition to interact more with those similar to them than with peers from different racial, ethnic or social class backgrounds. Second, some forms of ability grouping, specifically ability grouping with curriculum differentiation, appear to undercut the achievement of some students while possibly enhancing that of others. Even if the negative impact of such forms of ability grouping on lower-achieving students is somewhat stronger than their positive impact on high-achieving students, as sometimes appears to be the case, decisions about whether to adopt such practices are difficult because they often involve trade-offs between losses and gains in different realms and/or for different kinds of students.

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Abnormal Presentation

▶Birth Complications

Abort

▶Abortion

Abortion

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Synonyms

Abort; Dilation and Evacuation (D&E); Miscarriage; Termination

Definition

(1) The spontaneous or induced termination of pregnancy after conception. (2) To miscarry a nonviable fetus [1].

Description

An abortion is a legal, safe, and effective medical method to stop or interrupt the growth and development of a fetus. Even though abortion is a legal medical procedure,

the availability of services has been under political and ethical debate for quite some time [5]. In fact, the availability of abortion services depends on federal and state policies. However, in the United States, abortion has not always been under ethical and political debate. As a matter of fact, up until the second half of the nineteenth century, abortion was not viewed as morally wrong if it was performed before 4–5 months of pregnancy. During the second half of the nineteenth century, abortion was preformed quite frequently using drugs, special potions, and techniques espoused by popular medical guides. Additionally, abortion procedures were often preformed by mid-wives and physicians. The first laws governing abortion were enacted in 1821 and 1841; however, these laws were specifically put in place to prevent women from using unsafe abortion procedures, not to punish women for having abortions [3].

During middle nineteenth century, abortion was a growing trend among white, married, and protestant women. During this time, abortion became commercialized, which worried the new emerging class of predominately male physicians. These new medical professionals expressed concern that the number of abortion procedures in the middle and upper class, protestant, white population would eventually wipe out Catholics, which would ultimately result in whites being outnumbered by the African American and immigrant population. The created an uproar within the medical community. In addition to mid-wives being banned from giving abortions, physicians began to create laws and policies to control abortions. Between the period of 1860 and 1960, stringent laws against abortion and contraceptives were enacted. Women who sought abortions were guilty of murder and were sent to jail. It wasn't until January 22, 1973, that the US Supreme Court ruled 7-2 in *Roe v. Wade* that women have a right to terminate pregnancy based on the constitutional right to privacy established in the 1965 case, *Griswold v. Connecticut* [2].

There are two types of abortion procedures that can be used legally, safely, and effectively. The most common procedure is done in a medical center and is referred to as an aspiration procedure. Another procedure, which is less commonly used, is the D&E procedure (dilation and evacuation). An Aspiration is usually used up to 16 weeks after a woman's last period and a D&E is generally used after the 16th week of pregnancy. An abortion that is carried out beyond the 24th week of pregnancy is likely due to serious health reasons [4].

The following information outlines the specific steps generally covered during an abortion procedure. The following was adapted from [4].

During an **aspiration** abortion:

- Your health care provider will examine your uterus.
- You will get medicine for pain. You may be offered sedation — a medicine that allows you to be awake but deeply relaxed.
- A speculum will be inserted into your vagina.
- Your health care provider may inject a numbing medication into or near your cervix.
- The opening of your cervix may be stretched with dilators — a series of increasingly thick rods. Or you may have absorbent dilators inserted a day or a few hours before the procedure. They will absorb fluid and get bigger. This slowly stretches open your cervix. Medication may also be used with or without the dilators to help open your cervix.
- You will be given antibiotics to prevent infection.
- A tube is inserted through the cervix into the uterus.
- Either a hand-held suction device or a suction machine gently empties your uterus.
- Sometimes, an instrument called a curette is used to remove any remaining tissue that lines the uterus. It may also be used to check that the uterus is empty. When a curette is used, people often call the abortion a D&C — dilation and curettage.

An aspiration procedure takes about 5–10 min. But more time may be needed to prepare your cervix. Time is also needed for talking with your provider about the procedure, a physical exam, reading and signing forms, and a recovery period of about 1 h.

D&E

During a **D&E**

- Your health care provider will examine you and check your uterus.
- You will get medication for pain. You may be offered sedation or i.v. medication to make you more comfortable.
- A speculum will be inserted into your vagina.
- Your cervix will be prepared for the procedure. You may be given medication or have absorbent dilators inserted a day or a few hours before the procedure. They will absorb fluid and grow bigger. This slowly stretches open your cervix.
- You will be given antibiotics to prevent infection.
- In later second-trimester procedures, you may also need a shot through your abdomen to make sure there is fetal demise before the procedure begins.
- Your health care provider will inject a numbing medication into or near your cervix.

- Medical instruments and a suction machine gently empty your uterus.

A D&E usually takes between 10 and 20 min. But more time is needed to prepare your cervix. Time is also needed for talking with your provider about the procedure, a physical exam, reading and signing forms, and a recovery period of about 1 h.

In addition to the two aforementioned abortion procedures, a medical abortion method is also available. A medical abortion is an abortion induced by taking a medication that ends a pregnancy. Mifepristone and methotrexate are the two FDA approved abortion pills available. Mifepristone works by blocking the hormone progesterone, which causes the lining of the uterus to shed (menses). Methotrexate was FDA approved for treating a cancer, but can also be used to end a pregnancy. It can be injected with a hypodermic needle or it can be taken orally. Methotrexate stops the implantation process that takes place during the early weeks of pregnancy. A third drug is indicated and is to be taken in conjunction with one of the above medications. It is called Misoprostol and causes the uterus to contract and empty, which ultimately ends the pregnancy.

- The abortion pill, unlike the aspiration procedure, takes much more time to complete termination. Women who choose the abortion pill will generally have to wait 2–3 weeks before termination is complete. Mifepristone is a quicker method for completing abortion compared to methotrexate. There are several symptoms that are likely to occur after taking the abortion pill that users should be aware of. They include vaginal bleeding after taking the first drug, which may be light or heavy, cramping, which may be light or heavy, and both bleeding and cramping may be more than what a woman may experience on her period. Complication from taking the aforementioned medications include dizziness, strong cramping, nausea or vomiting, diarrhea, temporary fever or chills, and temporary abdominal pain.

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Abstract Mapping

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Synonyms

Concept formation; Mental mapping

Definition

Abstract mapping refers to the process of linking the essential conceptual elements from two sets of information to form new knowledge.

Description

Abstract mapping is a psycholinguistic model that attempts to explain the processes needed to form concepts as well as to organize and to integrate information to support memory, reasoning, and learning [1, 2]. Abstract mapping is an extension of models used to describe young children's acquisition of new vocabulary, syntax, and expressive language skills [1, 3, 5, 7].

Mapping refers to the connecting of the underlying elements (abstract) from two sets of information to form a new concept. The connections or correspondences are made between a familiar knowledge base (source) with new stimuli (target). The correspondences are based upon similarities of perceptual features, functions, relationships, and meanings. The process of forming and altering connections contribute to the increase and expansion of knowledge [1, 3, 4, 5, 7].

Correspondences can be created across linguistic and spatial domains [1, 3, 4]. These correspondences influence the development of schema or a framework to organize knowledge domains. Language is used to divide domains into smaller categories to facilitate storage and retrieval of information from memory [1, 3, 4, 6].

Abstract mapping is a model used to depict the intricate network of concept development and learning.

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Abused Children

►Battered Child Syndrome

Academic Ability

►Mental Age

Academic Achievement

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Synonyms

Educational; Scholastic; School performance/achievement

Definition

Academic Achievement is the progress made towards the goal of acquiring educational skills, materials, and knowledge, usually spanning a variety of disciplines. It refers to achievement in academic settings rather than general acquisition of knowledge in non-academic settings.

Description

Unlike typical forms of achievement, academic achievement is usually viewed without a definitive endpoint. Rather, the concept is understood as a spectrum along which one can "achieve" certain skills and knowledge, always with the possibility of further developing those skills and increasing the depth, breadth, and specificity of knowledge.

Academic achievement revolves around the central goal of improving the educational knowledge of the students. Because of this goal, the measurement of achievement is often criticized for maintaining a focus on content knowledge rather than problem-solving or product-fashioning skills across a range of materials, which many argue are equally crucial to the definition and measurement. As a result, academic achievement inevitably corresponds with what was taught; students would be unlikely to "achieve" an understanding of material that was not taught, and in this respect, academic achievement is very dependent on teachers and curriculum.

With the overall goal of content evaluation, academic achievement is considered a measure of the educational material that was learned or acquired, with the effort, attitude, motivation, intelligence, or potential of a student having no bearing on the final academic achievement score. While these characteristics may be highly related to the outcome measure, academic achievement itself does not provide a measure of these characteristics. Rather it measures the progress students have made towards the goals set forth by the academic institution and the state-wide or national standards. Academic achievement may measure how well these characteristics have been applied towards acquiring skills and knowledge, but the assessment does not directly factor any of these characteristics into the measure.

Academic achievement is typically measured through two common methods: subject grades given by teachers or professors and standardized test scores, either state-wide or national. While these measures are widely used and may be the best available measures of this concept, obvious criticisms arise in using subject grades and large-scale test scores as a standardized measure of academic achievement. Grades for the same level of achievement may fluctuate widely between teachers and schools based on curriculum and standards, and standardized testing may include a measurement of a student's test-taking ability rather than only measuring the underlying content knowledge.

In addition to these common measures, other assessments have been developed in an attempt to eliminate confounds of subject grades and standardized tests. Various adaptations and revisions of the Woodcock-Johnson psychoeducational battery and the wide range achievement test (WRAT) are two of the more commonly used assessments in this area. However, these tests are administered on an individual basis and can become time-consuming, making them difficult to administer on a large scale.

Relevance to Childhood Development

Academic achievement is widely used as a common outcome measure in the field of child development. School-based and developmental interventions very often target improvement in academic achievement as a main indicator of success, as academic achievement is widely suggested to be an indicator for future success, both academic and otherwise. Research has outlined the direct correlation between academic achievement and many other outcomes of positive development, such as likelihood of college enrollment, quality of future education, prospective careers, and even a decrease in delinquent behavior. In sum, research suggests that academic achievement is strongly related to overall positive development.

In establishing a need for intervention, a student's individual academic achievement scores are compared to the standard scores, both within the school and state or nation-wide, to determine if a student has acquired the academic skills typical of their developmental cohort. In addition, academic achievement scores are often used in conjunction with intelligence testing to determine the presence of a learning disability.

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Academic Delay of Gratification

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Synonyms

Delay of gratification; Reward discounting; Self-control; Self-regulation

Definition

Academic delay of gratification refers to students' postponement of immediately available opportunities to satisfy impulses in favor of pursuing important academic rewards or goals that are temporally remote but ostensibly more valuable.

Description

Bembenutty and Karabenick [4, 5] develop the concept of academic delay of gratification to apply the general construct of delay of gratification to learning contexts. This theoretical approach extends the work of Mischel [6] on delay gratification. Bembenutty and Karabenick [4] demonstrated extensive associations between academic delay of gratification and students' achievement motivation tendencies and use of learning strategies with a scale specifically designed to assess students' tendencies to delay gratification in an academic context (academic delay of gratification scale – ADOGS; [4]). Students reporting greater preference to delay of gratification in an academic context reported also high academic motivation (e.g., higher in self-efficacy and intrinsic interest in learning). They are more likely to use cognitive (e.g., critical thinking, elaboration, organization, and rehearsal), metacognitive, and resource management strategies (e.g., effort management, time and study environmental control, and help seeking). Students' amount of time dedicated to study and the effective structuring of their study environment, as well as their efforts to persist on tasks are directly related to academic delay of gratification. Further, students more likely to delay gratification also reported higher levels of persistence when tasks were less interesting or more difficult [1].

Students' preferences for academic delay gratification are related to self-regulatory processes considered essential to academic success [7]. Self-regulation is an essential component of development. Individuals use diverse strategies to facilitate the implementation of intentions and goals. These strategies may be especially important when alternatives to studying become available. When individuals experience internal or external distraction from enacting intentions, such self-regulatory strategies as selective attention and the control of encoding, motivation, emotion, the environment, and information processing are assumed to help them remain task focused. An example of the relevance of control strategies for delay of gratification is the selective attention that children employ to avoid visual contact with attractive alternatives to the delayed reward [6]. Similarly, the studying student could avoid thinking about the positive consequences of attending the party and, using motivational control, focus on the negative consequences of not studying for the impending exam. Students who delay are also more likely to have available and use self-regulated learning strategies.

Motivational analyses of academic delay of gratification include such factors as the relevance, value, and expectancy for immediate reward versus delayed reward options. Bembenutty [3] found that willingness to delay gratification depends on an individual's expectancies, beliefs, goals, and values. Expectancy and value influence the decisions that learners will make regarding stay home

studying for a test or going out to have fun with their friend even when the homework may not be completed. The expectancy and value placed on the delay task as well as on the nondelay alternative will determine the feasibility of attaining a delayed reward. Students' preference for academic delay of gratification is a function of their expected value of alternative courses of action. Whether the student delays gratification (in order to study) would depend on the likelihood of successful exam performance given that she studies, compared to that of attending the party, and the degree of interest, utility, importance and cost of these alternatives [2].

Relevance to Childhood Development

Children's preference for academic delay of gratification is an essential component of their development and maturity. To be responsible members of the society, children need to acquire the skills and willingness to postpone immediate available reward that are temporarily available but which are less desirable. Learning to prioritize between what is more valuable and conducive to reach long-term goals is a desirable social element that parents and teachers could instill on children. Children needs to learn the necessary self-regulatory skills to learn academic materials, but they also need to develop the ability to engage in goal setting, selecting strategies, monitor goal attainment, engage in effort regulation, time management, and self-evaluation in order to reach their academic potentials. Longitudinal studies have shown that children's ability to delay gratification positively predict adult's self-regulatory competencies.

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Academic Problem-Solving Skills

▶Analytic Intelligence

Academic Readiness

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Synonyms

Learning readiness; School readiness

Definition

Academic readiness is an estimate, based on qualitative and/or quantitative information, about whether a preschool child is ready to handle the various demands of the structured educational environment.

Description

There is no universal definition for academic readiness. Many kindergarten teachers, parents, and early childcare providers believe that academic readiness involves being "healthy, well-fed, and well rested; being able to express their needs, wants, and thoughts; and being enthusiastic and curious about new activities" [10, p. 23]. According to Buntaine and Costenbader [4], developmental age, which is the rate through which a child progresses through developmental stages, is the most commonly used method of assessing academic readiness. Still others believe a more effective way of predicting later academic success is through using psychometrically sound empirical tests which measure specific cognitive, pre-academic, and emotional regulation skills [1]. The Phelps Kindergarten Readiness Scale (PKRS, [9]), for example, measures domain-specific areas which are predictive of later academic achievement [1]. Specifically, the PKRS measures Verbal Processing, Perceptual Reasoning, and Auditory Processing. The Brigance Inventory of Early Development-II (IED-II) is a measure of school readiness which measures skills in motor, language, academic, daily living, and social-emotional domains [3]. The motor section consists of fine motor and gross motor functioning, the language section consists of receptive and expressive language areas, the academic section has a general/cognitive section as well as a prereading/reading section, and the daily living section consists of a self-help and

a prevocational section. All these skills are considered important in terms of success in academic learning environments.

Some believe academic readiness is an ecological construct dependent on a complex combination of a child's skills, their kindergarten teacher, the relationship between the child's family and the school, and the school system [1]. Johnson-Fedoruk [6] believes that even among school readiness assessment tools which are empirically validated, these tools do not consider the various complex "interactions and peculiarities" which occur inside the actual classroom, and therefore even these empirically driven tests may lack validity (p. 2). According to Johnson-Fedoruk, the child's behaviors inside the classroom, and their relationship with their teacher, are the "most obvious attributes" which make a child most prone to academic failure (p. 2). Therefore, although empirically driven tests measure specific skills within domains which are known to be predictive of later academic success, these tests may not have actual predictive validity when it comes to the real classroom. Rather, Johnson-Fedoruk believes school readiness tests should consider variables such as "student behavior, familiar structure, ESL status, age, and personality," which are more predictive of academic success (p. 4).

McClelland and colleagues [8] believe that behavioral functioning is an important factor to consider in school readiness. Children are expected to master specific behaviors before they enter kindergarten, as commonly outlined by early learning standards [7]. For example, when going from preschool to kindergarten, children must be able pay attention, follow instructions, and refrain from engaging in inappropriate behaviors [8, p. 947]. When children control their impulsive behaviors and pay attention, they are better able to perform classroom appropriate behaviors, such as following instructions and completing tasks. According to McClelland and colleagues [8], children in prekindergarten who display higher levels of behavioral regulation also display higher levels of "emergent literacy, vocabulary, and math" (p. 955). Moreover, attention, working memory, inhibitory control, and social-emotional competence were predictive of literacy and math skills from Kindergarten to Grade 6 and predictive of growth in literacy and math skills from Kindergarten to Grade 2. On the other hand, kindergarten children who are rated by their teachers as being disruptive and aggressive are also more likely to be considered at risk for academic failure [7]. Not only are these disruptive children more likely to underachieve academically and score lower on standardized cognitive achievement tests, but they are also more likely to be rejected by their peers [8]. Evidently, students who lack these learning-related skills are at risk for performing poorly in all areas of school performance.

Competence in the use of language is an indicator of academic readiness as well [5]. The Bayley Scales of Infant and Toddler Development: Third Edition [2] as well as the Brigance IED-II [3] both measure expressive and receptive language. Children's success in school depends on their child's ability to verbally communicate with their teachers and peers. Receptive language, which is the ability to comprehend verbal information, is related to the ability to understand directions from teachers. Even the ability to tell stories, which is a form of expressive language, can be used as a measure of school readiness [5]. Narratives reflect how the child conceptualizes their current situation, which is indicative of their level of cognitive and language development. Children who are unable to tell stories in a clear and coherent manner are at risk for development difficulties. These deficiencies in language and intellectual functioning may be exposed in the classroom as difficulties in following and participating in routines, poor early academic performance, and poor social interactions with peers and/or teachers. Furthermore, children who engage in numerous literacy activities in preschool produce higher quality narratives than children who did not engage in such activities [5]. Kindergarten curricula have become increasingly academic, with stronger emphases on literacy skills. Due to this trend, more preschool children are being labeled as academically "unready" to enter the educational world, and are being placed in prekindergarten transitional programs. As a result of this dilemma, some experts argue that kindergarten should be less focused on global academic goals instruction, and instead provide individualized developmental programs within the regular classrooms [4].

Social-emotional skills, such as "self-control, self-concept, social competence, initiative and curiosity, and persistence and reflection" are also important for academic readiness and later academic success [7, p. 38]. According to Logue [7] preschool children should demonstrate the ability to contribute to the overall effort of the group, demonstrate respect and fairness to others, and display effective interpersonal communication skills (p. 40). Many states now have preschool curriculums which teach these social and emotional skills in addition to the academic skills which are taught. For example, the Maine Early Childhood Learning Guidelines are based on the assumption that children will do better academically when they have the "social skills and behavior that enable them to develop meaningful relationships with adults and peers" [7, p. 38]. Without having these appropriate social skills, children miss out on the academic skills being

taught, especially if these children are being removed from the classroom for behavior problems.

Preschool children who come from impoverished home and neighborhood environments are often labeled "unready" for preschool and/or kindergarten. Often these children present with health, behavior, and social problems, which subsequently lead to academic difficulties. In terms of behavior regulation, children who come from chaotic and disorganized home environments have difficulty matching their behavior and temperament to the highly structured environment of the classroom [5]. Children with low socioeconomic status (SES) backgrounds are also less likely to receive adequate verbal stimulation and/or proper materials to play with than their more affluent peers. Children who do not receive adequate verbal stimulation in the home tend to have difficulties functioning at age appropriate levels in "receptive and expressive language, reading ability, and math achievement," which are all important skills later on in school [5, p. 281]. Children who face these multiple risk factors also show lower levels of executive functioning skills, as indicated by lower scores on standardized cognitive achievement tests which purport to measure aspects of executive functioning, such as working memory [8]. These low scores on intelligence tests can be attributed back to the fact that children with low SES are less likely to have quality verbal interactions with their primary caregivers and/or less likely to have intellectually stimulating toys to play with, as mentioned earlier. For example, lack of verbal stimulation from their parent(s) may affect the child's performance on tests measuring Verbal Processing and lack of exposure to proper play materials, such as puzzles, may affect performance on tests measuring Perceptual Reasoning.

Parents have the choice of sending their child to daycare and/or preschool. Day cares tend to focus more on social and behavioral development, as they provide activities such as art, singing, cooking, and gardening; preschools tend to focus more on pre-academic skills. The multiple risk factors which low income children experience are compounded when they receive poor quality daycare. In fact, research has proven that poor quality day care leads to lower intellectual levels and higher behavioral problems, at early and middle childhood, among children from lower socioeconomic groups [5]. According to Logue [7], poor quality preschool programs not only neglect to teach appropriate preacademic, social/emotional, and behavior skills, but actually reinforce negative social behaviors which lead to poor social adjustment and poor academic performance. Conversely, higher quality day care has been shown to lead to higher levels of intellectual functioning and social-emotional development, and lower levels of behavior problems amongst its students [5]. This is especially true for at-risk children who come from impoverished home environments and attend high quality day care facilities [7]. In fact, high quality daycare has been shown to be a protective factor which contributes to the resilience of at-risk children. Unfortunately, disadvantaged children are far less likely to receive quality child care than children from higher SES groups as their parents cannot afford to send them to such programs. In light of the fact that high quality day cares produce positive results and poor quality day care produces negative results amongst at-risk preschoolers, many states are adopting standards for early education [7]. Early child care programs should attempt to increase the overall competence of the child, and increase the amount of support in their lives. For example, the Maine Early Childhood Learning Guidelines requires preschools to address skills related to social development, the learning of literacy, math, science, social studies, health, physical education, and creative arts. The quality of preschool child care is dependent upon the training the child's educator receives and the quality of social interactions the child and educator have with each other [5]. In fact, early childhood teachers should be trained to foster social and emotional development in their students [7].

According to Buntaine and Costenbader [4], nearly half of all children entering kindergarten are at risk of future academic failure because they are not developmentally mature enough for structured classroom instruction. Members of the Gesell Institute believe that learning disabilities, emotional disturbance, and underachievement are due to developmentally immature children being expected to perform at levels outside of their abilities (p. 41). Children in kindergarten or preschool who are believed to be unready for the next level of instruction either stay home an additional year before entering kindergarten, attend a prekindergarten program, spend 2 years in kindergarten, or attend a prefirst grade class after kindergarten. Those who advocate for holding children back a year argue that doing so is a preventive technique aimed at avoiding academic failure before it can occur. They believe that spending an additional year in a learning environment which is less demanding allows a child to become ready for the next level of education. This hypothesis, however, has not been supported by research. In fact, the majority of "prefirst" programs have not been shown to produce significant

advantages in the later academic performance. Studies have found that children who attended "prefirst" programs did not outperform their non-retained counterparts in Grade 1 in areas such as math achievement, social maturity, self-concept, and attention. Additionally, it has been shown that students who waited an extra year between kindergarten and first grade did not perform better academically in Grade 3 compared to their peers who were not held back a year. Students who have been held back a grade also have higher rates of social/emotional problems and significantly higher drop rates compared to their non-retained peers [4]. Plevyak and Morris [10] stress that students who are older than the majority of their peers are more likely to engage in high risk sexual behaviors and use alcohol and cigarettes (p. 24). Therefore, the practice of holding preschool children back a year before entering kindergarten is questionable.

Relevance to Childhood Development

Academic readiness depends on a multitude of child characteristics including pre-academic skills, language competency, behavior regulation, social-emotional development, and the level of development enrichment in earlier home and other care environments. A child's level of functioning in any of these areas will contribute significantly to their later achievement in the actual classroom. Unfortunately, children who come from impoverished environments are at-risk for being underdeveloped in one or more of these areas. Research indicates children who seem to be developmentally unready for the next level of education should not be held back a year, but rather, they should have individualized plans which cater to their strengths and needs.

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Acceptability

►Social Validity

Acceptance and Commitment Therapy

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Synonyms

ACT (pronounced as one word rather than as individual letters (e.g., "ACT" not "A-C-T"))

Definition

Acceptance and commitment therapy is a third-wave behavioral psychotherapy based on relational frame theory (RFT), a comprehensive behavioral account of language and cognition, whose primary treatment goal is to increase psychological flexibility.

Description

Relational Frame Theory

A comprehensive account of language and cognition from a behavior analytic perspective has emerged: RFT [6]. Several dozen studies have tested the tenants of the theory (see [6] for a comprehensive review), which in brief claims that human beings learn at an early age to derive bidirectional relations among events in certain contexts and

to alter the functions of events due to these relations. For example, a young child may learn that "cat" is the same as "C-A-T" and a small furry animal. With these two trained relations, (a) all bidirectional relations among these three events will probably be derived without explicit training (e.g., "C-A-T"=a small furry animal), and (b) the functions of each related event will alter those of the others. For example, if that child is now scratched by this small furry animal, fear may be shown when the child hears "oh, there's a cat," even though the oral name and aversive events have never occurred together.

RFT leads to important implications for the understanding of language and cognition and thus for psychotherapy. It helps explain why core beliefs or "schemas" tend to be resistant to change, for example, or why suppression and avoidance of thoughts, feelings, memories, bodily states and other private events are both likely to be counterproductive. It also suggests a number of alternatives to currently popular psychotherapy methods: instead of trying to alter negative thoughts, for example, and thus elaborating an already troublesome cognitive network, one might alter the contexts in which these thoughts have behavior regulatory functions. Empirical RFT literature suggests that direct attempts to challenge cognitions may be ineffective or counterproductive [6].

Acceptance and Commitment Therapy

Overview

The Acceptance and Commitment Therapist's main goal is to alter the social/verbal context in which negative private experiences relate to destructive forms of overt behavior [9]. Altering the context is effective because the disruption of the context shows the client that such relationships between stimuli are just talk rather than prescribed realities. In addition, adding more constructive relations to problematic relational networks is more effective than trying to eliminate existing relations.

The goal of altering the context is accomplished in three ways: (a) by reducing experiential avoidance; (b) by reducing excessive literality; and (c) by helping people make and keep commitments to behavior change.

Experiential avoidance is the tendency to attempt to alter the form, frequency, or situational sensitivity of private events (e.g., painful thoughts) even when doing so interferes with valued actions. A vast literature (see [10]) shows that experiential avoidance is among the more pathological psychological processes known to psychology. Yet this process seems virtually ubiquitous [9]. In ACT, the agenda of attempting to control or eliminate negative private events are not viewed as the solution to psychological suffering, but rather they are viewed as a core feature of psychological suffering. They are the problem because attempts to control private events are often unsuccessful, counterproductive, and invalidating [9]. They are also unnecessary. Instead of altering the form of private events (e.g., changing an irrational thought to a more rational alternative), ACT therapists seek to alter the social/verbal context. This is preferred because attempting to control private events is often ineffective and because altering the context is effective in allowing clients to embrace their fear.

Thoughts and feelings emerge from a person's unique history. When a deliberate attempt is made to control these events as a means of behavior regulation, one's history immediately becomes "the enemy." Histories do not change, however, except by the addition of new features. For example, a history of sexual abuse may lead to feelings of vulnerability and a fear of intimacy. A person desiring close, committed relationships may attempt to reduce these feelings so that relationships are possible, but some degree of vulnerability and fear is a natural result of such a history. Unable to make time go backwards, the person may dissociate, drink, or use drugs to "get through" the fear, but this only makes the fear more important, and more linked to overt behavior, while it also reduces closeness – the very goal of relating with others. Furthermore, if fear is something one must not have then fear is something to be afraid of and to focus on – as a result the fear only increases. This provides a concrete example of the reasons why emotional avoidance is likely to be unsuccessful, counterproductive, and invalidating.

In ACT, clients are taught instead to embrace their fear, to defuse from their thoughts, and to focus instead on valued actions that will create a meaningful human life.

Scores of techniques are used, but a few examples can be given. Clients may be asked to say fearsome words (e.g., "I'm bad") out loud rapidly until all verbal meaning is momentarily lost and only the sounds remain. Clients may be asked to watch their own thoughts float by like leaves on a stream, leaving a psychological distance between the person who is aware of these thoughts and the literal thoughts themselves. Clients may be asked to deliberately produce painful emotions in a context of dispassionate observation of their experiential features: where they begin and end in one's body, what words are triggered by them, what memories pop up in association with them, what behavioral urges emerge when they are contacted, and so on. Clients may be asked to label their own ongoing behavioral streams with such phrases as "now I am having the feeling of anger" rather than "I am angry" or "now

I am having the thought that I am bad" rather than "I'm bad." The client may be asked to say negative thoughts very, very slowly, or to sing them, or to say them in a funny voice (see [8] and [9] for more therapeutic techniques).

The purpose of such methods is to reduce the literal importance of thought, but without a direct, literal challenge to thought, and to replace emotional avoidance with acceptance and open exploration. In so doing, the automatic effects of one's history are an interesting focus of observation, not a focus of deliberate change needed in order to produce new behavior. Metaphorically, private events are the exhaust of life, not the engine or steering wheel.

Once this shift has occurred, the focus of ACT shifts to values and overt action. Once one need not accomplish the difficult job of first altering one's insides before beginning to live a valued life, clinical attention can turn to living a valued life itself. Values clarification exercises help focus the client on the life he or she would choose to live if they had a choice. Specific behavioral commitments and exercises then create new behaviors that move in that valued direction, all the while watching for thoughts and feelings that heretofore would have been barriers to movement and now are instead to be accepted and experienced.

ACT is not unique in promoting acceptance. Several traditional methods (e.g., Gestalt therapy) have done so. What is unique is that (a) a scientifically viable theory of language and cognition is now driving and coordinating acceptance based interventions into a new and more coherent whole, and (b) these methods are entering into empirical clinical work, based on clinical manuals and careful experimental research.

The impact of these methods can be significant as controlled empirical work shows that ACT can have a significant impact on many forms of psychopathology (see [7] for a recent review).

The Hexaflex

The ACT therapist directly targets empirically supported processes of change that are grouped into two general categories: mindfulness and acceptance processes and commitment and behavior-change processes. Together, these two groups of processes foster psychological flexibility.

The mindfulness and acceptance processes consist of contact with the present moment, acceptance, defusion, and self-as-context. Contact with the present moment is defined as consciously experiencing internal and external events as they are occurring. Acceptance refers to a behavior, rather than an attitude, of actively embracing feared private events. Acceptance does not mean "white knuckling" or resignation, but rather truly opening up to experiencing what one experiences when one experiences it. Defusion involves experiencing one's thoughts simply as thoughts rather than their referents. Finally, self-as-context is perhaps best understood in contrast to two other common senses of self: the conceptualized self and the self as process of ongoing self-awareness. The conceptualized self is the sense of self one experiences when one experiences oneself as a collection of verbal categorizations (e.g., I'm shy, tall, Caucasian, nice, smart, etc.) whereas the self as process of ongoing self-awareness is conscious awareness of present experiences with mere description and explicitly without judgment (e.g., I'm having the thought that I'm nice). Self-as-context involves ongoing self-awareness with the added awareness of the locus from which one observes one's private experiences (i.e., I/here/now).

The behavior-change processes also consist of contact with the present moment and self-as-context, but include the additional processes of values and committed action. Values are life domains we choose to pursue on a moment by moment basis. They are more like directions in that one can never achieve a value in the way that one can achieve a goal. For example, one may value being a loving spouse, and no matter where one is with respect to this value one can always be more loving. Values are also not feelings. Committed action involves acting toward concrete goals, which are generated based on idiosyncratic valued directions, while simultaneously attending to the other processes of change. Committed action is aimed at achieving larger and larger patterns of effective behavior.

ACT with Children

Empirical work on ACT with children is still in it's infancy, and although several are underway no randomized trials of ACT have yet appeared with children or adolescents. A book-length description of acceptance-based methods for child and adolescent psychopathology recently appeared [4] which summarizes some of this early work.

One empirical reason to believe that the extension of this work to children is warranted is that measures of ACT processes in child and adolescent populations operate very similarly to those in the adult population. For example, age appropriate measures of psychological inflexibility have found positive correlations with measures of child internalizing symptoms and externalizing behavior problems, and a negative correlation with quality of life [5].

A second reason is that early trials have been quite supportive. For example, in an open trial with a group of 14 adolescents with idiopathic chronic pain Wicksell, Melin, and Olsson [13] found improvements follow ACT

in functional ability, school attendance, catastrophizing, pain intensity, and pain interference. These gains were retained at a 3- and 6-month follow-up. Additionally, a small randomized controlled trial [12] compared a brief ACT intervention to multidisciplinary treatment plus amitriptyline for chronic pediatric pain. The ACT group showed substantial and enduring improvement and when follow-up assessments were included the ACT group performed significantly better on perceived functional ability in relation to pain, pain intensity and pain related discomfort.

Parental experiential avoidance has also been examined. The impact of parental experiential avoidance on children's emotional development and behavior has been demonstrated [3] as has it's impact on parenting effectiveness [1]. Parental and child outcomes have been improved as changes in parental mindfulness processes occur [2, 11].

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Suggested Readings

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Hayes, S. C., & Strosahl, K. D. (Eds.). (2004). *A practical guide to acceptance and commitment therapy.* New York: Springer.

Suggested Resources

Association for Contextual Behavioral Science www.contextualpsychology.org

Accommodation

▶Adjustment

Accommodations, Classroom

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Synonyms

Classroom modifications

Definition

Classroom accommodations are adjustments made in the classroom that allow students with special needs to participate in regular education. These accommodations remove the barriers that would otherwise impede a child's ability to participate due to the nature of the disability. Accommodations and modifications are often used interchangeably. However, they have slightly different connotations. Modifications alter the nature of the

classroom including standards and expectations. Accommodations remove barriers without altering what is expected and being measured.

Description

Who are These Accommodations for?

For students who have disabilities and meet criteria for an individualized education plan (IEP) under The Individuals with Disabilities Improvement Act of 2004 (IDEIA) typically have accommodations written in the IEP. These are individualized accommodations that have been identified as being essential in educating the particular student. For students who do not meet the requirements for classification but still have a disability are covered by Federal law under Section 504 of the Rehabilitation Act of 1973 and can have classroom accommodations written into their 504 plan. Classroom accommodations are individualized based upon the specific disability and needs of the student [3].

What are some of the more Typical Accommodations and how do they Look?

There are accommodations used for making the classroom and school environment accessible for those with physical disabilities. Computers, technology, ramps, and elevators are some accommodations used to allow these students equal access to education. For example, voice recognition software may be used for a student with limited use of his hands.

Accommodations for students with visual or hearing impairments can include Braille, sign language interpreter, computer software, or large print [2].

Accommodations for students with learning disabilities often include testing accommodations such as extra time, the use of a computer, the use of a word processor, the use of a calculator, being allowed to record answers, and having directions and questions read [1].

Accommodations for students with health impairments may include being allowed to eat and drink during class and frequent rest breaks.

Other accommodations that can be used for students with various disabilities include being allowed extended time to complete assignments, breaking down assignments into manageable parts, and giving a student a second set of textbooks to keep at home [4].

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Additional Resources

Bateman, B., & Herr, C. (2006). *Writing measureable IEP goals and objectives*. Verona, WI: Attainment Publication.
Siegel, L. M. (2007). *The complete IEP guide: How to advocate for your special ed child* (5th ed.). San Francisco: Nolo Publication.
Classroom interventions for children with ADD & learning disabilities. http://www.childdevelopmentinfo.com/learning/teacher.shtml

Learning Disabilities Resource

www.ldonline.org

Accommodations and Modifications Law

http://www.wrightslaw.com/links/free_pubs.htm

Accommodations, Piagetian

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Synonyms

Adaptation; Adjustment; Change; Modification

Definition

A term coined by Jean Piaget; a cognitive process that involves developing or changing a schema (i.e., mental representation) to fit information encountered in the environment [1].

Description

Jean Piaget's theory of cognitive development includes the concept of accommodation. This cognitive process involves the development and alteration of mental representations, schemas, as individuals encounter new situations. It is the process by which we learn and develop our cognitive abilities. Accommodation, unlike the process of assimilation, requires a great deal of mental energy, thus individuals typically prefer to assimilate (i.e., a cognitive process that involves encountering something in the

environment that fits into an existing mental representation, or schema) more than they accommodate [1].

Relevance to Childhood Development

Children prefer routine in their environment so that they are able to assimilate information that they encounter. When put into a new situation, some children take longer to accommodate to the new environment. For example, when taking young children to a restaurant for the first time, they may have to accommodate their behavior (e.g., lowered voice, staying in their seat, etc.) to fit the expectations of the environment. They are accommodating the information, and as caregivers will attest, some children do it more quickly than others.

Another example of accommodation involves family separation. Some children face separation from family members (due to divorce, military service, relocation, etc.) and are forced to accommodate this information into their schema for daily life. The accommodation process may take children awhile as they seek to understand the change in their environment. Experts typically recommend that caregivers keep children's routine as normal as possible as they deal with this type of separation. Piaget would explain that by keeping their routine normal, you are providing more opportunities for assimilation, so that they are able to use some of their mental energy to accommodate the separation.

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Acculturation

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Synonyms

Adaptation; Assimilation; Cultural transmission

Definition

The term acculturation, used in social science research, was first proposed and defined as a "phenomena which results when groups of individuals having different cultures come into continuous first-hand contact, with subsequent changes in the original culture patterns of either or both groups" by anthropologists Redfield et al. [9].

Description

Acculturation refers to the process whereby the attitudes and behaviors of people from one culture changes when they interact with the people of another culture, typically the dominant or host culture. It is generally accepted that there will be mingling of both cultures as each culture interact and changes one another to a certain degree. Assimilation on the other hand refers to the process where the minority culture will be absorbed into the dominant culture until people of the minority culture adopts the dominant culture completely. Acculturation focuses on the group level rather than at the individual level.

Another term – psychological acculturation, which is termed by Graves [3], refers to the effects of acculturation at the individual level of study. Two dimensions exist at the individual level – behaviors and values. Behavioral dimensions of acculturation involves the choice of language use and participation in cultural activities while values dimensions involves the relational style, person-nature relationships, beliefs about human nature, and time orientation. It is common to observe faster behavioral changes to fit in with the dominant culture within one generation while values changes are slower and occurs across different generational level.

Two model of acculturation exists to explain how groups acculturate. The linear or unidimensional model suggests that acculturation occurs on a continuum where the group either holds strongly to the original culture or adopts the dominant (host) culture. The bidimensional model on the other hand suggests that groups can vary on the continuum of how strongly they hold on to the original culture and simultaneously vary on the continuum of how strongly they adopt the dominant (host) culture. Berry [1] suggests that there are four possible outcomes of the bidimensional acculturation model – assimilation (involves the adoption of the dominant culture completely), integration (involves the synthesis of both cultures), rejection (involves the rejection of the dominant culture), and marginalization (involves the rejection of both original and new culture). While this fourfold model of possible outcomes of acculturation are appealing, other researchers have call this into question (see Rudmin [10] for further reading).

Psychological acculturation is an important construct for physical and mental health professionals because it allows researchers and providers alike to understand the extent to which the minority individual may be receptive to the treatment goals and plan that may be developed for the dominant culture (White, middle class Americans for the most part). To this end, researchers, to understand

better the acculturation process of the ethnic minority individuals, have developed many psychological acculturation measures. Most of these measures were developed with specific ethnic groups in mind, which limit the generalizability of any one instrument across different cultural groups.

Relevance to Childhood Development

The large number of first generation Asian American and Hispanic/Latino/Latina population that are in the United States currently suggests that they may experience psychological acculturation that may influence their mental and physical well-being. First generation ethnic minorities that were born in America or at an early age, came to America would have an easier time acculturating to the dominant (host) culture easier and faster compared to those who immigrate here in their adolescence or at a later age.

At the same time, the parents of the child who immigrate to the United States may have a harder time adjusting to the local culture, custom and norms after they had strongly socialized to the original culture, customs and norms of their place of origin. This may results in conflict between the parents and the child whereby the parents may want the child to hold on to their ethnic/racial, country of origin values, and custom while the child may choose to follow the dominant culture values and customs. The pressure of fitting in with their peers, especially for ethnic minority adolescents, to escape ridicule from peers and be more American is a strong motivator to acculturate quickly. Depending on the resolution of the conflict between the parent and child, professional helpers may need to be recruited to help mediate and educate the family about this struggle to fit in with the dominant culture.

A positive resolution of this conflict between holding on to the values and customs of the country of origin or ethnic background and adapting to the dominant culture values and customs will result in an individual who is biculturally competent in negotiating the intricacies of both cultures. Children who are have the opportunity to learn about their own cultural history and values by their parents and community while at home and to be allowed to learn the dominant culture at school will have a better chance to be a biculturally competent individual than their peers who are forced or choose to adopt one culture over the other.

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Accuracy

▶ Validity

Acetylcholine

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Synonyms

Chemical compound; Neurotransmitters

Definition

A neurotransmitter, $C_7H_{17}NO_3$, that is released at the neuromuscular junctions. It has been associated with learning and memory.

Description

Acetylcholine (ACh) is one of the first identified neurotransmitter in the nervous system. Similar to electrical signals, neurotransmitters are the means by which neurons communicate with each other in biological processes, including sleeping, cognition, emotion, memory, hunger, and movement. Neurotransmitter communication is mediated by several mechanisms that either accelerate or decelerate release of neurotransmitter. It has been documented that coexistence of more than one neurotransmitter in a neuron makes it possible to exert multiple effects simultaneously [4].

Acetylcholine is the most studied neurotransmitter because it is released at the readily observable neuromuscular junctions. Typically, ACh is synthesized and stored in synaptic vesicles that are catalyzed by choline acetyltransferase. Once ACh is released, it is binds to receptors, then is degraded and re-synthesized. Acetylcholine is associated various systems in the body, such as with neurons that excite skeletal muscles, neurons in the autonomic nervous system, and the central nervous system [4].

In addition to stimulating muscle-skeletal movement, researchers have documented that Acetylcholine is linked to brain regions that carry out memory and learning. Injections of cholinergic agent enhance the performance of learning and memory in animal and human experiments. For example, it has been observed that the presence of ACh in the hippocampus increases when rats engage in hippocampus-dependent tasks [8]. Furthermore, the release of ACh has a positive correlation with improved task performances [2]. Studies have provided additional evidence that the release of ACh in the amygdale may enhance memory formation. Studies also suggested that decreased ACh might affect learning. For example, intra-amygdala injections of histamine H_3 receptor antagonists not only reduce ACh release but also impede learning [7].

Finally, studies in Dementia of the Alzheimer type offer further verification that Acetylcholine is related to memory. It is observed that there is a massive depletion of ACh and loss of cholinergic projections in the brain [9]. It is hypothesized that ACh boosts the magnitude of visual search and reduce interference [6]. At the neuronal level, ACh has differential effects on the firing of cortical and thalamic neurons [5], as well as inhibition of distracted variables [1].

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Achievement Motivation

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Synonyms

Need for achievement

Definition

Achievement motivation is the need for excellence and significant accomplishment, despite what rewards may be offered after the achievement has been met.

Description

Atkinson and his colleagues formed the concept that achievement motivation stems from two separate needs. One is the motivation to achieve and is related to one's desire to accomplish successful goals and the other is the motive to avoid failure.

Some people may be hesitant to take on the responsibilities of having to accomplish goals or employ in activities

because they are afraid to fail. The motive to avoid failure includes worries about the consequences of failing, self-criticism, and diversion of attention, accelerated heart rate or nervousness, which can all lead to poor performance.

In contrasts, those who feel the need to achieve successful goals are more motivated to persist at goals they know they can accomplish. By doing this, individuals are more likely to avoid running into failure. Most people develop both forms of motivation for achievement. However, achievement behavior is dependent on which need is more dominant.

Individuals high in motive for success are characterized by a tendency to tackle challenging tasks because they have a relatively low motive to avoid failure.

Relevance to Childhood Development

Children can develop high achievement motivation when parents encourage independence in childhood, praise success, and associate achievement with the child's ability and effort.

Recent literature shows that specific tasks, environments, and contexts, influence the development of achievement motivation. In addition, children's need to outperform other students or to avoid negative feedback also influences achievement motivation. As students move up from middle to high school they are expected to accomplish more difficult work while keeping up with their peers. With these expectations, children need to be able to develop the appropriate form of motivation in order to achieve normative success with their peers.

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Achievement Testing

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Definition

Achievement testing refers to the practice of using achievement tests to efficiently measure the amount of knowledge and/or level of academic skills an individual has acquired or mastered through the planned instruction that typically occurs in educational settings [1]. The practice of administering achievement tests may take place in the fields of *school psychology*, *clinical psychology*, and *special education* to assist in assessing academic proficiency or diagnosing *learning disabilities*, as well as in the field of *clinical neuropsychology* to assist in detecting individual strengths and deficits in patients with neuropsychological disorders affecting reading, computation, or writing skills [4].

Description

Achievement testing is a procedure of utilizing standardized achievement test batteries to assess the academic skills and abilities acquired from the process of direct educational instruction or intervention. Standardized achievement tests are characterized by being available from large publishers that have sufficient resources to employ professionals and test developers, by including a fixed set of test items designed to measure a clearly defined subject area across a wide span of age and/or grade levels, and by following specific directions for administering and scoring the tests [2]. The procedure of administering and scoring the tests in a consistent manner to nationally representative groups produces a statistical profile composed of data (test scores) that form norms, which enable comparisons between an individual's test score and a large group of individuals at the same age or grade level who have also taken the test [2, 3].

A useful standardized achievement test battery must actually measure what it claims to measure (validity) and give consistent results over time (reliability). Achievement tests may be designed to comprehensively assess skills in reading (e.g., decoding, fluency, and comprehension), mathematics (e.g., reasoning and computation), writing (e.g., fluency, spelling, and prose writing), and language (e.g., receptive and expressive) within one battery, such as two widely used comprehensive norm-referenced achievement test batteries, the *Woodcock-Johnson III Tests of Achievement* (WJ III ACH) and *Wechsler Individual Achievement Test – Second Edition* (WIAT-II) [3, 4]. Achievement tests also may be developed to assess knowledge/skills only in a specific subject area, such as the *Gray Oral Reading Tests – Fourth Edition* (GORT-4), or to be used as a limited screening battery, such as the *Wide Range Achievement Test*-3 (WRAT-3) [4].

Norm-referenced, standardized achievement tests can be designed for individual or group administration. Individually administered standardized achievement tests are used primarily for evaluating individual students who demonstrate learning difficulty in school, as well as students suspected of needing additional support or special

education services [2]. The tests can be administered by a trained school psychologist, clinical psychologist, neuropsychologist, resource teacher, or psychometrician to an individual student in a quiet, confidential setting. Group administered standardized achievement tests can be developed by large national test publishers or state-level testing programs that are typically administered at least once a year to a large group of students, an entire classroom, or across grade level(s) to assess what students are able to do in specific subject areas including reading, mathematics, written expression, and scholastic subjects such as science and history [2, 5]. Student performance that is less than expected of a specific grade/age level is usually characterized as academic underachievement which may indicate a need for additional instruction and/or intervention. Individually administered tests tend to be more comprehensive, reliable, and valid than group-administered tests. Nonetheless, individually administered tests require more monetary costs to administer because of the limitation of working with just one subject at a time by a trained school psychologist or other professionals.

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Acne

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Synonyms

Blackheads; Pimples; Pustules; Skin inflammation; Whiteheads; Zits

Definition

A skin disease caused by the over activity of the oil (sebaceous) glands resulting in a localized, irritation of the skin at the base of the hair follicles.

Description

The built-up oil than acts as a host to bacteria; thus, creating inflammation of the skin. Types of skin inflammation vary depending on the depth of the blockage. Blockage close to the surface of the skin is a pustule. A papule, commonly known as a pimple, is also near the surface of the skin by a little deeper than a pustule. Cyst is the deepest type of blockage of oil secretion. Skin inflammation can also occur when the oil breaks through the surface of the skin, commonly known as a "whitehead." And, if the "whitehead" becomes oxidized, oil changes from white to black, the result is a "blackhead." The exact cause of the condition is unknown. However, the increase of hormonal levels and heredity are two factors researchers associate to the over activity of oil glands. The condition begins at the age of puberty and decreases or disappears after the early twenties; however, occurrence is not restricted to any specific age range. Areas of the body commonly effected are the face, neck, back, shoulders, and scalp.

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Acquired Autism

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Synonyms

Autism; Autism spectrum disorders; Autistic; Autistic disorder; Enterocolitis; Regression; Regressive autism

Definition

The sudden presence of autism at 18 months of age following typical development.

Description

Acquired autism is distinguished from autistic disorder, a neurodevelopmental disorder present at birth and detected through the observation of delays in language, social, and vestibular development. Acquired autism is observed when a child develops normally and then "regresses" or appears to develop autism around 18 months of age. Children receive the measles, mumps, rubella (MMR) vaccine around this age and a small body of

research suggests the disorder is related to the MMR vaccine. However, a larger set of data suggests no correlation between autism and the MMR vaccine. Many factors, such as bowel problems, are thought to contribute to acquired autism, but the specific mechanisms remain unknown. The prevalence of acquired autism has been found to be between 22 and 50% of autism cases.

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Acquired Epileptic Aphasia

►Childhood Aphasia

Acquired Immune Deficiency Syndrome (AIDS)

►Acquired Immunodeficiency Syndrome

Acquired Immunodeficiency Syndrome

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Synonyms

Acquired immune deficiency syndrome; AIDS; Immunodeficiency syndrome acquired; Immunologic deficiency syndrome acquired

Definition

AIDS stands for acquired immunodeficiency syndrome. AIDS is a viral disease that destroys the body's ability to fight infection.

Description

AIDS is the final stage of the human immunodeficiency virus (HIV) infection. HIV finds and destroys white blood cells (T cells or CD4 cells) that the immune system needs to fight disease. HIV disease is transmitted through blood or semen and occurs in three major ways: through sexual activity if the body fluids become exposed to each other, in intravenous drug use if contaminated needles are shared, and from an infected mother to her baby. The diagnosis of AIDS is made when an individual is infected by the HIV, has a CD4-positive T-lymphocyte count under 200 cells/microliter or less than 14% of total lymphocytes, and increased susceptibility to opportunistic infections and malignant neoplasms [1].

Opportunistic infections are common in individuals with AIDS, targeting areas that include the brain, intestinal tract, lungs, eyes, and other organs [2]. Additional health complications include debilitating weight loss, diarrhea, neurologic conditions, and chronic illnesses such as diabetes, heart disease, and cancers like Kaposi's sarcoma and certain types of lymphomas [2].

In the absence of treatment, data from large epidemiological studies in Western countries indicate that the median time from infection with HIV to the development of AIDS-related symptoms is approximately 10–12 years [3]. However, there can be a wide variation in disease progression. The most efficacious treatment for HIV/AIDS is with antiretroviral drugs that fall into four major classes: Reverse transcriptase (RT) inhibitors; protease inhibitors; entry and fusion inhibitors; and, integrase inhibitors. Combinations of these drugs also are employed and can significantly reduce the presence of the virus. Specifically, using a combination of antiretroviral medications and protease inhibitors commonly referred to as highly active anti-retroviral therapy (HAART) has been found to be effective in prolonging the lives of children and adolescents with HIV. Currently, drug treatment does not cure HIV infection or AIDS. Retroviral drugs can effectively suppress the virus, even to undetectable levels, but the drugs cannot eliminate HIV from the body.

Medical advances in the prevention of mother-to-child transmission are particularly encouraging given that fewer than 300 children annually are born infected with HIV in the United States [6]. However, there are still more than 8,500 previously infected children and youth less than 19 years old living with HIV or AIDS [6]. In addition, over 50% of all new HIV infections occur in individuals under the age of 25 [4].

Almost all HIV-infected young children in the United States get the virus from their mothers before or during birth when proper prenatal care is not obtained.

Adolescents become behaviorally infected with HIV through either sexual activity or drug use. Similar to adults, the most effective treatment for HIV-positive children and adolescents is antiretroviral therapy. Antiretroviral treatment reduces illness and mortality among children living with HIV in much the same way that it does among adults. In the United States, all infants with HIV are started on treatment, regardless of CD4 percentage, clinical status or viral load [5]. Adolescents that are behaviorally infected are monitored and generally begin antiretroviral treatment when they present with a history of an AIDS-defining illness or with a CD4 T-cell count <350 cells/mm [7].

Relevance to Childhood Development

Over the course of a child's life, HIV infection results in detrimental effects on the development of the central nervous system (CNS), impairs psychosocial functioning, and ultimately reduces life expectancy. The ramifications of these risks to successful development may occur at any age, and often vary with disease progression to AIDS.

Compromised development of the CNS in children with HIV infection may result in cognitive, social, and/or emotional delays that can become apparent at varying points in the child's life. These deficits vary from acute or specific functioning problems to global difficulties affecting multiple areas of neurocognitive functioning [8]. Impaired functioning is often observed in areas that include social emotional regulation, visual-spatial and perceptual organization, expressive and receptive language development, and attention. Deficits in functioning can be caused by static encephalopathy or by deterioration of the attained brain development by repeated severe infections (e.g., toxoplasmosis, cytomegalovirus).

Additionally, rapid declines in neurocognitive functioning and motor delays often indicate the disease progression to AIDS due to either the failure of the current medical treatment or nonadherence. Disease progression can lead to greater neurocognitive decline and symptoms consistent with AIDS-related dementia (e.g., cognitive, motor, and behavioral slowing, progressive memory impairments, apathy, and deficits in frontal lobe functions).

Similar to other life threatening chronic illnesses, children living with AIDS may experience feelings of sadness, hopelessness, and intense fears of death [9]. Additional internalizing and externalizing symptoms experienced by children with AIDS include depressive symptoms, adjustment problems, feelings of isolation, fear of rejection, and posttraumatic stress symptoms [11]. Psychological and social challenges also may be the result of physical differences from their peer groups such as wasting, descended stomachs, small stature, or atopic dermatitis. Children with AIDS experience repeated and painful medical procedures, recurring hospitalizations and medical visits, frequent school absences, and disruptions in daily routines. However, for children with AIDS, these stressors may be further complicated by feelings of shame about the disease and social stigma.

Psychosocial problems can often hinder adherence to medical care and overall disease progression [10]. Adherence is a primary challenge for children with HIV and nonadherence is a predictor of when children will progress to the final stage of HIV infection. Nonadherence has major consequences in this population including increased viral load, development of resistance to the primary medications, and death.

The neurological, psychological, and social issues faced by youth with HIV disease are complex, requiring careful and supportive assessment and intervention that take into account all of the above influences. Having counseling resources available or making referral to mental health professionals is an important component of providing comprehensive care to children and adolescents with HIV or AIDS.

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Acquired Knowledge

►Crystallized Intelligence

ACT

►Acceptance and Commitment Therapy

Action

►Behavior
►Gestures

Active Euthanasia

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Synonyms

Assisted suicide; Mercy-killing

Definition

Active euthanasia occurs when one takes active steps to terminate a patient's life, such as administering a lethal dose of medication.

Description

The term euthanasia is derived from the Greek, literally meaning *good death*; *eu* refers to good and *thanatos* refers to death. Active euthanasia refers specifically to the case in which a person's life is ended through a deliberate act, such as the administration of a lethal dosage of a medication. Three types of active euthanasia have been identified. The most common is voluntary active euthanasia in which the person who has a terminal illness asks another person, often a physician, to perform the deliberate, life-ending act. Non-voluntary euthanasia occurs when a person other than the patient acts on the behalf of the patient and asks a third person to perform the deliberate, life-ending act. Lastly, involuntary euthanasia refers to the circumstance in which the patient's death is hastened by a deliberate act without the patient's consent [1].

Active euthanasia that is carried out by a physician is referred to as physician-assisted suicide (PAS). The U.S. Supreme Court has held that there is no constitutional right to PAS [6]. The Court was willing to let the States, not the federal government, regulate PAS. Oregon is currently the only state in the U.S. to have legalized physician assisted suicide. Oregon's Death with Dignity Act is a comprehensive piece of legislation outlining the steps patients and physicians must follow to end the life of a terminally-ill patient. Between 1998 and 2007, 341 Oregon patients have legally ended their lives with prescribed medication [5].

PAS does occur in other countries. For example, in the Netherlands, terminally ill persons have requested and received PAS. In the Netherlands, PAS is permitted when the physician faces an unresolvable conflict between the law, which makes euthanasia illegal, while also facing the responsibility to help a patient whose terminal illness and suffering makes euthanasia necessary [4].

Relevance to Childhood Development

Although the issues surrounding death and death planning may be thought of as affecting older adults more often than younger adults, death and decisions regarding death planning have relevance to all stages of human development. Children may be born with life-threatening conditions or develop terminal illnesses. Parents of such children can face difficult decisions related to the prolonging of life and/or the hastening of death through medical intervention. It has been estimated that approximately 1 in 33 babies born in the United States each year has a physical deformity [2]. Birth defects are a leading cause of infant mortality [3].

In 2002 in the Netherlands, a procedure was developed for the euthanasia of infants. It has been referred to as the Groningen protocol [7]. It requires that there is a joint decision made by physicians, parents and social workers that further medical treatment would be of no use and then a waiting period of several days. During the waiting period, parents may reconsider the decision. After the euthanasia is performed, the records of the case are

submitted to the prosecutor's office for review. Legal prosecution will not occur if the appropriate protocol has been followed. The Groningen protocol remains controversial; however, with the increase in the use of technology that sustains the lives of fragile newborns, the discussion surrounding the care of critical ill children will, no doubt, continue.

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Active Exploration

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Synonyms

Diversive exploration; Epistemic behavior; Inquisitive behavior; Inspective behavior; Specific exploration

Definition

Exploration refers to the act of gathering information about an environment as result of being curious [1]. The discrepant properties of objects and events arouse curiosity (e.g., in the form of a question), and exploratory responses to satisfy this curiosity expose one to information from the environment that was not previously available [5]. By exploring the environment, new information is acquired and learning ensues. After a child becomes curious about an exciting new computer game, for example, her passive exploration might entail merely observing how a peer plays the game; active exploration would involve actually playing the game to learn its properties. In effect, active exploration of an environment is more likely to result in greater knowledge acquisition than passive exploration [2].

Description

Both animals and humans engage in exploration for the purpose of adapting to environmental contingencies. There are many varying perspectives about exploration, with most embracing the notion that it arises as the result of being curious [1]. Human exploration and exploratory behavior have both motivational and developmental implications that can be useful for guiding educational thinking and practice [4].

Epistemic or knowledge-seeking curiosity results in specific exploration for the answer, for instance, to a child's question. Diversive or experience-seeking curiosity results in diversive exploration of sensory properties, like exploring how it would feel to dive for the first time into a body of ice cold water on a hot summer's day. Specific exploration is motivated by a desire to know a specific answer; diversive exploration is motivated by boredom or a desire to experience a new sensation or experience [1]. Active forms of both types of exploration more likely result in knowledge advances versus more passive forms.

A number of major psychological theories embrace active exploration [3]. Ecological, attachment, psychosocial, and Piagetian theory, among others, each embrace exploration as an integral part of its developmental perspective. The thinking in general is that active exploration is vital for learning, healthy human functioning, and development. In an ecological sense (perceptual learning and development), a child must actively explore to learn about the opportunities for action (affordances) in his environment. Moreover, attachment theorists propose that having a strong emotional bond and therefore a secure attachment with a primary caregiver is essential to active exploration and learning in a toddler's environment. From a psychosocial perspective, identity formation among adolescents is a function of actively exploring to find information about oneself in the context of diverging from parental relationships, and instead making new peer associations and experimenting with new roles in such associations. Finally, Piaget's [4] cognitive theory suggests that active exploration of a child's environment leads to information acquisition, knowledge transformation, and eventual mastery of one's environment. In each of the aforementioned developmental perspectives, active exploration leads to greater learning and more favorable development.

Relevance to Childhood Development

Active exploration is one of the cornerstones of child development [4]. Without sufficient opportunities for actively exploring their worlds, children's cognitive, social and emotional, and even physical development may suffer unnecessarily. Designing learning environments in homes, playgrounds, and schools that motivate active specific and diversive exploratory behavior will promote optimal learning and development [3].

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Active Exploration Without Achieving Identity

►Identity Moratorium

Active Learning

►Self-Regulation

Active Listening

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Synonyms

Attentive listening; Reflective technique of mirroring what is spoken

Definition

Active listening entails the listener's involvement in hearing for intellectual and emotional messages. The listening focus is with what the person is saying, while confirming the accuracy of the content and affect of the message.

Description

Active listening involves the intent to listen for meaning, in which the listener checks-in with the speaker to verify a correct understanding of the presented message. The listener's attention is to the process: what is heard and what is implied.

Active listening involves identifying explicit and implicit patterns of communication. Verbal communications are received and reflected along with the underlying expression of feelings in an attempt to understand or explain a core message. Active listening is a learned skill and effort to avoid misunderstandings by paying close attention to a speaker. Active listening can be facilitated by creating an environment conducive to listening by eliminating distractions and remaining aware of internal, and physical limitations such as fatigue that may interfere with the listening exchange.

Active Listening Techniques

Active listening can be used to express empathy by using questions and the following techniques: encouragement, restatements, reflections, and summaries.

- The encouraging prompts may include nodding or saying "I see" or "tell me more."
- Restating responses may offer feedback in line with "it sounds like you did not do very well on your test" or "you forgot your homework" which can be used to mirror facts that have been shared.
- Reflecting responses such as "you seem to feel that you are," or "what I hear you saying is that you are afraid of school," can be used to capture the essence of the feelings expressed.
- Summary responses pull important ideas and facts together and can be used to establish the basis for further discussion or help with review of prior gains.

Relevance to Childhood Development

Active listening is a skill for recognizing and exploring a child's pattern of communication. Without active communication skills, a child's concerns often go unrecognized. By the age of 5, children are aware of their power in listening and being heard. They may be able to

demonstrate their ability to speak and hear yet still have difficulty listening. This can be observed in the following example: complying with detailed directions. Differences in children's ability to listen are developmental and may include: attention disorders, emotional disturbances, prenatal drug exposure, and language proficiency. Listening can also be influenced by physiological auditory acuity (ability to hear), and auditory perception (ability to discriminate among sounds).

In the classroom, active listening is the process of summarizing and relaying feedback to the student about expressed feelings and identified concerns. In group, inviting the children to restate what they have heard another child say functions as practice in active listening. Other active listening activities may be introduced with pausing in the middle of a story and inviting the children to tell what they think has occurred; giving directions and having the children repeat what they have heard. Equally important is value of giving feedback to encourage the children's active listening skill development.

Relevance to Parent–Teacher Relationships

Early childhood programs that promote communication between parents and teachers can help to build a strong working relationship to support home – program collaboration. These communications help early childhood professionals to better understand the parent's perception and expectations of their child in relationship to the school program.

The goal in active listening is to develop an understanding of the parent's concern and to clearly communicate the listener's interest in the parent's message.

Through the use of active listening skills, educational professionals can gain important information with which to work with.

In sum, active listening has been described as a process, which includes making empathetic comments, asking appropriate questions, paraphrasing and summarizing for the purposes of verification.

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Activities of Daily Living

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Synonyms

Self-care behaviors; To participate in regular activity associated with independent living

Definition

Activities completed on a regular basis that involve self-management (examples include: bathing and dressing). Daily living activities entail the person's involvement in personal care of intellectual, physical, psychological, and social needs.

Description

Activities of daily living include routines integral to self-sufficiency [4]. Evaluations of daily living activities generally involve psychological and/or medical determinations to understand the person's ability to care for self on a day-to-day basis. Focus of daily living activities becomes a consideration in the assessment of adaptability to determine cognitive function and self-sustainability.

Intellectual and Physical Daily Living Activities

Daily living activities are developmental and are influenced by intellectual capacity.

During infancy and early childhood, daily activities are moderated and managed externally by care-givers. As normal child development occurs, greater levels of autonomy result in increased daily activities. By the age of 7, activities are expressed in physical self-care, some which include: bathing, dressing, toilet management, eating, and sleeping. It is at school age that daily living activities become a decision consideration in assessing normal development. Decisions about normal as desirable or acceptable are frequently assessed in the child's fulfillment of one's own personal daily living needs [1].

Psychological and Social Daily Living Activities

Psychological and social daily living activities increase with maturation and instruction. As the child recognizes and explores immediate environments, appropriate patterns of social communication are reinforced adding to the child's daily living activity repertoire. Some of these

basic daily living activities include: eating, dressing, speaking and interacting with others. The child learns culturally appropriate emotional, psychological and social behaviors, for example: smiling at a friend, shaking hands when meeting someone for the first time, and excusing self when leaving the table. For the child who begins failing to exhibit the appropriate daily living activities, concern arises. Without the demonstrated psychological, emotional and social daily living activities, the child is placed in a vulnerable position that may lead to mistreatment by others.

By school age, children are aware of their ability to self-manage. Teachers are active participants in modeling and teaching appropriate daily living activities. Children learn that school activities of daily living involve self-control, and self-management. Classroom examples may include: sitting behaviors or waiting to be recognized before speaking. While interactive play may involve conflict management using appropriate language rather than fighting. The children learn to develop the social skills and self-managed behaviors that assist with personal development [3].

Relevance to Parent–Teacher Relationships

Early childhood programs working with parents in partnership with teachers to prepare the child for school daily (life) activities have an advantage. These communications help the child better understand the core values and importance of daily living activities as they apply to home and the school environment [2].

In sum, activities of daily living can be described as those critical skills that address self-care in a variety of setting. The goal in teaching daily living activities is individual self-sufficiency.

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Acute HIV Infection

►Human Immunodeficiency Virus (HIV)

Acute Leukemia

►Leukemia

Acute Lymphocytic Leukemia (ALL)

►Childhood Leukemia

Acute Myelogenous Leukemia (AML)

►Childhood Leukemia

Acute Promyelocytic Leukemia (APL)

►Childhood Leukemia

Adaptability

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Synonyms

Adaptation; Adaptive; Creativity

Definition

Adaptation is a biological process, which modifies cognitive operations and psychological structures in order to respond to environmental demands and interactions [11]. Additionally, an adaptive person is defined as someone who consistently responds in a positive manner during a stressful situation. An adaptive person's choices and behaviors would not augment the stress. Instead, said choices and behavior would alleviate or at least maintain the original level of stress [1].

Description

Piaget has stated that adaptation is "any modification of an assimilatory scheme or structure by the elements it assimilates" [6]. Adaptation is comprised of two opposing processes: *assimilation* and *accommodation*. *Assimilation* is defined as amalgamation of various external various into "into evolving or completed structures of an organism" [6]. Dichotomously in the operation of *accommodation*, the child will then adapt himself or herself into the specifications of his or her reality. The *plasticity* of said modification exists because assimilation exists in a temporal state. "However much the view of reality is shaped into the form of the child's current form of understanding, there is always an aspect that resists the transformation, in that the assimilating scheme must adapt to the exigencies and particularities of reality" (van Geert, 1998).

Plasticity can be defined as the variability of each individual. Said variability is "an indication of the individual's potential for different levels of functioning or development" [8]. Specifically in the case of psychological and cognitive functioning, plasticity refers to the individual's capability to adapt and be flexible in dealing with various changing environmental factors. It also refers to "an individual's potential (or reserve capacity) to learn new things or increase the level or speed of performance" [8].

There is fluidity in adaptability, where the process of assimilation and accommodation becomes a dynamic process [5]. Piaget defines assimilation as "integration into previous structures" [7]. Despite the integration of new understanding, the structures continue to exist, although, modified by the novel integrations [10]. Accommodation is defined as "any modification produced on assimilation schemata by the influence of the environment" [7]. Piaget views assimilation and accommodation as "functional invariants of life" unchanged as the child develops [10]. "There is no need for them to change, since they only supply the rules for how to accomplish certain tasks independently of what the specific tasks happen to be. The way a mathematician solves a problem really is different from the generalization of the infant. Nevertheless, the difference is not in the processes of assimilation and accommodation but in the schemata or structures used and created in those processes" [10].

Relevance to Childhood Development

In order for adaptation to occur, there must be an accompanying environmental factor. In a face of adversity, having positive adaptation can impact, childhood development specifically sociability, resilience, and social competence. All are interconnected and are integrated in a symbiotic relationship [3].

For example, an aspect of social competence is sociability. Sociability is defined as a "tendency to prefer the presence of others to being alone" [9]. Their definition of sociability is not limited to children's engagement towards strangers but to everyone, such as family members, friends and strangers. They found that shyness is a category of the sociability construct, not a contradictory definition of sociability. Children who are unsociable might not be labeled as shy and vice versa. Children's general sociability can "directly predict the child's tendency to behave prosocially in a given situation. In two observational studies of preschool children, the incidence of children's helping behavior in the classroom was positively correlated with the number of social interactions in which they engaged" [9]. Interestingly enough, even though extraverts offer more "active" help towards others, in comparison to introverts, introverts instead offer a complementary level of "passive" help [9]. Active help was described, as more physical task while an example of a passive help would be offering knowledge in order to help others.

Children who exhibit a high degree of social competence also have a correlating high degree of resilience. Resilience occurred when positive adaptation exists despite the experience of considerable amount of stress and adversity. By definition, it is also "encompasses atypical processes, in that positive adaptation is manifested in life circumstances that usually lead to maladjustment" [3]. Because resilience is a product of two factors, it can never be really measured but instead, its existence can be "indirectly inferred based on evidence of the two subsumed constructs" of positive adaptation and exposure to risky environmental factors [3].

Experiencing a positive adaptation can be best described as an "adaptation that is substantially better than what would be expected given exposure to the risk circumstance being studied. In many studies of resilience across diverse risk circumstances, this has been defined in terms of behaviorally manifested social competence or success at getting stage-salient developmental tasks" [3]. In children who are young, being socially competent can be measured by the security of attachment towards the primary caregiver. Children, who are socially competent or exhibit competence, have secure attachments to their primary caregiver [13]. For older socially competent children their positive functioning can be observed in their positive peer and social relationships and positive academic achievements [4, 12].

In summary, a person who is adaptable or who experiences positive adaptation would be better equipped in several aspects of childhood development. When facing risky or difficult circumstances, a person with a positive adaptation would have a substantially better outcome than those who exhibit maladaptive adaptation. He or she would be more resilient, exhibit higher degree of sociability and would be more socially competent [3].

Discussion

Currently there are several studies researching the various aspects of adaptability in order to provide effective preventive and intervention policies for childhood adversity [2]. The study of the adaptive capability of children is a vast, growing and exciting field of development and further exploration will provide important information about the intricacies of childhood development and its subsequent consequences.

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Adaptation

►Accommodations, Piagetian
►Acculturation
►Adaptability
►Adjustment

Adaptive

►Adaptability

Adaptive Behavior

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Synonyms

Self-care; Self-help skills

Definition

Adaptive behavior can be defined in various ways, the simplest being that it is the performance of daily activities required for personal and social sufficiency [8]. Furthermore, it is how individuals are able to cope with common life demands and how well a person meets the standards of personal independence expected of someone in their particular age group, sociocultural background, and community setting. A persons adaptive functioning could be influenced by a variety of factors, including education, motivation, personality characteristics, social and vocational opportunities [2, p. 40]. For those that may have significant limitations in adaptive behavior, these barriers can easily impact their daily life and affect their ability to respond to a particular situation or to the environment [3].

Description

Adaptive behavior can be difficult to define because it is not independent of intelligence and the number of dimensions associated with adaptive behavior is unknown [8]. The DSM-IV identifies ten areas of adaptive functioning, which include: communication, self-care, home living, social skills, use of community resources, self-direction, academic skills, work, leisure, health and safety [5].

According to Sparrow et al. [8], adaptive behavior is the interaction of personal, cognitive, social, and situational variables. However, there are several important principals that are inherent when using this definition of adaptive behavior. The first is that adaptive behavior is age related, in that it increases and becomes more complex as a person gets older. Second, adaptive behavior is defined by the standards of others. For example, those who live, work, and interact with an individual. Third, adaptive behavior is variable because it can become worse or progress depending on changes in the environment, interventions, or other events. Last, adaptive behavior is defined by typical performance, not ability. It is meant to measure what a person actually does day to day, despite their actual ability to do it [8].

The following is a list of the ten areas of adaptive functioning and their definition, as defined by Harrison and Oakland [4]:

1. Communication: Speech, language, and listening skills needed for communication with other people, including vocabulary, conversation skills, etc.
2. Community use: Skills needed for functioning in the community, including use of community resources, shopping skills, etc.
3. Functional academics: Basic reading, writing, mathematics, and other academic skills needed for daily, independent functioning, including telling time, writing notes and letters, etc.
4. School/home living: Skills needed for basic care of a home, living, school and classroom setting, including cleaning, performing chores, etc.
5. Health and safety: Skills needed for protection of health and to respond to illness and injury, including using medicines, showing caution, etc.
6. Leisure: Skills needed for engaging in and planning leisure and recreational activities, including playing with others, following rules in games, etc.
7. Self-care: Skills needed for personal care including eating, dressing, bathing, toileting, etc.
8. Self-direction: Skills needed for independence, responsibility, and self-control, including starting and completing tasks, keeping a schedule, making choices, etc.
9. Social: Skills needed to interact socially and get along with other people, including having friends, showing and recognizing emotions, assisting others, and using manners.
10. Work: Skills needed for successful functioning and holding a part- or full-time job in a work setting, including completing work tasks, working with supervisors, and following a work schedule.

Relevance to Childhood Development

A child's adaptive functioning will change as the child grows older, and must be considered relative to a child's age. What is expected of a child at age 5 will be quite different from what is expected at age 15. It is therefore very important to maintain a developmental sense of adaptive behavior. Children who have mental retardation are defined as having deficits in their adaptive behavior in at least two areas. Depending on the severity of the mental retardation, adaptive skills can be taught to a child, but may need to be done at a very basic level [5].

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Adaptive Behaviour Scales

►Vineland Adaptive Behavior Scale

Adderall

►Stimulant Medications

Adderall (Amphetamine)

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Definition

A brand name amphetamine used in the treatment of attention deficit hyperactivity disorder.

Description

Adderall is a stimulant drug which contains an amphetamine. It is used to improve attention span and decrease impulsivity. It is available in two different types: Adderall IR (instant release) or Adderall XR (extended release). Generally Adderall XR has only been approved for use in the treatment of attention deficit hyperactivity disorder.

Some of the side effects include: increasing appetite, decreasing appetite, headache, stomachache, trouble sleeping, nervousness, and dizziness. As always, only a doctor can determine if adderall is appropriate for a child to take.

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Adderall/Adderall XR (Mixture with Other Amphetamines)

►Dextroamphetamine (Dexedrine, Dextrostat)

Addiction

►Chemical Dependency

Addictive Drugs

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Synonyms

(Superfluous.)

Definition

A drug which, due to its desired, pleasurable effects, has the ability to cause physical and/or psychological dependence to its user. Via the mechanism of positive reinforcement, addiction can develop.

Description

For a drug to be considered addictive, many different factors, both physical and psychological, must be assessed. An educated conclusion can be reached after medical and scientific evaluation, traditionally involving:

1. An assessment of the risk of physical harm: What level of physical harm (if any) is the user placed in, as a result of their use of the drug?

This assessment involves, for example, such varied risks as that of a intravenous drug user contracting dangerous communicable diseases (e.g., HIV, hepatitis C, etc.) through sharing needles; the physical risks of overdose (e.g., severe central nervous system depression); and the relative threshold of how much drug causes an overdose: is a lethal amount of the drug easily obtained, or extremely difficult to obtain? Is a lethal amount 10 pills or 10,000?

2. An assessment of the risk of physical and/or psychological dependence. e.g., What is the likelihood of physical and/or psychological dependence on the drug? Put in other words, does this drug induce feelings of pleasure? If so, how intense are these pleasurable feelings? Is it possible for a habitual user to completely stop their use with no adverse reactions?
3. An assessment of possible social and societal harm. e.g., How does a person's use of this drug affect

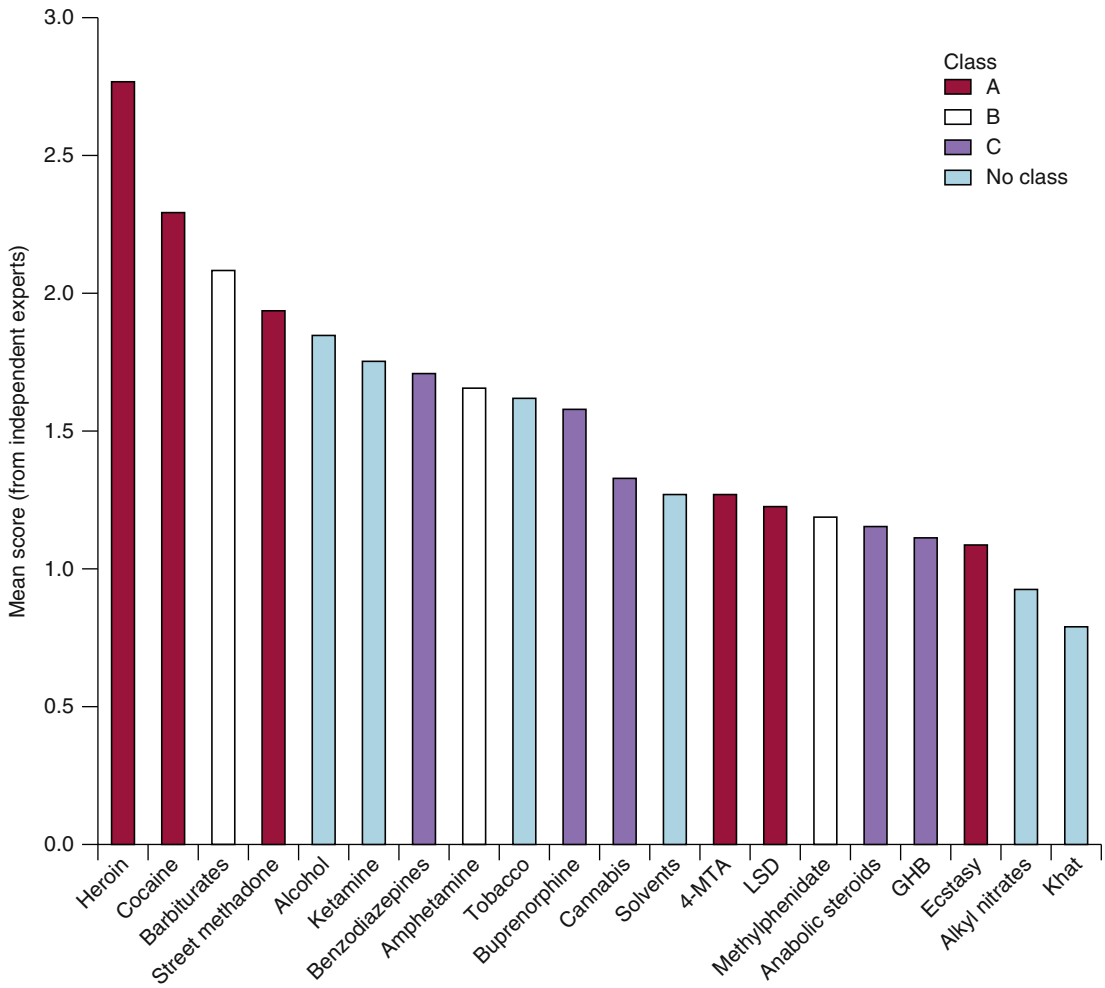
society? Is the highest foreseeable cost to society only a minor nuisance, or a serious and grievous threat to the lives of other members of society? Is it foreseeable that this drug will influence society's health-care costs? If so, will it reduce or raise overall health-related financial expenditures? [1]

[Preceding conditions adapted from Nutt et al.]

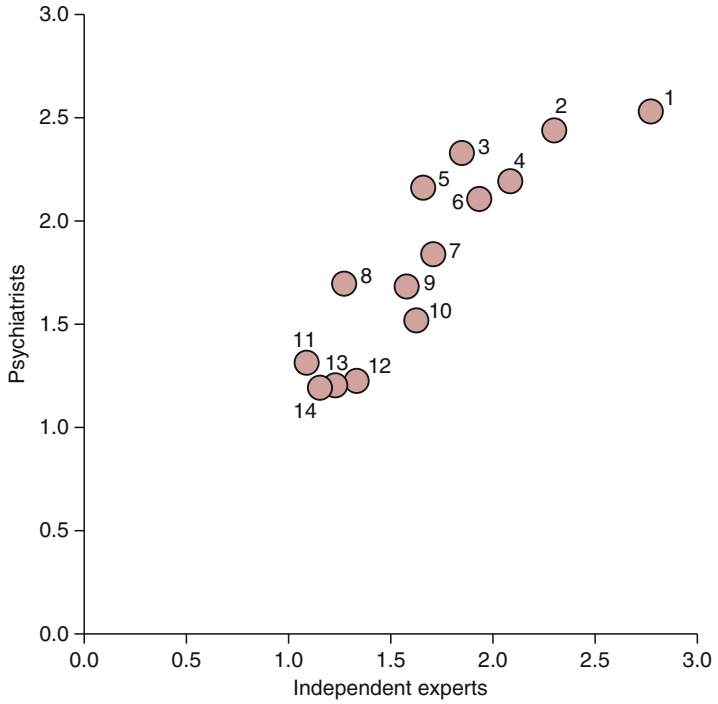
The United States National Institute on Drug Abuse (NIDA) separates "commonly abused drugs" and "drugs of abuse" into the following categories (Figs. 1 and 2):

Alcohol
Nicotine
Cannabinoids, including marijuana and hashish
Depressants, encompassing barbiturates, benzodiazepines, GHB, methaqualone
Dissociative Anesthetics: ketamine, PCP
Hallucinogens: LSD, mescaline, psilocybin
Opioids and Morphine Derivatives: codeine, fentanyl, heroin, morphine, opium, oxycodone (OxyContin), hydrocodone (Vicodin)
Stimulants: amphetamine, cocaine, MDMA ("ecstasy"), methamphetamine, methylphenidate (Ritalin), nicotine
Other: anabolic steroids, dextromethorphan, inhalants [2]

The legality of the use of addictive drugs varies by country, and by specific substance. Efforts to legislate the use of addictive drugs have led to the 1961 United Nations Single Convention on Narcotic Drugs, the creation of the Drug Enforcement Agency (DEA) and declaring a "war on drugs" in the United States. The 1961 convention's



Addictive Drugs. Fig. 1 Mean harm scores for 20 substances. Classification under the Misuse of Drugs Act, where appropriate, is shown by the *color* of each bar. (From [1].)



Addictive Drugs. Fig. 2 Correlation between main scores from the independent experts and the specialist addiction psychiatrists. 1 = heroin, 2 = cocaine, 3 = alcohol, 4 = barbiturates, 5 = amphetamine, 6 = methadone, 7 = benzodiazepines, 8 = solvents, 9 = buprenorphine, 10 = tobacco, 11 = ecstacy, 12 = cannabis, 13 = LSD, 14 = steroids. (From [1].)

preamble stated that its signatory nations are "concerned with the health and welfare of mankind" and are "conscious of their duty to prevent and combat" drug addiction [3].

Especially as of late, there has been a plethora of public discourse on the morality and legality of drug use.

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ADHD Medication

►Stimulant Medications

Adjustment

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Synonyms

Accommodation; Adaptation; Allowance; Alteration; Modification; Piagetian

Definition

Adjustment involves the behavioral process as the person maintains physiological and psychological needs in a response to environmental changes or challenges.

Description

Adjustment involves *the act of making suitable* accommodations in response to a new environment. The act of adjusting connotes adaptation to a particular condition, position or purpose. Implied in its meaning is the act of making it right, to regulate, adapt, or settle. It can be defined as the natural human response to a discrepancy or change in the environment. For instance, consider

a child moving abroad for several years. The challenges the child will encounter throughout the foreign country experience will cause alterations to daily routines and ultimately lead to an ►*adjustment* or accommodation in response to the conditions of that particular country and new environment. This process does not occur rapidly; the child may endure a series of cultural shocks and adjustment phases. These phases include a preliminary stage, initial euphoria, irritability, gradual adjustment, adaptation and biculturalism, an lastly re-entry phase. In considering any new school experience as a condition requiring personal adjustment, the phases of adaptability may proceed as follows.

Preliminary Stage

In the preliminary stage there is excitement and preparation in response to the new challenge. The student prepares for the first day of school. There is a feeling of excitement about beginning a new school year, and setting personal goals. Also facing the student is a sense of uncertainty in response to the new environment. The student will attempt to work out an adjustment either by modifying or changing a position to cope with the new setting. The student may ask for assistance or set up a support system to aid with the transition. In this phase everything is exciting, and the obstacles the student may face have not surfaced. The student may also experience a feeling of fascination and idealism. There are assumptions that are developing; both rational and irrational that may prove to be false with the upcoming change.

Because the student is optimistic, there may be built in negative assumptions that can be detrimental to self-adjustment. The student at this period is not in the classroom environment, and therefore lacks the reality of the experience and any support or motivation the teacher can provide.

Initial Euphoria

In this phase, the reality of the school experience occurs. Anticipations from the previous stage are met with the student's "first day of school" excitement of making new friends, and meeting new people. Unfortunately, as the student becomes more accustomed to school, and things begin to become routine, enthusiasm fades, and the obstacles that were never present before are now prevalent. It is here that if the teacher can execute engaging activities, this phase will last longer, and thus minimize the following phases.

Irritability Stage

The third stage is the most difficult stage. In this stage the student becomes accustomed to the environment, and has adjusted to the new culture that is now becoming more demanding. The student exhibits irritability at having to deal with difficult situations. There no longer is the excitement of new friends, or starting a new school, or even a new phase of life. During this stage, the student begins to make comparisons with previous years' experiences, and sometimes these comparisons can become overwhelming and difficult to deal with. For example, a student may compare how prior teachers allowed them to do things that the current teacher does not allow. Throughout this time, the student becomes irritable with any changes presented. These can be insignificant changes, but can cause the student to become extremely stressed and upset. This stage is the most difficult stage of adjustment because of the comparisons that are made. The changes that face the students make the situation more difficult to accept, because of the student's desire to have things the way they used to be. It is important for students to maintain a positive attitude, and accept the modification(s) as assets instead of hindrances.

Gradual Adjustment

At this point, the student is able to orient and organize self in the school environment. By this time, the student has made new friends, become acquainted with the teacher, and has become aware of any course challenges. The student will be gradually adjusting, and may become aware of the transition. For students who are struggling here to make sense of presented information, it will be important to monitor for a negative attitude toward the obstacles presented. The teacher may consider reaching out to these students before they develop a negative attitude.

Adaptation and Biculturalism

The student is now able to function normally in the new environment. What seemed to be a hardship in the past is now part of the daily routine. School is becoming easier because of the increasing knowledge and ability to apply what has been learned. An important aspect of the student's progress of adjustment is their ability to handle difficult situations. The student generally will no longer let disruptions interfere. It is important for the student to stay active in school, and with the new friendships developed. The confidence level of the student by this time has increased dramatically. The student is no longer fighting challenges to change. Rather the student is more likely to have an optimistic approach to accomplish personalized goals. New insights are being made and the student develops a new perceptive.

Effective Adjustment Phase

The student has completely adjusted to the new culture, and has changed to accommodate a new way of life. The student continues to immerse self in the new (school) culture and is forced to consider deeper cultural issues. This requires self-awareness, study and interaction with the school culture, to ultimately resolve and accept another way of life. Eventually the students begin to respect and enjoy the material being learned, while simultaneously feeling that things are becoming routine and easy. The student is finally comfortable with the new environment, and has reached a new level of maturity.

Relevance to Childhood Development/ Education

There are many ways in which adjustment occurs in childhood and beyond. Facing a new school culture is only one example. It is how the child receives the challenge, and adjusts to it that becomes the largest consideration to the accomplishment of personal goals. Suggested are stages in how the student enters a new classroom, school, or even grade level. Educators should regard the beginning of the school year as a new cultural experience for each student. The suggested phases serve as an insight for the teacher to be able to relate to the students, and overall allow the educator an opportunity to cultivate the best student functioning at their fullest potential. The emotions involved in these adjustment stages can affect the student's performance in school. It is helpful for teachers to understand and find ways to lessen the cultural shock of school in order to attain the highest level of achievement, and to ensure that the students grow in both their acquisition of knowledge and maturity.

Teachers, however, are not the only tools in easing the adjustment (transition) for students. As the students enter new phases of their lives, especially as adolescents, it is not only the culture of school that they have to become acquainted with, but also their own identity and emotional development. Adolescents at the ages of 12–14 are entering a new phase in their lives where they are experiencing new emotions and are in quest for self-identity. Many adolescents are confounded on how best to handle these experiences, causing many to turn to items beyond their maturity level, such as sex, drugs, and other delinquent behaviors. The teacher cannot be the sole initiator of the intervention in the student's lives, and in fact research has proven that quality parent-child relationships can ease the stresses and provide a coping mechanism for adjustment.

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Adjustment Disorder in Children

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Synonyms

Transient situational disturbance

Definition

Adjustment disorder is a diagnosis used to describe emotional and/or behavioral disturbances resulting from exposure to a stressor.

Description

Diagnosis

The Diagnostic and Statistical Manual of Mental Disorders, Second Edition (DSM-II) was the first diagnostic manual to include a diagnosis describing symptoms experienced after exposure to a psychosocial *stressor* [3]. In this version, the diagnosis was termed a *transient situational disturbance*. In the DSM-III, a specific section was created for adjustment disorders which could be classified according to eight different subtypes [4]. After the DSM-III, slight modifications were made, leading to the most recent diagnostic criteria included in the DSM-IV-TR [5].

The DSM-IV-TR defines an adjustment disorder as, "The development of emotional or behavioral symptoms in response to an identifiable stressor(s) occurring within 3 months of the onset of the stressor(s)" (p. 683). According to the diagnostic criteria, an individual's emotional or behavioral difficulties must reach a clinically significant level, as determined by one of two possible factors. The person is responding in either "marked

distress that is in excess of what would be expected from exposure to the stressor" or they are exhibiting "significant impairment in social or occupational (academic) functioning." Additionally, adjustment disorder should not be diagnosed if the symptoms meet criteria for another *Axis I disorder* or if the symptoms are only representing a worsening of a preexisting disorder. This diagnosis should not be used in bereavement situations. Additionally, the symptoms exhibited by the individual should not last for longer than 6 months after the initial stressor occurred or after the consequences of the stressor have ended. The diagnosis of adjustment disorder is unique in that it allows for a focus on the importance of various psychosocial factors and stressors in children's lives [14].

The DSM-IV-TR also provides for the use of several specifiers when making this diagnosis. An adjustment disorder can be described as acute, indicating that the emotional or behavioral disturbance has lasted less than 6 months, or it can be described as chronic. The chronic specifier is used when the emotional or behavioral difficulties last longer than 6 months due to a chronic stressor or a stressor that has lasting consequences. As a requirement of the diagnosis, an individual's symptoms may not last longer than 6 months after the stressor has terminated, meaning that in those instances, another diagnosis must be applied, if warranted.

There are six subtypes of adjustment disorder, chosen based on the most predominant type of symptoms that are displayed. These include: adjustment disorder with depressed mood, with anxiety, with mixed anxiety and depressed mood, with disturbance of conduct, with mixed disturbance of emotions and conduct, and unspecified. Unlike other disorders in the DSM-IV-TR, there are no separate criteria for use with children or adolescents, although some research has found that adolescents are more likely to present with behavioral disturbances. Specifically, one study reported that 77% of adolescents with adjustment disorder presented with behavioral symptoms, in contrast to 25% of adults diagnosed with adjustment disorder [6].

The *International Classification of Diseases*, Tenth Revision (ICD-10) also provides criteria for the diagnosis of adjustment disorder. The ICD-10 diagnostic criteria are very similar to those in the DSM-IV-TR. Specifically, the diagnosis requires that individuals experience "states of subjective distress and emotional disturbance, usually interfering with social functioning and performance, and arising in the period of adaptation to a significant life change or to the consequences of a stressful life event" (p. 121). The manual states that symptoms usually begin within 1 month after the stressor occurs and generally do not last longer than 6 months, except when classified as a prolonged depressive reaction. The diagnosis can be specified as a brief depressive reaction (lasting 1 month or less), a prolonged depressive reaction (lasting up to 2 years), a mixed anxiety and depressive reaction, with predominant disturbance of other emotions, with mixed disturbance of emotions and conduct, and with other specified predominant symptoms [17].

Several authors have described problems associated with the diagnosis of adjustment disorder. These include questionable reliability of the diagnosis and the use of this diagnosis as a way to minimize the stigma associated with mental disorders.

The reliability of the diagnosis of adjustment disorder can be impacted by the fact that there is no specific set level of symptoms required in order to diagnose adjustment disorder or to select the specific subtype of adjustment disorder. Therefore, clinicians are relying heavily on clinical judgment [13, 16]. Authors have recommended that the requirements of the diagnosis be made more stringent in the DSM-V, such as requiring a certain number of criteria to be met, similar to other diagnoses [14]. Reliability can also be impacted by difficulties with the time frames that are required for diagnosis, in that it may be difficult to pinpoint exactly when a stressor began and when it ended [14]. It also can be difficult to distinguish between a "normal" reaction to a stressor versus a "maladaptive" reaction [8].

The diagnosis of adjustment disorder can be problematic when used as a way to avoid the stigma associated with a more severe diagnosis or as a way to avoid more serious diagnoses in children. When clinicians use the diagnosis like this, they may be avoiding the application of a more valid diagnosis, which would impact treatment decisions [12, 16].

Two studies have examined the diagnosis of adjustment disorder in children. One study examined the criterion and predictive validity of the diagnosis of adjustment disorder in a population of 92 children who had recently been diagnosed with acute onset insulin-dependent diabetes mellitus. In terms of the criterion validity, the requirement that the distress develop within 3 months of the stressor was consistent with the experience of 94% of the children. The requirement that the emotional or behavioral disturbance can only last 6 months was relatively consistent with the experience in this population. The average episode of disturbance was 3 months, and 85% of the children's symptoms had resolved after 6 months. In follow up, it was discovered that children who had developed an adjustment

disorder as a result of this stressor were 3.4 times more likely to develop a new psychiatric disorder over the next 5 years [11].

Another study examined the characteristics of adjustment disorder in a group of clinically referred 8–13 year old children diagnosed with this classification. The children were followed over time and it was discovered that during the follow-up period of several years, 29 out of 30 of them recovered. The average length of time the adjustment disorder lasted was 8.87 months, ranging from 2.7 to 24.2 months. Specifically, after 6 months from the onset, 38% of the participants no longer met criteria, and by 12 months, 76% had recovered. When examining other relevant factors, it was found that children who were older when the adjustment disorder began recovered from the diagnosis significantly faster. To examine the predictive validity of the diagnosis, subjects were followed for an average of 7–8 years. There was no indication that the previous diagnosis of adjustment disorder contributed to a decrease in "well time" during the time of the study or to the likelihood of the participants developing new disorders. The results of this study suggest that the diagnosis of adjustment disorder has clinical value and has a good prognosis in children. One implication of this study is that the criteria of adjustment disorder that requires symptoms to dissipate within 6 months may be problematic [10].

Epidemiology

In clinical populations, prevalence estimates of adjustment disorder in children and adolescents have ranged from 6.8 to 42% [12]. Although there is a wide range in the prevalence of this disorder in clinically referred children, it is clear that it is a disorder which is seen frequently in clinical populations.

Unfortunately, not much prevalence information exists regarding the occurrence of adjustment disorder in the general population, especially among children. The large epidemiological studies that have been done in the United States, such as the Epidemiologic Catchment Area study or the U.S. National Comorbidity Study, have not included adjustment disorder among the diagnoses being screened for. One large scale study was done to examine the frequencies of various psychiatric disorders among 5,813 children who were 8–9 years old and living in Finland [2]. Adjustment disorder was diagnosed in 6.8% of these children based on their responses on three screening instruments completed by the child, a teacher, and a parent. Adjustment disorder was diagnosed in 7.7% of the 435 children who completed the second stage of the study, which involved a semi-structured parent interview. The subtype of mixed disturbance of emotions and conduct was the most frequently diagnosed subtype.

Another study examining 386 children living in Puerto Rico found that when children scoring in the mild to moderate range of impairment in academic and social functioning were included, the rate of adjustment disorder was 7.6%. When only those children with severe impairments in functioning were counted, the prevalence rate was found to be 4.2% [7].

Assessment of Adjustment Disorder

The assessment of adjustment disorder is complicated by the fact that there are not specific criteria regarding symptoms expression that are required to make a diagnosis. Since a child could have been exposed to any number of different life stressors to qualify for this diagnosis, the way in which a child is presenting may vary quite a lot. Many different factors can impact how a child responds to a stressor, including the child's cognitive and psychological development, ability to use adaptive defense mechanisms, self-esteem, self-perception of competence, and physiological factors [14]. Several authors provide recommendations for clinicians assessing for adjustment disorder. These include a thorough clinical interview as well as the use of standardized checklists.

A clinical interview conducted with both the child and the parent is a requirement of an effective assessment and an accurate diagnosis of an adjustment disorder. Authors suggest that during an assessment several areas of information be obtained. These include the relationship between the stressor and the current symptoms (i.e., specifically examining the temporal relationship and the symptoms that the child is exhibiting) [9, 13]. It will also help to determine the impact of the stressor on the child's functioning or the presence of a reaction in "marked excess" of that which would be expected [13]. In addition, an effort should be made to understand how the child perceives the stressor, the parents' attitudes about the stressor, and any psychopathology evident in the parents. It will be important for the clinician to assess how the child and parents have coped with stressful events in the past, as well as how they are coping with the current stressor [9].

In addition to the clinical interview, assessment measures may be used. Authors suggest the use of various behavioral checklists including the Child Behavior Checklist, Youth Self-Report, the Children's Depression Inventory, the Revised Children's Manifest Anxiety Scale, the Adjustment Scales for Children and Adolescents, and the Children's Global Assessment Scale (C-GAS) [9, 13].

These are all tools which can assess how the symptoms that are being exhibited by the child compare to behaviors typically exhibited by children their age.

When assessing for adjustment disorder, it is important to differentially diagnose between adjustment disorder and other disorders which may occur following a stressor, or may present with similar symptoms [13, 14]. It is important to differentiate between adjustment disorder and depressive disorders, anxiety disorders, disruptive behavior disorders, *Post-Traumatic Stress Disorder*, and a psychological factor affecting a physical condition [13]. It is also important to keep in mind that adjustment disorder is only used when the criteria for another specific disorder are not met. Therefore, if criteria are met for another disorder, that diagnosis should be given.

Treatment

Given the frequency with which the diagnosis of an adjustment disorder is given, it is surprising that so little empirical research exists about effective modes of treatment [1, 9]. When treating a child who has been diagnosed with an adjustment disorder, it appears that treatment needs to focus on: (1) coping with the symptoms that have resulted from the stressor; and (2) teaching the child coping skills that can be used to deal with future stressors and possibly prevent the future development of emotional or behavioral difficulties in response to stressful events.

In the most simplistic of situations, the stressor could be removed from the child's life or the child could be removed from the stressful situation, thereby resulting in a reduction of symptoms [9, 13]. If this type of simplistic intervention is not possible, other treatment options discussed in the literature include individual psychotherapy, family psychotherapy, or pharmacotherapy. Since parents or caregivers will have a significant impact on the way a child perceives, experiences, and copes with a stressor, the family should be involved in the treatment of the child, even if this does not take the form of traditional family therapy [14, 16].

In terms of individual treatment, authors describe several techniques used to treat symptoms of adjustment disorder in children, including relaxation training and cognitive techniques such as increased problem solving abilities and cognitive restructuring. These treatment techniques would be tailored to the types of symptoms present (i.e., anxiety, depression, or externalizing behaviors) [13]. One author recommends that treatment proceed by acknowledging the stressor, reframing problematic behaviors, teaching emotional vocabulary, focusing on coping skills, and correcting any misinterpretations or misperceptions of the stressor [9].

Although there is a lack of empirical research on the treatment of adjustment disorder, one author presented a case study of a *cognitive-behavioral treatment* with a 10-year-old child diagnosed with adjustment disorder. The interventions that she used consisted of psychoeducation, cognitive restructuring, reframing of situations, validation of emotions, problem solving, and homework. Although no quantitative measures were used, at the end of treatment the client's grandmother reported that the problematic behaviors exhibited at the beginning of treatment had ceased. The client was also able to engage in several behaviors for the first time, including going to camp and staying overnight at a friend's house. The client reported feeling happier, and these gains were maintained at a 6 month follow up [1].

When working with the family, it is important that the parents receive education about how to help their child effectively cope with the stressor [13]. This education could also include information about the cognitive and behavioral techniques being used with their child, and how they can encourage the child to engage in these techniques.

Any treatment with psychotropic medications is recommended only when used as a supplemental treatment to psychotherapy [13]. It is possible that some medications may be helpful in treating the symptoms of adjustment disorder; however, there is no substantial research on the use of pharmacology to treat adjustment disorders [14].

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Adler, Alfred

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Life Dates
1870–1937

Synonyms
Life Style

Introduction
Alfred Adler was the first family therapist and the first to do group therapy. Alder established holistic view on a person called Individual psychology, meaning undivided. Adler psychology is the basis of many therapies today.

Alfred Adler was born in Penzing Vienna Austria, February 7, 1870 to parents from Hungry. The family was all musicians at home, and Alfred a tenor, loved to sing attend the opera and the theater. He was the second to the oldest child of six children. Adler's early life he suffered rickets and could not walk until 4 years of age and almost died of pneumonia when a doctor told his family there was no hope for him to live. This statement motivated him to one day become a doctor. Alfred was twice run over by a car on separate occasion, which gave him a fighting spirit. Alfred was a flower lover and felt unhappy because his older brother was favored by his mother and did not feel bonded to her. He was always in completion with is brother and he was able to draw closer to his father with whom he spent much time and saw his father who was a Jewish grain merchant pull himself and his family up through the classes of that time period in Vienna. This brought the family into the Vienna society and was not a part of the Jewish community. Alfred was very friendly and outgoing like his father and felt that mankind was judged by their actions and not by their words alone. Alfred was extremely thoughtful and gained trust by adults and his peers. In school he was faced with a barrier of math and could not resolve it and knew he must try and over come this fear and was able teach himself how to do math.

Educational Information
At age 25 he received his medical degree from the university of Vienna. During that time he met his wife Raissa Timfeyewna Epstein who was a Russian Social activist, and in 1897 they married. Love he felt was a task for two and believed in equal status of women, which in his time was not well accepted. Adler's wife, would become upset because he would not take a political stand and he did not believe in revolution or violence but that better people make better systems. Adler believed in being monogamist and the conflicts of his political beliefs in his marriage was not resolved until a war broke out and his wife was stranded in Russia for 5 months, and she came back from the experience with a different view and never again tried to force the issue of Adler becoming involved in activism again. He never followed or joined in any political groups but followed common sense, fairness, open-mined sane practical ideas. He thought that it was easier to fight for one' principles than to actually live up to them.

They had four children together and he treated all of them equally and his two boys became psychiatrists and his one daughter a scientist and his other an actress.

In the beginning of his career he was an ophanologist and had a firm belief in science. Adler open up his first

general practice in a lower class area of Vienna across from and amusement park and circus where most of his clients were performers. And many of these people remained friends.

There was much political unrest in his country during this time and he was strongly motivated to write and examine personality and became a psychiatrist. Alder in 1907 joined a discussion group with Freud who was 15 years his senior and all went well and, Freud even named him president of Analytic society co-editor of organization newsletter. Adler became very popular and had a great following. Everyone loved him and allowed conversations with all people no matter there class and never tried to make disagreements and if directed to himself he would be truthful in his responses and did not go along with improvable theories. His popularity was growing because he believed that personality problems stemmed from feeling if inferiority deriving from restrictions on the individuals need for self-assertion that maintained people had control of their lives. This went against what Freud's ideas and Adler rejected Freud's theories on sex and he also attacked Freud's ideas over repression. Adler believed that the repression theory should be replaced with the concept of ego-defensive tendencies the neurotic state derived from inferiority feelings and over compensation of the masculine protest, and that Oedipal complexes were insignificant. Freud idea was women had penis envy and Adler's stand was that women where oppressed. Alder abruptly left the Vienna society and formed the Society of Free Analytic Research, renamed the Society of Individual Psychology in 1912 [1].

Adler loved the Café' as a place to chat and express, enjoy social situations with food or drink in a relaxed atmosphere. He was a social being and loved a good joke, humor with a truth injected was his favorite and he lived on humor. He never talked down to people and would talk on their level. No one knew whom his clients were he referred to everyone as his being his friend. Adler had a way of reading people that helped him in his work.

Adler did not delve into any improvable theories and objected to spiritualism, theosophy, astrology and telepathy. These ideas took away our free choice and responsibility and trusted in any real form of religion based on moral principles and thought god was for all people not for a promised few. He also believed in a broken heart and contrite spirit in praying for discretions and thought we all are repentant sinners.

The catastrophe of 1918 also affected the 48-old Adler who was sent to Russian front in the Austrian Army. This time would change his personality from jovial to more of serious in nature. Adler struggled in trying to help young men who were shell shocked (Post Traumatic Stress Disorder) become well enough to go back out to battle field which this tore his heart. He work many long hours with little sleep, and was able to acquire a direct knowledge of war neuroses. He was also called to a work in the hospital with children where he saw the damages of war in the truest form [14].

After the war he began to continue his writing and worked with children in schools and established educational consulting teams in child guidance for the Vienna public school with his ideas to pre-empt the problems in the child by encouraging and promoting social interest and also by avoiding pampering and neglect. This was a time of very little food after the war and a rebuilding was taking place. The advent of the new political regime offered him the possibility of materializing his project. The years 1920–1932 were, in spite of political upheavals, the years of Adler's greatest achievements. A division took place in methods and the Adler published more books and became a professor at Vienna's Pedagogical Institute.

But he did not wait for Hitler to come to power, and immigrated to the United States in 1932. Adler did not know how to speak any English and taught himself by emersion in the language He felt so strongly about his

individual psychology and would prepare his speeches and was able to communicate his messages without any problems because of his passion for his work. Black clouds were gathering over Europe when he suddenly died in 1937 two and one-half years before the catastrophe he had foretold would happen, WW II, and died of a heart attack lecturing tour in Scotland.

Adler influence on psychology would take volumes to write and in summary some of his key points are as follows:

1. That the individual's approach to life is result of early self-training due to his interpretation of his situation. He can change it in later years only if he realizes that his disturbing, conditioned responses are nothing more than inappropriate, inadequate holdovers from childhood. The adult is expected to replace such behavior with more useful responses to be help and not a burden. He should realize it is useless to try to escape the pain he creates for himself in trying to solve adult problems are only situations for which we have not trained ourselves [13].
2. That the problems of behavior, which make us feel and act like inferior second-class passengers in life, are no more than the results of our failure to develop the habit of both emotional and physical self-reliance. We retain from childhood the mistaken expectation that other should "hold up our pants" for us emotionally and physically and be interested in as well as responsible for our welfare.
3. That leaning on others emotionally or physically is a child's way of life. We should not permit this habit to follow us into adult life, since dependency is the root of all feelings of inferiority. Dependency generates the feeling of second-class citizenship. Out of this grows the habit of competition, envy, making comparisons and similar mistaken compensatory strivings we create in our effort to assuage the pain of feeling second class in relation to others. Humiliating feelings of inferiority produce the gnawing, distracting, disruptive, destructive craving for personal recognition and prestige, with its inescapable fear of failure.
4. That unhappiness, loneliness, neurotic symptoms, crime and similar distress arise directly from this unresolved process of learning and depending on others whom we try to control, rule, dominate or exploit for our won benefit, since we cannot otherwise support ourselves physically and emotionally.
5. That only those who are self-reliant emotionally and physically can function as adult human beings able to cooperate with other adults, because life demands that we be useful and productive or as Adler said, to "be a help and not a burden" [17].
6. That the inadequate responses of envy, greed, competition and sabotage-with which we try to solve confronting problems of life-are only reactions which would not arise in the first place if we were in the habit of standing on our own feet and not always trying to find someone on whom to lean and exploit; whom we demand prop us up and hold us there [10].
7. That defects of self-reliance and the inescapable pain that accompanies them can be changed only when we fully realize that the pain we suffer is but the other-end-of-the-stick of our leaning, dependent, subaltern habits of mind. Our problems do not have mysterious, hidden sources in some hypothetical "Id." We do not have to look far or deep to find the source; we keep stumbling, tripping and falling over it all day long, enough though we refuse to identify it as our own childishness [15, 13].
8. That all human beings are the product of evolution, and that we share the inheritance of all human potentialities and are each equally based in evolution. Each can evoke his own reality. Each is his own architect. Whatever one human being has done by others. Creation is a built-in attribute of each of us. It waits, however for the awakening of self-reliance to shape its parts and aspects [3].

View of the Person Holistically

Adler taught that social determinants as goal directedness, or that people are motivated by social forces to achieve certain goals. People are striving for significance, moving forward to fulfill the feeling of belonging [12]. Most people have the need to belong and think they are unique or different [9, p. 16]. This search for significance comes from the feeling of inferiority and is based on our reactions to others. This is the motivational factor as we strive for mastery. Many issues present due to the feeling of inferiority which can create perfectionism, which can become the goal of one's life. Adler stressed that it is self-determination, and our consciousness, that is at the heart of personality, and, that we create our fate by our behaviors and actions. Our choices determine the actions that have purpose and meaning in our lives. In understanding behavior, all actions need to be investigated including the lifestyle development of interactions, experiences and the view one has of the world through living their life [16]. Whatever behaviors are chosen are steps to attain those

goals. Adler calls this approach the movement from "a perceived minus to a perceived plus" [3]. This growth model is used because individuals need to be taught that life has challenges and that there are better ways to handle these "life tasks." Once individuals are provided with a better direction they can change the way they think and replace the negative notions through the encouragement of others.

Holism

Individual psychology was practiced because the term when translated from German to English meant "Holism." The undivided view of a person by their thoughts, feelings, actions, attitudes, and beliefs, uniquely their own by the sum of all parts are united. This holistic approach refers to a person who is part of a larger social system [18].

Environment or Heredity

Adlerians believe that people are not destined because of their environment, or heredity, yet these are the stepping-stones of life. Healthy people can make life what they desire and have the capacity to recognize that the conditions under which they are born is not as important as what they do with life. On occasion conditions can limit what one can accomplish and this then can limit choices. People have a choice in how they react to the way other people behave by either participating or not. The power to change one's own reactions and attitudes gives a person the tools to become master of one's own fate. The key is striving toward perfection yet, not becoming a perfectionist [11]. The role a person plays in their daily life is imparted through the choices they make, like characters in a play.

Germeinschaftsgefühl

The German concept *Germeinschaftsgefühl*, meaning "social interest," refers to a person's attitude in working with other people and the world, humanity within a global future. This attitude is of concern to the happiness and well being of others and the ability ". . .to see with the eyes of another, to hear with the ears of another, to feel with the heart of another" (Ansbacker, 1956, p. 135). Adler [2] wrote how people have a strong need to be accepted and needed in society. One must master three main life tasks: (1) building friendships, (2) establishing intimacy, and (3) contributing to society. Adler affirmed that the degree to which one is successful in working toward concern for the welfare of others is the basis for mental wellness. An individual who willingly demonstrate they have the capacity to give and receive for the benefit of all, understands the key concept of Social Interest. Self-centered behavior goes against the grain and produces the opposite of Social Interest. In group therapy the goal is to increase a person's self-esteem to help them attain social interest [4, 6, 12].

Inferiority and Superiority

Adler believed that most children are born with a degree of inferiority, because of the feelings of helplessness. Inferiority helps us to master our environment by giving one motivation. If the inferiority becomes a problem by restricting our self-worth and growth it can become a negative force. A person moves from the feeling of inferiority to one of superiority as goals are attained in life [5].

Birth Order

The family place or position in which a person is born plays an important part in the development of one's personality. Understanding one's role in the family is important to understanding one's own position regarding relationship with siblings. The family constellation is important to understand how this gives rise to personality characteristics. The child may have characteristics of the parents, yet it is the siblings who the have the most effect on the child's personality. There are specific indicators regarding birth order.

Lifestyle

The individual's family constellation and the family atmosphere promote the lifestyle. The early years, and the reflections of those years in striving for goals, and the formative experiences within the family make up a person's lifestyle. The earliest impressions are the building blocks of lifestyle. How one perceived the experiences becomes personal interpretations of these life events, and is extremely significant. Learning about the experiences of how one interpreted past events can help them to become aware of the patterns that have continued throughout their life. Once an individual is made aware of inaccurate assumptions, changes can then be made. Childhood events create one's personal lifestyle [2].

Contributions

Alfred Adler's career was an example of the social ascension of a man who remained emotionally attached to the lower class of the population and the betterment of all. His idea was "The test of one's behavior pattern: relationship to society, relationship to one's work, relationship to sex" [7].

Several schools dedicated to carrying on the work of Alfred Adler such as The Adler School of Professional Psychology which was founded as The Alfred Adler

Institute of Chicago by Adler's protégé, Rudolf Dreikurs, also, the Alfred Adler Institutes of San Francisco and Northwestern Washington, dedicated to Adler's original teachings and style of psychotherapy. There are also various organizations promoting Dr. Adler's orientation towards mental and social wellbeing. These include ICASSI and the North American Society for Adlerian Psychology (NASAP).

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Adlerian Play Therapy

►Play-Group Therapy

Adolescence

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Synonyms

Teenagers; Teens; Youth

Definition

Adolescence is the life stage that bridges childhood and adulthood. This transitional period is characterized by significant biological, cognitive, and psychosocial changes. Although the age range of adolescence varies by cultural and historical circumstance, the beginning is typically marked by the onset of puberty and the conclusion is associated with the full assumption of adult roles. This means that in the United States and most industrialized countries today adolescence roughly describes the second decade of life.

Description

Adolescence is typically divided into two periods. Early adolescence corresponds with the middle school or junior high school years, and late adolescence corresponds with the latter half of the second decade of life. Early adolescence is characterized by the significant biological changes associated with puberty while late adolescence features identity, career, and relational exploration. There is a growing recognition that college aged young people do not resemble adolescents in terms of their developmental activities. Instead, Arnett and a growing group of others in the field refer to young people between 18 and 25 years of age as emerging adults [2].

Historically, adolescence has been viewed as a time of "storm and stress." Early adolescent researchers believed the adolescent life stage was a time of irrationality, moodiness, and turbulence (see G. Stanley Hall). However, little empirical research supports this negative view. While adolescence is a period of significant change, research finds that most adolescents around the world have a positive self-image, are self-confident and optimistic about their future, are happy most of the time, enjoy life, value work and school, have positive feelings toward their families, and demonstrate the capacity to cope with life's stresses [19]. As a result, most psychologists and practitioners today embrace a more positive view of adolescents, and research increasingly emphasizes their hope, optimism, creativity, and purposes in life [5].

Following is a brief discussion of the biological, cognitive, and psychosocial changes that represent the primary areas of growth associated with normative adolescent development.

Biological Development

The onset of adolescence is marked by the physical changes associated with puberty. According to Marshall [18], puberty is characterized by significant height and weight gain, the development of primary and secondary sex characteristics, changes in body composition, and changes in the circulatory and respiratory systems. The endocrine system, which is responsible for producing, circulating, and regulating hormonal levels, plays an important role in triggering and regulating puberty.

Puberty is associated with the most significant increase in growth since infancy. The release of growth hormones, thyroid hormones, and androgens stimulate the rapid increase in height and weight. At least as noteworthy as the absolute increase in size is the rate of growth during adolescence; nearly half of adult weight is gained during adolescence [22]. At the peak of pubertal change boys grow about 4 in./year and girls about 3½ in./year.

The timing and tempo of puberty are influenced by a combination of highly variable genetic and environmental factors. In the United States boys typically start puberty between 9½ and 13½ years of age, and girls typically experience the onset between 7 and 13 years of age. In boys puberty tends to last between 2 and 5 years, while for girls it typically extends between 1½ and 6 years. Over the past 100 years the average age of the onset of puberty has dropped due to improvements in health, nutrition, and living conditions [1].

As young people undergo puberty they often become preoccupied with their changing bodies (Brausch & Gutierrez, 2009). Throughout puberty, boys tend to develop a more positive self-image as their bodies fill out, their faces take on a more angular appearance, and their voices deepen. Girls, on the other hand, are likely to become less pleased with their changing bodies as they gain weight and fat [4]. Changes in self-image affect the way adolescents perceive themselves and the way others treat them. For example, a young person who has recently gone through puberty may feel older and seek to be treated more like an adult, and other people expect more adult-like behavior from a fully mature adolescent.

Cognitive Development

Along with the rest of the body, the adolescent brain experiences noteworthy physical changes. For example, as a result of synaptic pruning – the process through which unnecessary connections between neurons are eliminated – the brain undergoes considerable restructuring during adolescence. Myelination, or the process in which the neuronal projections that connect to form brain circuits become encased in a fatty substance, facilitates the transmission of impulse flow. The combination of myelination and synaptic pruning allows the brain to process information more quickly and more efficiently [13].

It is not just that adolescent's become more efficient at processing information; they also begin to think and reason in qualitatively different ways. Whereas children tend to think in a concrete and absolute manner, adolescents become increasingly able to engage in thinking and reasoning that is abstract and relative. Deductive (reasoning in which one draws logically necessary conclusions from a general set of premises), and inductive reasoning (in which one draws a general conclusion from a set of specific facts) emerge, and adolescents develop the ability to engage in metacognition, or thinking about thinking.

Several scholars, including Piaget and Vygotsky, have offered theories that describe the process of cognitive development during adolescence. Piaget's cognitive developmental theory situates most adolescents in the formal operational stage, which is characterized by the development of abstract, propositional, and hypothetical-deductive reasoning. Idealism and possibilities are the hallmark of formal operational thought. At the same time as Piaget was devising his theory of cognitive development, Vygotsky was engaged in the same task. However, he came to a somewhat different conclusion regarding the nature of cognition. Vygotsky proposed a sociocultural cognitive theory that emphasizes the central role of learning from more skilled others. According to Vygotsky learning is situated in a particular cultural context and collaborative, meaning that social interactions guide development [14].

The more contemporary information processing theory represents a third influential perspective on adolescent cognitive development. Comparing the functioning brain to a computer, this theory emphasizes the way that adolescents manipulate, monitor, and strategize about information in order to make decisions and solve problems [20].

Psychosocial Development

In addition to the biological and cognitive changes that accompany this stage of life, adolescence is also characterized by significant psychosocial development, including growth in the areas of identity, gender, sexuality, morality, and intimacy. According to Erik Erikson [10–12], the

establishment of a coherent sense of self, or identity, is the major task of adolescence. Prior to adolescence, children have a scattered, inconsistent conception of who they are, but during adolescence they develop a more unified and enduring picture of who they are and of who they hope to become. For some adolescents, especially minority youth, integrating a sense of ethnic identity into their overall sense of self is an important part of their identity development.

Like ethnicity, gender represents a significant component of an individuals' identity. From birth, boys and girls are socialized to act in gender specific ways. According to the gender intensification hypothesis [15], pressure to behave in sex-appropriate ways may temporarily intensify during early adolescence.

The development of sexuality coincides with the greater understanding of what it means to be male and female. While much attention is given to adolescent problems in the area of sexuality, most adolescents have healthy sexual attitudes and engage in sexual behaviors that are not likely to have long-term, negative consequences [9]. According to a national survey of adolescents, sexual intercourse is rare among early adolescents but common among late adolescents [8]. For instance, in the United States only 22% of girls and 27% of boys report being sexually active at 15, but 76% of girls and 85% of boys say they have had sex by 19 years of age.

Moral development, another important feature of adolescent psychosocial development, encompasses reasoning, behaviors, and feelings regarding standards of right and wrong. According to Kohlberg [16] most adolescents reason about moral matters at the conventional reasoning level, meaning they abide by standards of right and wrong that they view as external to themselves, typically belonging to either their parents or society. While Kohlberg's theory helps explain how adolescents reason about moral issues, it does not explain why adolescents ultimately act in moral or immoral ways. Instead, Bandura [3] social cognitive theory of moral development is useful in explaining how adolescents learn to enact moral behavior. According to this model, young people learn what is right and wrong through observation. Over time, young people internalize the broader society's standards of right and wrong, and self-sanctions keep their actions in line with their beliefs. In other words, adolescents experience a diminished sense of self-worth when their actions contradict their moral sense. Moral identity offers another perspective on moral action. During adolescence some young people develop a sense of moral beliefs or commitments that are central to their sense of who they are [6]. For these youth, acting in ways that violates their moral sense, or moral identity, jeopardizes the integrity of their sense of self [17].

Balancing a growing desire for autonomy with a continued need for connectedness is another important task of adolescence. As young people mature, they begin to crave the independence associated with adulthood. However, at the same time as adolescents seek more autonomy, they also begin to seek more intimacy in their relations with others. Peer and family relationships during adolescents differ from relationships during childhood in they are more likely to be characterized by openness, honesty, self-disclosure, and trust. While family support and connections remain important to adolescents, peer relationships become increasingly significant. In early adolescence, peer relationships tend to feature same sex friendships, but during middle and late adolescence, they often include opposite sex friendships and sexual relationships, too [21].

Identity, morality, gender, sexuality, autonomy, and intimacy are issues that resurface throughout the lifespan. However, because of the biological and cognitive changes associated with adolescence, they are particularly salient issues during this stage in life. It is also important to keep in mind that each of these aspects of development takes place within a variety of contexts including family, peer, school, and cultural contexts that influence adolescent development in important ways. Bronfenbrenner's ecological systems model describes the way an individual's development is simultaneously influenced by and influences the multiple contexts in which it is embedded [7].

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Adolescent and Child Behavior Therapy

►Play-Group Therapy

Adolescent Egocentrism

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Synonyms

Egocentrism; Imaginary audience; Personal fable

Definition

Adolescent egocentrism is generally a heightened preoccupation with the self occurring during adolescence. Specifically, newly developed cognitive abilities give adolescents an exaggerated sense of uniqueness from others and also allows the adolescent to monitor their own thoughts though they do not clearly distinguish their own thinking from the thinking of others.

Description

Egocentrism is generally the tendency to view the world from one's internal point of view with less recognition that others beyond oneself may hold different views, perspectives, and beliefs. Egocentrism is particularly strong during infancy and childhood, though it manifests itself in different ways, while egocentrism to some extent remains throughout adulthood as well. Adolescent egocentrism is defined by the fact that egocentric thought and behavior is heightened in adolescence when compared to typical adulthood, as well as the fact that newly developed cognitive abilities lead to specific manifestations of egocentrism that are distinct to adolescence.

Piaget [3] introduced the concept of egocentrism in childhood through his description of his Cognitive Developmental Theory. Piaget's [3] work for the most part describes the various ways that egocentrism is displayed in infancy and childhood. Piaget explains that infants and young children are unable to differentiate their *self* from the rest of the world in which they exist. Children are also unable to differentiate the possibility that others may view (both literally and figuratively) situations from a perspective other than their own [3]. Piaget also describes the concept that children endow inanimate objects with intention and emotion (known as "child animism") and "...believe that everything gravitates around us" (p. 244). While Piaget describes in detail egocentricity during the developmental periods of infancy and childhood, he gives less attention to egocentricity in adolescence specifically.

Elkind [1, 2] later expounded upon the concept of egocentrism in adolescence in his description of two phenomena he terms the imaginary audience and personal fable. The imaginary audience occurs when the adolescent believes that everyone near them is preoccupied with the adolescent's appearance and/or behavior. Elkind [1] conceptualized the imaginary audience consisting of two parts; the self-critical and the self-admiring. For example, the adolescent may be overly critical of a physical imperfection and views everyone around them as being equally attentive and critical of this imperfection. The opposite is also true in that the characteristics that

adolescents possess during this stage (e.g., loudness, vulgarity) are largely due to the adolescent feeling the need to be the center of attention. This need is driven by the self-admiration an adolescent feels and the belief that everyone around them is also admiring their behavior and appearance. Like other manifestations of egocentrism, the imaginary audience is due to the inability of adolescents to differentiate between the interests of themselves and others [1]. Elkind [2] postulates that the imaginary audience phenomenon declines with age as the adolescent continues to differentiate the self from the rest of the world, thus recognizing that every person has their own preoccupations in life. It should also be noted that there are times throughout an individual's adult life when the imaginary audience can be experienced, though this differs from the adolescent experience because the phenomenon tends to be fleeting and less pervasive in adulthood [2].

Subsequent to the imaginary audience is another form of adolescent egocentrism, which is the personal fable. The personal fable can be defined as a grandiose sense of uniqueness leading to a belief that nothing bad will happen to one personally [1]. The personal fable is established by the failure of the adolescent in differentiating between what is unique to one's self from that which is ordinary to everyone. This exaggerated belief of being "unique" may largely be due to quickly developing cognitive abilities that occur in adolescence. For example, as adolescents begin to realize that they can infer the intentions of others based on subtle nonverbal behavior (part of one's developing social cognition), they falsely believe that they are the only ones with such advanced cognitive abilities. Thus adolescents may believe that they are too important or special to die, get arrested, become pregnant, fail school, etc. [2]. For example, adolescents may engage in risky behaviors such as drinking and driving, believing that this behavior might lead to an accident for others, but that it would not happen to them. Unlike the imaginary audience, the personal fable begins to decrease when the adolescent begins to develop intimate relationships with friends. The participation in intimate relationships by the adolescent helps them understand that their personal thoughts and feelings are not as unique as they original thought [2].

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Adolescent Family Life Act (AFLA)

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Description

The adolescent family life (AFL) demonstration and research program, created in 1981 as Title XX of the Public Health Service Act, supports both demonstration and research grants. Within OPA, the Office of Adolescent Pregnancy Programs (OAPP) is responsible for administering the program. The AFL program is funded at $29.8 million in fiscal year 2008.

The AFL program supports demonstration projects to develop, implement and evaluate program interventions to promote abstinence from sexual activity among adolescents and to provide comprehensive health care, education and social services to pregnant and parenting adolescents. The program supports two basic types of demonstration projects: (1) prevention demonstration projects to develop, test, and use curricula that provide education and activities designed to encourage adolescents to postpone sexual activity until marriage, and (2) care demonstration projects to develop interventions with pregnant and parenting teens, their infants, male partners, and family members in an effort to ameliorate the effects of too-early-childbearing for teen parents, their babies and their families. The AFL program also funds grants to support research on the causes and consequences of adolescent premarital sexual relations, adolescent pregnancy and parenting.

The Title XX funds not only help the teens and families they serve directly, but also provide valuable information and evaluation findings that can serve as a basis for future strategies. Every program that receives AFL grant funds is required to include an independent evaluation component. This ensures that the lessons learned by each community will benefit others in the future.

In addition, to ensure that all AFL project staff at the local level have the necessary skills and training to implement these programs, the AFL program has conducted numerous technical assistance workshops annually since 1998 to train front line care and prevention project staff to provide more comprehensive services to their clients.

In 2007–2008, the AFL program is supporting 67 demonstration projects across the country. These projects consist of 36 abstinence education programs and 31 care programs.

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Adolescent Mothers

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Synonyms

Teen mothers; Teenage mothers

Definition

Adolescent mothers are women between the ages of 11 and 19 who become pregnant and parent their children.

Description

Prevalence

While the birth rate for adolescent mothers in the US has declined over the past decade, the US continues to have the highest level of teenage parenting of any industrial nation, with approximately 900,000 adolescent pregnancies each year [7]. Because adolescent mothers are more likely than older mothers to drop out of high school, to require public assistance, and to have children who are at risk for poor birth outcomes and developmental difficulties, adolescent pregnancy and parenting are considered social problems. Although adolescent mothers and their children tend to have special needs, there is heterogeneity within this population with regard to the outcomes for both parents and children.

Risk Factors

The majority of adolescent pregnancies are unplanned. There are a variety of psychosocial risk factors for adolescent pregnancy. Adolescent girls who become pregnant are likely to be poor, single, and to have a history of negative school experiences [4]. A history of childhood sexual or physical abuse is also a risk factor for early sexual activity and pregnancy [6]; children who have been maltreated may be at greater risk of pregnancy due to a lack of parental supervision or a because of sexualized efforts to obtain closeness with others. Finally, risk factors for becoming an adolescent parent include having been born to an adolescent parent, or being part of a cultural group in which younger parenting is common.

While poverty, abuse and lack of parental supervision are risk factors for early sexual activity, not all sexually active adolescents become parents. In some instances, adolescents who are sexually active become parents because they lack awareness of their access to options, including contraceptives, abortion, or adoption. However, it is the case that even when the pregnancy is unplanned, many adolescent mothers chose parenthood as a defining role for themselves.

There is also a high risk among adolescent mothers that they will become pregnant a second time within a few years of their first pregnancy. This second birth is often intentional, reflecting the adolescent mother's goal to focus on parenthood [1]. A primary risk factor for a second teenage pregnancy is not returning to high school within a few months of having the first child. Ironically, having family support with child care, which is associated with better mother and child outcomes, is also a risk factor for a second pregnancy, as is having a stable relationship with the child's father. Finally, cultural norms for young parenting may also support the trend to have multiple children at a young age [7]. Having multiple children as an adolescent decreases the likelihood of the mother completing high school.

Characteristics of Adolescent Mothers

Adolescent mothers face the same stressors associated with child rearing as do older mothers, as well as some that are specific to being a younger mother. Thus, just as some older mothers do, some adolescent mothers experience postpartum depression, while all must address the daily challenges of parenting.

Many of the characteristics specific to adolescent mothers are related to the risk factors for adolescent parenting; thus, a majority of adolescent mothers are poor, single parents. The typical adolescent mother is likely to have had little, if any, prenatal medical care. She is also less likely than an older mother to have poorer prenatal nutrition and weight gain, and more likely to use alcohol, drugs or tobacco during her pregnancy. As a result, adolescent mothers are more likely than older mothers to experience birth-related problems including infant mortality and to have premature and low birth-weight babies [6]. A majority of adolescent mothers have not completed high school, and are not able to support themselves financially. Consequently, many live with extended family and receive public assistance to support themselves and their children.

Nevertheless, adolescent mothers are diverse in terms of their commitment to parenting, their environmental supports, and, consequently, their personal outcomes and the outcomes of their children. Further, it is unclear whether the negative outcomes associated with adolescent pregnancy and parenting are a function of the age and maturity of the mother, or a result of the adverse environments which put them at risk for the early pregnancy. While both appear to have some impact, controlled

studies point to the greater impact of environment over the age and maturity of the mother; that is, many of the problems noted for adolescent mothers and their children, from negative birth outcomes to ongoing maternal stress and financial needs, can be attributed to the circumstances that created the risk for the adolescent pregnancy rather than the age or maturity of the mother herself [5, 7].

Conversely, adolescent mothers who live under less adverse circumstances tend to have better outcomes. Familial support in particular has been associated with positive outcomes for the adolescent mother, including greater likelihood that the adolescent mother will complete high school and less parental stress, as well as better developmental outcomes for the child [2]. A majority of adolescent mothers live with their parents, the child's grandparents, for several years after giving birth, with grandparents providing housing, financial assistance and childcare [3]. This support can be very beneficial, but obtaining this support requires a complex balance of roles and responsibilities for mother and grandmother. For example, while the adolescent mother needs the instrumental as well as psychological support of her family, she may also want to retain parental authority for decision-making, even though she is not the only one taking care of her child. The grandparent, on the other hand, may make sacrifices in order to meet the needs of their grandchild, and may experience some resentment regarding these sacrifices when her authority is usurped. Thus, the roles of all adults in the household need to be negotiated in order to create supportive rather than conflictual relationships with one another.

The impact of the father of the child on family stress and stability is less clear. In approximately half of all cases the father of the child is also an adolescent, while in the remainder the father may be several years or considerably older than the mother. Regardless of age, men who father children with adolescent parents tend to have low income and education [4]. In most instances, the mother and father of the child do not marry or live together. While instrumental support from the father of the child can reduce stress for the adolescent mother, a continued relationship with the father of the child can also be stressful, and, regardless, that relationship is often not available to the adolescent mother [3, 6].

Interventions for Adolescent Mothers and Their Children

In addition to programs designed to help the adolescent mother once she becomes pregnant, there are many programs nationwide with the objective to reduce adolescent pregnancy. Programs that are more effective at delaying pregnancies focus both on early abstinence and using birth control, as well as helping adolescents develop other interests in their communities.

Interventions to help pregnant and parenting adolescent mothers have been implemented in schools, homes and community centers [7]. School-based programs encourage adolescent mothers to complete high school by providing academic programs which they can utilize while they are pregnant as well as post-partum. These programs address the practical needs of the adolescent mother by providing on-site childcare so that the she can attend classes. In addition, these school programs may provide opportunities to learn about infant development or to discuss concerns and questions about parenting. Programs have been successful in helping adolescent mothers complete their high school education and increase the time to their next pregnancy. Home-based and community-based programs have also been implemented. Home-based programs often focus on helping the adolescent mother with her parenting skills, through instruction and in situ modeling of effective infant–adult interactions. Community-based programs typically provide respite for adolescent mothers by providing childcare while the mothers meet to share concerns specific to adolescent parenting as well as those which can occur for any parent, such as post-partum depression.

Other specialized interventions focus on the prevention of developmental delays and improvement of developmental outcomes for the children of adolescent mothers. Because these children are at greater risk for developmental problems, these programs are designed to assess the child's strengths and weaknesses and to provide early intervention to stimulate language acquisition and the development of cognitive skills and social behavior as needed. In addition, programs may help children indirectly by working with adolescent mothers on their parenting skills. These programs increase the knowledge and reduce the stress of the adolescent mother so that she can address the developmental needs of her child.

Relevance to Childhood Development

Adolescent parenting can affect the continuing development of the mother as well as the development of her child. In western industrial societies, adolescents are not expected to assume adult responsibilities, and are still in process of procuring their education and developing the knowledge and interests, skills necessary to function as an adult. Parenting typically interrupts the educational development of the adolescent; unless adolescent mothers return to high school and obtain a diploma they are at a long-term disadvantage with regard to their ability to

become financially self-sufficient. In addition, younger adolescent mothers experience an interruption in the personal exploration of interests and values that is considered part of "normal" adolescent development [4]. The long-term impact of adolescent parenting on one's psychosocial development is unclear, however, as a majority of adolescent mothers live within limited economic circumstances which could limit their options regardless of whether or not they had children.

While some children born to adolescent mothers develop normally, they are still at greater risk than are children of older mothers to have academic, emotional and behavioral problems. These differences in development are attributed to differences in the commitment of adolescent parents to caring for their children, and to diversity in the resources available to the mother and child in the broader social environment. Maternal age may affect mother–child interactions, as adolescent mothers tend to be less patient and provide less stimulation to their children than do older mothers. However, studies find that many of the developmental problems of children of adolescent parents can be attributed to their social and economic circumstances [7]. Child development is more likely to be on track for adolescent mothers who are committed to parenting and have greater support from other adults.

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Adolescent Offending

►Crime, Adolescence

Adrenalin

►Epinephrine

Adult Attachment Interview (AAI)

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Synonyms

Attachment measures; Attachment patterns; Attachment representations; Attachment styles; Mental models

Definition

The Adult Attachment Interview (AAI) is a method of classifying a current state of mind with respect to attachment in adults.

Description

The AAI is a semi-structured interview, and it is used to categorize adults' state of mind with respect to attachments. These classifications are secure-autonomous (F), dismissing (D), preoccupied (E), and disoriented/ disorganized (U/d). The interview consists of twenty questions focusing on early relationships with parents and the family environment, and takes between 45 and 90 min to administer [4, 6].

The AAI was developed as narrative assessment of an adult's state of mind with respect to attachment figures and reflects patterns of organization of experiences. Some sample questions ask the participant to describe their relationship with one of their parents as young as they can remember, what they did when they would get upset, and how they think their relationship with their parents has affected their adult life. Additionally, participants are encouraged to talk about the feelings of sadness, anger, and loss. This way the interview prompts the description of subjective memories forming an autobiographical narrative [8].

One of the most interesting things about this measure is that in addition to taking the content of the answers into account, the way in which the participant present their story becomes a relevant piece of information. When classifying the interview, the tone of voice, the pauses, the degree to which the participants are self-reflective, and the degree to which they have achieved a coherent interpretation of their lives is taken into account. Additionally, involvement in the narrative, lack of recall, idealization of parents, length, cohesiveness, and coherence of

the arguments are all indicative of state of mind in relationship to attachment [8].

The interview assesses the adult's general orientation and mental model in respect to other attachment figures and intimate relationships throughout life, without giving a specific categorization to the relationship between the participant and a particular parent or person. The classifications take place after extensive analysis of the transcript of the interview giving importance to content and form of the discourse. Grice's [5] four maxims of discourse are guidelines for the coding, and violation in quality (statements supported by evidence), quantity (length and completeness of thought), relation (relevance), and manner (clarity) are recorded. Additionally, the participant's parents or caregivers are scored for the extent to which the rater believes they were loving, rejecting, role-reversing, involved when present, or pressuring. The interview does not claim to be an exact account of the past, but a reflection of the adult's present working models [8].

This measure has been found to be predictive of the quality of attachment between adults and their children. The measure does not correlate with features of adult personality, suggesting that it is actually measuring aspects of the adult life that are highly dependent on experiences with caregivers in the early home environment [2]. Research has also shown that the attachment interview classifications are not related to social adjustment suggesting that the AAI assesses a unique dimension of adults' life that is not better defined as adjustment. Classification in the AAI does not correlate with measures of social desirability, and it appears that subjects are not able to predict what a good AAI answer is. This way, adult's working models seem to be responsible for the biases in the subject's answers [2]. The AAI has shown to be stable across assessments for 4 years, which indicates that it is measuring a construct that is robust, and persists across time [8]. Similarly, the AAI has shown to have good test-retest reliability and inter-rater reliability [1].

AAI Classifications

Adult's Secure/Autonomous State of Mind with Respect to Attachment

The narratives typical of this interview are coherent and consistent, and give ample examples and details to support their description of their parents and relationships. These memories do not always convey ideal parenting and positive feelings, but they express a balanced understanding of the past, fluidity of narrative, and the ability to reflect on early experiences. These adults have secure mental models, can recognize the impact of early relations, and are free to live the present without being impaired by past experiences or worries for the future [8].

Adults Dismissing State of Mind

These interviews, in general, show an overall lack of emotional connections during childhood. This discourse usually lacks details and examples, and the adults in this classification generally insist that they cannot recall specific experiences. The participants fail to support their general ideas about early experiences with evidence, and their responses are generally short. The internal working models of these adults are dismissive, because these adults have developed from a young age adaptive strategies based on the perception of an unreliable world. As a result, they have developed a sense of agency and independence, but a lack of feelings of connection, attunement, and emotional communication [8].

Adult Preoccupied State of Mind

These interviews are categorized by a state of mind that has not solved issues of the past. The past affects the adult's life in the present and prevents him or her from living the present in full. Past fears are expressed in relationships of the present and in worries about the future. These adults have not resolved the question of whether the attachment figure would be available to them. They feel a powerful need for closeness and interrelations, and at the same time, fear of losing these intimate relationships. Relationships in the present are experienced as inconsistent and unreliable and as sources of ambivalent feelings. This discourse is categorized by lack of boundaries between past and present experiences, as the past still has an impact of the present state of the subject, not allowing him or her freedom to experience the present [8].

Adult Unresolved Disorganized State of Mind

These interviews commonly have the underlining theme of lack of resolution of trauma or loss. This discourse is generally categorized by lack of coherence and organization, inability to regulate emotional discussion, disruptive behaviors, shifts in states of mind, and a lack of adaptive strategies. The narrative reflects incomplete processing of past events, usually, as a result of traumatic experiences. These adults typically become confused or disoriented when discussing negative events with parents. In these cases, the mind is impaired by traumatic events from accessing memories and processing these memories in coherent ways. This state of mind is thought to be a result of repeated interactions which a caregiver that was frightening and could not sooth and help regulate

the child's emotions. This categorization is often but not always found among adults whose parents were abusive or suffered from a mental illness [8].

Earned Secure Classification

Researchers had encountered a group of adults that were generally classified as secure even in the face of their descriptions of negative parental care experiences. These adults have the ability to present their story in coherent and congruent ways, and to be emotionally involved as they describe negative memories. In general, these adults are thought to have experience repair of early relationships by finding a secure base in a new relationship such as a caregiver, spouse, teacher, or therapists. They have been able to interpret their life stories in ways that make them tolerable and coherent, achieving resolved states of mind and resilience. This allows them to live the present free from unresolved states related to the past. In general, earned secure adults have rewarding intimate relationships, nevertheless, research points at higher levels of depression in this group compared to the secure autonomous group [7].

Relevance to Childhood Development

The use of the AAI has resulted in a body of knowledge related to the importance of adults' representations of attachment for child development. There is an important association between the classifications in the AAI and the quality of parenting an adult can offer. Research suggests that the way in which a mother recalls her own childhood experiences has a strong association to the quality of her relationship with her children. There seems to exist a transmission of attachment patterns through generations, as the caregivers interaction patterns are internalized in the child and affect his or her behavior as an adult. Interviews of autonomous mothers describe a mother who is free from unresolved experiences and can respond to her children's attachment needs. Dismissing interviews present a mother who is reluctant to admit attachment needs, as her needs have often been rejected, and shows rejection and insensitivity to her infant's needs. Similarly, preoccupied interviews reflect a mother who is still dealing with unresolved concerns about her attachment figures and her need for a secure base. Such mothers are likely to show inconsistent and confused responses to their infants, and still feel the need to be nurtured [8].

Research has shown that the AAI can predict the quality of attachment between the mother and child in the strange situation in 75–80% of the cases, when categorizing into secure and insecure attachments. Additionally, autonomous classification predicts secure attachment, dismissing predicts avoidant, and in many cases, preoccupied predicts ambivalent attachments. Similarly, unresolved-disorganized states predict disorganized attachments in the strange situation. The predictive power of the AAI resides not in the quality of early experiences but in the organization of mental representations of attachment and relationship issues. These mental representations reproduce themselves as the internal working models that infants develop about their caregivers and about themselves [3].

The AAI can enable researchers to learn about the processes that facilitate change in the adult's classifications. This can have an effect on the care that children experience, it could help develop clinical services that improve the quality of the parent-child relationships, and could help interrupt the generational transmission of insecure attachments [3].

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Adult Children of Divorce

▶Sleeper Effect of Divorce

Adult Premature Aging Syndrome

►Werner Syndrome

Adult Progeria

►Werner Syndrome

Advertising

►Media

Affect

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Synonyms
Emotions; Feelings; Mood

Definition
A person's feelings or emotions that can be observed by others based on facial expressions, body language, and tone.

Description
Affect is the display of one's emotions. It is displayed by surface-level behavior and observations such as smiling, laughing, crying, etc. It can be easily influenced by events surrounding the person such as surprises, celebrations, arguing, or violence. Affect should not be confused with mood; affect is a more visible and shorter-term experience of emotion. Affect may be described in many different ways; for example, "flat" (i.e., little or no display of emotion), "labile" (i.e., many changes in mood), "euphoric" (i.e., manic), and "dysphoric" (i.e., down or depressed affect).

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Affect Lability

►Emotional Lability

Affective Aggression

►Hostile Aggression

Affective Disorders

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Synonyms
Mood disorders

Definition
Affective disorders are otherwise known as mood disorders and include a group of emotional, psychological, and behavioral disturbances. These disorders include major depressive disorder, bipolar I and II disorders, schizoaffective disorder, and seasonal affective disorder.

Description
The DSM-IV-TR (2000) defines mood disorders in distinct groups including depressive and bipolar disorders. Major depressive disorder differs from bipolar disorder

because there is no history of manic episodes, which is a defining characteristic of bipolar disorder [4].

In children, symptoms of a major depressive episode are shown through irritable or cranky moods and academic problems. Also, these symptoms are different from everyday irritability or frustration and are often comorbid with other childhood disorders, such as ADHD [4]. Finally, depressive episodes emerge more during adolescence along with the onset of puberty [1, 4].

Symptoms of bipolar disorder in children are displayed through difficulties with mood regulation, and may be associated with antisocial behavior, academic problems, or substance use [4, 9]. 10–15% of adolescents with major depressive episodes may develop bipolar disorder as an adult [4] and bipolar disorder is the 6th leading cause of disability among adolescents worldwide [7].

Schizoaffective disorder is defined as meeting the criteria for schizophrenia and major depressive episodes [4]. The onset of schizophrenia is usually between the late teens and early 30s, but early onset has been recorded [4]. In children, symptoms include delusions, visual hallucinations, disorganized speech, and disorganized behavior [4].

Another affective disorder is seasonal affective disorder (SAD). This disorder is defined as a negative change in mood when the seasons change. Children suffering from this disorder may not be aware of the mood changes; they begin to feel depressed in the fall and these feelings increase throughout the winter [8]. Symptoms include feeling tired and washed out; feeling cranky and irritable; temper tantrums; difficulty concentrating; physical complaints; and increased cravings for junk foods [8].

Assessment and Treatment

One of the most widely used assessments for affective disorder in children is the Kiddie Schedule for Affective Disorders and Schizophrenia for School Age Children (K-SADS) [6]. This interview asks the child about his/her symptoms and doesn't just rely on the parent to explain the child's behavior [9]. However, this tool is not without criticism because it only rates current affective symptoms and other symptoms are rated for their occurrence over a lifetime [2], meaning that some important symptoms may be overlooked.

Finally, treatments for affective disorders among children are not where they should be due to a lack of controlled studies [9]. At this time, cognitive-behavioral therapy and interpersonal therapy have been identified as effective psychosocial treatment approaches for childhood depression [5], and mood stabilizers and atypical antipsychotic medications are considered first-line treatment approaches for bipolar disorder in children [3].

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Affliction

▶Bereavement

African American English

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Synonyms

African American Vernacular English; Black dialect; Black English; Black English Vernacular; Black language; Ebonics

Definition

African-American English (AAE) is the term often used by linguists to define a variety of English spoken by most African-Americans.

Description

AAE has been identified by several idioms in the research literature that are indicative of the socio-political and cultural climate of the time. For example, during the Black power movement in the 1970s, the term Black English or Dialect was often used to describe Black speech. In the nineties, the term Ebonics was used to define the language of some in the African-American community [4]. The thrust of the Ebonics debate in the mainstream media was a by-product of the Oakland School District in California's decision to validate the home language of many of its African American students. The Oakland School District's goals were to increase achievement and to address the media's lack of understanding of the language. The backlash that followed Oakland's decision highlighted the great theoretical divide between bidialectic and bilingualism programs [5].

Geneva Smitherman, in her groundbreaking work in the seventies, defined AAE from a socio-linguistic perspective: "an Africanized form of English reflecting Black America's linguistic-cultural African heritage and the condition of servitude, oppression and life in America" [7, p. 2]. Smitherman further stated that Black speech has two dimensions: language and style. Language refers to the sound and grammatical structure; style refers to the ways in which speakers combine words to communicate meaning in a larger context. AAE may also be defined as "a variety that is used by some African Americans and that has lexical, phonological, and syntactic and semantic patterns that are intertwined with structures in general English" [5, p. 676]. This definition suggests that language production operates on a continuum. At any given time, you may have speakers of AAE at different points on the language continuum. In other words, some may be pure speakers of AAE, others may be bidialectical with proficiency in both, while others may be proficient in Standard American English (SAE) with limited proficiency in AAE [5].

Due to AAE's shared history with SAE, some argue that AAE users engage in a poor version of SAE. However, speakers of AAE do follow a rule-governed pattern. The pronunciation sounds of AAE are very similar to the sounds used in SAE; however, the rules governing the production of sounds have different patterns of distribution [5, 7]. For example, words ending in clusters in SAE do not also end in clusters in AAE; as a result, the final clusters of "st, sk, sp, pt, kt, nd, ld" are often reduced to a single consonant. For instance, the following SAE words "list, desk, wasp and accept" are pronounced in AAE as "lis, des, was, and accep." The omission of the last consonant is not an indication of poor grammar but a rule-governed production. In addition, speakers of AAE tend to do some of the following: pronounce the initial /th/ sound as /d/ (e.g., them = dem; then = den); pronounce the final /th/ sound as /f/ (e.g., south = souf; mouth = mouf); delete the middle and final /r/ (e.g., during = doing; more = mow; star = stah); delete the middle and final /l/ (e.g., help = hep; will = wii); and place primary stress on first syllable and front shifting (e.g., police = PO-lice) [7].

One of the most distinctive and critical features in the structure of AAE is use of the "be" pattern in communicating. This pattern is used to denote a recurring or habitual condition. "Be" is omitted from conversation to describe an action that has happened once. For example, the sentence "The coffee bees cold" means the coffee is cold everyday, versus "the coffee cold" which means that the coffee is cold today. In addition, "be" is often used in conjunction with "do" to convey a recurring behavior expressed in the format of a question (e.g., "do they be playing all day?" which translates as "do they play all day?"). In applying the non-be rule, the AAE speaker communicates with the absence of be before nouns (e.g., he a doctor now), adjectives (e.g., he too tall for me), adverbs (e.g., they shoes right here), prepositional phrases (e.g., my momma in the hospital), and in auxiliary constructions (e.g., they talking about school now) [7].

Speakers of AAE often use "been" to communicate a past action that has recently been completed. The context of the sentence symbols the time past versus the actual amount of time. For example, an AAE speaker may say "she been tardy twice this semester" to suggest that she has been late twice during the semester. In addition, "done" is also used to represent past action that is recently completed (e.g., I done my homework today). The context of the immediate sentence or the entire conversation is used as a time marker. Therefore, AAE speakers do not use the "ed" in past tense or past participle conjunction. Consequently, the same verb format serves for both past tense and past participle (e.g., "the bus pass me up last week" or "the bus pass me up everyday"). Moreover, AAE verbs are not marked for person. Hence, the same verb format serves for both singular and plural nouns. Additionally, AAE speakers tend to use triple and quadruple negatives in their sentence structure (e.g., don't nobody never help me do my homework) and place stresses on the subjects of sentences (e.g., my son, he have a new car). For additional information on AAE structure, the reader is referred to Smitherman's extensive work [7].

AAE and Literacy Development

The association between AAE and early literacy skills is of paramount importance due to the low reading performance of African American students. It was the desire to raise the achievement scores of students in the Oakland School District that prompted the school board to recognize the home language of its students. Based on the examples provided above, it becomes clear how educators may mistake AAE as poor grammar. Recent studies have documented the phonological structure of AAE production in preschool and elementary age students, suggesting that many children enter school speaking some variation of the language [1]. The linear relationship between AAE production and early literacy skills is far more complex than earlier established. In fact, a U-shaped association between preschoolers' use of AAE and their literacy skills was found. The authors found that children who use AAE features more or less frequently in an implicit SAE task (i.e., oral narrative elicitation) demonstrated stronger overall emergent literacy skills than students who produced AAE features moderately. Additionally, in a literacy task which required explicit SAE usage, preschooler used less AAE features in traditional SAE activities. In fact, they appeared to decrease their use of AAE features as the expectations for SAE increased. Hence, even in preschool, students are able to dialect shift between contexts. Moreover, students who produce less AAE features in their speaking demonstrated stronger literacy skills than those students who produced AAE features moderately. Likewise, students who were most prolific and proficient at both languages demonstrated emergent literacy skills [1]. Similar findings were noted in AAE features of middle class elementary age students who were able to code-switch depending on the demands of the activity [6].

In conclusion, students of AAE tend to produce more phonological features at the elementary school level [2]. Phonemic awareness skills are closely aligned with students' ability to read well. As such, programs aimed at increasing the awareness of phonological skills in speakers of AAE need to be attuned to the features of the home language and teach the explicit structure of SAE [3]. Although AAE has been identified as a rule-governed language spoken by many African American children and adults living in low and middle socio-economical environments, educational practitioners continue to struggle with designing language programs to meet these students' needs.

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African American Vernacular English

▶African American English
▶Ebonics

AFT

▶Amniocentesis

Afterbirth

▶Placenta

Age Attribution

▶Age Bias

Age Bias

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Synonyms

Age attribution; Age prejudice; Ageism; Ageist stereotype; Older worker discrimination

Definition

Age bias is the result of prejudicial, evaluative judgments being made toward an individual or individuals merely because of their age [1]. In general, age bias is negative and directed toward those who are older, although age bias is possible toward those who are younger as well [2].

Description

Age bias occurs when age-related stereotyping and prejudice causes one to treat another person or persons with partiality because of their age [3]. Preconceived notions about age then direct biased actions toward that person within the context of the age group in question. For example, age bias tempered by notions of older adults being incurious, resistant to change, technically outdated, and susceptible to physical ailments, might lead a manager to hire a younger job applicant over an equally qualified older applicant. Likewise, possible preconceptions of younger workers as being lazy, less loyal, harder to satisfy, and more likely to miss work because of having young children might bias a manager's decision to hire. To be clear, however, the research demonstrates that age bias is far more prevalent toward those who are older, female, and a member of the non-dominant culture [3, 4].

Age bias is not simply an abstraction to be argued by scholars; it exists and it is pervasive in western cultures [3]. Such bias exists because one's culture supports it in a number of ways, especially through the use of language [4]. Through words like "old," ageist notions are perpetuated. A quick peek at the dictionary yields terms like worn, no longer in use, discarded, tiresome, and obsolete to name a few. Each term has negative connotations that at least unconsciously support age bias. In addition, humor and jokes propagate age bias because age always has been a form of derogatory humor. Modern television, newspaper, and magazine advertisements are notable too in perpetuating age bias in their systematic avoidance of featuring older adults, except when exploiting negative stereotypes such as deteriorating physical appearance (i.e., female beauty is akin to "looking young" and avoiding wrinkling). Similarly, elderly characters on television shows regularly are marginalized into minor roles, poorly developed as characters, and typically described in stereotypical terms (e.g., fading memory, being comical). Indeed, print and electronic media are powerful language forms that continuously inform and shape culturally-accepted ideas of being "older."

In the workplace, age bias toward older workers is problematic, despite laws being passed to lessen its likelihood [5]. In the US, the Age Discrimination in Employment Act (ADEA) was passed in 1967 to promote the employment of individuals on the basis of ability and not age-related stereotypes, with modest success. ADEA permitted exceptions to certain occupations, such as pilots, fire fighters, police officers, bus drivers, air traffic controllers, and others responsible for public safety. The biggest workplace problem associated with age bias is hiring and promotional practices [5]. Older workers in many industries are defined as being 50 or older, but this varies widely. In the computer industry, for example, 35-year-old programmers are considered "old." For fashion models, being near 30 can be a considerable liability; youthful beauty is what sells in this instance. Of course, older workers can be valued for their positive attributes like experience, knowledge, positive attitude, loyalty, and commitment to quality. Yet, organizational research demonstrates that frequently managers have clearly biased perceptions of older workers as being more resistant to change, technology-phobic, less creative, and less capable of handling stressful situations. In study after study, when equally qualified younger and older workers apply for a job or promotion, the younger worker has been more favored in the majority of cases [5].

To combat age bias, people need to be made aware of its insidiousness, pervasiveness, and possible negative consequences. We must be careful to remember that age bias has mostly negative consequences, even more so for females and non-dominant culture members. Those involved in producing print and electronic media could take a leading role in sensitizing its citizens to the issue of age bias and begin addressing it systematically through promoting more positive, but realistic portrayals of older people. In the workplace, conducting intergenerational training and making age a major part of diversity awareness training would be welcome first steps.

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Age Equivalent

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Synonyms

Age equivalent score; Age score; Developmental norms; Norm-referenced scores; Phylogenetic equivalents; Relative performance indexes

Definition

Age Equivalent is the individual's ability; skill, knowledge, or measurement expressed as the age at which most individuals reach the same level (age norm). The Age Norm is the average score of a particular test completed by children of a given chronological age.

For example, the mental age norm of a 6-year old female is determined by collecting a sample of 6-year old female children's mental abilities, then calculating that average cognitive function as the age norm. This average mental function is the age norm for that group. The cognitive function equivalent of the 6-year-old female will then be compared against this age norm.

Description

Age Equivalents are not only used in intelligence measurement, but also physical development such as physical growth (i.e., height and weight, verbal quantity and quality) and motor skills. There are age equivalents, timetables of development, for both prenatal and throughout childhood.

Some tests which use age equivalents include: WIAT, Oral and Written Language Scales-Written Expression (OWLS WE), Peabody gross motor scale, Mullen Scales of Early Learning for the Assessment of Young Children with Autism Spectrum Disorders, and some early intervention tests. Some tests will use age norms as an additional evaluation tool with standard scores.

Advantages

Age equivalents only report relative standing of different students on the same test and are more intuitively understandable. They give a frame of reference for growth and can provide problem-warning signs.

Disadvantages

Since there is a relationship between maturation and learning, it suggests a timetable. But because individuals are different, they cannot be expected to be in the same place at the same time. Even though two children are the same mental age, they may not both be ready for the same school tasks, such as reading.

Because of comparisons to norms, failing to master developmental tasks as expected may cause unfavorable social judgments and a limited foundation for later tasks. Care should be taken to avoid a negative (self) judgment resulting in feelings of inadequacy.

Age equivalents are ordinal data, which means there are not equal units between scores. The development curves are higher in younger children and plateau with older children and adults. Because of this, there are larger differences between scores of younger as compared to older children. Unless the practitioner understands the difference in the amount of variance, it may cause difficulty with the interpretation; as such, should not be used alone to make decisions.

Standardized tests usually use normative scores, so there is a measurement within an age group. Standard scores provide a more accurate view of an examinee's ability because they are based not only on the mean at a given age level but also on the distribution of scores within the age group. Age equivalents are measured in groups between ages. Age norms are calculated from group scores, not individuals within the group.

Analysis of variance from the mean cannot be calculated with age equivalents. Age norms assume scores are evenly distributed, but there is no way to know how the scores are in actuality clustered. If scores cluster around the top or bottom of the scale it means that change can only be detected in the other direction. This introduces a bias called "ceiling" or "floor" effects. In a ceiling effect, the majority of scores is at or near the maximum possible for the test and is limited by a lack of variability. This presents statistical problems. The test can't measure traits above its ceiling. This violates statistical assumptions and limits reliability results.

Relevance to Childhood Development

Educational Setting

Age equivalents are used to make decisions about intellectual development, academic achievement, and the

discrepancy between them to help identify Learning Disabilities (LD). It also measures comparisons of intellectual ability. IQ is a measure of intelligence calculated by mental age divided by actual age. Even the fact that IQ can change illustrates the problem with analyzing mental age. To minimize this occurrence, it is statistically calculated as a distribution on the bell curve.

Growth and Development

One of the more universally accepted theories is that child development is sequential in nature; that there is often a hierarchy of skills creating milestones or stages. Since all humans go through the same steps, comparisons should be able to be made. Stages are monitored from babyhood on up, observing these steps. The approximate ages at which steps occur are charted on developmental scales. Generally, development is measured in the following areas: fine motor, gross motor, cognitive, self-help, social emotional, and expressive and receptive language. Age equivalents are compared to age norms to determine if development is occurring as expected.

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Age Equivalent Score

►Age Equivalent

Age of Viability

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Synonyms

Fetal survival; Premature infant survival

Definition

The age of viability refers to the period of time when the developing fetus is able to survive outside of its mother's womb.

Description

Generally, the age of viability of a fetus is considered to be between 22 and 26 weeks after conception. Survival of a child born prior to the full gestational age (40 weeks) improves greatly during the third trimester. The survival rates at different times during the age of variability are as follows:

- 21 weeks or less: survival rate is 0%
- 22 weeks; survival rate is 0–10%
- 23 weeks; survival rate is 10–35%
- 24 weeks; survival rate is 40–70%
- 25 weeks; survival rate is 50–80%
- 26 weeks; survival rate is 80–90%
- 27 weeks; survival rate is 90% or more

Neonates born during the age of viability usually need assistance to survive and share some common, but often temporary, disorders. These include seizure disorders, heart defects, blindness, problems controlling body temperature, respiratory difficulties, neurological problems including hemorrhage, among others.

Although some of these issues may persist, the prognosis for the premature children born at the normal weight for their period of gestation is generally better than that of small-for-date children (babies born weighing less than is typical for their gestational age, including children carried full term).

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Age of Youth

►Childhood

Age Prejudice

►Age Bias

Age Score

►Age Equivalent

Age-Equivalent

►Psychological Age

Age-Graded Influences: Cohort

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Synonyms

Generational effects

Definition

The term cohort effects refers to traits, attitudes and/or behaviors shared by individuals growing up under similar sociocultural conditions at a particular point in history.

The term age-graded influences refers to effects on development that tend to occur at approximately the same chronological age in most people, and can be either biological effects (e.g., puberty), or environmental effects (e.g., entering the school system, in many countries).

Description

Cohort/History Graded Effects

The developmental researcher Paul Baltes discusses the concept of history graded effects on development. This term refers to the concept that each generation experiences certain historical events, fads, etc. that have a unique effect on their growth and development that other cohorts do not experience in the same way. These effects are thought to be strongest when a cohort is in adolescence or young adulthood; thus, at some level, making them age-graded as well. One example might be how each generation hones its own musical styles and then tends to cling to the music of its youth throughout life. Imagine the effects, particularly in the short term, that the protest music of the 1960s had on the activism of that generation. Another example might be the effect of Watergate on the generation who came of age at in the 1970s. Their attitude toward government and politicians is typically more cynical than that of previous generations, according to some authors. The concept of history graded effects is that, as each cohort experiences the unique sociocultural forces at play during their adolescence and young adulthood, there are some commonalities in their effects on the growth and development of traits, attitudes and behaviors of that cohort.

Cohort effects have been shown to be significant. Research has shown, for example, that the development of personality in teens was affected as much by cohort-related factors as age-related factors. Similarly, it was found that cohort differences in adult intellectual development were as large as longitudinally-studied age differences.

Cohort Effects in Research

Cohort effects can also be important in the study of development and the study of change with age. The two predominant methods for studying change with age are the cross sectional study and the longitudinal study. Cohort effects can be problematic in both types of research.

In cross-sectional studies, researchers study change with age by, at one general point in time, measuring people of different ages on some trait or behavior of interest. For example, a researcher might wish to study the development of memory with age. To do so she loads her test on a computer in her lab, and does a cross-sectional study, testing a group of 20-year-olds, 30-year-olds, 40-year-olds, and so on by decade up through 80-year-olds. Suppose that the researcher finds that 80-year-olds score significantly

lower on the test than 20-year-olds and, at each progressive age tested, that scores are lower. Can we therefore conclude that memory decreases with age? We cannot; one of the major reasons is cohort effects. For example, today's 20-year-olds have much more computer experience on average than today's 80-year-olds. Therefore the differences we see may be attributable to cohort differences in comfort with the method of testing, and not, in fact, decreases in memory with age. It is also true that today's 20-year-olds typically have more recent and extensive experience with memorizing information, given their more recent experience in a school setting memorizing information and using mneumonic strategies. Although this may make it seem as if the younger cohort is more adept at the memory than the older, it may just represent that they have more recent experience and practice in using strategies to memorize quickly. So, once again, cohort effects may make it appear that age-related differences exist when they may not.

Likewise, in longitudinal studies, cohort effects can be an issue. In longitudinal studies, change across age is examined by testing individuals of a single cohort on a trait or behavior of interest, and then continuing to test that group of individuals over time. In this case, a researcher might give a test for a trait like frugality, and follow the members of his original study, testing them every 5 years throughout their lifetimes. The cohort effect issue in longitudinal studies is that only one cohort is studied. The changes across age with the cohort studies might differ if another cohort were studied. Imagine how changes in baby boomers would be different than those of the Depression generation in terms of that trait of frugality.

Typically, cohort effects in research are dealt with by combining cross-sectional and longitudinal approaches in the same study. One might do a series of cross-sectional studies, or a series of longitudinal studies, for example. These are often referred to as sequential designs.

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Ageism

►Age Bias

Ageist Stereotype

►Age Bias

Agenesis of the Corpus Callosum

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Synonyms

Callosal agenesis

Definition

Agenesis of the corpus callosum (ACC) is a rare congenital defect; it is literally a failure in proper development of the corpus callosum, which is normally the largest commissure or interhemispheric pathway, between the two brain hemispheres of the cerebral cortex. The reported frequency of this condition in the United States is approximately 0.7–5.3% of all births; presumably, the international incidence falls in the same range [5].

ACC may be complete, partial or atypical. In complete ACC, the corpus callosum is totally missing. Such callosal disorders are diagnosed via brain imaging studies such as MRI, CT scan or other technologies [3, 4].

The corpus callosum normally begins to form in the tenth or eleventh week of pregnancy. ACC has no single cause but can be due to genetic factors, prenatal exposure to infectious agents or toxins, among other possible causes; in most cases, the exact cause is unknown. Regardless of the cause, normal formation of the corpus callosum

is disrupted between the fifth and sixteenth week of prenatal development [4].

The symptomology, if any, resulting from ACC varies greatly from one case to another, but includes visual impairments, poor muscle tone and motor coordination, delayed motor milestones, reduced pain perception, and difficulties in chewing and swallowing. Since the emergence of present day brain imaging technologies, it has become known that there are individuals with ACC who do not have any psychological delays or deficits. When psychological symptoms or deficits are apparent, these are either idiosyncratic and or typically difficult to detect in most tasks of everyday life. Subtle difficulties in sensory integration and simultaneous dexterity requiring use of both hands have been observed but distinguishing these from normal inattention or "clumsiness" may be a fine discrimination to make; the individual's IQ is generally normal or in the lower end of what is considered normal [1, 4]. One of the most intriguing aspects of ACC is the lack of symptoms and deficits relative to those observed after ablation of the corpus callosum in a mature brain. Individuals with ACC have been found to have brains with enlargement of what are typically the other minor interhemispheric pathways, namely the anterior and posterior commissures. It is assumed that the enlarged anterior and posterior commissures are a means by which brain or neural plasticity has compensated for the lack of a corpus callosum [1, 2].

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Age-Related Attitudes

►Psychological Age

Age-Related Play Therapy

►Play-Group Therapy

Aggression

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Synonyms

Anger; Antagonism; Assault; Bullying; Hostility; Violence

Definition

Any type of behavior or action that is used to harm or dominate another.

Description

Aggression is part of human nature; therefore, all children must learn to deal with their own aggression and the aggression of others. Even though aggression is an innate component of all human societies, societies vary in degree of acceptance and condemnation of aggressive acts. In addition to variations in societies, individuals vary in their levels of aggression. Great debate surrounds what constitutes aggressive actions. For example, is intention necessary for an act to be considered aggressive? Should the context be accounted for? When does an action change from play to aggression? Aggression is a complex and rather elusive field of study.

Aggression can come in many forms, such as verbal, physical, relational, can be committed by groups or individuals, can be emotional or non-emotional, and can be targeted to a specific person or can be a random act. However, most researchers can agree on the basic distinction between hostile and instrumental aggression. Hostile aggression involves acts that have the goal of hurting others or injuring victims. In contrast, instrumental aggression is acts that are motivated by non-aggressive reason but often harm others as a by-product. The major distinction between hostile and instrumental aggression seems to be intention.

Even with the vague and conflicting definitions of aggression used by researchers, children tend to follow a particular developmental pattern focused on amount, type, causes, and thoughts about aggression. Specifically, the amount of aggression decreases with age. Toddlers use aggression directed at other children about 50% of the time, whereas preschoolers use aggression only about 17% of the time during interactions with other children. Some research does suggest a slight increase in the amount of aggression between ages 9 and 14 years, but this increase is evident in boys only. The gender difference may be due to the expression of aggression. Boys use more overt actions

(e.g., hitting, yelling, pushing), whereas girls use more subtle or covert actions (e.g., exclusion, gossip, name calling).

Another developmental pattern is seen in the type of aggression children use. Given increases in social interactions and language use as children get older, aggression switches from more physical to more verbal actions. Toddlers have limited language skills and have no choice but to express frustration or anger through physical means. However, by middle childhood, children can understand and use language in more complex forms leading to more verbal expression of anger or frustration, such as name-calling, taunting, teasing, joking, and sarcasm. Also, across preschool and middle childhood, instrumental aggression decreases in frequency, whereas hostile aggression remains relatively stable. Change in type of aggression can be attributed to children being able to intentionally use aggressive acts. Rather than aggression being a by-product of actions as is common in younger children, in older children are able to deliberately manipulate aggression toward targets.

Given that social situations change across childhood with children gaining entry into more groups and organized events, the contextual elicitors of aggression also changes with age. For toddlers, aggressive acts are most often directed at playmates and center around possession or lack of possession of toys and play objects. Also, in early childhood, toddlers direct aggressive acts toward parent based on disagreements over daily routine activities like bathing, eating, bedtime, etc. Because children are spending more time in larger group settings like school, older children often use aggression not only for individual gain but for the betterment of the group. For example, children may use aggression to obtain the prime spot on the playground so that the entire group may play together.

The final developmental pattern seen in childhood aggression is due to increased awareness of social situations and interpretation of social events. With age, children are able to better understand their motives and the motives of others. Also, children are able to predict behaviors in social situations and use that knowledge to change social interactions. Older children are better able to take on the perspective of others during social situations and can better anticipate the actions and emotions of others. As a result of children's increased social savvy, aggressive behaviors become more subtle and sophisticated. Older children are now able to control their behaviors and emotional responses to override the impulsive aggressive acts of early childhood and are better able to deliberately plan complex aggressive acts. Intense emotional reactions can still elicit violent behaviors but children are now able to use aggression more effectively to harm others.

Socialization has a large impact on the individual developmental path of aggression. Parental style has been shown to influence aggression in adolescent boys. Specifically, when parents are rejecting or indifferent to their male adolescents, they have little motivation to control hostility. Also, when parents are too permissive and fail to set limits, male adolescents may feel freer to use aggression. Parents may also model the rewards of using aggression. For example, frequent use of physical punishment and repeated demonstration of aggression increases the likelihood of children using aggression as a means to an end. Also, differential rewarding may encourage aggression. Parents of aggressive adolescent males are more likely to punish their sons for aggressive acts directed at parents but rewarded for aggressive acts directed toward peers.

Individual differences in aggression levels are fairly stable across development. Children, who are considered aggressive compared to their peers in toddlerhood, will most likely be considered aggressive compared to their peers in preschool and beyond. Individual differences in aggression are also relatively consistent across situations. Children who are aggressive with peers tend to be aggressive with parents, teachers, and others, as well as across contexts like school and home. However, this does not mean that individual levels of aggression are fixed and cannot be altered. Children can learn the precursors of their aggression and therefore, can learn to control aggressive tendencies. Modeling prosocial actions is another important way to teach children to control their aggression. If children have other more acceptable behavior options, they will be more likely to use positive versus negative actions. Changing children's interpretation of social situations may also help decrease aggression. If children can come to recognize other possible motives for behaviors, they may be able to control their impulsive reactions to potentially threatening social interactions.

Several theories have described possible biological and social determinants of aggression. Freud's instinct theory and Lorenz's ethological theory both characterize aggression as instinctual reactions and therefore an inescapable part of life. For Freud, the death instinct, inborn in every human, was the drive to outwardly destroy property or hurt others. This death instinct builds energy overtime that must be released in socially acceptable ways, via catharsis, or violence is inevitable. According to Lorenz, aggression has adaptive value, like hunger, sexuality, and flight, that ensures the strongest will survive.

Based on learning theories, the Frustration-Aggression Hypothesis and Bandura's Social Learning Theory put

more emphasis on contextual influences on aggression. According to the Frustration-Aggression Hypothesis, aggression is a learned response when faced with frustrating social situations. Children learn that expressing aggression helps to alleviate their frustration when their goals are blocked. Although the link between frustration and aggression makes common sense, research has failed to make a clear and reliable link between frustration and aggression. Being frustrated does not always lead to acting aggressively and aggressive acts are not always caused by being frustrated. Bandura's research explored the link between observing aggression and expression of aggression. Through observational learning, children see the usefulness of aggressive acts for obtaining goals and come to use aggression in similar situations. Bandura's Social Learning Theory is the foundation for the argument that television and other forms of media increase aggression levels. However, a causal link between aggression and media has not been established. Television may increase aggressive behaviors or aggressive tendencies may lead to watching violent television.

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Aggression

►Bullying

Aggressive Behavior Problems

►Temper Tantrums

Aggressive Behaviors

►Conduct Disorder

Agnosia

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Synonyms

Agnosis Primary; Monomodel Visual Amnesia; Visual Amnesia

Definition

Agnosia is a relatively rare neurological disorder which refers to the inability to recognize common objects, persons, sounds, shapes, or smells, even when basic sensory modalities are intact. An individual diagnosed with an agnosia is able to receive sensory input such as vision, hearing, and touch, yet is unable to understand or recognize what they see, hear or feel. Visual and auditory agnosias are the most common identified in the literature. This inability for recognition is not due to issues with alertness, intelligence and language [3].

Background and Overview

Agnosia, as a term to describe this phenomenon, was first introduced in 1891 by Sigmund Freud (1856–1939). Agnosia comes from the Greek word for "not knowing" or loss of knowledge. Agnosia was described by Teuber (1916–1977) as a "normal percept stripped of its meaning." The phenomenon of agnosia is frequently discussed in the literature but is relatively rare. Due to the rarity of the disorder, there is no standard taxonomy for describing it, which complicates the clinical understanding [4]. Most reported cases have been patient-based of single subject design, with no two cases exactly alike. Limitations of patient-based research have been cited by Farah [2] as not being readily available for replication. The inability to accurately classify the disorder has led some skeptics in the past to question whether or not the phenomenon actually exists. Currently there is a broad consensus that the disorder does exist, in part due to advances in neuroimaging. Additionally, there are many types of agnosia identified in the literature [7]. Each specific type of agnosia affects a specific sensory modality in a specific way. The phenomenon can range from an inability to recognize familiar faces (prosopagnosia), to the inability to recognize familiar voices (phonagnosia). Other types of agnosia identified in the literature include autotopagnosia, the inability to identify the parts of one's own body, and color agnosia, the inability to recognize color despite intact color discrimination.

Agnosia is most commonly seen in persons who suffer from a stroke or from dementia. The inability to recognize sensory stimuli can be partial or complete, depending on the extent of the damage to the brain [8]. For example, an individual suffering from a visual agnosia may be able to visually describe the object that they are seeing, yet is unable to recognize what it is or identify it by name. This curious phenomenon is often confined to a singular sensory area, such as vision, hearing, or tactile (touch), but can manifest concurrent with other sensory areas. For example, a person with a visual agnosia would not be able to identify or demonstrate how to use a common object, such as a hammer, even though they can see it and accurately describe it. They would, however, likely be able to identify the hammer by touch or by sound if they heard it banging on wood, as these sensory modalities would not be affected. Individuals can have a spontaneous recovery, or recovery can be slow and incomplete. Others must learn to cope with their strange disability. No specific treatment exists.

Anatomical Clinical

Gerschwind (1965) published a monograph, "Disconnection Syndromes in Animals and Man"; his primary thesis was that certain types of behavioral deficits were caused by disconnections between hemispheres, within a hemisphere, or a combination of both. Gerschwind advanced the concept that an agnosia was the result of disconnecting the posterior speech area from the visual association cortex, and is caused by dysfunction due to brain damage in the parietal, temporal, or occipital lobes [4]. According to Luria [6], visual agnosias are the result of a disturbance of visual perception that develops as a result of lesions of the secondary visual cortex. Agnosia is a symptom of a brain disorder. The term is most often used when the primary sense organ involving sight, touch, or hearing is involved and is not impaired. Knowledge of the neuropathology of agnosia is currently incomplete. However, there is evidence to suggest that bilateral occipital lobe lesions extending deep into the white matter contribute to this disorder. The parietal and temporal lobes of the brain are implicated, as they are involved with storing memories and the association of objects to those memories. Damage may be due to head trauma, stroke, carbon monoxide poising, anoxia, dementia or other neurological disorders.

There are many different subtypes of agnosia described in the literature, but all generally fall under the three main categories; visual agnosia, auditory agnosia, and tactile agnosia.

Visual agnosia is a neurological disorder confined to the visual modality in which the person is unable to recognize familiar objects despite intact visual processes. Lissauer (1890) was the first to suggest that there was a distinction between a deficit in the ability to perceive stimuli consciously and a deficit reflecting an inability to ascribe meaning to what has been perceived, a disorder that he identified as "soul blindness." He identified two broad classifications or categories for visual agnosia, apperceptive agnosia and associative agnosia. Most neuropsychologists continue to use these broad classifications. While there is a distinction between apperception and associative agnosia, the distinction is not always clear [7].

Apperceptive agnosia is identified when object recognition fails, due to impairment in visual perception. Apperceptive agnosia is the inability to visually assemble incoming information through the visual system and to form an image, while other visual functions such as acuity, color vision, and brightness discrimination remain intact. These individuals have obvious difficulty with visual perception and are unable to process features and, as such, are not able to accurately develop a perception of the overall shape of the object. As a result, they have difficulty recognizing, copying, or discriminating between different visual stimuli. Individuals with apperceptive agnosia are unable to copy images accurately. Simply stated, these individuals cannot see objects normally and, as a result, they cannot recognize them. A review of the literature identifies carbon monoxide poisoning as a known cause of apperceptive agnosia. Damage to the brain caused by carbon monoxide poisoning is frequently profuse and is primarily located in the posterior regions of the brain. The posterior regions of the brain are responsible for the analysis, coding, and storage of information. Lesions in the occipito-temporal and occipito-parietal visual association areas have been implicated in the damage of visual shape or general visual space recognition [2, 4, 5, 7].

Simultanagnosia, also known as Balint's syndrome, named after the Hungarian neurologist (1909) is the inability to perceive more than one object at a time. It is a condition where visual images containing multiple objects cannot be interpreted as a whole. Individuals can recognize single objects or details in their visual field, but only one at a time. They cannot make a coherent picture out of the various images within the scene or make whole images out of details. They literally cannot see the forest for the trees. Instead, individuals with simultanagnosia recognize only portions of the visual scene and fail to describe the overall nature of the scene and comprehend its meaning. Individuals capable of seeing only one object at a time are said to have dorsal simultanagnosia. Individuals with ventral simultanagnosia retain the ability to recognize whole objects, but the rate of recognition is impaired. The left inferior temporo-occipital cortex is generally implicated in the

deficit. This phenomenon has been described as an inability to shift visual attention from one point to another [7].

Associative visual agnosia has been used broadly to describe a heterogeneous set of symptoms, but most often refers to an inability to recognize objects, despite evidence that early stage perceptual processing is intact. According to Farah [2], there are three main criteria that identify an associative agnosia. The first criterion is the difficulty of recognizing a variety of objects, as demonstrated by an inability to categorize these objects by semantic grouping or by gesturing to indicate normal functioning of the object. The second criterion is normal recognition of objects through modalities other than vision, for example, by touching the object. The third criterion includes intact visual perception that seems adequate to the task of recognizing the object [3].

Unlike apperceptive agnosia, these individuals can recognize shapes and objects. However, they cannot access memory or knowledge of what the object is. The object is perceived as an object but has no meaning; therefore it cannot be identified. For example, the individual can describe accurately visual scenes and/or various objects, but they fail to recognize them for what they are. They would be able to copy and reproduce images, but are unable to identify them by name. This has led some to believe that there is damage in the language centers of the brain. Bilateral damage of the posterior cerebral arteries has been frequently identified in associative agnosia. In general, damage to the brain is more localized than in apperceptive agnosia. Reported cases in the literature identify that damage to several different areas of the brain may produce the affect of an agnosia. Associative agnosia is more common than apperceptive agnosia [1].

Auditory agnosia is a deficit in auditory recognition confined to the auditory modality, despite intact auditory sensory function. There are non-verbal and verbal forms of auditory agnosia. Non-verbal auditory agnosia is defined as a failure to recognize nonverbal acoustic stimuli, despite adequate hearing. For example, the individual would be unable to recognize familiar sounds such as bells, whistles, horns, or animal sounds. Like a visual agnosia, this is sometimes described as a disconnect syndrome, meaning that the brain cannot connect the sound to the source of the sound. This disorder is associated with right temporal or parietal lesions or bilateral lesions of the auditory association cortex [4, 5].

Verbal forms of auditory agnosia refer to an inability to comprehend language, despite normal hearing capabilities. These individuals are able to copy and write spontaneously and follow written commands, but cannot write dictation. Auditory verbal agnosia is thought to be produced by damage to Wernicke's area in the left primary auditory cortex, or the tracts leading to it. Lesions leading to the corpus callosum are also implicated.

Tactile agnosia, sometimes referred to as astereognosia, is a deficit in object recognition confined to the tactile modality, and occurs as a result of unilateral damage resulting from lesions of the contralateral inferior parietal cortex. Those with a tactile agnosia have difficulty identifying a familiar object, such as a key or safety pin that is placed in the hand on the side of the body opposite the damaged area of the brain. These individuals cannot recognize an item by touching or holding it, but can immediately recognize the object when they look at it. Like visual and auditory agnosias, this too is sometimes considered a disconnect syndrome between the somesthetic perception area of the brain and the knowledge of what an item is [4].

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Agnosis Primary

►Agnosia

Agrammatic Dysphasia

►Expressive Dysphasia

Agraphia

►Childhood Aphasia
►Dysgraphia
►Spelling Disabilities

Aid to Families with Dependent Children (AFDC)

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Description

Aid to Families with Dependent Children (AFDC) was established by the Social Security Act of 1935 as a grant program to enable states to provide cash welfare payments for needy children who had been deprived of parental support or care because their father or mother was absent from the home, incapacitated, deceased, or unemployed. All 50 states, the District of Columbia, Guam, Puerto Rico, and the Virgin Islands operated an AFDC program. States defined "need," set their own benefit levels, established (within federal limitations) income and resource limits, and administered the program or supervised its administration. States were entitled to unlimited federal funds for reimbursement of benefit payments, at "matching" rates that were inversely related to state per capita income. States were required to provide aid to all persons who were in classes eligible under federal law and whose income and resources were within state-set limits.

During the 1990s, the federal government increasingly used its authority under section 1115 of the Social Security Act to waive portions of the federal requirements under AFDC. This allowed states to test such changes as expanded earned income disregards, increased work requirements and stronger sanctions for failure to comply with them, time limits on benefits, and expanded access to transitional benefits such as child care and medical assistance. As a condition of receiving waivers, states were required to conduct rigorous evaluations of the impacts of these changes on the welfare receipt, employment, and earnings of participants.

The Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (PRWORA) replaced AFDC, AFDC administration, the Job Opportunities and Basic Skills Training (JOBS) program, and the Emergency Assistance (EA) program with a cash welfare block grant called the Temporary Assistance for Needy Families (TANF) program. Key elements of TANF include a lifetime limit of 5 years (60 months) on the amount of time a family with an adult can receive assistance funded with federal funds, increasing work participation rate requirements which states must meet, and broad state flexibility on program design. Spending through the TANF block grant is capped and funded at $16.5 billion per year, slightly above fiscal year 1995 federal expenditures for the four component programs. States must also meet a "maintenance of effort (MOE) requirement" by spending on needy families at least 75% of the amount of state funds used in FY 1994 on these programs (80% if they fail work participation rate requirements).

TANF gives states wide latitude in spending both Federal TANF funds and state MOE funds. Subject to a few restrictions, TANF funds may be used in any way that supports one of the four statutory purposes of TANF: to provide assistance to needy families so that children can be cared for at home; to end the dependence of needy parents on government benefits by promoting job preparation, work and marriage; to prevent and reduce the incidence of out-of-wedlock pregnancies; and to encourage the formation and maintenance of two-parent families.

AIDS

▶Acquired Immunodeficiency Syndrome

Ainsworth's Procedure

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Synonyms

Attachment behaviors; Attachment classifications; Attachment patterns; Attachment theory; Exploration; Internal working models; Separation; Strange situation

Definition

Ainsworth's procedure is a method that assesses the quality of attachment between infant and primary caregiver. This procedure takes place in a laboratory, and categorizes infants into secure (B), insecure-avoidant (A) and insecure-resistant or ambivalent (C). Additionally, a forth classification, disorganized (D) is recognized.

Description

Theoretical Background

Attachment theory was first articulated by John Bowlby, who proposed that an attachment is an affectionate tie

that develops between two people, and endures over time [5]. In this relationship one person is viewed as stronger and smarter and takes the role of caregiver and the second person is viewed as needy of care and nurturance. This relationship is based in the etiology and biology of humans, since it served the role of protection and survival of the human infant. This way the relatively helpless infant has innate qualities based in the genetic programming that prompt him or her to form attachments and the human caregiver has innate qualities that facilitate caring and nurturing.

According to Bowlby [6], the attachment figure fulfills two important functions in the development of the child. The first function is to provide the infant with a secure based from which exploration can take place, and the second function is to provide the guidelines for the internal working models. Sensitive and consistent responses from a caregiver constitute a relationship in which the infant feels safe and confident to explore the world. These early experiences form a pattern in the infant's mind and are internalized as internal working models. The experiences of protection, comfort and opportunities for exploration form internal working models of self as independent, lovable, worthy, and self-reliant. In contrast, when an infant experiences the rejection of his or her needs for comfort and exploration the infant is likely to develop internal working models of the self as less worthy, less lovable, and less self-reliant. This way, a child's daily explorations has the function of testing a hypothesis about his or herself and the child's world. The child's learning to attribute meaning to past, present, and future interactions constitutes the basis for the development of internal working models. Therefore, these models can be described as a group of expectation of self and others generated by the attachment relationship [6].

Attachment Behaviors and the Strange Situation

Attachment behaviors are behaviors that aim to promote attachment and survival, and they consist of seeking and maintaining proximity through crying, following, clinging, approaching, smiling, or calling [1]. These behaviors are activated when infants perceive that their sense of safety or integrity is being compromised. These behavior emerge early in development, and they progressively become more directed towards a specific caregiver, usually the mother. Attachment exists even when the behaviors are not present. Hence, once an attachment has been formed, it is believed to be constant even in the absence of attachment behaviors. This way, attachment is considered to be an organization of the behavioral system [1].

Exploratory behavior is also an important element in the attachment system and serves as a period of learning and adaptation. The human infant can adjust to a wide variety of environmental variation, when a balance between the need of proximity to caregiver and opportunity for exploration of the environment is available. Development takes place through the equilibrium between behaviors that draw the child close to the mother for nurturance and behaviors that draw the child away from the mother for exploration and learning [1].

The Procedure

One of the factors that give this theory empirical validity is the fact that these ideas can be measured objectively and reliably. The interaction between exploratory behaviors and proximity-seeking behaviors has been explored in naturalistic settings, bringing Ainsworth and colleagues to develop the Strange Situation. In this procedure, a shortcut to naturalistic observation is proposed as the Strange Situation observes the infant in a variety of situations that prompt both proximity seeking and exploration. These behaviors will take a long time to be observed as activated naturally in the home environment. The procedure was designed to observe the extent to which the infant can use the mother as a secure base from which to explore an unfamiliar environment. This 20-min laboratory procedure constitutes a snapshot of attachment behaviors. This technique exposes the child to a controlled unfamiliar situation with and without the mother and is very effective at evoking attachment behaviors. The balance of exploration-proximity is observed when interpreting the results, as Ainworth's procedure provides the opportunity to observe how exploratory behavior is affected by both the presence an absence of mother and the presence of a stranger [1].

The procedure consists of eight episodes and was described by Ainsworth as taken place in the following way:

"*Episode 1* (M, B, O). Mother (M), accompanied by an observer (O), carried the baby (B) into the room, and then O left.

Episode 2 (M, B). M put B down in the specified place, then sat quietly in her chair, participating only if B sought her attention. Duration 3 min.

Episode 3 (S, M, B). A stranger (S) entered, sat quietly for 1 min, conversed with M for 1 min, and then gradually approached B, showing him a toy. At the end of the third minute M left the room unobtrusively.

Episode 4 (S, B). If B was happily engaged in play, S was nonparticipant. If he was inactive, she tried to interest

him in the toys. If he was distressed, she tried to distract him or to comfort him. If he could not be comforted, the episode was curtailed, otherwise it lasted 3 min.

Episode 5 (M, B). M entered, paused in the doorway to give B an opportunity to mobilize a spontaneous response to her. S then left unobtrusively. What M did next was not specified, except that she was told that after B was again settled in play with the toys she was to leave again, after pausing to say 'bye-bye.' (Duration of episode undetermined.)

Episode 6 (B alone). The baby was left alone for 3 min, unless he was so distressed that the episode had to be curtailed.

Episode 7 (S, B). S entered and behaved as in episode 4 for 3 min, unless distress prompted curtailment (...).

Episode 8 (*M*, *B*). M returned, S left, and after the reunion had been observed, the situation was terminated" [1, p. 54].

The behaviors displayed by infants in the Strange Situation, are the basis for the coding system, and are identified as proximity and contact-seeking, contact-maintaining, contact and interaction resisting, and searching behaviors. Contact-seeking behaviors are behaviors such as approaching, climbing on, and reaching, contact-maintaining behaviors are behaviors such as holding on or refusing to let go, contact and interaction resisting behaviors are behaviors such as attempts to push away or attempts to get down after being picked up, and searching behaviors consist of the infant searching for the mother in her absence, looking at the door or her chair [1].

The Classifications

Classifications are based on careful observation of the child's attachment behaviors in the different composites of the Strange Situation with special attention to the reunion episode [2]. The securely attached child (classified as B) displays the ability to play and explore happily in the presence of the mother and to feel at ease in the presence of a stranger. Securely attached children become distressed when the mother leaves, but they are easily comforted by her when she returns. Children in the anxious-avoidant category (classified as A) are usually indifferent towards the mother and are more interested in toys than in interactions. Such children might exhibit distress when she leaves and might be comforted by the stranger. However, they generally behave with indifference in her return. The insecure-ambivalent children (classified as C) play in close proximity to the mother and exhibit anxiety in her presence. They become very disturbed when she leaves and are not comforted easily in her return. They hesitate between seeking proximity and avoiding the mother during reunion [2].

The behaviors the children exhibit in the Strange Situation reflect on the internal working models of the self, the caregiver, and the world, and are directly related to past experiences with the caregiver. The securely attached infants have developed internal working models of autonomy, confidence, and reliance. Their behaviors reflect on a caregiver who has been consistently available, and an attachment relationship that has served as a secure base for explorations. Insecurely avoidant infants have developed working models of rejection and indifference, and their behaviors reflect a caregiver who has been consistently unavailable. The relationship does not constitute as a secure base, and the infant has developed coping strategies of indifference. Insecure-ambivalent infants have developed internal working models of uncertainty. Their behaviors reflect on caregivers who have been inconsistent in their availability, have not offered a secure base for the child's exploration, and have limited the child's autonomy. Infants are ambivalent about the ability of the caregivers to offer comfort, and therefore they alternate between proximity seeking and resistance [2].

A fourth category has been found through extensive observations of Strange Situations [8]. This category is described as disorganized attachment (classified as D) and portrays a child that lacks an organized strategy to cope with both separation and reunion. This child looks disoriented and confused at reunion and resorts to a mix of behaviors including freezing and stilling. This classification is rare and is mostly present in clinical populations or abusive parents. It reflects a child who has a perception of the caregiver as the source of fear and instability and as unable to sooth the child's emotions (Siegel, 1999). This child's behavior reflects an incoherent working model, and no possible strategy to solve the paradox between seeking protection and avoiding the feared object, as both the fear and the protection are elicited by the same person (Siegel, 1999).

Distribution of Classifications

The Strange Situation has been used in numerous empirical studies in many parts of the world. Attachment classification observed in many U.S. samples have shown a similar distribution to the one proposed by Ainsworth and her colleagues (1978). About 67% of infants observed in the Strange Situation are securely attached, about 21% are classified as insecure-avoidant, and around 12% are classified insecure-ambivalent (Van IJzendoorn and Bakermans-Kranenburg). Cross-cultural research supports

the idea that the B classification is the mode in all countries. Yet, in some cultures some variations of the distribution has been found. For example, in Western Europe and America the avoidant classification is most common among insecurely attached children. However, in both Japan and Israel, ambivalent attachment has been found to prevail, and avoidant attachment is rare [13].

Controversy

Some controversy evolved around the use of the Strange Situation to measure attachment. A central issue in the controversy is the argument that the Strange Situation does not solely measure attachment styles. The behaviors observed in the Strange Situation could easily reflect children's level of arousal and emotionality, distress, fear, and other dimension of temperament rather than past experiences with the caregiver.

However, research points at the role of past experience and caregiver sensitivity to be better predictors of classification in the Strange Situation. For example, in one study level of child fearfulness was associated with the type of insecure classification, as more fearful children were more likely to be classified as insecure-ambivalent and less fearful children were more likely to be classified as insecure-avoidant. Yet, the history of maternal responsiveness was associated to secure or insecure categorizations (Kochanska and Coy, 2002). Similarly, researchers found that categorizations into easy or difficult temperament were not associated with attachment classification [14]. Likewise, a study has shown that insecure-avoidant children were temperamentally easier than both ambivalent and secure children [12].

Moreover, research found that the level of child distress by itself is not related to any attachment classification, although heightened distress is often associated with insecure patterns. However, the level of distresses influences the strategies children adopt during reunion. For example, children who feel higher levels of distress during separation might react in proximity-seeking behaviors and or conflicted behaviors, corresponding to secure or ambivalent classifications. Children who display low levels of distress typically exhibit indifference and less proximity-seeking behaviors, corresponding to avoidant classifications (Kochanska and Coy, 2002).

In one study, children's observations in their interaction with their mothers and level of distress experience in the separation episode were taken into account (Kochanska and Coy, 2002). Children who have shown more anger in their interactions with their mothers were more likely to exhibit resistant behaviors at reunion, and this was unrelated to the level of distress experienced. Similarly, children who expressed less joy in their interactions with their mothers resisted contact most often, and children whose mothers showed unresponsiveness were more likely to exhibit avoidant responses. This study concluded that the child's specific experiences in the mother-child relationship such as anger and joy and maternal responsiveness, were stronger influences on the children's choice of responses at reunion, than levels of distress (Kochanska and Coy, 2002). This supports the idea that the Strange Situation measures a construct that is strongly related to early experiences with the specific caregiver in the procedure rather then irritability or promptness to distress.

Other Methods of Measuring Attachment in Childhood

Since the Strange Situation was established, many new methods have been developed to observe the quality of attachment. However, the classifications remain similar between methods measuring attachment during infancy and childhood [11]. Some of the most common measures employed are the Q-sort, which is an observer's rating system based on home observations. The Q-sort gives a continuous score on attachment security and does not classify between secure and insecure styles. Additionally, there are some variations to the strange situation such as the Cassidy-Marvin system for 2.5–4.5 year-olds, the Preschool Assessment of Attachment, and the Main-Cassidy system for 5 and 6 year-olds. Each of these measures adheres to the categories established by Ainsworth and her colleagues, yet the behaviors used to measure each category vary with the child's age [11]. Lastly, a popular method is the doll-play procedure in which children are asked to use a doll family to complete a set of standardized attachment related stories. This method has many versions and could be used from the age 3 until 7 [11].

Relevance to Childhood Development

The Strange Situation constitutes a reliable method of observing a complex construct such as infant attachment. The availability of this method has enabled theorists and researchers to measure attachment and learn about its crucial role in child development. Additionally, researchers have gathered information about what constitutes an effective intervention that could improve attachment quality. Finally, extensive research has been generated with attention to implications for social policy.

The Strange Situation has enable scientists to show that security of attachment consistently predicts positive emotional development. Securely attached children in general, display pro-social behaviors, competence with

peers, social skills, and empathy (Lamb et al., 1985). Insecurely attached children display higher rates of hostility, impulsiveness, and negative affect [9]. Additionally, secure attachment has shown to be an important factor in resilience and an early predictor of socio-emotional development in the contexts of cumulative risks (Belsky et al., 2000). Attachment security has also proved to have a central role in resilience. In the other had, attachment insecurity has been found to be make children vulnerable to the adverse contextual circumstances [4].

The Strange Situation has enabled scientists to determined whether interventions aimed at improving attachment are efficient and in what way. Researcher have found that interventions are particularly successful if they start when the child is under 3 years of age, they are only a few sessions long, and have clear behavioral focus [3]. Moreover, since attachment is closely related to the quality of the responses from the caregiver to the infant, interventions aimed at refining the quality of these responses are most effective [3].

Finally, the use of the Strange Situation has given room to research relevant to public policy regarding issues such as child care. Studies using this method have shown that children benefit from policies that encourage quality of care during infancy and the preschool period. As more mothers have joined the workforce, and infants experience larger periods of separation these issues become vital. Large controversies remained unresolved in determining what constitute the ideal care for optimal development of infants and young children (e.g., [10]). Nevertheless, research indicates that whether infants experience maternal care, in home care, or center-based care, the quality of interactions and availability of the caregivers, including appropriate adult-child ratio remain as some of the central indicators of optimal care and of predictors of secure attachments (e.g., [7]).

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Albinism

Derived from the Latin albus meaning white, albinism is a congenital disorder characterized by the complete or partial absence of pigment in the skin, hair and eyes due to the absence or defect in an enzyme involved in a production of melanin. The condition results from inheritance of recessive gene alleles and affects all vertebrates including humans. Albinism is also associated with a number of visual defects such as photophobia, nystagmus, and astigmatism. A lack of skin pigmentation makes an organism with albinism more susceptible to sunburn and skin cancers.

Alcohol

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Synonyms

Depressants; Ethanol; Ethyl alcohol; Grain alcohol

Definition

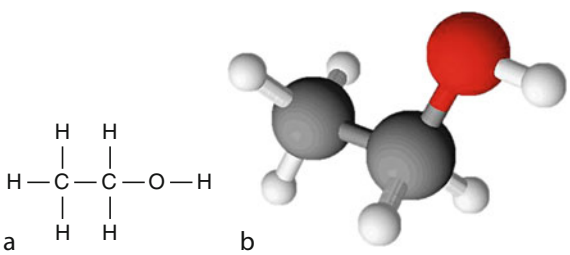
Alcohol is an organic chemical compound that is comprised of an alkyl group (carbon chain) and a hydroxyl group (oxygen–hydrogen bound molecule). More commonly it is used to refer to a class of beverages containing the chemical ethanol, a psychoactive drug that depresses the central nervous system.

Description

The term alcohol can refer to any organic chemical compound that includes one or more aliphatic hydroxyl groups (−OH) attached to an alkyl group (C_nH_{n+1}). While alcohols can exist in many forms, the term alcohol is more commonly used to describe the compound ethyl alcohol (or ethanol, abbreviated EtOH). As its name suggests, ethanol is comprised of an ethyl group (a two-carbon chain) and a hydroxyl group (an oxygen–hydrogen bound molecule), arranged in a straight chain and having the molecular formula C_2H_5OH (Fig. 1). Ethanol is the primary psychoactive ingredient found in most alcoholic beverages, and because of its depressant effects on the central nervous system, it is considered a drug and is regulated in many countries.

Physical Properties of Ethanol

Ethanol is a clear, colorless liquid with a characteristic refined odor. In dilute concentrations it has a sweet taste while in concentrated solutions a burning taste is often observed. It has a density of 0.789 g cm^{-3}, a molar mass of 46.07 g mol^{-1}, and a molar volume of 59 cm^3. It melts at 159 K (−130°C) and boils at 352 K (78°C). It is slightly basic having a pH of 7.33, and is both flammable and volatile [4]. Ethanol is classified as a primary alcohol, meaning that its hydroxyl (−OH) group is attached directly to a carbon atom that has at least two hydrogen atoms attached to it as well. This, combined with its short carbon chain, enhances its miscibility (solubility of one liquid with another to form a homogenous solution) and viscosity (resistance to flow). These properties further enable ethanol to more easily participate in hydrogen bonding with other molecules, being able to accept or donate one hydrogen atom, and also render the ethanol molecule more stable than some other organic compounds of similar molecular weights.



Alcohol. Fig. 1 (**a**) Two-dimensional representation of molecular structure for an ethanol molecule. (**b**) Three-dimensional "ball-and-stick" model of an ethanol molecule.

Metabolism of Alcohol

The primary route of entry for alcohol into the human body is through consumption (drinking) although it also can be absorbed through the skin. Once ingested, alcohol is transported down the esophagus into the stomach. There, it acts as an irritant by increasing the levels of hydrochloric acid (a chemical that aids in the process of digestion) that are secreted from the stomach lining. Approximately 20% of the alcohol consumed is absorbed through the stomach where it is picked up by small blood vessels and transported directly into the bloodstream. The remaining alcohol passes into the small intestine where most of the remaining 80% is absorbed through the intestinal walls into the bloodstream. From there it is carried to the liver and then on to the rest of the body. Because alcohol is water-soluble, it mixes easily with the bloodstream and is quickly circulated throughout the entire body, where it is likely to come into contact with every major organ including the heart, lungs, and central nervous system.

While in the liver, much of the alcohol is broken down by enzymes through the process of metabolism. One of the primary pathways (though certainly not the only one) for this process involves the enzyme alcohol dehydrogenase (ADH), which catalyzes the oxidation of ethanol into acetaldehyde (CH_3CHO). While ethanol itself is not a carcinogen, acetaldehyde is mutagenic, which means that it is very often toxic and carcinogenic as well. It is this chemical that is largely responsible for many of the physiological consequences alcohol exerts on the body. This compound is eventually broken down further by aldehyde dehydrogenase 2 (ALDH2) in the cell's mitochondria where it is converted into the acetate: acetic acid (CH_3COOH), whose effects include depression of the central nervous system. The acetate is eventually metabolized to form either carbon dioxide (CO_2) in the heart, skeletal muscle, and brain cells; or to form acetyl CoA ($C_{23}H_{38}N_7O_{17}P_3S$), which plays an important role in the production of energy and the neurotransmitter acetylcholine [7].

The rate at which alcohol is eliminated from the blood has been found to be on average 0.015% per hour, but as high as 0.06% per hour. Given that most standard drinks contain approximately 0.06% alcohol by volume, this estimate suggests that the body can eliminate up to one

alcoholic beverage each hour. However, a number of factors influence the rate of metabolism, including a person's genetics, gender, ethnicity, types and levels of enzymes present in the metabolic system, amount of food present in the stomach, and other variables as well. Recent research has suggested that the rate at which alcohol is absorbed and metabolized can vary by as much as three to four times across individuals. However, new research methods that allow precise dosing and specially grown cultured cells show promise in improving our understanding related to alcohol metabolism [6].

Effects of Alcohol on the Human Body

The effects of alcohol on the human body are numerous. Perhaps the area most widely studied with respect to the physiological effects of alcohol concerns its impact on the brain. Research has demonstrated that different regions of the brain vary in their levels of sensitivity to alcohol. Unlike other psychotropic drugs, which tend to target the receptors for specific neurotransmitters, alcohol appears to exhibit an influence over a number of areas and in variety of ways. Receptor sites for the neurotransmitters gamma-aminobutyric acid (GABA, implicated in inhibition of anxiety), *N*-methyl-D-aspartic acid (NMDA, which may be implicated in the physical dependence of alcohol), and serotonin (implicated in mood regulation) are just a few examples of those that have been shown to be specifically influenced by the presence of alcohol [1].

It has already been noted that alcohol is quickly and easily mixed with the bloodstream and distributed throughout the body. In fact, this process occurs so quickly that alcohol carried by the circulatory system can reach the brain in less than 1 min after consumption. Because of the way the vascular system is structured in relation to the brain, the blood (and consequently the alcohol) reaches the outer cortical areas first, before making its way inward and downward through the brain structures. This pattern suggests that the first areas of the brain to be affected by alcohol are those responsible for higher order processing (affecting such domains as judgment, decision making, and inhibition), followed by lower order processing centers (affecting coordination, memory, emotion, and sensory processing), and finally reaching the more primitive areas of the brain (affecting levels of consciousness and life functions such as breathing and heart rate).

While the initial impact of alcohol on the brain may be immediate, the consequences of prolonged use have longer-lasting effects. Many of these effects are not seen during the childhood or adolescent years (i.e., liver cirrhosis, hepatitis, etc.) because their onset and course generally require longer periods of development than adolescence affords. Despite this, recent studies have begun to demonstrate the negative impact of moderate to heavy alcohol consumption among adolescents. These findings include lower levels of sex hormones (estrogen in females, testosterone in males), lower levels of growth hormones, increased levels of liver enzymes typically identified as indicators of liver damage, and lower bone mineral density [3]. Further, alcohol use in adolescence is associated with decreased hippocampal volume (associated with memory impairment), abnormalities in the corpus callosum, and overall smaller brains when compared to control groups of adolescents who did use alcohol [5].

Beyond the problems already discussed, there also exists growing evidence that alcohol use during adolescence may further lead to long-term physiological consequences. One suggestion is that because of the rapid growth and development taking place during adolescence, exposure to alcohol during this critical period may disrupt cognitive development in such a way that it may predict future psychological and physiological concerns [3]. There remains much to be learned with respect to the short- and long-term impact of alcohol consumption among adolescents. Moreover, the preliminary findings already discussed, along with the recently observed trends in adolescent alcohol consumption (see "Drinking," this volume) underscore the need for continued investigation into this important area of research.

One final area that must be addressed concerns the impact of others' alcohol consumption on child and adolescent development. Children can experience the effects of others' alcohol use both directly and indirectly. For example, the social environment plays a significant role in adolescents' decisions to consume alcohol, particularly with respect to the influence of parents and peers [2]. Further, among the more notable examples of direct consequences to childhood development are the fetal alcohol spectrum disorders, including fetal alcohol syndrome.

Fetal alcohol syndrome is one of the leading causes of birth defects as well as a leading cause of mental retardation. The disorder is believed to develop prenatally as a result of heavy drinking by the mother during pregnancy. Because alcohol is distributed so easily throughout the circulatory system and because the developing fetus receives its blood supply from the mother, the mother's alcohol consumption can have a direct and negative impact on the fetus's development. The problems associated with fetal alcohol syndrome are many. Children with this disorder tend to exhibit retarded growth; cognitive, neurological, and motor deficits; learning difficulties, and social and behavioral problems. They may also display a number of permanent physical abnormalities, particularly

with respect to craniofacial malformations. These can include widely spaced eyes, small eye openings, and skin folds at the corners of the eyes; a short nose and lower nasal bridge; small head circumference, small midface, and receding chin; thin upper lip and a groove between the nose and upper lip. Often brain development is also impaired, with a number of brain structures including the corpus callosum, cerebellum, and basal ganglia showing decreased volume and size.

Summary

In summary, alcohol represents a significant problem for children and adolescents throughout their development. The consequences associated with exposure to alcohol during critical developmental periods accentuate the severity of this problem. While a majority of the available research has focused on the effects alcohol has on the brain and central nervous system, it is clear that the consequences are many and far reaching. Many questions still remain regarding the extent to which the chronic and severe alcohol-related problems observed in adulthood will also be observed in adolescence. However, the relationship between early alcohol use and later alcohol-related problems has already been established. Despite the magnitude of the current problems associated with alcohol and adolescent populations, new technologies and research methodologies suggest our understanding of these important issues will continue to improve as future investigations are undertaken.

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Suggested Resources

For the most up-to-date research on specific topics related to alcohol, the reader is referred to the following internet resources:

The National Institute on Alcohol Abuse and Alcoholism (NIAAA). Accessed November 2008 http://www.niaaa.nih.gov/

The National Institute on Drug Abuse (NIDA). http://www.nida.nih.gov/

Alcohol

►Depressants

Alcohol Exposed

►Alcohol Exposure

Alcohol Exposure

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Synonyms

Alcohol exposed; Alcohol related neurodevelopmental disorder (ARND); Fetal alcohol effects; Fetal alcohol spectrum disorder (FASD); Fetal alcohol syndrome (FAS); Prenatal alcohol exposure

Definition

The term alcohol exposure is used to denote the adverse effects of maternal alcohol consumption on the developing fetus. Alcohol exposure is a general term representing the wide spectrum of physiological, cognitive, and behavioral difficulties resulting from varying degrees of alcohol use during pregnancy.

Description

The term alcohol exposure is used to denote the wide spectrum of difficulties that may arise from maternal consumption of alcohol during pregnancy. Conceptually, alcohol exposure serves as a broad umbrella encompassing the multitude of physiological, neurological, behavioral, emotional, social, and academic deficits resulting from the teratogenic effects of alcohol in utero. Fetal alcohol syndrome (FAS), fetal alcohol spectrum disorder (FASD), and

alcohol related neurodevelopmental disorder (ARND) are specific terms used to characterize the varying degrees of impairment that result from maternal alcohol consumption. Alcohol exposure serves as a general term used to indicate exposure to alcohol during pregnancy without describing the degree of resultant fetal impairment. Historically, FAS has been viewed as the form of alcohol exposure resulting in the most severe physiological, cognitive, and behavioral impairments in children.

Contemporary base rate estimates suggest that between 9 and 10 per 1,000 live births or 40,000 children are diagnosed with alcohol exposure each year, with relatively fewer (2.8 per 1,000 live births) diagnosed with FAS [1, 2, 4]. Diagnostic criteria for FAS is well defined and includes the presence of facial dysmorphia (lack of philtrum or ridge between mouth and nose, widely set eyes or small eyes, and thick upper lip), growth deficiency (low body weight and height), and central nervous system dysfunction (structural brain damage and/or cognitive impairment). However, whereas criteria for FAS is definitive, criteria for alcohol exposure, also referred to as FASD, is often vague, and may only include only one or two of the aforementioned genres of impairment or impairments in behavioral, emotional, and social functioning [1, 4].

Holistically, those diagnosed with any form of alcohol exposure may experience a plethora of impairments ranging in severity from mild to severe. The most common cognitive impairment resulting from alcohol exposure is a reduction in overall IQ, with reductions ranging from 7 to 35 points below the mean; alcohol exposure, specifically FAS, is the most common cause of mental retardation in the Western hemisphere [1]. Other cognitive deficits common among those with alcohol exposure include reduced verbal comprehension ability, memory deficits, and difficulties in social learning and applying social norms. Executive function deficits, including difficulty sustaining attention, planning, organizing, and inhibiting are exceedingly common. Those diagnosed with alcohol exposure are particularly prone to emotional and behavioral challenges, including hyperactivity, aggression, oppositional behavior, stereotypical behavior, and inappropriate sexual behavior, among others [1]. Both externalizing difficulties, as previously mentioned, and internalizing difficulties, such as depression, anxiety, and low self-esteem, are common, although some have asserted that continued parent alcohol use in the home, as opposed to the effects of alcohol exposure in isolation, is to blame for many behavioral challenges [3].

In sum, it has been estimated that between 84 and 94% of those diagnosed with alcohol exposure experience behavioral and emotional challenges. Common diagnoses found among the alcohol exposed population include ADHD, depression, oppositional defiant disorder, conduct disorder, and bipolar disorder [1, 3, 4]. Cognitive, behavioral, and physiological difficulties have been found to persist into adulthood, with some dissipation in the appearance of physiological symptoms. Many of those diagnosed with alcohol exposure have been found to become dependent on alcohol use in adulthood [4].

Relevance to Childhood Development

Alcohol exposure, whether mild or severe, often leads to pervasive and persistent cognitive and behavioral difficulties influencing the individual throughout the lifespan. Early detection and intervention has been cited critical first steps toward mitigating the influence of alcohol exposure on overall well-being [1]. Previously cited cognitive and behavioral sequelae manifest during childhood and stand to greatly impede academic performance. Those working with children affected by alcohol exposure must be attuned to the unique presentations of the disorder and resultant academic difficulties should proper intervention ensue. Given the breadth of challenges and needs that may arise as a result of alcohol exposure, comprehensive academic and behavioral intervention plans and supports are frequently warranted as part of both general and special education programming. While consideration for special education programming is not necessary in all cases of alcohol exposure, design of appropriate Individual Education Plan goals and objectives, including consideration of behavioral and social/emotional supports, is integral in cases where special education is required. Careful attention should be paid to student needs surrounding attention, planning, organization, and self-regulation. Completion of functional behavior assessments (FBA's) and resultant behavior intervention plans (BIP's) should occur in cases where behavior is found to impede learning and social functioning, regardless of eligibility or need for special education supports. School based counseling can prove helpful in assisting students struggling with issues related to peer interaction, self-esteem, and other internalizing or externalizing behaviors.

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Alcohol Related Birth Defects (ARBD)

►Fetal Alcohol Effects

Alcohol Related Neurodevelopmental Disorder (ARND)

►Alcohol Exposure
►Fetal Alcohol Effects

Alcoholism

►Chemical Dependency

Alexia

►Childhood Aphasia

Allele

Definition
One member of a pair located on the same points of a pair of chromosomes.

Description
Individuals inherit two alleles for each gene. One allele is inherited from each parent. Various alleles produce variations of inherited characteristics. For example, if both alleles are the same, the person will inherit dark hair. However; if each allele is different, the dominant gene will override the recessive gene. If one allele has the characteristic of dark hair and the other allele has the characteristics for light or blonde hair, the dominate gene for dark hair will override the gene for light or blonde hair.

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Allowance

►Adjustment

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Life Dates
1897–1967

Educational Information
After graduating second in a class of 100 from Glenville High School in Cleveland, Gordon Allport attended Harvard beginning in the fall of 1915 [7]. By 1919, he had earned his bachelor's degree majoring in psychology and social ethics [10]. After graduation, Allport spent a year teaching English and sociology at Robert College in Constantinople. During this time Allport was offered a graduate fellowship at Harvard, and so he returned to earn a Ph.D. in psychology finishing in 1922 at the age of 24 [6, 7]. His dissertation, *An Experimental Study of the Traits of Personality: With Special Reference to the Problem of Social Diagnosis*, reflected his dual interests in psychology and social issues [10].

After completing his Ph.D., Allport was awarded the Sheldon Travelling Fellowship and spent the first year of the fellowship in Germany and the second at Cambridge

University. At the end of the fellowship Allport was offered an instructor position in social ethics at Harvard [6]. He remained there for 2 years and then accepted a position as assistant professor in psychology at Dartmouth. In 1930, after 4 years of teaching at Dartmouth, he returned to Harvard and would finish his career there [10].

Accomplishments

Allport's early focus was on personality. He stated that "No other psychologist, at least at Harvard, seemed to be interested in social values as an academic problem nor in developing a lifelike psychology of personality" [7]. He is generally thought to have been the first person in North America to teach a college level course on personality [10]. As a faculty member, he helped to establish at Harvard the Society for the Psychological Study of Social Issues, the Department of Social Relations, the Department of Sociology and served 18 years as the chair of the Committee on Higher Degrees of the social relations department.

The book *Personality: A Psychological Interpretation* [1] was an important introduction of his theory of personality [6]. Gordon would continue to write a proliferation of articles and books. Among his more influential books are: *The Nature of Prejudice* [2], *Becoming: Basic Considerations for a Psychology of Personality* [3], *Pattern and Growth in Personality* [4], *Letters from Jenny* [5], *The Person in Psychology* [7] and *The Psychology of Rumor* [8].

Contribution

Allport argued that psychology should use both idiographic and nomothetic methods. It was his assertion that the discipline focused too much on nomothetic approaches and he insisted that if you wanted to know something about an individual you should ask that individual first [10]. He believed every person was unique and that the best way to study psychology was to evaluate the healthy person [9]. Perhaps his most radical and best known concept is that of functional autonomy. Allport believed that while adult motives developed out of childhood drives, adult motives become independent. In other words, motivation occurs independently from past experiences.

Allport's personality theory asserted that within individuals were real traits that helped guide behavior. He classified these traits into two major categories: (a) common traits, traits that may occur among a group of people in any culture, and (b) individual traits, traits that are uniquely expressed within the individual. He further divided these traits into three levels. The first was what he referred to as cardinal traits. These were traits that were so dominant that the bulk of a person's behaviors could be linked directly to them. The second level was central traits. These referred to characteristics that were easy to detect and each person possessed an average five to ten. The third level was secondary traits. He believed these were harder to detect and only persons who were close friends of the individual may even be aware of these traits. While Allport attempted to identify each type of trait, he believed they acted in an interdependent way. None of the traits were separate from the influence of the others, and the trait that exerted dominance was highly dependent on the situation.

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Ally

▶Friendship

Alpha-Galactosidase Deficiency

▶Fabry Syndrome

Alpoxid

▶Chlordiazepoxide

Alteration

►Adjustment

Alternative Assessment

►Play-Based Assessment

Altricial

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Synonyms

Neoteny; Nidicolous

Definition

An immature state of development following birth or hatching that necessitates care by others.

Description

Altricial animals are born in an immature state and unable to care for themselves. Owls, kangaroos, cats, dogs, and humans are examples of altricial species. In contrast, precocial organisms are mobile and independent within hours or days following birth or hatch (e.g., ducks, zebras). Because of the extensive care altricial organisms require, they are usually born as singletons or in small numbers into social groups where there is the opportunity to have more than one caregiver.

Humans require care for a long period of time and reach sexual maturity and adulthood after a long period of postnatal development. The benefit of this lengthy period of immaturity is that the nervous system has an extended period to develop, ultimately resulting in more complexity and greater cognitive ability. Infancy, childhood and adolescence provide humans with a range of experiences, each of which have the potential to shape the nervous system and the organism's capabilities [1].

Relevance to Childhood Development

At birth, the human brain is not fully developed and has great plasticity. The vast majority of neurons (i.e., nerve cells) are created during the prenatal period; however, the brain continues to grow and reconfigure throughout the lifespan. The most dramatic postnatal changes occur during infancy and childhood [4]. As the young organism experiences the world, neurons that are activated will form communication pathways with other active neurons. These pathways become stronger with continued use. At the same time, unused neurons die off, allowing room for the communication network and increasing the brain's efficiency [2]. Proper nutrition, a stimulating environment, and positive social interactions facilitate this development and are necessary for the brain to reach its full potential [3].

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Altruism

►Prosocial Behavior

Ambien (Zolpidem)

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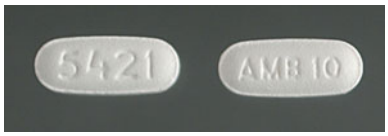
Synonyms

Hypnogen; Myslee; Nimadorm; Nitrest; Sanval; Stilnoct; Stilnox; Z drug; Zoldem; Zolfresh; Zolpidem; Zolt

Definition

A nonbenzodiazepine (imidazopyridine structure) hypnotic drug utilized mainly with insomnia and other sleep disorders, but also used in patients with brain injury. It is chemically distinct from previous generations of

Ambien (Zolpidem). Fig. 1



Ambien (Zolpidem). Fig. 2

hypnotics such as the barbiturates (e.g., Seconal) and benzodiazepines (e.g., Halcion, Restoril). It potentiates (increases amounts of) GABA, an inhibitory neurotransmitter. It was introduced to the public in the early 1990s by G.D. Searle & Company, and is a controlled drug (U.S. Schedule IV).

Description

Ambien mainly affects the benzodiazepine (GABA-A) receptor site, and at high doses, possesses anticonvulsant, myorelaxant, and anti-conflict effects, but nearly all doses possess rapid-onset, short duration hypnotic properties [1]. Its safety and effectiveness in children has not been confirmed, and should be used only under "extreme caution" [6]. In a meta-analysis of newer hypnotic drugs published in JAMA [2], only minor differences were evident between Ambien and other hypnotics such as benzodiazepines, both classes of drugs produced reliable improvements in sleep parameters of patients with chronic insomnia. Previous studies involving 1,894 patients had a median treatment duration of 7 days [2], however, a study of intermittent (when deemed necessary by the patient) use of 10 mg Ambien indicated effectiveness, with no evidence of dose dependency, discontinuation syndromes, or dose escalation [3]. A 1997 study found a lack of re-bound insomnia with Ambien, unlike Halcion (triazolam) [5].

Adverse effects such as Ambien-induced psychosis are rarities. Nonetheless, there have been cases of psychotic reactions in Ambien patients without a history of psychosis. A 1996 study of these reactions discovered all the patients who experienced psychotic reactions with the drug were female, criterion for Ambien dose dependency were met, and the adverse reaction quickly resolved once the drug was no longer administered [4]. As with most sleeping pills, Ambien should not be used in conjunction with alcohol or other depressants, which tend to have a synergistic effect on the central nervous system.

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Ambisexuality

►Bisexual

Ambivalent Attachment

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Synonyms

Anxious attachment; Attachment classifications; Attachment patterns; Attachment styles; Insecure attachment; Insecure-resistant attachment; Resistant attachment; Strange situation

Definition

Ambivalent attachment is a form of insecure attachment characterized by inconsistent responses of the caregivers and by the child's feelings of anxiety and preoccupation about the caregiver's availability.

Description

Ambivalent attachment is one of the attachment patterns categorized in the Strange Situation, and it is classified

as C. This type of attachment is characterized by caregivers who respond to the infant's needs in inconsistent ways, sometimes being neglectful and sometimes responsive. The infant develops an anxious and preoccupied pattern of attachment in which he or she is not sure when the caregiver will respond to his or her needs. As a coping mechanism, the infant develops two strategies, one of clinginess and proximity seeking, and one of avoidance, indifference, or resistance [5]. In the Strange Situation ambivalently attached infants display puzzling behavior. They are extremely distressed by the departure of the parent, yet, they are not easily soothed by the parent's return. At the reunion they alternate between seeking proximity and avoiding or resisting contact, and do not return to play quickly [1].

This group of infants is the least understood, because they constitute a small percentage of the non-clinical population, and approximately 7–15% of United States infants fit this classification. The Strange Situation behavior of these infants reflects internal working models of the caregiver, the self, and the world as inconstant and unreliable. These infants are different than insecure-avoidant children, as insecure avoidant children have developed working models of consistent unavailability of the caregiver, and have developed a strategy accordingly. However, insecure-ambivalent children have inconsistent models of both availability and unavailability. These multiple contradictory mental models of attachment create insecurity in the child and do not leave cues for a clear approach to regulate emotions. Because of the deficit in the internal self-regulatory capacities, the child's sense of uncertainty gives him or her an urgent internal need for comfort of others [2].

The inconsistency of responses forces these children to develop a strategy in which they focus their attention in the attachment figure, centering their efforts in predicting or influencing the caregivers' attitude and states of mind. This way, both the clinging and resisting behaviors are aimed at attempting to attract the caregivers' attention and responses. Furthermore, infants feel the need to monitor their caregivers and stay close to them to assure access. This heightened attachment behavior limits the opportunities for exploration [2].

Home observation of maternal behavior of ambivalent infants has shown low levels of availability. This relation was observed in Ainsworth's Baltimore study, as during the last 4 months of the first year mothers showed deficits in affection, responsiveness to the infant's crying, sensitivity to infant's signals, cooperation, and acceptance. At the same time, these mothers offered some level of physical comfort, yet inconsistently [1]. Similar results were found in subsequent studies, where ambivalent infants have been observed to experience the least amount of reciprocal interactions and involvement with their mothers at 1, 3, and 9 months compared to infants in other classifications. Additionally, this group of infants experienced a disproportionably frequent number of occasions in which mothers did not respond to their vocalization. Similarly, mothers of ambivalent infants have shown to initiate the least amount of interactions with their babies at 6 months compared to both other groups of infants [4].

Although mothers of ambivalent infants show a pattern of inability, this is not the case when it comes to infant explorations. Studies have shown that these mothers are characterized by intrusion and interference with the infant's attempts to explore the environment. This way, they are less involved in situations in which their infants want their attention and more involved in situation in which their infants do not want their attention. These mothers were observed to initiate interactions when their infants were involved in other activities or were not willing to interact. This maternal behavior seems to contribute to the infant's behavior in the Strange Situation, as maternal interference of the infant's exploration forces the child to redirect all the attention towards the mother. Both the mother's low availability and her intrusion contribute to a single outcome, the development of a child who is extremely dependent and lacks autonomy [2].

Both the child's and mother's behavior are viewed as adaptive strategies. The immaturity and clinginess of the child serves the function of maintaining proximity to the caregiver. However, this relationship places most of the responsibility for maintaining proximity on the infant. The child has developed a strategy of emphasizing immaturity to increase care. This strategy is often used by children when they feel their care is reduced, for example, after the birth of a sibling. In addition to immaturity, the ambivalently attached child has developed an increased monitoring of the mothers, because the child perceives the mother as inefficient and weak. In a way, the infant feels the need to care for her, because if something happens to the mother the infant will lose his or her only sense of a secure base. On the other hand, maternal behavior is interpreted as part of a maternal copying strategy. In the mother's mental model, this pattern of interactions assures her that she is central in her child's life. She denies attention to feel needed and to make the infant feel dependent. Similarly, she interferes with exploration to limit the child's autonomy, and to ensure the child remains available as an attachment figure. The heightened dependency of the child is viewed as reassurance to the mother

that she will be wanted and that the child will remain close. Consequently, the mother's working models present the infant with a situation of inversed roles in the mother-child relationship [2].

It has been argued that the temperament of the ambivalently attached child contributes to the behavior of the Strange Situation, since in general ambivalently attached children display the highest level of irritability and distress during separation. Yet, infant temperament has shown low association with Strange Situation classification. The argument of temperament affecting classification is weak, since the biggest determining factor is not the level of distress but the behavior at reunion, and the combination of proximity-seeking and resisting behaviors is characteristic of ambivalent children with diverse temperaments [2].

Relevance to Childhood Development

Attachment style in general, and ambivalent attachment in particular, are central organizers of experiences and personality throughout development. Ambivalent attachment seems to affect the way the child generates expectation about the self, the environment, and close relationships. This type of attachment puts the child at risk of developing difficult patterns of socialization exhibiting ambivalence and insecurity in intimate relationships through life [5].

Ambivalent attachment has a great impact on the amount, and quality, of explorations of the infant. Research has shown that ambivalent infants play with less toys and objects than infants in the other classifications. As toddlers, they engage in significantly less symbolic play, and as preschoolers they are less likely to initiate social offers to their peers and they are more likely to ignore social offers from their peers compared to children in other classifications. Additionally, they are viewed by other children as more helpless and dependent, and they elicit nurturance from securely attached children and exploitation from avoidant peers. At ages 5–7 children who were previously categorized as insecure ambivalent, have reported to experience the highest level of loneliness. Similarly, ambivalently attached children have shown to be less dominant, less goal oriented, less achievement oriented, and less independent than children with secure attachments at age five [2].

As a result of early patterns of interactions, children who had been characterized as ambivalent tend to place this ambivalence in romantic relationships and to reverse role with their children, using their children as a safe base. Research has shown that parents of ambivalent children generally behave very similar to mothers classified in the Adults Attachment Interview as preoccupied [2]. Mothers classified as preoccupied usually limit children's autonomy and exploration. Additionally, they seem to respond with acceptance most often to infant's expression of fear, and infant's fear usually results in limited exploration [3]. These mothers also ignore or invalidate their infant's expression of initiative during play. Similarly, preoccupied mothers were observed to express greater anxiety when preparing their adolescents for stressful events, directing the conversation towards their own feelings, and expressing lack of confidence in the adolescent's ability to be independent [2].

Children of mothers classified as preoccupied are frequently classified as ambivalent, this seems to be explained by the fact that an ambivalent attachment style results in an adult who is preoccupied, confused, angry and ambivalent in their state of mind in relation to attachments and in turns, reflects that ambivalence in his or her responses to the child. The preoccupied state of mind does not allow the adult to respond affectively to the infant's cues, maintaining a generational cycle of ambivalent attachments [2].

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American College of Obstetricians and Gynecologists (ARCOG)

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Description

The American College of Obstetricians and Gynecologists (ACOG) is a professional association of medical doctors specializing in obstetrics and gynecology in the United States.

The mission of ARCOG is to facilitate and promote professionalism, affirm dedication to the educational

process for women's health, and to foster the development of standards for residency coordinators in conjunction with CREOG.

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American Psychiatric Association

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Description

The American Psychiatric Association (APA) is a medical specialty society recognized world-wide. Its over 38,000 U.S. and international member physicians work together to ensure humane care and effective treatment for all persons with mental disorder, including mental retardation and substance-related disorders. It is the voice and conscience of modern psychiatry. Its vision is a society that has available, accessible quality psychiatric diagnosis and treatment.

Members

The APA is an organization composed primarily of medical specialists who are qualified, or in the process of becoming qualified, as psychiatrists. The basic eligibility requirement is completion of a residency program in psychiatry accredited by the Residency Review Committee for Psychiatry of the Accreditation Council for Graduate Medical Education (ACGME), the Royal College of Physicians and Surgeons of Canada (RCPS (C)), or the American Osteopathic Association (AOA). Applicants for membership must also hold a valid medical license (with the exception of medical students and residents) and provide one reference who is an APA member.

Vision

The APA is an organization of psychiatrists working together to ensure humane care and effective treatment for all persons with mental disorders, including mental retardation and substance-related disorders. It is the voice and conscience of modern psychiatry. Its vision is a society that has available, accessible quality psychiatric diagnosis and treatment.

Mission

The mission of the APA is to:

- Promote the highest quality care for individuals with mental disorders (including mental retardation and substance-related disorders) and their families.
- Promote psychiatric education and research.
- Advance and represent the profession of psychiatry.
- Serve the professional needs of its membership.

Values

- Best standards of clinical practice
- Highest ethical standards of professional conduct
- Prevention, access, care and sensitivity for patients and compassion for their families
- Patient-focused treatment decisions
- Scientifically established principles of treatment
- Advocacy for patients
- Leadership
- Lifelong professional learning
- Collegial support
- Respect for diverse views and pluralism within the field and the association
- Respect for other health professionals

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American Psychiatric Association Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)

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Description

The *Diagnostic and Statistical Manual of Mental Disorders* (DSM) is the standard classification of mental disorders used by mental health professionals in the United States. It is intended to be applicable in a wide array of contexts and

used by clinicians and researchers of many different orientations (e.g., biological, psychodynamic, cognitive, behavioral, interpersonal, family/systems). The *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (DSM-IV) has been designed for use across clinical settings (inpatient, outpatient, partial hospital, consultation-liaison, clinic, private practice, and primary care), with community populations. It can be used by a wide range of health and mental health professionals, including psychiatrists and other physicians, psychologists, social workers, nurses, occupational and rehabilitation therapists, and counselors. It is also a necessary tool for collecting and communicating accurate public health statistics.

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American Psychological Association (APA)

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Description

Based in Washington, DC, the American Psychological Association (APA) is a scientific and professional organization that represents psychology in the United States. With 148,000 members, APA is the largest association of psychologists worldwide.

Mission Statement

APA Bylaws I.1

The objects of the APA shall be to advance psychology as a science and profession and as a means of promoting health, education, and human welfare by

- The encouragement of psychology in all its branches in the broadest and most liberal manner
- The promotion of research in psychology and the improvement of research methods and conditions
- The improvement of the qualifications and usefulness of psychologists through high standards of ethics, conduct, education, and achievement
- The establishment and maintenance of the highest standards of professional ethics and conduct of the members of the Association
- The increase and diffusion of psychological knowledge through meetings, professional contacts, reports, papers, discussions, and publications

thereby to advance scientific interests and inquiry, and the application of research findings to the promotion of health, education, and the public welfare.

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American Sign Language (ASL)

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Description

American Sign Language (ASL) is a complete, complex language that employs signs made with the hands and other movements, including facial expressions and postures of the body. It is the first language of many deaf North Americans, and one of several communication options available to deaf people. ASL is said to be the fourth most commonly used language in the United States.

Thomas Gallaudet, founded the first school for the deaf in Hartford, Connecticut.

Americans with Disabilities Act (ADA)

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Description

The Americans with Disabilities Act (ADA) is a federal mandated law that prohibits discrimination on the basis of disability in employment, State and local government, public accommodations, commercial facilities,

transportation, and telecommunications. It also applies to the United States Congress.

To be protected by the ADA, one must have a disability or have a relationship or association with an individual with a disability. An individual with a disability is defined by the ADA as a person who has a physical or mental impairment that substantially limits one or more major life activities, a person who has a history or record of such impairment, or a person who is perceived by others as having such impairment. The ADA does not specifically name all of the impairments that are covered.

There are five titles within the ADA that covers specific topics: ADA Title I: Employment; ADA Title II: State and Local Government Activities; ADA Title II: Public Transportation; ADA Title III: Public Accommodations; and ADA Title IV: Telecommunications Relay Services.

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Amfebutamone

►Bupropion

Amitriptyline

►Elavil®

Amniocentesis

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Synonyms

AFT; Amniotic fluid test

Definitions

A common, prenatal medical procedure usually conducted about the 16th week of pregnancy in which a needle is inserted into the uterus through the abdomen and a small amount of amniotic fluid is withdrawn from the amniotic sac surrounding the developing fetus. The fluid, which contains fetal tissues, is examined to determine the presence of genetic disorders and birth defects.

Description

Amniotic fluid, a substance with a consistency similar to water, contains live fetal skin cells and additional chemicals that can be examined during the prenatal period for genetic defects and chromosomal abnormalities possessed by a developing fetus. During the procedure amniocentesis, a small sample of amniotic fluid is withdrawn from the amniotic sac surrounding the fetus. During the analyzation period of 10–12 days, the live fetal skin cells are separated from the amniotic fluid and grown in a laboratory prior to examination. Additionally, levels of *alpha-fetoprotein (AFP)*, a protein found in amniotic fluid, are measured and used to determine the presence of neural tube defects (NTDs). Amniocentesis is not offered to all pregnant women due to the low risk of miscarriage that follows the procedure. Medical professionals offer amniocentesis to those that are considered to have an increased risk for genetic birth defects, chromosomal birth defects or certain malfunctions. Disorders that amniocentesis can be used to screen for include down syndrome, NTDs, cystic fibrosis, fragile X syndrome, sickle cell disease, muscular dystrophy and tay-sachs among others. Side-effects and risks of amniocentesis include mild pain or cramps, period pain, spotting (light vaginal bleeding), fetal injury from the needle (reduced by the use of ultrasound guidance), puncture of the placenta (most common injury, self-healing), bacterial infection, Rhesus disease and in rare cases miscarriage.

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Amniotic Fluid Test

►Amniocentesis

Amphetamine Salts

►Stimulant Medications

Amygdala

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Synonyms

Amygdaloid nucleus; Basal ganglion; Corpus amygdaloideum

Definition

The amygdala is an almond-shaped structure located at the anterior medial portion of the temporal lobe of the brain. It is involved in the perception of emotional and affective stimuli and is therefore considered to be a part of the limbic system.

Description

The word "amygdala" derives from the Greek word for almond, the most common description given to the shape of this structure. Anatomically, the amygdala is a mass of gray matter composed of a collection of nuclei located anterior to the hippocampus and medial to the hypothalamus in the temporal lobe of the brain.

The amygdala receives input from various senses: olfactory, visual, somatosensory and gustatory. It then relays information to other areas of the brain such as the frontal and prefrontal cortex, orbitofrontal cortex, hypothalamus, hippocampus and brain stem nuclei. These connections help control the emotional and physiological responses to perceived stimuli. Some of the physiologic responses induced by the amygdala include vasodilatation of vessels in skeletal muscle, tachypnea, elevated body temperature, localized sweating, bowel hypomotility, sphincter constriction and piloerection. Neurotransmitters involved in the amygdaloid pathways include norepinephrine, serotonin, acetylcholine and dopamine.

In general, the amygdala is considered to be an inhibitory center that prevents response to irrelevant stimuli and allows habituation to repeated stimuli. More specifically, it has been theorized that the amygdala is involved in the inhibition of the activity of the periaqueductal gray (PAG), one of the major structures involved in the interpretation of fear. Normally, the PAG results in protective and defensive reactions. The amygdala suppresses these actions resulting in freezing, a manifestation of learned fear.

It has been suggested that there are two pathways directing input to the amygdala. Both pathways traverse the thalamus prior to reaching the amygdala. However, while one path courses directly from the thalamus to the amygdala, the other path is first diverted to the cerebral cortex. The purpose of this dual pathway is thought to allow two reactions to emotional stimuli to occur. The first reaction is an immediate reaction (the direct path); it allows the body to produce a quick response to potentially harmful stimuli. The delayed reaction travels through the cortex first, allowing the brain to analyze stressful situations in more detail to determine the most appropriate response. Through this combined process, the body can instantly prepare itself for potentially dangerous stimuli. Then, if the stimuli are judged to be less harmful, the initial response can be curtailed.

One of the most well-known functions of the amygdala is its involvement in the perception of fear. By incorporating input from a number of sources the amygdala is able to modulate the physiologic and emotional responses to fear. Moreover, the amygdala maintains a certain degree of plasticity which aids in the creation of short- and long-term memory for those situations. In this way, the amygdala is able to control future responses to those same fearful stimuli. In fact, it is postulated that this idea is, in part, responsible for the extinction of phobias through proper conditioning.

Research has suggested that the short- and long-term memory created by the amygdala is done so in an indirect manner. The amygdala secretes neuromodulatory substances in response to emotional situations. Adrenergic, cholinergic and glucocorticoid transmitters are thought to enhance the memory created by those situations. Gamma aminobutyric acid (GABA) and opioids tend to impair these memories. Once GABA and opioids are secreted by the amygdala, these substances influence the memory centers of the brain to either strengthen or weaken the memories for those events.

In addition to fear, the amygdala has also been implicated in the processing of stimuli involved in eating, drinking, sexual desires, aggression, reward and punishment. Unfortunately, in contrast to what is known about its function in the perception of fear, the involvement of the amygdala in other emotions has been less well studied.

According to LeDoux [4], the amygdala begins storing information relating to the body's physical state as early as three months of gestation and as late as five years old. For

example, if a pregnant mother became frightened from a house fire and experienced an appropriate physiologic response (i.e. tachycardia, tachypnea, muscle tension, etc.), the fetus would experience the same physical state which would be stored as a memory by the amygdala. In the future, if that person were to be confronted with a similar situation, the frightening experience would be re-triggered.

Changes in the amygdala have been associated with a number of conditions such as post traumatic stress disorder (PTSD), attention deficit and hyperactivity disorder (ADHD), phobias, panic disorder, schizophrenia, depression and autism. More generally, it is thought that the involvement of the amygdala in these situations is related to an increased level of fear and anxiety that is often found to be a comorbidity of those disorders.

There are theories that have suggested that the involvement of the amygdala in some of the above conditions is related to its initial overactivity. The result is an overexcitation of neurons that causes the death of cells in the amygdala and a reduction in its size. As an example, this theory has been proposed as part of the mechanism in the development of depression. In fact, some researchers have postulated that anti-depressant medications may serve to reduce overexcitability thereby preventing the destruction of neurons.

Lesions of the amygdala, such as in Kluver-Bucy syndrome, have been associated with changes in emotion and appetite. Patients exhibit hyperorality, bulimia, hypersexuality and aggression. These lesions may be due to insults such as trauma, infection, seizure activity and tumors. Depending upon the cause of the lesion, the presentation of these symptoms may last only a few days or may be more permanent.

Relevance to Childhood Development

The intact functioning of the amygdala is crucial to the proper development of emotional states and their physiologic manifestations. The memories created by the amygdala early on in life allow the body to react appropriately at a later stage when posed with similar situations.

Changes in the amygdala have been linked to the development of autism in childhood. More specifically, it has been hypothesized that the amygdala plays a role in the recognition of facial expressions. Experiments focusing on monkeys with lesioned amygdalas have shown impaired social interactions in those monkeys, one of the key features of autism. However, others have argued that the lack of social interaction in these monkeys is not due to autism, but rather to a greater degree of fear which is no longer inhibited by an intact amygdala.

Additionally, Bauman et al. [1] conducted a study in which a group of juvenile monkeys had their amygdalas lesioned. They demonstrated that following one year of typical development, these monkeys began to develop stereotypical behaviors, another defining characteristic of autism. However, given the delay of one year in the development of stereotypies, it has been suggested that it is not a lesion to the amygdala itself that induces this behavior, but rather an alteration in the neural circuits involving the amygdala.

ADHD, a relatively common condition in children, has also been associated with changes in the amygdala. A study conducted by Plessen et al. [8] demonstrated that although the size of the amygdala did not differ between control and experimental subjects, the size of individual sub-regions was found to be smaller in children with ADHD. Moreover, morphologic disturbances in the amygdala may interfere with normal processing of fearful situations which may disrupt emotional learning and the drive to sustain attention to otherwise mundane stimuli.

Research has also indicated that there may be alterations in the pathways between the amygdala and the orbitofrontal cortex in children with ADHD; these pathways normally support decision-making and reward reinforcement. The disturbed connectivity of these two areas in children with ADHD may result in more impulsive behaviors and in preferences for smaller immediate rewards. Some of these pathways involve noradrenergic and dopaminergic activity. Therefore, stimulant medications which potentiate noradrenergic and dopaminergic transmission may help to enhance the cognition of children with ADHD.

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Amygdaloid Nucleus

►Amygdala

Anabolic Steroids

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Synonyms

Medical terms: Anabolic-androgenic steroids (AAS); Street terms: Gas, Gear, Juice, Roids

Definition

Anabolic steroids refer to a broad class of drugs that have both anabolic and androgenic properties that can be administered either by injection, taken orally, or via a transdermal patch.

Description

Anabolic steroids have two primary properties: (1) anabolic, which refers to an increase in protein synthesis which results in increased muscle tissue, and (2) androgenic, which refers to promoting the development of masculine sexual characteristics (e.g., deep voice, body hair).

Anabolic steroids were "invented" in the 1930s by chemists seeking to isolate the powerful male hormone produced by the testes. This hormone became known as testosterone, a combination derived from the words testicle, sterol, and ketone. Perhaps the first reference to using testosterone for muscle building purposes appeared in *Strength and Health* magazine in 1938. The use of injectable anabolic steroids to enhance performance was vigorously pursued by the Soviet Union and other Eastern bloc countries, beginning in the 1940s. Due to the success of athletes from the Soviet Union and, primarily, East Germany, the U.S. Olympic team physician Dr. John Ziegler helped to develop a steroid for use by American weightlifters (Dianabol). Dianabol was approved by the FDA in 1958 [3].

The medical establishment seriously harmed its credibility over the issue of steroids by asserting that they were ineffective for promoting gains in muscle mass or for enhancing athletic performance. Their position was based on a number of flawed studies conducted over the course of two decades. Literally thousands of athletes were aware of the effectiveness of steroids. More recent studies confirm what athletes have long known; mainly that steroids increase muscle mass, decrease fat mass, and generally improve athletic performance [4].

Relevance to Childhood Development

There are a number of adverse side effects noted with the use of anabolic steroids. It is important to note that many of these effects are only seen when steroids are taken at extremely high doses and/or for extended periods of time. Some of the most common side effects in males include increased acne, enlargement of breast tissue (gynecomastia), testicular atrophy, and premature baldness for those who are genetically predisposed. In females, the most common side effects include increased acne and body hair, enlarged clitoris, and disruptions in the menstrual cycle. Less common, and sometimes debated, side effects may include high blood pressure, liver damage (primarily associated with high doses of oral steroids), cardiac problems, structural changes in the heart (especially thickening of the ventricle) and behavioral/personality changes (increased aggression, psychosis). For the adolescent user, one of the main concerns is the premature closure of the epiphyseal fusion which would shorten the length of bones, and increased frequency and duration of erections [1].

Anabolic steroid use among adolescents is estimated by various studies to range from about 1–4% [2]. Most of the adolescent users, who tend to be male, participate in some type of competitive sport. Thus, they are using steroids primarily to enhance performance as opposed to augmenting the appearance of their physique. Although some believe there is a link between suicide and adolescent use of steroids, there are no data confirming this supposition. In addition, despite the popular notion that steroid users experience "roid rage," there are no data demonstrating that steroid use actually causes one to behave more aggressively [1].

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Analeptics

►Stimulants

Analysis of Covariance Structures

►Structural Equation Modeling

Analysis of Variance

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Synonyms

ANOVA

Definition

Analysis of variance (ANOVA) tests the null hypothesis that there are no differences in the means of measurements from two or more different groups.

Description

Suppose you are interested in determining whether different groups score differently on a particular continuous dependent variable. Calculating the differences between mean scores of each group is straightforward but gives no indication whether the differences are reliable or meaningful. The statistical technique analysis of variance (abbreviated ANOVA) determines whether differences in the average measurements of different groups are meaningful by comparing the variability between groups to the variability within groups.

Assumptions of Analysis of Variance

As with other null hypothesis significance tests, the assumptions of analysis of variance are normality, homogeneity of variance and independence of observations. The assumption of normality simply states that each measurement is sampled from a population that is normally distributed. Generally, this is a reasonable assumption for naturally occurring random variables. Sometimes it is possible to transform distributions that are not normally distributed by taking the logarithm, square root or reciprocal of each measurement. The assumption of homogeneity of variance is that all of the populations observations are drawn from have identical amounts of variability. ANOVAs are generally robust to violations of normality and homogeneity of variance. Independence of observations simply means that there are no confounds, that is, no systematic relationships between different measurements from the same group. Good experimental design can address many potential confounds. If a particular confound is unavoidable, factorial analysis of variance or analysis of covariance (see "*other experimental designs*" below) may be more appropriate.

The Null Hypothesis

The standard hypothesis in analysis of variance is that observations from each group are drawn from populations with the same mean. Because it is assumed in analysis of variance that all distributions are normal with homogenous variance – the same standard deviation – if they also have the same mean, the distributions are assumed to be identical. In other words, if distributions of observations from all groups are normal with the same mean and standard deviation, there is no evidence the observations from each group are not drawn from a single population.

Calculating an F Ratio for a One-Way ANOVA

Four numbers are necessary to calculate an F ratio for a one-way analysis of variance:

1. The total sum of squared residuals represents the total amount of variability:

$$SS_{\text{Total}} = \sum_{i=1}^{n} \left(X_i - \overline{X_{GM}}\right)^2$$

   For each of n observations, the statistical analyst (or, usually, her computer) calculates the difference between the observation (X_i) and the grand mean, the mean of all observations in all groups ($\overline{X_{GM}}$). All of those differences are first squared and then added together.
2. The sum of squared residuals under the treatment effect represents the total amount of variability remaining, or error, when different values are used in estimates for each group:

$$SS_{\text{Error}} = \sum_{i=1}^{n} \left(X_i - \overline{X_{Gi}}\right)^2$$

   For each of n observations, the statistical analyst calculates the difference between the observation (X_i) and the mean of all observations in the same group ($\overline{X_{Gi}}$). Those differences are squared and then added together.

	Sums of squared residuals	Degrees of freedom	*MS*	*F*
Treatment (variability between groups)	$SS_{Treatment} = SS_{Total} - SS_{Error}$ $\sum_{i=1}^{n}(X_i - \overline{X_{GM}})^2 - \sum_{i=1}^{n}(X_i - \overline{X_{Gi}})^2$	$df_{Treatment}$: $N - 1$	$MS_{Treatment}$: $\frac{SS_{Treatment}}{df_{Treatment}}$	$F = \frac{MS_{Treatment}}{MS_{Error}}$
Error (variability within groups)	$SS_{Error} = \sum_{i=1}^{n}(X_i - \overline{X_{Gi}})^2$	df_{Error}: $n - N$	MS_{Error}: $\frac{SS_{Error}}{df_{Error}}$	

3. Treatment degrees of freedom is one less than the number of different groups; if there are N groups, $df_{Treatment} = N - 1$.
4. Total degrees of freedom is one less than the number of observations; if there are n observations (preferably with exactly n/N observations per group), $df_{Total} = n - 1$. The difference between df_{Total} and $df_{Treatment}$ is df_{Error} – the degrees of freedom unaccounted for by differences between groups. $df_{Error} = n - N$.

These four numbers are combined to derive average estimates of variability between and within groups. Those estimates are compared as the F ratio.

An estimate of the total amount of variability accounted for by the treatment effect, or $SS_{Treatment}$, is derived from the total amount of variability and that remaining when the treatment effect is assumed: $SS_{Treatment} = SS_{Total} - SS_{Error}$. Mean squared residuals for the treatment effect, or $MS_{Treatment}$, is an estimate of the average amount of variability between groups determined by $SS_{Treatment}/df_{Treatment}$. Mean squared error, or MS_{Error}, is an estimate of the average amount of variability within groups. It is determined by SS_{Error}/df_{Error}. $MS_{Treatment}$ and MS_{Error} are the numerator and denominator of the F ratio, respectively:

Rejecting the Null Hypothesis

Statistical analysts assess the null hypothesis by comparing the average amount of variability between the different groups with the average amount of variability within groups. The resulting F ratio, named for Ronald Fisher, indicates the probability of obtaining results as extreme as or more extreme than the observed results if the null hypothesis were true. By convention, psychologists usually reject the null hypothesis if that probability is less than one in twenty. That is, they conclude that observations from different groups were not drawn from a single population if the probability of identical or more extreme results (an F ratio as high as or higher than the obtained) is $p < 0.05$.

Other Experimental Designs

One-way analysis of variances compare differences in means of two or more groups, for example, the heights of children in grades 1, 3 and 5. Suppose someone wanted to compare heights of boys and girls separately. They would have six different groups (grade 1 boys, grade 1 girls, grade 3 boys, grade 3 girls, grade 5 boys, grade 5 girls), but those groups would not be completely independent (although the observations would be); grade 1 boys have something in common with grade 1 girls and grade 3 girls have something else in common with them. There would be two factors – sex and education level – involved. In factorial analysis of variance, separate F ratios are calculated for each factor as well as for all possible interactions. If someone wanted to compare heights of the *same* children in grades 1, 3 and 5, he would probably use repeated-measures analysis of variance or multivariate analysis of variance, which are different ways of comparing means when observations are not independent. If someone else was interested in comparing heights of boys and girls of different ages rather than grade levels, she would use analysis of covariance. Analysis of covariance tests the null hypothesis that there are no differences in the means of measurements from two or more different groups, after the variability attributable to a different variable (a covariate, in this case age) has been removed. These variations on analysis of variance allow statisticians to apply the general technique to a wide variety of data.

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Analytic Intelligence

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Synonyms

Academic problem-solving skills; Componential knowledge; Fluid intelligence; Implicit knowledge

Definition

Analytic intelligence relates to the mental mechanisms individuals utilize to plan and undertake academic and problem-solving tasks, which are often measured in traditional intelligence tests. Analytic intelligence relies on applying internal mental knowledge to solving novel problems rather than on explicit or learned knowledge from prior experience and/or schooling.

Description

Analytic intelligence tasks typically require an individual to provide a single-correct response to well-defined questions involving new information without utilizing crystallized knowledge, or explicit, declarative knowledge from schooling or prior experience. In this manner, analytic intelligence is similar to Cattell's (1963) notion of *fluid intelligence*. Like fluid intelligence, analytic intelligence challenges an individual to contend with novelty, and to adapt one's problem-solving to a new cognitive problem rather than relying on crystallized skills from one's prior education and experience.

The Ravens Progressive Matrices Test (1962), a classic test of analytic intelligence, consists of a set of visual analogy problems. Each problem presents a 3×3 matrix, wherein the bottom right entry is absent and must be designated from eight response alternative entries which lie below the matrix. Each of these entries normally contains one to five figural elements including geometric figures, lines, or background textures. The test-taker is asked to examine the rows and columns in order to determine which rules will be relevant towards identifying the missing entry. This test benefits from strong stability of individual differences, a relatively large number of items for sufficient theoretical and experimental analysis of problem-solving behavior and correlations with measures of general intellectual achievement.

Sternberg's Triarchic Abilities Test (2003) is a more recent test which delineates analytic intelligence, corresponding to his earlier *componential intelligence*, as one of the key forms of intelligence and as imperative for success in academic pursuits. According to Sternberg, analytic intelligence describes the standard psychometric definition of intelligence as measured by academic problem solving tasks like analogies and puzzles. Sternberg asserts that analytic intelligence is comprised of the joint operation of *metacomponents*, *performance components* and *knowledge acquisition components* of intelligence. *Metacomponents* refer to the higher-order processes which utilize executive functioning skills to order, organize and devise which strategy to use to solve performance components. *Performance components* are the basic operations and cognitive processes which afford test-takers the ability to encode stimuli, store information in short-term memory, formulate calculations, perform mental calculations, and mentally compare diverse stimuli and retrieve information from long-term memory. Finally, *knowledge acquisition components* are used to acquire and store new information as in the process of memorization.

Moreover, analytic intelligence can be divided into three subtypes: verbal analytic intelligence, numeric analytic intelligence and spatial analytic intelligence. Verbal analytic intelligence includes *lexical intelligence*, *phrasiologic intelligence*, *narrative intelligence and conceptual intelligence*. *Lexical intelligence* refers to responding quickly to word problems, for instance determining the anagram for inntlelgiece (intelligence) or completing the following word, "l_ngua_e" (language). *Phrasiologic intelligence* refers to sequencing words in a correct order to form sentences while *Narrative intelligence* relates to sequencing sentences in the appropriate order to form a short story. Finally, *Conceptual Intelligence* involves determining which word does not belong and to evaluate the values and attributes of concepts.

Numeric analytic intelligence relates to arithmetic and the completion of a sequence or matrix of numbers since it is the ability to determine the relations between numbers. For instance, a numeric analytic test question may ask an individual to combine 6, 2, 3, and 4 to form 24. A spatial intelligence IQ is essential to complete larger complex formulas. Spatial analytic intelligence encompasses mental rotation, mirroring, translation, comparing shapes, estimating angles and relative distances. For instance, this ability requires one to observe the relationships between complex formulas in mathematical analyses and shapes in geometry. Spatial analytic intelligence is related to both verbal (words, sentences, text and meaning) and numeric (meaning of numbers) analytic intelligence. Spatial intelligence is considered the most pure intelligence despite including some aspects of numeric intelligence (calculating and comparing numbers of lines or dots).

Finally, with regard to gender distinctions in analytic intelligence, Anastasi (1958), Lynn (1962) and Milton (1957) reviewed findings which suggested that males demonstrate superior performance on spatial and analytic tasks but are less successful on measures of verbal ability as compared to females. These findings suggested that while boys and girls may perform equally on social interaction or communication tasks, boys would rely more on analytic abilities while girls would rely more on verbal skills to successfully complete the tasks. While later studies including Coie and Dorval [2] dispute these gender findings, future research will help divulge these distinctions.

Relevance to Childhood Development

Due to the strong correlation of analytic intelligence to general intellectual achievement, analytic intelligence is an important construct for cognitive development in childhood. Furthermore, since the fluid (cognitive mechanic) abilities of analytic intelligence are thought to constrain or support the acquisition or expression of crystallized abilities (cognitive pragmatics) in later life, it is critical to examine various features of analytic intelligence in early life in order to target the full scope of intelligence and intellectual achievement during the life-span.

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Anastasi, Ann

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Life Dates

1908–2001.

Educational Information

Anastasi studied at Barnard College, and then earned her doctorate at the age of 21 from Columbia University under supervision from Henry Edward Garrett (1894–1973).

Accomplishments

Anastasi taught at Barnard College and Queens College, where she would be the psychology department's chairperson, before joining Fordham University in 1947. It was at Fordham where she would spend the remainder of her long and successful academic career. Anastasi's early mathematical aptitude translated easily into the world of psychological measurement and, influenced by the work of both Leta Stetter Hollingsworth (1886–1939) and Charles Spearman (1863–1945), she developed a nationwide reputation as an expert – as well as a critic – regarding standardized testing.

Anastasi cautioned against the interpretation of test scores as indicative of primarily genetically-based ability and stressed the importance of environment, nurturing, and learning as components of intelligence testing. Long before the boom in test-prep courses for standardized educational assessments, Anastasi wrote of the dangers coaching presented to the integrity of all standardized tests. Anastasi's conception of test validity as a living document of sorts stands in sharp contrast to how tests are often presented to the public. Anastasi was also an early advocate for the cultural relativism of intelligence, arguing that since different cultures value different aspects of the global concept of intelligence, the very concept of a "culture free" intelligence test is a misleading one.

A prolific author with more than 150 publications to her name, Anastasi's most indelible contributions outside of Fordham University were two influential textbooks, *Differential Psychology* (first published in 1937), and *Psychological Testing* (first published in 1954) [2, 3]. These works have appeared in multiple editions, been translated in several languages, and have been used around the globe. References to them still appear in testing literature, and Anastasi's colleagues remember her as an author with justifiable pride in her meticulous attention to both detail and style [1, 4, 5].

A leader as well as an influential author and scholar, Anastasi's multiple professional presidential positions were capped with her 1972 presidency of the American Psychological Association. She was an avid consultant and committee member for both government and private industries, and received honorary doctorates from Villanova University and University of Windsor, among others. The recipient of multiple awards from both academia and professional organizations for her work in testing

and education, Anastasi also received the National Medal of Science in 1987 from President Ronald Reagan.

Contribution

Anastasi enriches psychology with multiple legacies. On the one hand, her important literary contributions to the textbooks of testing and assessment are reminiscent of William James' (1842–1910) contributions to general psychology in that her books are well-written, definitive, and influential upon both practitioners and students alike. Her well-reasoned arguments regarding the misinterpretations of test scores are still timely, continuing the resonance her works still possess. Her many dignified leadership positions provide powerful models for other leaders of professional organizations to emulate, and her list of accolades is astonishing. It is even more astounding that for much of Anastasi's early life, women in the USA faced extreme barriers in pursuing careers in mainstream academic psychology. Anastasi's exemplary accomplishments are even more inspirational within this context.

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Anderson-Fabry Syndrome

►Fabry Syndrome

Androgyny

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Synonyms

Blended gender; Hermaphrodite; Hermaphroditic

Definition

The presence of a high degree of desirable masculine (instrumental) and feminine (expressive) traits in the same individual. A person who does not fit into the stereotypical masculine and feminine gender roles of their society.

Description

Gender roles have traditionally been well-defined constructs with masculinity being synonymous with aggression, independence, and power; and femininity being associated with nurturance, dependence, and an indifference to being in power [8]). However, in the 1970s, alternatives to the "masculine" and "feminine" sex roles were explored [7]. The concept of androgyny emerged as one of these alternatives – showing that as opposed to the stereotyped gender roles of masculinity and femininity being expressed on a continuum, one individual could present with the most desirable traits from both genders. An androgynous individual might be a male who is assertive while being sensitive to the feelings of others, or a female who is dominant but caring [8].

Psychologists have been fascinated with the gender spectrum; thus, shaping the approach to the study of men and women. In fact, psychologists have developed tests to measure the dimension of masculinity and femininity. However, results and the interpretations of Masculinity–femininity measures (M–F) were based on value judgments, such as it is "better" to be on the feminine side if you are female [5]. In other words, the aforementioned tests base measurements of M-F on assumptions, which decreases the validity and reliability of the tests. However, after 1974, scales were developed to measure masculinity, femininity, and androgyny; thus, expanding the perspective of gender identity [4]. One measure that was developed to assess androgyny is the Bem Sex-Role Inventory [7]. Based on one's responses to the items of the measure, an individual could be classified as having one of four gender-role orientations: masculine, feminine, androgynous, or undifferentiated. According to Bem, men and women who are androgynous are more effective, flexible, well-functioning, and mentally healthy than individuals who present with either masculine or feminine traits alone. Additionally, Stake [10] found that androgyny is linked to lower levels of stress and well-being; and Shifren et al. [9] found that emerging adults who were androgynous reported having better health practices such as using seat belts and not smoking than any other gender role classification.

Using a revised version of the BSRI, Hyde and Phillis (1979), as referenced by [4], tested androgyny across a life span. They discovered younger women and older men were more androgynous; therefore, suggesting that

androgyny is a result of developmental changes rather than do to cohort effects. [4] decided to replicate Hyde and Phillis' study, and in doing so, they found contrasting results. [4] found that both men and women were more feminine in older age, which may have to do with increased dependency and unemployment. Many women were also more androgynous in both young and old ages and more masculine between the ages of 21 and 40. On the other hand, men tended to be more androgynous and feminine at all ages than what was previously thought.

Overall, many gender researchers suggest that, as people age, they respond to life more androgynously. In other words, androgynous people do not restrict their gendered behavior to conform to societal expectations. In fact, the older an individual gets, the more flexible, adaptable, and reliable they tend to be [6].

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Anencephaly

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Definition

Anencephaly taken literally, means without a brain but this is too broad of a definition to be accurate. "Cephaly" as in "cephalic" is term referring to the "head" or the "head end (or head most end) of the body." Anencephaly is a congenital disorder in which the cephalic end of the prenatal neural tube, the antecedent structure to the brain, fails to close early in pregnancy [5]. Individuals born with this cephalic disorder are absent a significant portion of the brain, skull and possibly scalp. The brain that is present is missing the cerebral cortex (the neocortex) of the cerebral hemispheres, the mass of the cerebral hemispheres, the subcortical structures of the cerebral hemispheres (the telecephalon and diencephalon) and most if not all of the structures that normally compose the midbrain (the mesencephalon); the brain tissue is often exposed to the environment. The development abnormalities occur very early in pregnancy, typically between the twenty-third and twenty-sixth day of gestation [2]. For instance, an encephalic infant may have a partially developed medulla oblongata to enable respiration [4].

A website maintained by the National Institute of Neurological Disorders and Stroke [3] (the NINDS) describes anencephaly in the following:

> A baby born with anencephaly is usually blind, deaf, unconscious, and unable to feel pain. Although some individuals with anencephaly may be born with a rudimentary brain stem, the lack of a functioning cerebrum permanently rules out the possibility of ever gaining consciousness. Reflex actions such as respiration (breathing) and responses to sound or touch may occur.

This disorder is one of the most common congenital disorders of the prenatal central nervous system (CNS), with about 1,000–2,000 such births occurring annually in the United States, according to the National Institutes of Health. The exact causes of anencephaly are not known but the variation in the sex ratio of affected embryos seems to suggest that there are perhaps two causes of anencephaly, one of which is environmental and predominantly afflicts female embryos. The other causes may be environmental or genetic, and seems to attack different sex embryos in roughly equal numbers [1]. Possible environmental causes are thought to be high levels of exposure to mercury, chromium, nickel and lead.

At present, there is no therapy or treatment for anencephaly and the prognosis for afflicted individuals is poor. Most infants born with anencephaly do not survive birth; individuals who are delivered alive typically die within a few hours or, at the most, a few days after birth, most often from cardiorespiratory crises [2]. The typical clinical response is to offer nutrition, hydration and other palliative measures. Anencephaly can often be diagnosed prenatally via ultrasound examination [4].

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Angelman Syndrome

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Description

Angelman syndrome (AS) is a neurogenetic disorder caused by an abnormality to the maternal chromosome 15. Specifically, the region of 15q11-q13 is mutated or deleted causing the lack of expression of the UBE3A gene. The prevalence for the disorder ranges from 1/12,000 to 1/20,000 births across races and genders [28]. Information about AS has been emerging since the first description in 1965 by Dr. Harry Angelman. In a paper, he described three children having similar symptoms which included abnormal development of the skull, language delay, spurts of uncontrollable laughter, seizure disorder, and jerky movements [1]. Since its first description, over 300 cases of AS have been diagnosed [5].

Genetics

Angelman syndrome is caused by the lack of expression of the UBE3A gene which is located on the critical area (15q11-q13) of the maternal chromosome. This region on the 15th chromosome is called the PWS/AS critical region. Interestingly, another disorder called Prader-Willi Syndrome (PWS) is caused by the same abnormality, but on the paternal chromosome 15 [6]. However, Prader–Willi syndrome has a very different phenotype than Angelman syndrome (see Chapter Prader–Willi Syndrome).

UBE3A is a gene that encodes for a protein that enables an enzyme that facilitates protein turnover. Typically, this gene is expressed on both maternal and paternal chromosomes except in the brain. In the brain, the UBE3A gene is typically activated on the maternal chromosome and inactivated by imprinting on the paternal chromosome in this critical region [29]. This process, genetic imprinting, occurs when genes are expressed differently, depending on whether the genes are inherited paternally or maternally [31]. The absence of the maternal critical region is responsible for Angelman syndrome. Generally, AS is found to occur when there is an abnormality in the critical region on the maternal chromosome and the UBE3A gene function is disrupted. There are four ways the critical region on the maternal chromosome becomes impaired which include: deletion to the critical region, paternal uniparental disomy (PUD), an imprinting defect, and a mutation in the UBE3A gene [32].

The most common genetic cause for Angelman syndrome is a molecular deletion of the critical region on the maternal chromosome and which occurs in 70% of cases [9, 14] This deletion results in the UBE3A gene to be deleted along with four million base pairs [17]. The gene is silenced because it is maternally deleted and paternally inactivated. Individuals with this deletion have the more severe phenotype than their counterparts with AS not due to deletion. Imprinting defects account for 6–10% of AS [17]. Imprinting defects cause a maternal imprinting error. Specifically, the maternal gene assumes the role of the paternal gene and becomes inactivated. Some imprinting defects, specifically imprinting maintenance defects, result in somatic mosaicism [22]. Paternal UPD occurs when the child inherits two copies of the paternal chromosome. UPD is less prevalent and only makes up 3–4% of individuals with AS [7]. In addition, a genetic mutation or partial deletion of the maternal UBE3A gene may cause AS. This only makes up 4–6% of individuals with AS [19]. Lastly, 10–20% of individuals have no signs of genetic mutations to 15q11-q13, but instead have been diagnosed with AS based on presenting clinical features [7, 10, 24, 29]. However, it is possible that some of these individuals may be diagnosed improperly due to shared symptoms with other syndromes. For example, a similar phenotype is observed between those with a deletion of 22q11.3 and a duplication of 15q11-q13 [33].

Diagnosis

A diagnosis for Angelman syndrome is not usually given within the first year because infants are typically born with average birth weights and score within typical development ranges, which obscure other signs of AS. As previously mentioned, the first sign of AS tends to be an unusual electroencephalogram (EEG) reading (diagnostic criteria) [25]. Research has shown 47% of individuals had an EEG before the diagnosis of AS [20]. Angelman

syndrome can be diagnosed 80% of the time with genetic tests such as a high resolution test, fluorescence in situ hybridization (FISH), and methylation analysis. The first test usually done is a methylation analysis because of its ability to give a positive result for a deletion, UPD, or imprinting error. However, the test is unable to detect which of these is the genetic cause. Next, a FISH test or high resolution test will be given to detect any deletions of the critical region on chromosome 15. The high resolution tests are prone to false positives and false negatives, which shows the importance of getting two positive laboratory tests for a genetic diagnosis of AS. The DNA polymorphism test is able to determine if either the paternal or maternal critical regions are deleted. If positive, a second test would need to be done in order to determine whether the diagnosis is Prader–Willi syndrome (deleted maternal critical region) or Angelman syndrome (deleted paternal critical region). In 10–20% of AS cases, there is no evidence for a genetic based diagnosis [10, 24]. In this case, the laboratory tests appear to be typical and evidence for a diagnosis has to come from the clinical features of AS. In addition, an EEG can help diagnose the individual because of its characteristic pattern.

Overall, the diagnosis of AS is important to parents as the genetic basis determines the risk of occurrence of AS in a sibling. There is a 2% risk of reoccurrence with deletion AS and a low risk of reoccurrence for uniparental paternal disomy AS. There has not been a case of recurrent AS due to a typical AS deletion or UPD. In the 10–20% of individuals with AS who do not have a genetic cause, there is the highest chance of reoccurrence and some report a 50% chance [7, 24]. There is one case in which three siblings all inherited the same mutation to chromosome 15 resulting in AS. However, the mother was unaffected as she inherited the mutation from her father and the paternal gene is naturally silenced. Within this scenario, she had a 50% chance of passing that gene on to her children [10, 16]. Given that 5% of the time, it is the mothers who are carriers of the genetic mutation, it is important for parents to get a chromosomal analysis to determine their status [11].

Characteristics of Angelman Syndrome

Individuals with Angelman syndrome display a range of characteristics that differ in severity which is influenced highly by the genetic basis for the disorder [2]. Due to the broad-spectrum of symptoms, characteristics of AS have been split into three categories based on their consistent presentation in individuals with AS: consistent, frequent, and associated. Diagnostic criteria for AS was first produced in 1995 and were updated in 2005 by Williams and colleagues.

Consistent (100%)

- Developmental delay, functionally severe
- Speech impairment, none or minimal use of words; receptive and nonverbal communication skills higher than verbal ones
- Movement or balance disorder, usually ataxia of gait and/or tremulous movement of limbs. Movement disorder can be mild. May not appear as frank ataxia but can be forward lurching, unsteadiness, clumsiness, or quick, jerky motions
- Behavioral uniqueness: any combination of frequent laughter/smiling; apparent happy demeanor; easily excitable personality, often with uplifted hand-flapping, or waving movements; hypermotoric behavior

Frequent (More Than 80%)

- Delayed, disproportionate growth in head circumference, usually resulting in microcephaly by age 2 years. Microcephaly is more pronounced in those with 15q11-q13 deletions
- Seizures, onset usually <3 years of age. Seizure severity usually decreases with age but the seizure disorder lasts throughout adulthood
- Abnormal EEG, with a characteristic pattern. The EEG abnormalities can occur in the first 2 years of life and can precede clinical features, and are often not correlated to clinical seizure events

Associated (20–80%) [32]

- Flat occiput
- Occipital groove
- Protruding tongue
- Tongue thrusting; suck/swallowing disorders
- Feeding problems and/or truncal hypotonia during infancy
- Prognathia
- Wide mouth, wide-spaced teeth
- Frequent drooling
- Excessive chewing/mouthing behaviors
- Strabismus
- Hypopigmented skin, light hair and eye color (compared to family), seen only in deletion cases
- Hyperactive lower extremity deep tendon reflexes
- Uplifted, flexed arm position especially during ambulation
- Wide-based gait with pronated or valugus-positioned ankles

- Increased sensitivity to heat
- Abnormal sleep–wake cycles and diminished need for sleep
- Attraction to/fascination with water; fascination with crinkly items such as certain papers and plastics
- Abnormal food related behaviors
- Obesity (in the older child)
- Scoliosis
- Constipation

Neurological Features. Individuals with AS have a distinct electroencephalogram (EEG) patterns. Although EEG patterns are not all the same for individuals with AS, the characteristic pattern includes rhythmic spiking patterns mainly occurring in the frontal region [20]. Seizures develop 80% of the time in individuals with AS and have been noted to originate in infancy or early childhood [8]. The onset of seizures tends to be earlier, more severe, and occur more often in individuals with a deletion. However, seizures occur in those with both deletion and nondeletion forms of AS. Furthermore, seizures can range in severity from physical trembling of hands and legs to momentary absence seizures. During childhood there are several different types of seizures that can happen which include tonic–clonic seizures, atypical absence seizures, myoclonic seizures, tonic seizures, and status epilepticus. However, myoclonic and atypical absence seizures are most prevalent in adulthood [20, 25] Typically, the seizures tend to subside by age 7–10 [8], but some research reports adults will still likely have reoccurrences of seizures [20, 25]. Regardless of the genetic cause of AS, seizures tend to occur in bursts followed by seizure-free periods that may last months. Seizures are thought to occur spontaneously, but may be elicited by physical activity, fatigue, excitement, infection, and fever [20, 25]. Seizures are hypothesized to occur due to abnormalities of the $GABA_A$ receptor system for which coding lies in the critical region of chromosome 15 [25]. The diagnosis of epilepsy can be difficult due to abnormal jerky movements displayed by individuals with AS. Furthermore, it is possible seizure disorders may be unnoticed or over diagnosed [25]. Additionally, brain development seems to be altered as recent MRI data show that there are delays in myelination and abnormalities in cortical development.

Physical Features

The most prominent physical features of individuals with AS include the inability to manage muscle movements (ataxia), lack of physical development, distinguished facial features, delayed walk, and hypopigmentation. The physical features of AS differs according to the genetic cause of the disorder. Individuals that have a deletion have more severe physical symptoms of AS, while individuals with an imprinting error or UPD tend to have a later onset and less severe physical features.

Physical Development. In almost every case, a child with AS has typical fetal movements, normal levels of amniotic fluid, with a typical birth weight and head circumference. However, parents note the infant tends to be 7–10 ounces lighter than siblings without AS [10]. Although there are no signs of developmental delay at birth, in 100% of cases there is a visible developmental delay between 6 and 12 months [32]. Overtime the child's growth slows and a child may have a smaller head, which may result in microcephaly. Research reports 90% of children with the deletion have microcephaly, compared to 33% of individuals with nondeletions [21]. In addition, it is common for the back of the individual's head to be flattened [21]. Growth retardation is found in 50% of individuals with deletion AS and only in 10% of nondeletion cases [8]. However, height is not severely affected as many adults will be in the normal height range.

Walking. Physical functioning can be highly affected due to a movement disorder found in individuals with AS which constitutes of tremor-like movement of the arms and the legs. These tremor movements likely impact some daily functions such as eating, reaching for objects, and walking. Significant developmental delays are observed in children with AS. On average, children with AS sit at 12–20 months of age and crawl at 22 months [5, 8]. Individuals with nondeletion form of AS start walking, on average, at 2½ years, while individuals with deletion form of AS begin to walk, on average, at 5 years of age [21]. Approximately 10% of individuals with AS never learn to walk [10]. For those individuals who are able to walk, walking is characterized by a distinct gait. Specifically, the arms are lifted, elbows are bent, and hands are turned downward [8, 24]. It is this gait that resulted in the use of the antiquated term "happy puppet syndrome" [14].

Facial Features. Facial features include a pointed jaw, large mouth, spaced teeth, deep set eyes, thin upper lip, and a protruding tongue which is more noticeable when children laugh and may cause excessive drooling. Individuals with deletion AS can have hypopigmentation which includes lighter hair, skin, and eyes. This feature is only found in those with the deletion because the pigment gene, which causes the melanin synthesis, is also deleted [18]. In addition, infants may have a hard time sucking and coordinating tongue movements, which may inhibit infants from getting the nourishment needed [8]. In some instances, infants are diagnosed with failure to thrive.

Beyond infancy, obesity may be problematic. Obesity rates rise from 15% in deletion cases to 50% in nondeletion cases [21].

Behavioral Characteristics

Happy Demeanor. One distinct behavior individuals with AS display is an uncontrollable laughter and an excessive happy demeanor. Many times this "burst" of laughter may be at an inappropriate time and research has shown laughter and smiling occurs more than their counterparts [15, 23]. This excessive happiness can be detected as young as 4–6 weeks as infants smile frequently, with laughter outbursts starting at 10 weeks [8]. There have been mixed reports about the frequency of excessive laughter and smiling (range of occurrence in 57–96% of individuals) [8, 28] Laughter has been noted to occur more frequently before and after seizures and may not always be contextually relevant. Nonetheless, this level of laughter may be heightened by social interaction [15]. Interestingly, research has found that adults with AS smiled and made eye contact more with individuals also diagnosed with AS than individuals diagnosed with other developmental disabilities [23]. Laughter is a behavioral characteristic that has an unknown cause and more research needs to be done to explain why this behavior may occur.

Hypermotoric Activity. Hypermotoric activity is a very common characteristic displayed by children with AS and may be noted as early as infancy and toddlerhood. This activity may manifest as rapid activity change and continuous mouthing of toys [5]. When children are engaged in these activities, they appear to have difficulty attending to social and environmental cues. Consequently, this creates a lack of social interaction which may contribute to language deficiencies associated with AS and may create barrier to learning alternate forms of communication such as sign language, or gestures. Other behaviors such as hand flapping, biting and grabbing others tend to increase as hyperactivity increases. However, hyperactivity seems to decrease with age [9]. Many children with AS do not need medication for these symptoms as they will subside, but behavioral modifications may help reduce unwanted behavior.

Sleeping Problems. Sleeping disturbances are considered an associated characteristic in individuals with AS and have shown to affect between 20 and 80% of individuals with AS. Sleeping disturbances have been speculated to be caused by disruptions in the GABAergic system (see seizure section) [26]. Research shows individuals with AS get a reduced total amount of total sleep (5–6 h), take longer to fall asleep, have frequent night awakenings, and experience less REM sleep with more leg movements than those without AS [4, 8, 26]. The delayed onset of sleep may be due to night rythmias, unstable circadian cycles, and jerky movements before falling asleep [26]. Sleeping disturbances may come in spurts followed by a period of relief from these abnormal sleeping patterns. Despite, these sleep characteristics, some research reports those with AS do not experience drowsiness throughout the day suggesting that individuals with AS may need less sleep than their counterparts. Additional sleep difficulties include problem behaviors such as destroying bedroom furniture [8]. Sleeping problems tend to be worse in childhood and may diminish as adolescence or adulthood approaches [8]. Although decreasing severity and presentation of symptoms are reported as those with AS age (e.g., sleep difficulties, behavior problems), there has not been research to support that increased sleep is responsible for the reduction of these and other characteristics of AS [26].

Activities Enjoyed. Individuals with AS tend to have a heightened attraction to water. Research shows individuals with AS have a higher preference for water than individuals with Down syndrome and other developmental disabilities [13]. Those with AS are often observed jumping in water fully-clothed and going into bodies of water, such as swimming pools and lakes whenever there is an opportunity [8]. In addition, individuals with AS tend to have a love for any shiny or reflective objects. Finally, individuals with AS are reported to also enjoy social activities, humor, and television [9, 29].

Cognition and Language

Speech and language development is contingent upon the genetic basis of AS. Many individuals with AS are not able to speak or may have up to four words [5]. Research has shown that out of 83 individuals with AS, 30% could not speak and 70% were able to speak 1–6 words [8]. However, in some atypical AS deletion cases, those individuals with AS are able to speak 20–30 words. Few individuals with mosaic form of an imprinting center have been noted to speak in simple sentences and over 50 words [22]. This language deficit is apparent early in development (lack of cooing and babbling in infancy and decreased crying and vocalizations in toddlerhood). Toddlers with nondeletions may begin to use nonverbal communication to indicate wants, but hyperactivity creates teaching alternate ways to communicate difficult. Individuals with AS use nonverbal skills mainly for manding (requesting and refusing items) and individuals with AS have a significantly lower ability to tact (label) items, echo and imitate other individuals nonverbal cues compared to other individuals with severe and profound mental retardation [12]. Some less severe cases of AS may learn how to use visual aids and some sign

language, but this is very difficult for children who are more severely affected and unable to establish eye contact with another. Individuals with AS have more success with receptive language and commands [9].

Developmental tests show individuals with AS have a limited range of functional abilities with a developmental level between 24 and 30 months and are often diagnosed with severe to profound mental retardation [27]. Determining the developmental level of individuals with AS is a complicated task due to the lack of speech, hyperactivity, and movement disorders. Furthermore, test scores may be lower than actual functioning and cognitive levels. Adaptive skills are limited as individuals with AS need assistance when taking a bath and getting dressed. Some individuals can be toilet trained, but rarely toilet trained at night [9]. Individuals with AS require supervision at all times given their compromised ability to appreciate danger [9].

Treatment

Angelman syndrome does not have a cure, but many of its symptoms can be treated. One of the most commonly treated symptom of AS is seizure disorders. Seizures can be treated with medications such as valproic acid, topiramate, levitiracetam, and clonezapam. However, carbamazepine has been shown to have paradoxical effects. Many times seizures will decrease with age due to correctly identifying the most effective medication for that particular individual. In addition, a ketogenic diet, which includes consuming four times more fat than protein or carbohydrate at each meal, has been noted to help with refractory epilepsy [30].

Melatonin has been shown to help individuals with sleep disturbances. Research has found melatonin helped eight children with AS start sleeping sooner, decreased sleep latency, and increased the total amount slept. In addition, the number of times individuals woke up during sleep was reduced [3]. However, melatonin has also been ineffective in some individuals [24]. It is important to note the use of melatonin is still a debated issue and more research needs to be done in order to understand the best candidates for melatonin and specifically, the sleeping problems melatonin will help alleviate. In addition to melatonin and medication use, behavior therapy may aid in addressing sleep disorders. Behavioral therapy includes establishing a bedtime routine, finding alternate appropriate activities for the child to engage in while the family sleeps, and finding environmental connection for each individual's sleeping characteristic.

Language development can be difficult and there has not been a specific therapy that has shown to produce effective increases in language. In a few cases of AS, individuals are able to use Picture Exchange Communication System (PECS) or augmented communication devices. Individuals can understand commands given to them and are most successful at this type of communicative approach. Barriers such as hypermotoric activity can cause difficulty when teaching language and new skills making language acquisition easier for older patients with a higher ability to sustain attention [9]. There is some suggestion that massage and aromatherapy can help reduce hypermotoric activity. It is also important to continuously reinforce individuals for gaining new skills and for appropriate behavior [9].

Physical therapy can help the development of walking and other gross motor skills. This further helps individuals from having obesity and creates a healthier lifestyle. In addition, braces can help individuals walk. Other treatments include simple changes that can have a large impact. Bottle feeding can be more effective than breast feeding due to the sucking and difficulty in coordinating mouth movements [8]. In addition, individuals with hypopigmentation have a high risk to sunburn and sunscreen should always be used.

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Anger

▶Aggression

Angiokeratoma Corporis Diffusum

▶Fabry Syndrome

Anguished

▶Grieving

Angular Gyrus

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Definition

The angular gyrus is a convolution of the inferior portion of the Parietal lobe that plays an integral part in aspects of language, cognition and achievement, including reading, writing, and mathematical calculations [6].

Description

The Angular Gyrus is a convolution of the inferior parietal lobe that presents as a connecting point of a Parieto–Occipito–Temporal origin. As such the Angular Gyrus represents a cortical association area that provides cross-modal integration of visual, tactile, and verbal information [7]. From a functional standpoint, the Angular Gyrus has been shown to play a vital role in reading, writing, and mathematical calculations [6]. Linkage of the Angular Gyrus with such specific abilities has been best exemplified through lesions analysis. For example, lesions in the dominant hemisphere (i.e., that hemisphere in which language is predominantly housed) that impact the Angular Gyrus may result in alexia (i.e., impairment in reading) and agraphia (i.e., impairment in writing) [4]. This is due to the fact that transmission of neuronal impulses that allow such abilities to be carried out must pass through the Angular Gyrus. For example, reading requires information to be sent from visual areas in the Occipital lobe through the Angular Gyrus and from there to Wernicke's area, which allows one to read silently or, through anterior transmission by way of the Arcuate Fasciculus and in conjunction with Broca's area, which allows one to reads out loud [5]. In regards to writing, the transmission is carried out in a more anterior to posterior direction in which Broca's area works in concert with temporal regions to decipher what is to be written then by transmission through the Angular Gyrus as well as motor systems involved in writing, involvement of the Occipital and Parietal regions allows for the process to be carried out [7]. Given its' involvement in reading and writing, the Angular Gyrus has been proposed as an essential component of the holistic domain of language. One of the most accepted models of language is the Wernicke-Lichtheim-Geschwind (WLG) model, which is an expansion of the WLG. Although the Wernicke-Lichtheim model accounted for oral (i.e., spoken) and aural (i.e., heard) language it could not account for visual language, which involves reading and writing. The model was expanded by Geschwind to include the Angular Gyrus which was proposed to provide the basis for visual language, as its location at the junction between the Temporal, Parietal, and Occipital lobes allows the Angular Gyrus to efficiently receive projections from primary and secondary visual areas, while also providing a region in which associations with anterior circuits may be made [2]. While the Angular Gyrus is mostly related to reading and writing, lesions of this region have been linked to a cluster of symptoms together referred to as Gerstmann Syndrome, which not only involves agraphia and acalculia but also right–left confusion/ disorientation, and finger agnosia [6]. While Gerstmann Syndrome and the idea of it originating from isolated lesions of the Angular Gyrus have received a fair amount of attention, an array of newer research suggests these four symptoms do not occur together as a unitary syndrome, although large lesions of the posterior Parietal lobe, not the Angular Gyrus specifically or singularly may produce such an arrangement of symptoms [1]. While the idea of Gerstmann Syndrome has proposed an extension of the functions the Angular Gyrus plays a role in (i.e., reading and writing) anomic aphasia and alexia with agraphia have also been associated large left-sided lesions in the Angular Gyrus with, in addition to those symptoms associated with Gerstmann Syndrome [3].

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Angular Gyrus Syndrome

►Gerstmann Syndrome

Anhedonia

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Synonyms

Dysphoria; Melancholy; Unhappiness

Definition

The word anhedonia acquires its meaning from the Greek works *an-*, without, and *hedone-*, pleasure. Anhedonia is

an inability to experience pleasure from normally pleasurable life events (e.g., eating, social interaction, sexual activity, etc.).

Description

People who suffer from anhedonia may feel an intense sadness for no apparent reason. Furthermore, an individual may lack motivation, become more apathetic, feel tired and display feelings of irritability. In more severe incidences of anhedonia, individuals may develop a feeling of helplessness and/or hopelessness. Anhedonia is recognized as a core clinical feature of the mood disorder Major Depressive Disorder according to both the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text revision) (DSM-IV-TR, [1]) and the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision (ICD-10, [7]). As criteria for the diagnosis of Major Depressive Disorder, anhedonia is described as a significant reduction in a person's level of interest in or pleasure derived from most activities, nearly every day for a 2-week period of time (DSM-IV-TR, [1]). It is important to note that not every individual who experiences anhedonia suffers from Major Depressive Disorder or another mental health disorder. Anhedonia is also seen in Schizophrenia, Schizoid Personality Disorder, individual's experiencing substance abuse withdraw, and other mental health disorders [5].

Current research has linked anhedonia to a break down in the brain's Central Reward Pathway. The brain is divided into several distinct regions that are each responsible for performing different functions. The brain can perform highly specialized functions in these regions due to cells called neurons. Neurons are the cells responsible for passing chemical and electrical signals along the pathways of the brain. Of these specialized regions, the ventral tegmental area (VTA) and the nucleus accumbens (NAc) play central roles in the processing of rewarding environmental stimuli and in drug addiction through the release of a neurotransmitter (chemical) called dopamine [5]. Furthermore, in the mesolimbic region of the brain, dopamine-sensitive neurons project from the ventral tegmentum into the medial prefrontal cortex, amygdala, and ventral striatum regions. Reduced activity in the striatum may lead to a failure of the prefrontal cortex to process rewarding experiences due to a decrease in the release of dopamine or an increase in neurons tolerance for dopamine. It is thought that disruption in these areas inhibits the brain from positively reinforcing typically pleasurable life experiences, thereby forcing the brain to interpret characteristically pleasurable experiences as neutral experiences [6].

Relevance to Childhood Development

Anhedonia is typically seen in children who also meet the criteria for Major Depressive Disorder and other affective mental health diagnoses. After years of controversy, professional consensus supports the notion that young children can indeed suffer from depression. Moreover, they tend to exhibit symptoms that are strikingly similar (although not identical) to those of older adolescence and adults with depression. Several empirical research studies of depressive phenomenology have subsequently provided evidence that depressed prepubertal children could be identified using the adult *DSM* classification criteria [3]. However, depression can be difficult to diagnose during prepubertal years, because these children cannot yet verbalize their feelings or inner experiences. Although researchers have noted that children can "mask" their depressive symptoms, the majority of children suffering from Major Depressive Disorder present with an anhedonic affect [2].

Anhedonia in the early elementary school years is often expressed through behavior problems, whereas older preadolescents and adolescents may begin to verbalize feeling of hopelessness and decreased enjoyment from previously enjoyable activities. Additionally, school and peer relationship problems are more commonly seen after the age of six. Children with anhedonia are more likely to be rejected by their peers, be perceived as less likable, and have more negative social behaviors than their peers who do not display anhedonia. Anhedonia can interfere with the formation and maintenance of healthy friendships and further solidify the child's depression and/or anhedonia [4].

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Animism

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Definition

Animism is the belief that biological and physical phenomena in the natural world possess conscious intentions and purpose. Thunder, for example, is considered to be the voice of a god, or the moon is a conscious being whose movement is animated by its personal intentions.

Description

The term was popularized in 1871 by E.B. Tylor in his work, *Religion in Primitive Cultures* [4]. Taylor is considered one of the founders of the discipline of anthropology who, following the impetus of Darwinian theory, sought to provide an account of the cultural evolution of religion. Animism, he argued, represents the first, earliest stage of religion, which is found in "primitive peoples" who have no systematic religious doctrine or scripture, who believe that the universe is alive with spirits, souls and supernatural intentions. From this primitive beginning, later, more sophisticated religious beliefs derive. He also argued that animism is the antithesis of materialism, which is a much later developed form of thought that recognizes that biological and physical factors, not spirits, are responsible for the causes and consequences found in the natural world [4].

The investigations by Tylor and other early anthropologists in the nineteenth century influenced the psychological theorists of the twentieth century, notably Freud and Piaget. Freud argued that thought consists of primary processes, which are id driven, seek immediate gratification, and are instinctual; and secondary processes, which are ego driven, seek rational accommodation with objective reality, and develop later. Animism and magical thinking are characteristics of primary process thinking, as id driven wishes and desires are projected onto external reality. These distortions of reality are mitigated and overcome with the development of secondary process characteristic of rational thought. Freud argued that this ontogenetic developmental trajectory parallels the phylogenetic evolution of cultures, from animism to rationalism, described by anthropologists [1].

Piaget addressed animism in his early book, *The Child's Concept of the World*, which has had the most significant impact on developmental research on this topic [2]. Piaget argued that young children are egocentric in their thinking and therefore presume that the world, like themselves, is animated by conscious will and intentions. All things are endowed with life, and movement or activity of any kind necessarily entails purposefulness. As children develop, Piaget asserts that their thought becomes more decentered, and the boundaries between their own experience and that of the world become more differentiated. With development, children's thinking becomes less animistic, more reasoned, and they appreciate that the physical world is governed by material principles, not conscious purposes. Piaget leaves open the question of the relation between the anthropological cultural-evolutionary accounts of animism and his own investigation of ontogeny, but he does consider it an issue worthy of scrutiny [2].

These early social scientists shared a presumptive progressive-evolutionary framework, and considered animism a quintessential expression of primitive thought that is overcome and replaced by more advanced critical, rational processes. Contemporary research, however, no longer shares this framework and animism, thus, no longer serves as a theoretical cornerstone. Consequently, the topic has received much less research attention. Recent research, however, suggests that animism is less pervasive and profound than originally proposed by Freud and Piaget. Young children do, indeed, possess animistic thinking, but they are less egocentric, are capable of much more sophisticated understanding of causality at an early age, and develop sophisticated reasoning skills much more quickly than previously believed [3, 5].

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Announcement

▶Media

Anomia

▶Dysnomia

Anomic Aphasia

►Childhood Aphasia

Anorexia

►Anorexia Nervosa

Anorexia Nervosa

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Synonyms

Anorexia; Anorexic; Eating disorder; Emaciation; Malnourishment; Starving; Without appetite

Definition

Anorexia Nervosa (AN) is an eating disorder primarily affecting adolescent girls and young women (although anorexia in adolescent boys and young men is becoming more prevalent), characterized by pathological fear of becoming fat, distorted body image, emaciation, and excessive dieting.

Description

Anorexia Nervosa (AN) is a form of self-starvation to the point of emaciation. A person must maintain a significantly low body weight (15% below normal body weight for height and age) in order to be diagnosed with AN. He or she must also be continually preoccupied with food and its nutritional values (i.e., calories, fat grams) for fear of gaining weight. This irrational fear of weight gain may cause the person to control his or her eating by skipping meals and starving his or herself, which can lead to hospitalization and sometimes death. Another key symptom of AN is a distorted body image manifested through thoughts, feelings, and perceptions of being overweight, when in reality, the person is extremely thin. A person with anorexia does not see an accurate picture of him or herself when looking in the mirror. Rather, they see themselves as overweight, regardless of their appearance. Amenorrhea, or the absence of at least three menstruation cycles, is also a symptom of AN, but does not apply to males, prepubescent females, or females on birth control.

A common index used to diagnose AN in adults is the Body Mass Index (BMI), a measure of body fat estimated by an individual's height and weight. A BMI of 17.5 or below is a common guideline used for diagnosis. However, this same BMI is translated into percentiles for diagnosing and assessing children and adolescents [1]. AN can affect all parts of a person's life, particularly their social relationships, school performance, and family relationships. Without treatment, it is likely a person with AN will suffer from medical and psychological consequences throughout his or her life. Deaths related to AN are most often due to medical complications (about 50% of cases) compared to suicide (30%) and unknown causes (20%) [3].

There are currently two subtypes of AN, the binge/purge subtype and the restricting subtype. The binge/purge subtype is characterized by episodes of overeating followed by purging behaviors, whereas the restricting subtype severely limits his or her intake of food. However, this classification is controversial as it has not been proven by empirical research. Instead, it is based on expert agreement regarding what is known about the disorder [5]. Researchers have also found the classification system limiting because it restricts the ability to examine the AN spectrum [5].

Physical repercussions of the binge/purge subtype include malnutrition, dehydration, ruptured stomach, organ damage (including heart, kidney, and liver), tooth/gum erosion, and esophageal tears. Psychological consequences for both subtypes include depression, low self-esteem, guilt, shame, impaired family and social relationships, mood swings, and thought disturbances [4].

AN is a serious disorder, affecting nearly seven million women and one million men in the United States alone [4]. About 86% of people with AN report an onset of symptoms prior to the age of 20 whereas about 10% report an onset at age 10 or younger. Approximately 16% of people with AN report having symptoms that last between 10 and 15 years, whereas 30% report symptoms lasting between 1 and 5 years. Six percent of serious cases end in death and 50% of cases report being "cured" [4].

Relevance to Childhood Development

Childhood anorexia is uncommon, as about 4–8% of all cases reported an onset in early childhood with an incidence of 0.15 new cases in 100,000 per year in 2000 [2]. Anorexia in male children (prepubescent; 26–28%) is significantly higher than anorexia in male adolescents (postpubescent; 4–6%). Childhood AN can be difficult to diagnose because children are at a much different

developmental level than adolescents and adults. A child may lack a full understanding of what it means when he or she does not eat. Even while a child's current weight may appear to be proportionate to his or her current height, he or she is still physically developing, so stunted growth is a possibility, especially if the child is suffering from anorexia. In this situation, the child would need careful monitoring by a pediatrician using a growth chart. Children with AN also tend to present physical symptoms such as nausea or feeling full more often than adolescents and adults [4]. With the exception of amenorrhea, children generally exhibit similar symptoms as adults and adolescents with AN.

Major life events, such as the birth of a sibling, moving, or death, are often precursors to the development of childhood AN. These events might lead the child to feel a loss of control or sense of safety, to which the child may respond with food refusal, weight loss, and, possibly, Anorexia Nervosa [2].

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Anorexic

►Anorexia Nervosa

Anorthography

►Spelling Disabilities

Anosmia

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Definition

In general, the term anosmia is used to refer to the inability to discriminate or detect qualitatively different olfactory sensations, or in simpler terms, an absence of one's sense of or ability to smell [6, 19]. Related terms include partial or specific anosmia, which refer to deficient ability to detect a specific odorous stimulus or a limited class of odorous stimuli [6, 10, 19]. A fairly large number of specific anosmias have been identified [1, 10]. The terms hyposmia or microsmia have also been used to label instances of decreased sensitivity to odorous stimuli [19, 22].

As with most any trait or ability, individuals show variability in their capacity to smell [9]. Some deficits in our olfactory sense are probably normal [4] and it is generally agreed that females report more acute sensitivity to odors than males [3, 12]. It is also reported that a likely majority of humans will experience measurable deficits in their olfactory sense as a function of aging [6]. The ability to smell can be impaired or disrupted by a number of conditions, such as lesions to the brain, particularly of the orbitofrontal cortex area [11, 13]. Blows to and injuries of the head are often followed with deficits in olfaction as the olfactory nerve is easily lacerated [19]. Severe sinus infections can result in total or partial anosmia, as can exposure to some chemicals [6, 8, 19]. An impaired ability to identify odors has been found co-occurring with disorders such as Alzheimer's disease, Huntington's disease, Parkinson's disease, Korsakoff's psychosis, chronic alcoholism, HIV infection and schizophrenia [2, 7, 17, 18]. It is clear that the vast majority of anosmia cases are acquired deficits [6]. The incidence rates of these olfactory deficits range from an estimated 1 to over 50% of the population under and over age 65, respectively [19]; other published reviews reported 67% of some population samples displaying measureable disruptions of the ability to smell, with slightly over 31% showing a complete loss of smell [6].

There is sparse information regarding any genetic or ►congenital basis for anosmia; the main genetic syndrome associated with anosmia is Kallman's syndrome in which there is either a disruption of the requisite prenatal migration of ►neurons from the brain to olfactory structures and or insufficient or absent neuronal synapses

in the olfactory structures and pathways [6]. Kallman's syndrome is a rare condition, with incidence rates found to range between 1 in 10,000 and 1 in over 80,000 persons [21].

The research connections between olfactory dysfunction and the putative effects of as yet to be identified human pheromones have been termed provocative [7] as well as disputed [14]. Despite studies showing evidence of a physiological effect [15, 16, 20], there is little evidence for any actual changes in human behavior resulting from alleged pheromones [14]; although humans do possess most of the same structures involved in the actions of pheromones in other mammals [5], the human circuitry has sparse neurons, few if any neuronal connections to the brain and is likely more vestigial than functional [5, 7].

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ANOVA

►Analysis of Variance

Anovular Cycle

►Anovulatory Cycle

Anovulation

►Anovulatory Cycle

Anovulatory Cycle

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Synonyms

Anovular cycle; Anovulation; Estrogen breakthrough bleeding; Estrogen withdrawal bleeding

Definition

A menstrual cycle during which no egg (ovum) is released.

Description

In an anovulatory menstrual cycle, a woman does not release an egg (ovum), resulting in an infertile cycle. The subsequent release of the uterine lining is known as anovulatory bleeding, rather than menstruation. This condition may happen for many reasons, all of which are linked to atypical levels of estrogen, luteinizing hormone (LH), or follicle stimulating hormone (FSH).

The first half of a normal menstrual cycle is concentrated around increasing the uterine lining (endometrium) and releasing an egg. FSH enables immature eggs housed in the ovary to develop. As these eggs mature, estrogen is released. The rise in estrogen triggers the pituitary gland to release LH rather than FSH. The LH surge causes the most mature egg to be released from its ovarian follicle. The empty follicle is now known as the corpus luteum and releases progesterone, a hormone that will be necessary to maintain a pregnancy. The subsequent series of events depend on whether the released egg is fertilized or not.

In an anovulatory cycle, there is enough estrogen to build the uterine lining, but the hormone ratios necessary for ovulation are absent. Anovulatory bleeding occurs because of a drop in estrogen or because the endometrium is no longer self-sustaining. Although the flow is irregular, a woman may not be able to tell the difference between an ovulatory versus an anovulatory cycle.

Anovulatory cycles happen to every fertile woman at some point in time; however, there are developmental periods when such cycles are more frequent. During early adolescence, anovulatory cycles are very common as the young girl's body slowly develops its ability to regulate hormone levels and maintain predictable menstrual cycles. Anovulatory cycles also are experienced by women who are pregnant or consistently breastfeeding, as both activities suppress the release of estrogen. In later years, anovulatory cycles can precede menopause, a period when estrogen levels drop and a woman's body is less responsive to LH and FSH.

In addition, any behavior or situation that impacts hormone levels can result in anovulatory cycles. For example, stress, illness, strenuous exercise, and travel have been linked to anovulation. Being underweight or overweight can interfere with estrogen levels and thus cause anovulatory cycles. Women who stop using a hormone-based birth control method (e.g., birth control pills) may experience anovulatory cycles as their body works to resume control of the natural feedback system that regulates hormone levels. Last, anovulatory cycles also may result from serious medical conditions, such as polycystic ovarian syndrome (PCOS) or thyroid disease.

Depending on the cause, anovulatory cycles may be a temporary or lasting condition. Most cases can be diagnosed by a health care provider and are treatable.

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Anoxia

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Synonyms

Anoxic episode; Anoxic ischemia

Definition

Anoxia is the termination of the oxygen supply to an organ's tissues despite sufficient blood flow to the tissue.

Description

Anoxia is a condition that occurs when there is a loss of oxygen to the organ's tissues despite the tissue receiving adequate blood flow [4]. Oxygen depriving conditions include smoke or carbon monoxide inhalation, cardiac and respiratory failure, complications with anesthesia or exposure to high altitudes, poisoning, near-drowning, and survival following an attempted hanging or strangulation [4, 5].

The brain is more dependent on oxygen than most other organs and also lacks the ability to regenerate cells after cell death. Therefore, brain damage can occur if an anoxic episode lasts longer than 5 or more minutes. An airway must be established immediately to continue supporting the individual's respiratory and cardiovascular systems and to prevent fatality. If these systems are supported, recovery is possible [4]. During the recovery process, a patient may experience psychological and neurological symptoms including dementia, psychosis, confusion, personality degeneration, amnesia, hallucination,

parietal lobe syndromes, and memory loss [4, 5]. Persons who endure less severe anoxia may experience impaired learning ability and challenges with the retrieval of previously stored information. Severe anoxic episodes can result in a permanent comatose state or fatality.

Relevance to Childhood Development

The period surrounding birth holds the greatest risk for an anoxic episode. Anoxic episodes can occur during the gestational, parturitional, and neonatal stages [5]. Gestational causes of anoxia include maternal cardiac arrest, infectious disease, diabetes mellitus, pre-eclampsia, toxemia, and severe anemia or bleeding by the mother. Parturitional causes include an abrupt fetal separation from the placenta, placental compression, birth trauma, cord accidents (e.g., cord wrapped around neck) or placenta previa. Neonatal conditions include perinatal brain trauma, traumatic injury to the lungs, and pneumonia. Fortunately, most infants survive an anoxic episode with few neurological complications [5]. Level of impairment and survival is dependent upon the amount of time the infant experiences the anoxic episode. The most severe consequences of anoxia include the motor features of cerebral palsy, mental retardation, and seizures.

Sequelae of an anoxic episode early in life may be expressed in later childhood. Effects can include deficits in cognitive, executive, and physical functioning depending upon the region of the brain affected and the extent of the oxygen deprivation. For example, damage to the basal ganglia can produce motor slowing [1], while damage to the hippocampus can cause impaired memory for new information as well as attentional difficulties [1]. Severe damage to the brainstem can result in visual and auditory disorders [2, 5, 6]. While research has suggested that anoxia can place an infant at risk for a wide range of deficits, an anoxic episode alone is not a strong predictor of later childhood disability [5].

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Anoxic Episode

►Anoxia

Anoxic Ischemia

►Anoxia

Antagonism

►Aggression

Antecedent Management of Behavior

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Synonyms

Preventive intervention; Stimulus control

Definition

Antecedent management is a type of therapeutic intervention that changes child behavior by manipulating conditions that precede such behavior.

Description

Antecedents to child behavior include the physical environment, such as the arrangement of desks in a classroom, and interactions with other people, such as a parent giving an instruction or making a request. When behavior

that occurs in the presence of antecedent conditions is reinforced or punished, these conditions become a source of control. Referencing the preceding examples, children may be disruptive in the classroom if they sit at a desk in close proximity to other students who do not pay attention. Similarly, children may respond inappropriately when their parents present instructions that are unclear or stated harshly.

A first step toward antecedent management is verifying a predictable antecedent-behavior relationship. Consider a situation in which children have difficulty playing together when they have access to certain toys or games. It may be that these objects foster aggressive actions because they are associated with violent themes. Or, there may be little to no adult supervision of the play activity. If the children's negative play behavior occurs consistently under such conditions, several antecedent management procedures may be indicated. To illustrate, the children could be given toys and games that facilitate cooperative social interactions. Another option would be having an adult watch the children intermittently and praise them when they play positively.

Compared to other operant procedures, antecedent management has a prevention focus because it does not rely on imposing consequences when children demonstrate problem behaviors. That is, the basis of intervention is to eliminate the conditions that historically provoked or set the occasion for the problem behaviors.

Relevance to Childhood Development

Children learn quickly the conditions that predict the consequences of their behavior. A disdaining look from a teacher may indicate that there is too much commotion in the classroom. At home, a parent may post notes specifying chores that need to be completed. These and similar antecedent conditions acquire stimulus control over behavior because they "signal" events that children desire and wish to avoid. Furthermore, antecedent influences affect children's motivation. For example, permitting a child to watch a favorite television show upon completing homework assignments is more likely to function as an incentive if she/he did not watch television previously during the day. The concept of *establishing operations* explains a type of antecedent management that affects motivational states.

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Anterior Frontal Lobes

▶Prefrontal Cortex

Anthropology

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Definition

Anthropology is a social science that studies the human being; involving itself with such things as the origin, behavior, language, physical characteristics, culture, social organization, development and interrelations of mankind.

Description

Anthropology concerns itself with many aspects of the human being. It is interested in the earliest forms of mankind and its evolutions. Evolutionary facets of interest include such things as language, behavior, physical characteristics, culture, government, social organization, etc. Context is very important to the anthropologist as it influences these changes in mankind; such as the way in which environment plays a role in the types of food eaten by a particular people, which in turn influences nutrition and physical growth outcomes.

Anthropologists espouse an approach of study that involves in-depth analysis of subjects such as ethnography. Researchers often become participant observers. Studies in the social sciences, especially anthropology, strive to rid itself of ethnocentric views (ethnocentrism) through the practice of cultural relativism, a concept defined by Franz Boas. In this regard, aspects of your own culture are to be judged or understood only in regard to one's own particular culture. Different ways of being are to be respected and valued, rather than judged. Cultural relativism suggests that is to be understood that there is no universal culture and/or way of doing things.

Anthropologists have contributed a lot to our understandings of the various ways in which cultures vary.

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Anti-Anxiety Medications

►Anxiolytics/Hypnotics
►Valium

Anticipatory Bereavement

►Anticipatory Grief

Anticipatory Grief

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Synonyms

Anticipatory bereavement; Anticipatory mourning

Definition

Anticipatory grief encompasses the emotional, psychological, and interpersonal processes of confronting the imminent loss of a terminally ill loved one. Some authors argue that the term anticipatory *grief* should be reserved for the acute emotional and cognitive reaction to loss, while anticipatory *mourning* is more appropriately used to describe the larger processes of confronting the loss, including grief, coping, planning, and psychosocial reorganization [6]. The term "anticipatory grief" will be used here in a broad sense, referring to all aspects of an individual's response to impending loss.

Description

Erich Lindemann introduced the term "anticipatory grief" in his seminal 1944 article "Symptomatology and the Management of Acute Grief." Since then, the concept has generated considerable controversy – whether it exists, how it differs from post-loss grief, and whether it impedes or facilitates the post-loss mourning process [3, 6]. Anticipatory grief *is* grief, in that it occurs in response to loss. However, it is different from post-loss grief and mourning in several respects. The death being grieved is not in the past, but the abstract (and possibly unimaginable) future. Furthermore, the person being grieved is still present and active in the interpersonal relationship, engendering tension between the normal grief process of decathexis (separation) and the need to remain close. Because of these unique characteristics, anticipatory grief is fertile ground for exploration of key questions about bereavement in general: the nature of "grief work" and when it begins, how and when mourners separate from the dying, and the effects of interpersonal, psychological, and physical pre-loss experiences on post-loss adjustment.

Findings have been mixed regarding the effects of anticipatory grief on post-death mourning [6]. Many studies of the families of terminally ill patients point to the benefits of forewarning and the opportunity to engage in anticipatory grieving, suggesting that awareness of impending loss allows mourners to cherish the remaining time with the patient, assist with care, facilitate a good death, and gradually make cognitive adjustments necessary to navigate the world without the patient. According to these authors, individuals may be able to accomplish some "grief work" before death occurs, easing the burden of post-loss grief. Other studies indicate little or no effect of anticipatory grief on later mourning. Finally, some studies (including Lindemann's original description) warn of possible harmful effects of anticipatory grief. Mourners may prematurely detach from the patient or become emotionally exhausted by alternating grief and hope, thus losing the opportunity to deepen relationships and participate in patient care [4]. Other life responsibilities, such as parenting healthy children, may suffer during the anticipatory grief period, requiring additional reconstruction during post-loss grief [10]. Some studies suggest that a moderate amount of forewarning is ideal, providing mourners enough time to engage in some anticipatory grief tasks but limiting the burdens of extended caregiving [6].

Relevance to Childhood Development

Although some authors have described "anticipatory grieving" of one's own death, typically the individuals of interest in anticipatory grief research are the (adult) family members of terminally ill patients. Fewer studies have examined anticipatory grief in children, but the extant research suggests that important differences are present in the way children and adults understand and prepare for

loss. Young children lack the cognitive ability to understand death; belief that death is final and universal, and ability to imagine a future without the dying person, do not emerge until middle or late childhood [5]. Young children's views of death may be further complicated by well-meaning caregivers who use euphemisms such as "sleeping" or "on a trip." Some young children may even believe they or a sibling are causing the patient's death by wishing he or she would "go away." Older children are able to more fully grasp the abstract meaning of death, but may still differ from adults in their emotional readiness to confront the death of an actual person they know and love.

Given this uncertainty over whether and how children anticipate loss, few studies have compared children who did and did not have an opportunity for anticipatory grief before the death of a family member, and no studies exist which directly measure anticipatory grief in children. However, several authors point to the potentially negative effects of forewarned (as compared to sudden) loss on the later adjustment of bereaved children [7–9]. Many of the benefits of adult anticipatory grief are unavailable to children, including the ability to plan and reorganize in preparation for life without the deceased, the opportunity to deepen relationships through caregiving, and the solace in facilitating a good death. Children are also uniquely vulnerable to the prolonged traumatic effects of forewarned loss: exposure to death, graphic stimuli associated with illness, and the fear and anxiety of caregivers [9]. Furthermore, children's distress during the anticipatory period tends to be underestimated by their parents, resulting in isolation and confusion [7].

Perhaps even more than the direct effects of anticipatory grief, healthy children in a family with a terminally ill member can be negatively affected by the anticipatory grief processes of adult family members. Parents in such a family are overwhelmed with a variety of financial, emotional, and interpersonal stressors, and may have fewer resources to allocate to the needs of their children. In survey research, these parents identify particular concerns in the areas of emotional sensitivity and maintaining consistent discipline for their children while coping with anticipatory grief [10]. When the patient is one of the children, parents' anticipatory grief may be particularly intense and distressing [1], thus further impairing their ability to maintain a stable environment for healthy siblings.

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Anticipatory Mourning

►Anticipatory Grief

Anticonvulsants

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Synonyms

Antiepileptic drugs; Antiseizure drugs; Depressants

Definition

Anticonvulsants are a clinically defined class of medications used to treat various forms of convulsions or seizure disorders. Some of these medications have also been shown to be useful in treating mood disorders, migraine headaches and neuropathic pain.

Description

Anticonvulsant medications are a diverse class of drugs and so we will focus on the general mechanism of action for the majority of the drugs. Seizures are uncontrolled

and rapid brain activity that causes various symptoms which will be discussed in further detail later. This rapid and unrestrained neuronal activity is reduced when ions such as calcium, potassium, and sodium, are stopped from entering the neuron and when the inhibitory neurotransmitter gamma aminobutyric acid (GABA) acts on the cell. By blocking the flow of positively charged ions into the neuron the chances of an action potential are reduced. Similarly, increasing the amount of inhibitory neurotransmitter such as GABA also has a calming effect on neural activity. Another common neurotransmitter is glutamate. This is the primary excitatory neurotransmitter and it is implicated in seizures. Some of the anticonvulsants act to block this neurotransmitter's action at the synapse. Anticonvulsant medications work by these or similar mechanisms and many operate in combination with one-another. It is also important to note that scientists do not fully understand the mechanisms of action for all of the anticonvulsant drugs.

In order to understand the use of anticonvulsant medications one must first comprehend the salient features of a seizure. This is because the child who suffers from a seizure will be treated according to the particular symptoms of their seizures. For this purpose there are classification criteria for seizures. For those who are likely to be around persons who may experience seizures these classifications are important in that they can be reported to the child's physician to treat the seizure with the utmost efficacy. The following descriptions are taken from Weinstein and Gaillard [5].

Absence Seizures These seizures are characterized by a brief behavioral arrest with impaired consciousness. There is no postictal (time immediately following the seizure) period of confusion. The onset for this type of seizure is typically 3–12 years of age. During the seizure the child may continue to perform the task that they were engaged in before the seizure; however, the child will not responds to new information. It is common to notice a glazed eye appearance, abnormal eye blinks, and possible changes in head and extremity tone. The implications for a child suffering from absence seizures are that they may be in danger if they need to react to something in the environment during a seizure, and it may be very hard for the child to learn because of interruptions of consciousness.

Partial Seizures These are the most common type of seizure. They are typically preceded by an aura which is an altered state of consciousness or perception of something in the environment that does not exist. These seizures are usually located at a certain point in the brain and so the child with this type of seizure will usually have the same symptom presentation from episode to episode. The part of the brain affected can include areas of motor control, sensation, behavior and cognitive functions. If the seizure spreads and alters consciousness it is called a complex partial seizure.

Myoclonic and Atonic Seizures These are the briefest types of seizures that alter motor control. Myoclonic seizures are motor attacks that cause a sudden bending backward of the head and torso. These seizures and any other seizure that cause a loss of muscle tone combine to form the class of drop seizures. The person suffering from a drop seizure will suddenly lose consciousness and abruptly fall, without any attempt to protect oneself. It is recommended that people with these types of seizures wear a helmet to protect their head from falls.

Tonic–Clonic Seizures This is the most frightening seizure to observe. It is commonly referred to as the grand mal seizure. These types of seizures may begin focally and then spread to other parts of the body. They can also begin as generalized seizures. The body experiences both clonic motor activity, which is characterized by repetitive jerking, and tonic activity, which is expressed as stiffening of the body. If the clonic activity generalizes to multiple parts of the body then the person is experiencing a Jacksonian seizure. Other common observations of tonic–clonic seizures are irregular breathing, unusual vocalizations, cyanosis, and incontinence.

Febrile Seizures These are seizures that are caused by fever and they are the most common seizure for children to have. Febrile seizures are generally seen when a child's temperature goes above 102°F. They are usually brief symmetric tonic or clonic–tonic events that occur once during an illness.

As referenced in the *Tarascon Pocket Pharmacopoeia* [4], there are no fewer than 20 recognized medications for use in treatment of convulsions. Another pragmatic description of current pharmaceutical interventions for persons having seizures is Simon Shorvon's, *Handbook of Epilepsy Treatment 2nd Edition*, [2]. This text describes no fewer than 25 medications and is complete with information regarding pharmacokinetics, adverse effects, antiepileptic effect, and clinical uses in epilepsy. The reader is referenced to Table 1 for a brief over view of some of the common drugs that are considered safe to use with children who are suffering from seizures. It is not intended for use to prescribe medications and does not included any advanced medical information, it is intended for persons in the field of child development to understand treatments being prescribed by physicians and some side-effects that must be closely monitored.

The *Tarascon Pocket Pharmacopoeia* [4], indicates carbamazepine, lamotrigine, topiramate, and valproic acid as

Anticonvulsants. Table 1 Common medications for treating children with seizures

Medication	Indications	Adverse events	Advantages	Disadvantages
Carbamazepine (Tegretal)	Partial and generalized seizures	Drowsiness, fatigue, dizziness, ataxia, diplopia, sedation, insomnia, tremor, weight gain, rash	Highly effective and usually well tolerated	Adverse effects, especially on initiation of therapy. Possibility of toxicity
Clobazam (Frisium)	Partial and generalized seizures	Sedation, dizziness, weakness, blurring of vision, restlessness, ataxia, aggressiveness, behavioral disturbance	Effective for patients with epilepsy that are resistant to first-line therapy. Considered safer than other benzodiazepines.	Tolerance develops in up to 50% of patients
Clonazepam (Klonopin)	Partial and generalized seizures, neonatal seizures, status epilepticus	Sedation, cognitive effects, drowsiness, ataxia, personality and behavioral changes, hyperactivity, restlessness, aggressiveness, psychotic reaction, seizure exacerbations, hypersalivation, tone changes, leucopenia	Useful action, especially in children	Side-effects, sedation is common, tolerance and withdrawal symptoms
Ethosuximide (Zarontin)	Generalized absence seizures	Gastrointestinal symptoms, drowsiness, ataxia, diplopia, headache, dizziness, hiccups, sedation, behavioral disturbances, psychotic reactions, EPS, rash	Effective for generalized absence seizures; No risk of hepatic toxicity carried by the alternative treatment of valproate	Common side effects
Gabapentin (Neurontin)	Partial or secondarily generalized epilepsy (for children over age 6)	Drowsiness, dizziness, seizure exacerbation, ataxia, headache, tremor, diplopia, nausea, vomiting, rhinitis	Lack of side effects; Good pharmacokinetic profile	Lack of therapeutic effect in severe case; Possible increase in seizures
Lamotrigine (Lamictal)	Partial and generalized epilepsy (for children over age 2)	Rash, headache, blood dyscrasia, ataxia, asthenia, diplopia, nausea, vomiting, dizziness, somnolence, insomnia, depression, psychosis, tremor, hypersensitivity reactions	Moderate effectiveness; Well tolerated	High incidence of rash, commonly severe; Complicated pharmacokinetics
Oxcarbazepine (Trileptal)	Partial and secondarily generalized seizures	Somnolence, headache, dizziness, diplopia, ataxia, rash, hyponatraemia, weight gain, alopecia, nausea, gastrointestinal disturbance	Similar to carbamazepine, but with a different adverse effect profile and less drug interactions	Higher incidence of hyponatraemia than carbamazepine
Phenobarbital (Luminal)	Partial or generalized seizures (including absence and myoclonus seizures), childhood epilepsy syndrome, febrile convulsions, neonatal seizures	Sedation, ataxia dizziness, insomnia, hyperkinesis, mood changes, aggressiveness, cognitive dysfunction, impotence, reduced libido, folate deficiency, vitamin K and vitamin D deficiency, rash, risk of dependence, risk of abuse	Highly effective and low cost	CNS side-effects-especially for children; Controlled drug in many countries

Anticonvulsants. Table 1 (Continued)

Medication	Indications	Adverse events	Advantages	Disadvantages
Phenytoin (Dilantin)	Partial and secondarily generalized seizures (excluding myoclonus and absence seizures), status epilepticus, childhood epilepsy syndromes	Ataxia, dizziness, lethargy, sedation, acute encephalopathy, hypersensitivity, rash, fever, blood dyscrasia, mood changes, myopathy, connective tissue alteration, hepatitis, vasculitis, coagulation defects	Highly effective and low cost	CNS and systemic side effects, non-linear elimination kinetics, drug interactions
Primidone (Mysoline)	Primary and secondarily generalized seizures	Sedation, ataxia dizziness, insomnia, hyperkinesis, mood changes, aggressiveness, cognitive dysfunction, impotence, reduced libido, folate deficiency, vitamin K and vitamin D deficiency, rash	Not a controlled drug, less risk of abuse than Phenobarbital	Side effects
Topiramate (Topamax)	Partial, secondarily generalized, Idiopathic generalized epilepsy (for children over age 2)	Dizziness, ataxia, headache, parathesia, tremor, somnolence, cognitive dysfunction, confusion, agitation, amnesia, depression, emotional liability, nausea, diarrhea, diplopia, weight loss	Powerful antiepileptic action, weight loss common	Potential for CNS and other side effects
Sodium valproate (Depakote)	Primary and secondarily generalized seizures (including myoclonus and absence), partial seizures, indiopathic generalized seizures, childhood epilepsy syndrome, febrile convulsions	Nausea, vomiting, metabolic effects, endocrine effects, hepatic toxicity, pancreatitis, drowsiness, cognitive disturbance, aggressiveness, tremor, weakness, encephalopathy, weight gain	Treats a wide spectrum of seizure activity, drug of choice for those with idiopathic generalized epilepsy	Weight gain, CNS side-effects, possibility of hepatic disturbance in childhood, teratogenicity
Zonisamide (Zonegran)	Refractory partial epilepsy, progressive myoclonic epilepsy	Somnolence, ataxia, dizziness fatigue, nausea, vomiting irritability, impaired concentration, mental slowing, itching, diplopia, insomnia, abdominal pain, depression, skin rashes, hypersensitivity, renal calculi, weight loss, oligohidrosis and heat stroke	Effective in a broad spectrum of epilepsies, has indication for infantile spasms, and myoclonic epilepsies	Side-effect profile

treatments for bipolar disorder. Stahl [3] reports that the initial logic of using anticonvulsant medications to treat bipolar disorder was that seizure activity, if left untreated would result in increased seizure activity. This same pattern of neural activity becoming more pronounced with repetition was seen as similar to manic activities in people with bipolar disorder. The mechanism of action for these drugs in bipolar disorder is poorly understood. It is assumed that the same calming of neural firing are at work with people who have bipolar disorder.

Relevance to Childhood Development

The impact of having seizures during child development is different for children than for adults. The formation of personality and the special need for acceptance in the peer group to the developing child will impact development.

It is common for the parents of children with seizure disorders to protect their children and this should be avoided to allow for the least restrictive environment for the child to be safe in. Children who do have seizures will benefit from their peer group and adults who are involved in their life to have education about seizures. This will help mediate the possibility of being viewed as strange by their peers and keep them safe.

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Antidepressants

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Synonyms

Paxil (Paroxetine)

Definition

Antidepressants are the class of drugs prescribed primarily to treat symptoms of depression. They are also indicated for the treatment of ADHD, separation anxiety disorder, obsessive-compulsive disorder, eating disorders and sleep disorders.

Description

Antidepressant medications are prescribed primarily for the treatment of depression in children and adolescents, but are also used in the treatment of other common childhood disorders including ADHD, separation anxiety disorder, obsessive-compulsive disorder, eating disorders and sleep disorders. These include six classes. Tricyclic antidepressants (TCAs), Monoamine Oxidase Inhibitors (MAOIs), Selective Serotonin Reuptake Inhibitors (SSRIs), Selective Serotonin and Norepinephrine Reuptake Inhibitors (SSNRIs), Selective Norepinephrine Reuptake Inhibitors (SNRIs), and Others. In 2002, 11 million prescriptions for antidepressants were written for children under the age of 18 years [1].

Tricyclics Antidepressants (TCA's)

Tricyclic antidepressants (TCA's) are the oldest class of antidepressants and include such medications as *Elavil* (amitriptyline), *Norpramin* (desipramine), *Anafranil* (clomipramine), *Sinequan, Adapin* (doxepin), *Tofranil* (imipramine), *Pamelor* (nortriptyline), *Vivactil* (protriptyline), and *Surmontil* (trimipramine). Tricyclics block the reuptake of neurotransmitters such as norepinephrine and serotonin. These medications are used for the treatment of depression in children who are at least 12 years of age [2], although these medications have been prescribed to children younger than 12 years of age for evidence-based reasons. For example, *Tofranil* (Imipramine) is approved for the treatment of enuresis in children; however it is also used off-label for the treatment of attention-deficit/hyperactivity disorder (ADHD), school phobia, separation anxiety disorder, sleep disorders, and major depressive disorder (MDD). *Anafranil* (clomipramine) has been approved for obsessive-compulsive disorder (OCD) in children. *Tofranil* (imipramine) and *Anafranil* (clomipramine) are the two TCA's most frequently studied and utilized in the pediatric population.

Due to the rapid metabolizing of TCAs, discontinuation of these drugs may produce withdrawal symptoms including: nausea and vomiting, abdominal discomfort and pain, headache, and fatigue. Other side effects of TCAs include: drowsiness, increased heart rate, seizures, anxiety, insomnia and nightmares, confusion, delusions, blood dyscrasias, dry mouth, blurred vision, constipation, changes in libido, and psychotic episodes [2]. There have been eight reported cases of sudden death of children and adolescents taking TCAs [2]. TCAs are also fatal in overdose and should not be prescribed to children and adolescents with suicidality.

Selective Serotonin Reuptake Inhibitors (SSRI's)

The following medications are classified as selective serotonin reuptake inhibitors (SSRIs): *Prozac* (Fluoxetine), *Luvox* (Fluvoxamine), *Celexa* (Citalopram), *Lexapro* (Escitalopram), *Paxil* (Paroxetine), and *Zoloft* (Sertraline). As their name suggest, SSRIs work by blocking the reuptake of the neurotransmitter serotonin from entering the cell. *Prozac* (Fluoxetine) is the only SSRI approved for the treatment of major depressive disorder (MDD) in children and adolescents older than the age of 8. While no other SSRI has FDA approval for MDD in children, *Prozac* (Fluoxetine), *Luvox* (Fluvoxamine), and *Zoloft* (Sertraline) all have approval for the treatment of obsessive

compulsive disorder (OCD) in children older than 7 years, 8 years, and 6 years respectively. SSRIs also have approval for the treatment of panic disorder, social anxiety disorder, posttraumatic stress disorder (PTSD), bulimia nervosa, premenstrual dysphoric disorder, and generalized anxiety disorder (GAD) in adults only.

SSRIs are better tolerated and have less severe side effects than TCAs. Moreover, SSRIs do not have the lethality in overdose and cardiac toxicity that is associated with TCAs. Therefore, SSRIs have become the most frequently prescribed antidepressants for children and adolescents. The most common side effects of SSRIs include: headache, nausea and vomiting, diarrhea, nervousness, sleep disturbance (insomnia), and sexual dysfunction [2]. Furthermore, behavior changes, such as restlessness, hyperactivity, internal feelings of excitation and impulsivity have been noted with some SSRIs in the pediatric population [2]. SSRIs are longer lasting than TCAs which lends to once a day dosing and less withdrawal side effects. Regardless, discontinuation and withdrawal from SSRIs can lead to dizziness, headache, nausea and vomiting, diarrhea, movement disorders, insomnia, irritability, visual disturbances, lethargy, anorexia, tremor, electric shock sensations and lowered mood [2].

Others

Deseryl (Trazodone) and *Wellbutrin* (Bupropion) are not chemically related to other antidepressants and are classified as others. *Deseryl* (Trazodone) acts as antagonist at serotonin receptors, blocking serotonin from entering new cells. This differs from reuptake inhibitors which block the neurotransmitter from re-entering the cell it was previously released from. *Wellbutrin* (Bupropion's) mechanism of action is to inhibit the reuptake of the neurotransmitters dopamine and norepinephrine. Neither drug has indication in the pediatric population nor has the safety and efficacy of these drugs been established for children and adolescents younger than 18 years old. However, *Deseryl* (Trazodone) has been studied in children demonstrating aggressive behaviors and *Wellbutrin* (Bupropion) has been utilized in children and adolescents with ADHD. Furthermore, *Wellbutrin* (Bupropion) has been used for the treatment of smoking cessation. The most common side effects of *Deseryl* (Trazodone) include drowsiness, dizziness or lightheadedness, dry mouth, and nausea and vomiting [2]. Unlike the other antidepressants, *Wellbutrin* (Bupropion) has been linked to increased memory and concentration [2]. However, Bupropion has also been linked to seizures, agitation, dry mouth, insomnia, headache, nausea and vomiting, constipation and tremor [2].

Selective Serotonin and Norepinephrine Inhibitors (SSNRIs)

Selective serotonin and norepinephrine inhibitors (SSNRIs) include: *Effexor* (Venlafaxine), *Remeron* (Mirtazapine), and *Cymbalta* (Duloxetine). *Effexor* (Venlafaxine) works by inhibiting the reuptake of the neurotransmitters serotonin, norepinephrine, and occasionally dopamine. *Remeron* (Mirtazapine's) mechanism of action includes blocking alpha-2 receptors, which in turn inhibits the release of norepinephrine and serotonin. *Cymbalta* (Duloxetine) works by blocking the reuptake of norepinephrine in the synapse. Similar to *Deseryl* (Trazodone) and *Wellbutrin* (Bupropion), these medications have not been approved for the treatment of children and adolescents. *Effexor* (Venlafaxine) is indicated for adult depression in the immediate release formula and for MDD, GAD and social anxiety in the extended release formula. *Effexor* (Venlafaxine) has been studied in the pediatric population for MDD and GAD but no significant treatment effects were found. However, *Effexor* (Venlafaxine) was shown to negatively affect weight and height in the pediatric population. Other side effects of *Effexor* (Venlafaxine) include anxiety, nervousness, somnolence or insomnia, nausea, anorexia, weight loss, constipation, increased sweating, dry mouth, dizziness, abnormal ejaculation/orgasm, and impotence [2]. *Remeron* (Mirtazapine) and *Cymbalta* (Duloxetine) only have indications for MDD in adults. Common side effects of these medications include somnolence, increased appetite, weight gain, dizziness, dry mouth, increased sweating and constipation [2].

Selective Norepinephrine Reuptake Inhibitors (SNRI)

Strattera (Atomoxetine) is a selective norepinephrine reuptake inhibitor (SNRI) and is indicated for the treatment of ADHD in children and adolescents. SNRIs work by blocking the reuptake of norepinephrine. Side effects include dyspepsia (indigestion), nausea and vomiting, fatigue, decreased appetite, dizziness and mood swings [2].

Monoamine Oxidase Inhibitors (MAOIs)

Monoamine Oxidase Inhibitors include: *Nardil* (Phenelzine), *Parnate* (Tranylcypromine), and *Eldepryl* (Selegiline). MAOIs have a complex mechanism of action. These drugs block the chemical monoamine oxidase, which inhibits the breakdown of monoamine neurotransmitters. These neurotransmitters are responsible for breaking down other neurotransmitters, such as dopamine, serotonin and norepinephrine. Because these neurotransmitters are not

being broken down, there are more of these neurotransmitters available in the body. *Nardil* (Phenelzine) is approved for MDD in adolescents at least 16 years of age and *Parnate* (Tranylcypromine) is only indicated for adults. Due to the severe food and drug interactions of MAOIs, they are primarily used in adults who have failed to respond to other antidepressants. Ingesting foods containing Tyramine (such as cheese, wine, beer) and other drugs (such as caffeine) can lead to hypertensive crisis. Other significant reactions of these drugs include orthostatic hypotension, dizziness, headache, sleep disturbances, sedation, fatigue, weakness, hyperreflexia, dry mouth, and gastrointestinal disturbances [2].

Black Box Warnings on Antidepressants

In October 2004, the Food and Drug Administration (FDA) ruled to label antidepressants used in the treatment of children and adolescents with a black box warning. According to the black box warning, use of antidepressants within this population may lead to increased risk of suicidal thinking, suicidal gestures, and death by suicide [4]. This warning also specifies that children, adolescents, and young adults taking antidepressants should be closely monitored following the initiation of the medication. Despite the recommendation for follow-up and increased monitoring, the majority of pediatric patients treated with antidepressants have no contact with mental health providers [3, 6]. Since the commencement of this black box warning, antidepressant prescriptions have dropped by 54% for all antidepressants that are not FDA approved for use in children and adolescents, while the rate of prescriptions for Fluoxetine, the only FDA approved antidepressant for use in children, increased by 60% [5].

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Antiepileptic Drugs

▶Anticonvulsants

Antipsychotics

Synonyms

Depressants

Description

Antipsychotics, or neuroleptics are medications used in psychiatry to manage delusions and hallucinations particularly individuals suffering from schizophrenia or bipolar disorder. These medications were first discovered in the 1950's. The original drugs were referred to as typical antipsychotics. The newer drugs in this category are referred to as atypical antipsychotics. Both generations of medications interact with a wide range of receptor targets in the brain. A number of adverse side effects have been observed with these medications including lower life expectancy, weight gain, tardive dyskinesia, diabetes, and sexual dysfunction. The development of new antipsychotics and the relative efficacy of different ones is an important ongoing field of research.

Antiseizure Drugs

▶Anticonvulsants

Antisocial Behavior

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Synonyms

Physical aggression

Definition

Antisocial behavior describes disruptive, external behaviors and actions of a child, in which the rights and norms of others or society are violated. These undesirable behaviors are influenced by many, if not all, aspects of the child's

life (school, community, physical, emotional, parental, etc.). Furthermore, these behaviors are often involved in attention deficit-hyperactivity disorder, conduct disorder, and oppositional defiant disorder.

Description

For decades research on antisocial behavior (ASB) has expanded to detailed research examining the root causes of these disruptive behaviors starting as early as conception. Understanding the development of ASB in children is important to researchers as they try to uncover objective reasoning behind the harmful actions of these individuals. Furthermore, acknowledgment of related disorders such as attention deficit-hyperactivity disorder (ADHD), conduct disorder (CD), and oppositional defiant disorder (ODD) by the American Psychiatric Association has led to great demand for such research. The creation of assessment instruments to measure ASB also has allowed for a greater understanding of the behavior and provides insight on possible prevention and intervention strategies.

Research has found that there are many types and forms of aggression in children, making it a complex construct to study. Early in the research history of ASB antisocial activity was divided into two categories, undersocialized and group-delinquent [4]. Today, aggressive behaviors can be classified as verbal, physical, goal-directed, proactive, reactive, direct, indirect, relational, overt, or covert [4]. Moreover, antisocial aggression can be further broken down in terms of when and how onset began.

Bloomquist and Schnell [2] discuss the pathways of ASB in terms of early-onset continuously adaptive, early-onset continuously maladaptive, the resilient pathway, and the late-onset maladaptive pathway. These four pathways seek to explain the social, emotional, cognitive, and physiological functioning of the child at various stages of ASB development. ASBs fall on a continuum from mild to severe behavior problems, depending on factors such as intensity, frequency, and impact on the environment [4, 6]. Therefore, diagnostic measures are multimodal in nature. This has led researchers to link such behaviors to other disorders that are better understood and clearly defined as a means to quantify them.

DSM-IV and ADHD, CD, and ODD

ADHD, CD, and ODD have both similarities and differences as they relate to antisocial behavior. ADHD is commonly comorbid with CD and ODD, though not as persistent with CD [4]. ADHD is defined as developmentally inappropriate inattention and/or hyperactivity-impulsivity that results in significant impairment [1]. Research suggests that early aggressive behavior combined with ADHD symptoms are precursors for the development of ASB [4].

ODD is defined as a chronic pattern of disobedient, defiant, and hostile behaviors [1]. These behaviors include: losing temper, arguing, defying or refusing to comply with rules or requests of adults, deliberately annoying others, blaming others, anger and resentment, and spiteful or vindictive actions [1]. ODD includes a variety of covert and overt behaviors, and there is evidence to indicate that ODD serves as an antecedent to CD. CD is defined as a chronic pattern of behavior in which the rights of others are violated and societal norms are disregarded [1]. Categories of behavior include aggressive conduct, nonaggressive conduct, deceitfulness or theft, and serious violations of rules. In general, the behaviors required for diagnosis of CD are more antisocial in nature and more severe than those involved in ODD.

Development of ASB

It is widely agreed throughout the literature that while ASB has various root causes, overall it is learned behavior that is highly influenced by early development. The development of ASB begins early and grows through adolescence and adulthood. However, it is not to be assumed that all children displaying symptoms of ASB will go on to develop CD or ODD; a substantial number of them develop normally [4].

The development of ASB begins with the caregiver unknowingly conditioning maladaptive behaviors such as impulsivity, negative temperament, and sensation seeking from infancy [2, 4]. Usually, environmental factors contribute to the caregiver's lack of knowledge and parenting skills to combat such conditioning, including health of the mother, low socioeconomic status, family size, and involvement of both parents [5, 6].

According to [2], the development of ASB follows stages. Beginning at birth through age 2, children may develop a difficult temperament portrayed by irritability, anger, and frustration. At ages 3–5 this temperament is displayed through tantrums, argumentativeness, and defiance. In elementary school years covert aggressive behaviors (stealing, lying, sneaking) begin to develop. This is followed by more frequent and substantially delinquent behaviors, such as skipping school, vandalism, experimentation with drugs and alcohol, and fire setting, from ages 9–14. Once in adolescence there is a crystallization of such behaviors that escalate to violence, gang affiliation, promiscuity, and more serious substance abuse. It is estimated that 1 in 3 children with early onset ASB will develop adult antisocial personality disorder; the others may have functional problems throughout adulthood, including trouble keeping a job, violence, relationship difficulty, and criminality [2].

Assessment

Rating scales are commonly used to identify externalizing behavior patterns including impulsivity, overactivity, aggressiveness, and tantrums [6]. Furthermore, observations of the behaviors and related family interaction have led to better diagnostic validity, as have family history interviews, self-reports, and evaluations of environmental causes of ASB patterns [6].

The use of rating scales to assess ASB has positive and negative aspects. Behavioral checklists, such as the Child Behavior Checklist and the Revised Child Behavior Profile, require an adult informant's view of the child's behavior. Though these instruments are easy and quick, they require adults close to the child to judge behavior, which may compromise objectivity. Another shortcoming of rating scales is that in many cases they do not parallel diagnostic criteria for ASB [6]. Overall, these scales do provide some insight into the behavior problems with a child, but should be utilized with other assessment tools in order to gain a multidimensional understanding of the child's behavior so that an appropriate intervention can be designed.

ASB Prevention and Intervention

Research conducted by [5] outlines targets for prevention and early intervention for children at risk for ASB, a term they call "preventative intervention." They begin by discussing the learned maladaptive behaviors and negative reinforcement patterns unknowingly taught by the caregiver. For example, when a demand is placed on the child the child has learned that if he/she displays an undesirable behavior, such as a tantrum, the caregiver will withdraw the demand to keep the peace. The interventions work to disrupt these negative reinforcements through consistent and long term reconditioning of the behavior.

Furthermore, preventative intervention aims to teach the caregiver how to set appropriate limits and utilize appropriate discipline techniques. It also teaches him/her how to reward positive interactions and encourage positive behavior and social interaction. These skills are then intended to be used outside of the home at the playground, in the classroom, and throughout the community [5]. Overall, preventative intervention may not be the only way to reconstruct a child's behavior, but it does work to reduce risk factors in the short and long term [6].

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Antisocial Personality Disorder

▶Sociopathy

Anxiety

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Synonyms

Apprehension; Autonomic arousal; Fear; Fight or flight; Hyperarousal; Revised children's manifest anxiety scale: second edition; Stress; Sympathetic activation; Threat response

Definition

Anxiety is a basic emotion best described as a state of vigilant apprehension whose function it is to prepare for a response to a perceived threat. Anxiety has several associated, though not necessarily correlated, dimensions: phenomenological, emotional, cognitive, behavioral and physiological [3]. The state is characterized by a narrowing of attention [10], a sense of dread [27], ruminative worry [25], a perception of vulnerability [33], an inhibition of behavior [15] and a heightened state of sympathetic arousal. It is generally experienced and classified as a negative emotional state, along with anger and sadness.

Description

Clinical Significance

Anxiety becomes clinically significant, reaching a level of diagnosable disorder, when there is a resulting impairment in one's ability to function (i.e., when the state no longer assists the organism in dealing effectively with threat) and/

or when the associated subjective distress is marked and debilitating [43]. Other clinically significant features of anxiety include a threat response system that becomes too inflexible, too easily and inaccurately triggered and too slow to return to baseline once initiated [7].

Diagnosis

Diagnosis across all mental disorders including anxiety disorders has been historically categorical. There are currently twelve separate anxiety disorders identified in the Diagnostic and Statistical Manual of Mental Disorders IV-TR, including Separation Anxiety Disorder, and at least 23 other anxiety-related conditions [1].

Emerging trends alternatively suggest models of disorder that are dimensional assessing aspects of experience along continua as opposed to meeting criteria for a certain number of present features [21]. High co-morbidity rates across disorders with regards to a ubiquitous anxiety presence (as much as 42% in a recent epidemiological study of anorexia nervosa adolescent patients [35], 29% in autism-spectrum disorders [37] and 25% in a study of ADHD children as examples [19]) has furthered a change in conceptualization away from a categorical view of anxiety to one of general distress.

As diagnosis is inextricably tied to treatment, categorization, an emphasis on randomized control experimental studies as the gold standard for determining efficacy and a general movement toward evidence-based treatments led to a proliferation of protocols and guidelines for first-line interventions for anxiety (and other) disorders. Newer, unified protocols, however, attempt to address the essential maintaining elements of distress and dysfunction across disorders such as threat appraisal, experiential avoidance and emotion-driven behaviors [4].

Anxiety Disorders in Children

Children experience the full range of anxiety disorders similarly to adults. Life stage differences can yield categorical variations (e.g., separation anxiety, selective mutism and some types of school refusal) but the overall form, experience and impairment that results is frequently similar and equally distressing and limiting [14]. Developmental and socialized differences between children and adults can give rise to differences in the surface features of expressed anxiety such that these represent interesting and important clinical intervention markers rather than substantive differences in the function or dysfunction of anxiety.

Prevalence of Anxiety Disorders

The National Institute of Mental Health puts best estimate 1-year prevalence rates for anxiety disorders among 18–54 year olds at 16.4% of the population [28]. For children and adolescents aged 9–17 years, that figure is 13.0%. The rates for any (mental) disorder, however, are 21.0% for adults and 20.9% for children. While the definition and subsequent nature and distribution of mental disorders can be slightly different in children and adolescents, overall levels (accounting for dissimilarities and difficulties in categorization) suggest quite similar rates of disorder across ages.

From Child to Adult Anxiety Disorder

At question is the developmental course of anxiety disorders in children and whether their presence indicates risk for related, though not always the same, adult onset disorders [16]. Separation anxiety disorder, for example, appears related to the onset of panic disorder, agoraphobia and other conditions yet may simply represent the culmination of processes such as an early sense of low perceived personal control experienced within the critical mammalian context of attachment that, by itself, may be a vulnerability to anxiety disorder onset at any age [13]. Further, with the added interaction of physiological and possibly genetic propensities for heightened nervous system sensitivity to perceptions of unpredictable, uncontrollable environments, the stage is set for the development of a variety of threat-related disorders of hyperarousal [2].

With these issues at hand, researchers have turned to identifying the transdiagnostic processes and perhaps even the transprocess variables that endow vulnerability to disorder [23] where risk factors suggest correlation between a characteristic and an outcome and vulnerability connotes more causal factors to onset.

Key Dimensions

Key dimensions of anxiety worth measuring are: allocated attention to threat [34], appraisal of the degree of danger posed by threat [11], appraisal of one's abilities and resources to handle threat, anxiety sensitivity (AS) [41], emotional, cognitive and behavioral avoidance [26] and inflexible response strategies often characterized by escape, these strategies termed safety maneuvers for their misattributed role in the perceived result of lack of harm [36].

Physiological indices of anxiety have frequently been examined but have been shown to be inconsistently correlated with emotion. Homeostatic measures such as heart rate, blood pressure, cortisol levels and amygdala activation can be difficult to interpret when detected coincident to anxiety [12].

Allostatic models of physiological function, on the other hand, emphasize change as critical to stability and purport that healthy organisms are free to vary to a much greater degree than unhealthy ones and lead to perhaps more reliable measures of anxiety. Heart rate variability is one such measure where decreased variability is suggestive of increased pathology [24].

Genetic models are advancing that elucidate mechanisms and processes related to anxiety disorder onset. Neurotransmitter efficiency, receptor site affinity and pre and post synaptic activity are all promising but as yet not well understood variables leading to particular behavioral outcomes. The picture is further complicated by epigenetic factors, such as shared familial environment or an early learning history of low perceived control, that moderate the effects of dysmorphic architecture on the etiology of anxiety disorders in children and adults alike [38].

Coping with Anxiety

To reiterate, anxiety is a useful, purposeful emotion whose function it is to prepare and motivate an organism to effectively respond to threat. When the anxious response begins to become problematic, as noted previously, there arises a need for additional resources within the individual to handle the response itself. Anxiety management [39] thus became an important area of research and intervention for clinical reasons, where anxiety rose to a level of diagnostic significance, and for non-clinical reasons as in performance enhancement in areas such as sports or educational psychology [40].

Early models of anxiety management, particularly behavioral models, stressed maneuvers aimed at stopping or limiting the anxiety response. Progressive muscle relaxation or PMR is one such early attempt to "reciprocally inhibit" anxiety [42]. In this procedure, an individual volitionally and progressively tenses then relaxes various muscle groups. Later refinements added programmed monitoring of discrete changes in muscular tension through focus on perceived changes in blood flow and strain as well as on the difference between tension and relaxation. PMR became a standard component of most anxiety management packages both clinical and non-clinical [17].

Systematic desensitization or SD extended this line of reasoning with a procedure that attempted to pair relaxed states with stimuli that previously elicited states of anxiety thereby neutralizing a sympathetic response [44]. Based on classical conditioning theory, the SD strategy tried to break the associational bonds between stimuli and responses. Later theoretical explanations looked to the modulation or contextual effects of new learning upon old [6].

Cognitive-behavioral models that followed were quick to adopt a similar anxiety-stopping philosophy. Thought suppression, distraction and substitution of positive imagery were developed as methods to temper unhelpful feelings by directing attention and cognition away from presumed triggers of distress [30].

Exposure was another technique aimed at eliminating a particular response developed in behavioral theory. Based on extinction concepts, exposure was later applied to anxiety and has since proved to be among the most robust and potent interventions of all. Exposure in a strict behavioral account of fear learning refers to exposure to stimuli in the absence of previous reinforcement whose effect is explained by a passive process where a response to a stimulus is extinguished or sometimes explained by a passive physiological process known as habituation [32].

The advent of two-factor learning accounts of fear acquisition and maintenance joined classical with operant conditioning principles [44]. Where classical accounts stressed associations between stimuli and elicited responses, operant principles stressed the organism's emitted behaviors that changed the contingent consequences. Simply put, in the presence of stimuli signaling a feared outcome, the emission of a response such as escape or avoidance that changes an expected outcome is said to have reduced anxiety and reinforced the tendency to flee on subsequent encounters with similar stimuli. Escape response prevention became an important addition to the exposure technique [5].

Pharmacological models, likewise, have focused on management and treatment strategies aimed at attenuating or terminating anxiety. While precise mechanisms of action are frequently unknown and to a great extent involve a significant placebo component [31], the use of benzodiazepines and other agents to depress sympathetic activation have become widespread. Several theoretical mechanisms attempt to account for their therapeutic effect including, but not limited to, enhancing the activity of inhibitory central nervous system neurotransmitters such as gamma amino butyric acid or GABA [31]. Still other pharmacologic interventions aim to attenuate anxious symptoms directly by the use of agents such as beta-blockers to suppress cardiac response and stem sympathetic arousal. Even anti-depressant agents known as selective serotonin-reuptake inhibitors or SSRIs also have significant adrenergic effects and have been shown to reduce anxious symptoms such that they are independently indicated for use in various anxiety disorders [18]. This general strategy of stopping anxiety perpetuates notions of "protecting" the patient as well as the view that anxiety is dangerous and a threat in itself.

The reader will note that certain medical conditions can be exacerbated by sudden sympathetic activation and possibly trigger events that are in fact dangerous to the individual. Medical management strategies in this case often involve limiting sympathetic arousal through chemical and sometimes surgical means [8]. The importance of a complete medical examination to rule out any underlying possible medical conditions that can either cause or be exacerbated by sudden anxious response cannot be underestimated. Individuals may have anxiety disorders prior to onset of medical conditions or may develop such conditions coincident to them. While the vast majority of anxiety disorders occur in individuals where medical status is not a significant or complicating factor, careful collaboration between physicians and other treating professionals is, nonetheless, important if not essential.

In the absence or presence of medical conditions, individuals vary in their degree of anxiety sensitivity (AS) defined as the general sense that, when experienced, anxiety is harmful to the self. This concept has been shown to be predictive of development of anxiety disorders [41]. The individual high in AS is seen as more vulnerable to misinterpretation of the benign physiological sensations associated with sympathetic arousal in a healthy person. These individuals are hypervigilant to anxiety symptoms, have a propensity to view these symptoms in harmful terms, overestimate the likelihood that the worst possible outcomes will happen and underestimate their ability to cope.

Cognitive models have more purely retained a focus on the active process of relearning about danger signals and coping capacities through the actual experience of anxiety not its suppression [36]. These cognitive accounts emphasize cognitive reappraisal through confronting fears by choice and prediction testing while dropping maneuvers that contribute to false attributions of safety. These approaches also often utilize imaginal or visual channels to achieve changes in threat assessment and self-efficacy. The desired end of such procedures is not to stop anxiety but to restore its accurate and purposeful function in an effective response to threat.

More recent cognitive models termed mindfulness-based approaches have begun to move away from notions that emphasize management or regulation of anxiety to awareness and acceptance of the response largely based on findings demonstrating increases in anxiety directly due to attempts at control [9]. Unfortunately, these models fail to acknowledge both the exposure component inherent in their procedures and the likely explanation of cognitive reappraisal as the mediating variable of change. These approaches have, however, furthered a functional, purposeful view of anxiety, and all emotion for that matter, in a healthy person's search for a full and valued life.

Future models, whether psychological, physiological or pharmacological, may very well relinquish attempts at anxiety control and may focus instead on techniques that enhance learning [20]. New paradigms are beginning to emerge such as the use of the antibiotic d-cycloserine to augment exposure [29] or transcranial stimulation [22] of neocortical regions with projections to the limbic system that may improve the ability to benefit from experience or chemical agents such as dopamine reuptake inhibitors that may boost the efficiency of the brain's reward system and aid the organism in profiting from the contingencies which their behaviors actually produce. The focus of the future may not be to counter disorder and disease but rather to create the conditions within individuals which promote the great inherent potential of the human being to grow and to heal.

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Anxiety Disorders

Synonyms

Generalized anxiety disorder; Obsessive–compulsive disorder

Definition

Anxiety is a usual reaction to everyday life stress; however, when anxiety becomes excessive and irrational it can interfere with an individual's life and reach the level of disorder. Severe anxiety can manifest through disturbance of mood, behavior, thought, and other psychological activities. Anxiety disorders are the most common mental disorders and are highly comorbid with a number of other psychological disorders.

Description

There are a number of anxiety and anxiety related disorders, they are as follows:

- Generalized Anxiety Disorder (GAD)
- Obsessive-Compulsive Disorder (OCD)
- Panic Disorder
- Post-Traumatic Stress Disorder (PTSD)
- Social Phobia (Social Anxiety Disorder)
- Specific Phobias

Treatment

Generally, anxiety disorders can be treated with medication, psychotherapy, or a combination of medication and psychotherapy. The typical medications used to treat anxiety are antidepressants, selective serotonin reuptake inhibitors (SSRIs), monoamine oxidase inhibitors (MAOIs), tricyclics, benzodiazepines, and beta-blockers (for physical symptoms). The most prominent and evidence-based psychotherapy treatment for anxiety disorders is cognitive-behavioral therapy (CBT) that can be used with a number of anxiety disorders to help alleviate both the thought and behavioral disturbances caused by anxiety disorders. There are also exposure therapy for OCD and phobias, acceptance and commitment therapy (ACT), dialectical behavior therapy (DBT), interpersonal therapy (IPT), and eye movement desensitization and reprocessing (EMDR) for post-traumatic stress disorder, panic attacks, and phobias. A combination treatment of medication and psychotherapy has been shown to yield best treatment outcomes. However, note that treatment options should be considered on an individual case basis.

Relevance to Childhood Development

Many children will have appropriate fears and anxieties that correspond with their developmental age. It is important for parents to monitor their children's fears, and to see if the child out grows their fears at an appropriate age. Anxiety can interfere with children and adolescent's social, school, and everyday life functioning. Further, excessive anxiety at an early age may suggest future anxiety problems or be factors in the formation of other mental health disorders. Parents need to play an active role in seeking treatment for their child and can discuss treatment options with their child's physician.

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Anxiolytics

►Depressants

Anxiolytics/Hypnotics

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Synonyms

Anti-anxiety medications; Depressants; Sleeping pills; Soporifics; Tranquilizers

Definition

Anxiolytics are agents used to decrease emotional tension or anxiety. Hypnotics are drugs used to induce drowsiness or sleep or to reduce psychological excitement or anxiety [17].

Description

An anxiolytic is a drug prescribed for the treatment of symptoms of anxiety.

Hypnotic drugs induce sleep and are typically used in the treatment of insomnia and in surgical anesthesia.

Sedative–hypnotic, is a substance that depresses the central nervous system (CNS) resulting in calmness, relaxation, sleepiness, slowed breathing, and reduction of anxiety.

Types of Anxiolytics (Partial List)

1. Benzodiazepines (BZDs)
   - Alprazolam (Xanax)
   - Bromazepam (Calmepam)
   - Chlordiazepoxide (Librium)

- Clonazepam (Klonopin/Rivotril)
- Clorazepate (Tranxene)
- Diazepam (Valium)
- Halazepam (Paxipam)
- Lorazepam (Ativan)
- Medazepam (Nobrium)
- Nordazepam (Stilny)
- Oxazepam (Alepam)
- Prazepam (Centrax)

2. Azaspirodecanediones/Serotonin 1A agonists
   - Buspirone (BuSpar)

Types of Hypnotics (Partial List)

1. Barbiturates (Sedatives)
   - Amobarbital (Amytal)
   - Phenobarbitol (Luminal)
   - Pentobarbital (Nembutal)
   - Secobarbital (Seconal)
2. BZDs commonly prescribed to treat insomnia
   - Estazolam (ProSom, Eurodin)
   - Flunitrazepam (Rohypnol)
   - Flurazepam (Dalmane)
   - Temazepam (Restoril)
   - Triazolam (Halcion)
3. Nonbenzodiazepines commonly prescribed to treat insomnia
   - Zaleplon (Sonata)
   - Zolpidem (Ambien)
   - Eszopiclone (Lunesta)
4. Antihistamines
   - Diphenhydramine (Benadryl)
   - Doxylamine (sedating ingredient of NyQuil and used in over the counter sleep aides such as Somnil, Dozile, Donormyl, Restavit and Unisom-2)
   - Hydroxyzine (Vistaril)
   - Promethazine (Phenergan)
5. Other
   - Gamma-hydroxybutyric acid, GHB (Xyrem, Illegal use: aka "date-rape-drug")
   - Glutethimide (Doriden)
   - Melatonin, a hormone, can work as a hypnotic if taken 30–90 min before usual bedtime. Ramelteon (Rozerem), a relatively new drug, stimulates melatonin receptors in the brain
   - Alcohol is also used as a sedative–hypnotic drug, though not medically

BZDs: BZDs, though used for a wide variety of conditions, are most commonly prescribed for short-term relief of severe and disabling anxiety such as panic disorder, generalized anxiety disorder (GAD), and social phobia. Long-term use is typically not recommended because they are habit forming and there is a risk of withdrawal symptoms and rebound syndrome after continuous usage past 2 weeks. Common withdrawal symptoms include anxiety, insomnia, restlessness, agitation, muscle tension, and irritability. Seizures and depression may also sometimes occur. To attenuate adverse effects such as drowsiness, cognitive impairment, disinhibition, depression, motor impairment, and rebound anxiety, BZD dosage should titrated slowly and tapered gradually [5, 19].

Due to their low toxicity and rapid and effective action, BZDs may be indicated to cover the latent periods associated with slower onset medications, such as selective serotonin reuptake inhibitors (SSRIs) and Serotonin 1A agonists, now commonly prescribed for long-term treatment of anxiety. BZDs are also often a first choice when rapid control of acute symptoms is needed [11]. Longer term uses include treatment for severe anxiety and psychosis. BZDs are also potent anticonvulsants and have life-saving properties in the acute management of status epilepticus. The most commonly-used BZDs for seizure control are lorazepam and diazepam.

The pharmacological actions of BZDs are believed to enhance gamma amino butyric acid (GABA-A) function and therefore are referred to as GABA-A agonists. BZD agents bind to unique portions of GABA receptors that exist as large protein complexes located on neurons in the CNS. This protein serves as the major inhibitory neurotransmitter in the brain [19]. By enhancing GABA's inhibitory actions, brain cells are unable to be stimulated by excitatory neurotransmitters, and this inhibition alleviates symptoms of anxiety. The impact of BZD agents on particular regions of the CNS appears to determine the clinical effect. BZDs impact on the cortex and limbic system is associated with their anxiolytic properties. The effect on the brain stem and reticular formation appears to induce a sedative effect. The impact on the striatum, globus pallidus, and substantia nigra is associated with anticonvulsive effects, while the effect on purkinje cells in the cerebellum is implicated in their anti-ataxic effects [7].

Azaspirodecanediones/Serotonin 1A agonists: Azaspirodecanediones are a class of drugs with both antidepressant and anxiolytic effects. Azaspirodecanediones have fewer side effects than most BZDs, are not habit forming and do not exacerbate the effects of alcohol. Azaspirodecanediones are thought to agonize serotonin (specifically the 5-HT1A receptor), primarily in the

hippocampus. Buspirone (BuSpar) is the most commonly prescribed serotonin 1A agonist for the treatment of GAD. Reportedly, like SSRIs, BuSpar works gradually, reaching therapeutic levels in approximately 2–6 weeks. BuSpar has not been supported as a highly effective broad spectrum anxiolytic in adults [4]. However, there is some evidence of effectiveness with children presenting with both anxiety and depression [8, 13] or to augment the effects of SSRIs [2].

Barbiturates: Barbiturates, such as pentobarbital and phenobarbital, were the first agents to treat anxiety disorders in adults and children. Barbiturates exert a sedating effect linked to their ability to reduce physiological symptoms of anxiety. Barbiturates and BZDs act similarly to produce depression of CNS function and behavior. Both classes of drugs enhance the ability of the inhibitory neurotransmitter, GABA. BZDs, however, have largely supplanted barbiturates because BZDs have less potential for abuse, addiction and lethal overdoses [14]. Many experts consider barbiturates obsolete, although they may be valuable for the short term treatment of severe insomnia, only after BZDs or non-benzodiazepines have failed. They are contra-indicated for use children or adolescents [4].

Antihistamines: Antihistamine drugs exhibit anticholinergic (drying) and hypnotic–sedative properties and are most commonly used to treat allergic reactions. The body releases histamine during several types of allergic reactions and, to a lesser extent, during some viral infections such as the common cold. When histamine binds to its receptors on cells, it causes the cells to release chemical messengers that lead to sneezing, itching, and increased mucus production. Antihistamines, like histamine, bind to the histamine receptors, but when they bind to the receptors they do not stimulate the cells to release chemical messengers. In addition, they prevent histamine from binding and stimulating the cells. As mild sedatives, antihistamines are also sometimes prescribed to calm sporadic anxiety and combat insomnia [4].

Relevance to Childhood Development

The primary indications for use of anxiolytics and hypnotics in children and adolescents are anxiety disorders, sleep disorders, seizures, psychosis, aggression, and preparation for medical and dental procedures [19]. Affecting 6–18% of children and adolescents, anxiety disorders are among the most common mental health conditions and can impair social and academic functioning to the same extent as disruptive behavior disorders [3, 16, 18]. Moreover, childhood anxiety disorders have been associated with vulnerability to a number of adult mental health challenges [1, 9, 12]. Thus, childhood anxiety disorders represent a significant public health concern and mandate efficacious and early intervention. Best practices in childhood mental health professions assert a multimodal approach where psychotropic medication is considered only one aspect of a comprehensive treatment program. Ideally, psychopharmacological interventions should be combined with others interventions such as social skills training, special education, psychoeducation and/or individual and family psychotherapy as determined through systematic assessment of individual needs [10, 13].

Though touted for their quick action, low toxicity, and relatively safe side effect profile in use with adults, the literature on the efficacy of BZDs in children and adolescents with anxiety disorders is scant and inconsistent. In addition, the potential for abuse, dependence, and adverse events limits their use of first line agents in childhood psychopharmacotherapy. Side effects such excitement, rage, anger, or hostility occur more frequently in children and adolescents. Because anxiolytics typically result in calming effects, these are coined "paradoxical reactions." These reactions may occur secondary to the relief of anxiety and usually occur within the first two weeks of therapy. In contrast to the literature on BZDs, substantial evidence supports the use of SSRIs in the treatment of pediatric anxiety disorders. Although treatment with SSRIs may lead to a small increase in the risk for suicidal ideation in children and adolescents, they are most frequently favored for the treatment of childhood anxiety by prescribers [5, 6, 14, 15, 19].

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Anxious Attachment

►Ambivalent Attachment

Apathetic

►Identity Diffusion

Apgar

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Definition

The Apgar test is a quick and efficient system used to assess the physical condition of a new born child at birth and to determine the need for immediate medical care.

Description

The Apgar test is a quick and efficient system used to assess the physical condition of a new born child at birth and to determine the need for immediate medical care. The scoring system was developed by Virginia Apgar, M.D in 1952 to rapidly determine the medical condition of an infant immediately following delivery [1]. The Apgar test is based upon five objective signs present at birth. Each condition is evaluated on a scale from zero to two with a total Apgar score ranging from 0 to 10. Total scores earned on all five criteria of 3 and below are considered critically low; scores between 4 and 6 are fairly low, while scores between 7 and 10 are within normal limits [4]. The Apgar test is conducted at 1 and 5 min after birth. If the first two Apgar scores are low or if there are concerns regarding the baby's overall condition, an Apgar test may be given at 10 min after birth as well [4].

The letters of Dr. Apgars' last name have become an established acronym for the conditions of the test and are as follows: **A**ppearance, **P**ulse, **G**rimace, **A**ctivity and **R**espiratory (see Table 1) [2]. A newborn's appearance is based upon their color and the presence of cyanosis [1]. Pulse is based upon heart rate and is the most important condition of the five areas assessed [3]. A heart rate of 100–140 is scored a 2, a rate under 100 is scored a 1, and the absence of heart rate is scored a 0. Grimace is based upon reflex irritability to some form of stimulation. The stimulation is usually the placement of a rubber catheter inside the infant's nostril. A score of 2 is assigned if the infant pulls away, sneezes or coughs, a score of 1 are assigned if the infant only provides a facial response such as a grimace, and a score of 0 is assigned if there is an absent response to stimulation. Activity is based upon muscle tone. A score of 2 is assigned to an infant who spontaneously flexes their arms and legs with active movement. A score of 1 is assigned to an infant who flexes their arms and legs without movement, while a score of 0 is assigned to an infant who remains completely flaccid. Lastly, respiratory effort is based upon breathing rate

Apgar. Table 1 Apgar test

Acronym	Sign	Score 0	Score 1	Score 2
A	A. Appearance (skin color)	Blue, pale	Body pink, limbs blue	All pink
P	P. Pulse (heart rate)	Absent	<100	>100
G	G. Grimace (reflex irritability)	None	Grimace	Sneeze, cough, cry
A	A. Activity (muscle tone)	Limp	Some flexion of limbs	Active movements
R	R. Respiratory effort	None	Slow, irregular	Effortful, good strong cry

Source: [2]

and effort. An infant who breathes at a normal rate and provides an effortful cry receives a score of 2, an infant with slow and irregular breathing and a weak cry receives a score of a 1, while an infant who has absent breathing receives a score of 0 [1, 4]. Low Apgar scores, particularly at 1 min are commonly seen following a high-risk pregnancy, cesarean section, complicated deliveries and among premature infants. By 5 min, scores frequently improve. Critically low scores suggest that the neonate is in critical condition and requires immediate medical attention [4].

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Apgar Score

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Definition

The Apgar score is a measure of the infant's condition immediately after birth.

Description

The Apgar score is the most well-known representation of the newborn's risk status administered immediately after birth. Because newborns may have suffered distress prior to or during birth or may have difficulty transitioning to life outside the womb, the Apgar is used to quickly screen newborns to identify infants who need immediate attention. The screening is administered at one minute after birth and if any difficulties are noted the baby is screened again at five, and sometimes at ten minutes after birth. The additional Apgars are administered to assure that infants who show distress at first have recovered by the 5 or 10 min measure.

In 1952, Virginia Apgar, M.D. presented "A proposal for a new method of Evaluation of the newborn Infant" to the Twenty Seventh Annual Congress of Anesthetists. The purpose of her proposal, published with supportive data in 1953, was to provide a practical, clear evaluation of the condition of the newborn infant. She recommended that the scale be used to compare "the results of obstetric practice, types of maternal pain relief and the effects f resuscitation."

The criteria for her assessment are:

	Score of 0	Score of 1	Score of 2
Heart rate	Absent	Slow (<100 beats/min)	>100 beats/min
Respiratory effort	Apneic (no breathing)	Weak cry, hypoventilation	Good strong cry
Reflex irritability	No response to stimulation	Grimace, feeble cry when stimulated	Grimace, sneeze, cough
Muscle tone	Limp	Some flexion	Active movement
Color	Blue or pale all over	Blue at extremities, body pink	Body and extremities pink

As displayed in the table, a 0, 1, or 2 rating is made for each of 5 functions: heart rate, respiration, reflex response, muscle tone, and color. A score of 2 for a particular function is the best possible sign indicating no cause for concern.

A score of 0, 1, or 2 for each sign indicates whether the sign is absent or present. The highest possible composite score is 10 and indicates that the baby is in the best possible condition. An Apgar score of 7 or better means that the infant needs little medical intervention and is successfully adapting to the postnatal environment. A score of 3 or lower means emergency medical attention is needed.

Because the Apgar scale is such a clinically useful screener of newborn risk status, hospitals around the world use it daily. Findings from follow-up studies indicate that the Apgar has survived the "test of time." In an analysis of more than 150,000 infants researchers in Texas found a strong correlation between infant mortality and the 5 min Apgar score. The 1 min score continues to focus attention on the infants' condition immediately after birth.

Relevance to Childhood Development

The Apgar score at one minute after birth focuses on the infant's need for resuscitation. Without a quick, easy to administer assessment of infant status, infants in the past were less supported medically and more poorly monitored. An Apgar score of 0–3 at 5 min predicts infant mortality within the first 28 days of life. Although the Apgar alone does not predict cerebral palsy, uses in conjunction with other measures it can contribute to the prediction of developmental difficulties.

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Aphasia

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Synonyms

Impaired language; No language; Reading impairment

Definition

Aphasia is a disorder of language most often secondary to brain damage (as opposed to *dysphasia*, which is a congenital or developmental language disorder and not partial or incomplete aphasia). Aphasia is usually caused by lesions, or dysfunction, in the region of the sylvian fissure of the dominant hemisphere of the brain. The sylvian fissure comprises the opercular and insular areas, which are supplied by branches of the left sylvian artery. The upper division of the sylvian artery supplies the insula and the upper regions of the sylvian fissure, and the lowed division supplies the posterior parieto-occipital regions. Most commonly, aphasic disorders arise from arterial disease in the two divisions.

Description

Aphasia has several clinical types that are related to the site of the brain damage. Systematic clinical examination is necessary to decide whether the patient has *motor*, or *Broca's aphasia*, which is sometimes called *expressive*, *anterior*, or *nonfluent aphasia*; a *sensory* or *Wernicke's aphasia*, which also is referred to as *receptive*, *posterior*, or *fluent aphasia*; a *total* or *global aphasia*; or one of the *dissociative language syndromes* that include *conduction aphasia*, *word deafness* (*auditory verbal agnosia*), *word blindness* (*visual verbal agnosia* or *alexia*), and several types of *mutism*. *Mutism* does not permit to predict the exact site of the lesion. *Anomia*, which is also called *nominal* or *amnesic aphasia*, and *agraphia*, which is impaired ability to communicate by writing, are often found to some degree in all types of aphasia. Additionally, agraphia is rarely to be found alone [1, 5].

Motor aphasia (*Broca's aphasia*): Broca's aphasia is a primary deficit in language output or speech production. This type of aphasia has a wide range of variation in motor deficit, from the mildest type known as cortical dysarthria, which is characterized by intact comprehension and ability to communicate through writing, to a compete loss of all means of communication through any lingual, phonetic, and manual action [1, 5].

In the most advanced forms of motor aphasia, patients are unable to speak, read, or repeat words aloud. Yet, the lingual and phonatory apparatus is not paralyzed, and patients retain their ability to chew, swallow, and even vocalize without words. Occasionally, the words *yes* and *no* can be produced, and used within the context. Sometimes, patients can repeat several stereotypic words or phrases over and over again, as if compelled to do so, which is a symptom of *monophasia* (*recurring utterance*, *verbal stereotypy*, or *automatism*). If speech is possible,

certain habitual expressions, such as "Hi," and "Good morning," seem to be the easiest to produce. In the milder forms of the disorder, spontaneous speech is nonfluent, mute or telegraphic. Naming is impaired. The normal melody of speech is entirely lacking, and words are produced slowly and laboriously. The dysfluency takes the form of improper accent or stress on certain syllables, incorrect intonation and phrasing of words in a series, and pacing of word utterances. Speech is often sparse and consists only of nouns, transitive verbs, or important phrases. Length of phrases and sentences is reduced and many of the short words (articles, prepositions, etc.) are often omitted [4]. Repetition of spoken language is as abnormal as the patient's own speech. Language comprehension is intact with the exception of mild difficulties with grammatically complex phrases. Additionally, repeated patients usually recognize their errors and failures in speech, which may cause exasperation and despair [1].

Associated signs are right hemiparesis, right hemisensory loss, and depression. Most patients with Broca's aphasia have correspondingly severe difficulty with writing. If the dominant hand is paralyzed, the patient struggles with printing and writing with the non-dominant; letters are often malformed and words misspelled. Broca's aphasia is caused by lesion in the Broca's area in the posterior part of the inferior frontal gyrus, along with damage to adjacent cortical areas and subcortical white matter. Motor speech disorders, including severe motor aphasia and transient types, are generally due to vascular lesions. The most frequent type of vascular lesion that results in an abrupt onset or rapid regression is embolic infraction in the territory of upper main (rolandic) division of the middle cerebral artery [1, 4].

Aphemia: Aphemia is a rare variant of the Broca's aphasia. It is a nonfluent syndrome characterized by initial mutism followed by retaining ability to speak. However, the speech is characterized by phoneme substitutions and pauses. All other language functions are intact including the ability to communicate through writing. Aphemia is usually transitory and results from small lesions to the Broca's area or its subcortical white matter or the inferior precentral gyrus [1, 2].

Wernicke's aphasia (*sensory aphasia*): Wernicke's aphasia consists of two main elements: (1) an impairment in speech comprehension, or the inability to differentiate spoken and written word elements or phonemes, which reflects involvement of the auditory association areas or their separation form the primary auditory cortex; and (2) fluently articulated but paraphasic speech. Therefore, in Wernicke's aphasia speech is fluent with paraphasic errors. Naming is impaired and is often characterized by bizarre paraphrasic misnaming. Oral comprehension and repetition are impaired. Wernicke's aphasia is characterized by a visual language deficit that is reflected by the inability to read, *alexia* [1, 4].

Speech is produced without effort, and phrases and sentences are of normal length and are properly intonated and articulated. Despite normal articulation and prosody, the speech is meaningless, and the words do not convey any communicative value. Words themselves are frequently malformed or inappropriate, which is referred to as *paraphasia*. There are several types of paraphasias, depending on the type of paraphasic error: *literal paraphasia*, in which the patient substitutes phoneme or syllable within a word (i.e., "The apple is greel") and *verbal paraphasia* or *semantic substitution*, which is characterized by substituting one word with another (i.e., "The apple is blue"). *Neologisms*, or words that are not part of the language may also be observed (i.e., "The apple is prums"). Fluent paraphasic speech is often entirely incomprehensible, which is called *gibberish* or jargon *aphasia*. In Wernicke's aphasia patients seem to be unaware of the deficit. Although the motor apparatus required for the expression of language may be intact, the patients are unable to function socially due to communication difficulties. They are deprived of any means of linguistic communication. They cannot express themselves through language, and language comprehension is often limited to several simple commands. Writing is well formed and may contain some correct words; however, a majority of written words are meaningless. All these impairments are present in varying degrees depending on the exact site and size of the brain lesion. Right hemianopsia is sometimes associated with Wernicke's aphasia, but motor and sensory functions in the limbs are typically normal. Wernicke's aphasia is associated with the posterior perisylvian region (comprising posteriosuperior temporal, opecular supermarginal, and posterior insular gyri), and usually is due to embolic occlusion of the lower division of the left middle cerebral artery [1, 5].

Global aphasia (*total aphasia*): Global aphasia is the summation of Broca's and Wernicke's aphasias, in which all aspects of speech and language are affected. Speech is nonfluent or mute, but comprehension is also impaired. Naming, repetition, and writing are poor. At the most, patients are able to say only a few words, which are limited to cliché and/or habitual words or phases. They may understand several words or expressions; however, they fail to carry out a series of simple commands and name a series of objects. They cannot read written text or

repeat oral language. The patients often use meaningful gestures (i.e., greeting), avoidance reactions, and self-help activities [2, 4].

Most patients also present with dense right hemipharesis, hemisensory loss, and often, hemianopsia. The syndrome is due to lesion that affects a major part of the language area and the major cerebral hemisphere. The lesions are usually large and involve both the inferior frontal and superior temporal regions and often much of the intervening parietal lobe. The lesions are usually due to occlusion in the left internal carotid or middle cerebral artery, but it also may occur as a result of hemorrhage, or tumor [1, 5].

Dissociative syndromes (*disconnection syndromes*): Dissociative syndromes do not result from lesions to the cortical language areas but from the interruption of association pathways joining the primary receptive areas to the language areas. This category includes aphasias that are due to lesions separating the strictly receptive parts of the language mechanism form the motor ones and to lesions separating the perisylvian language areas from the other parts of the cerebral cortex [1, 5].

Conduction aphasia: Many features of conduction aphasia resemble these of Wernicke's aphasia. Similarly to Wernicke's aphasia, conduction aphasia is characterized by literal paraphasic errors. Naming is impaired; yet, contrastingly to Wernicke's aphasia, auditory comprehension is normal. Writing also is impaired. Patients have severe difficulties with repetition and reading aloud. Dysarthria and difficulties with prosody may also be present. Spontaneous speech is usually normal; however, some patients may presents with fluency difficulties and frequently hesitate due to self-correction. Hemianopsia and hemisensory loss are sometimes observed, but motor ability is preserved. Conduction aphasia is usually due to lesions that are located in the upper bank of the sylvian fissure and involve the supermarginal gyrus and, occasionally, the most posterior part of the superior temporal region [1, 2, 5].

Pure word deafness: This is an extremely rare syndrome characterized by an impairment of auditory comprehension and repetition and the inability to write words that are dictated. However, the abilities to read, write, name, and spontaneously speak are preserved. Hearing for pure tomes and non-linguistic noises (i.e., anime cries) are intact. Mild aphasic deficits, mostly paraphasic speech, are not uncommon. Pure word deafness is associated with lesions isolating the Wernicke's area from both Heschl's gyri (*disconnection syndrome*; [1, 2]).

Anomic aphasia (amnesic aphasia, nominal aphasia): The most frequent aphasic disturbance is word finding difficulty or anomia. Yet, anomic aphasia is diagnosed only when the anomic disturbance is the most prominent feature of the language difficulty. Anomic aphasia is characterized by the impaired access to the internal lexicon, which results in ability to name objects or phenomena. Simultaneous speech is normal with the exception of pauses, groping for words, circumlocution, and substituting word with another word or phrase that conveys the same meaning. Oral and reading comprehension and writing are intact. Isolated, severe anomia may be related to lesions in different parts of the language area [1, 2].

Transcortical aphasia: Transcortical aphasias are a result of lesions that separate cortical centers form the language circuit. There are three main transcortical aphasic syndromes: (1) Isolation Syndrome, in which patients have fluent and echolalic speech and present impaired oral comprehension, naming, reading and writing skills despite normal repetition ability; (2) Transcortical Motor Aphasia, which is characterized by nonfluent speech, impaired naming, and intact reading and repetition ability; and (3) Transcortical Sensory Aphasia, which is associated with fluent and echolalic speech with intact repetition and impaired naming, oral comprehension, reading, and writing abilities [1, 4].

Subcortical aphasia: Subcortical aphasias are caused by lesions that are localized in the basal ganglia or deep cerebral white matter of the dominant hemisphere. Subcortical lesions cause aphasia less commonly than cortical lesions, and the language functions affected are often atypical. Depending on the exact site of lesion, the symptoms may include anomia, dysarthria, lost capacity to speak while retaining the ability to write, understand spoken words, and comprehend written text. Generally, subcortical lesions are associated by syndromes that are difficult to classify and occur along with right hemipharesis [1, 4].

Alexia with agraphia: *Alexia* refers to the inability to read, and *agraphia* describes the inability to write despite previous literacy skills. Thus, alexia with agraphia is often referred to as "acquired illiteracy," in which previously educated patient loses the ability to read and write. Alexia with agraphia is generally observed along with a right hemianopsia and elements of the Garstmann syndrome: agraphia, acalculia, right-left disorientation, and finger agnosia. This type of aphasia is due to lesions in the inferior lobule, particularly the angular gyrus [2, 3].

Alexia without agraphia (*pure word blindness*, *visual verbal agnosia*): This is a rare syndrome, in which a literate person loses the ability to read, comprehend written script, and, often, to name colors. Patients are able to write; however, they are not able to read their own written productions. Speech, oral comprehension, and repetitions are normal. Naming, especially for colors, may be impaired. The disorder s commonly associated with right hemianopsia or upper quadrant defect. Alexia without agraphia is usually associated with a stroke in the territory of the left posterior cerebral artery, with infraction of the left visual cortex, particularly the geniculocalcarine tract, the connections of the right visual cortex with the intact language areas of the domain hemisphere [1, 2, 5].

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Aphasia Screening Test

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Definition

"Aphasia screening test" is a broad term applied to a variety of short screening measures which address potential language disorders related to aphasia and are employed by a variety of mental health professionals including neuropsychologists. Some of the tests go beyond language, such as the Aphasia screen test of the Halstead reitan neuropsychological test.

Description

The term aphasia means literally "without language" and is one of the most common consequences of a stroke [5]. When a patient presents with aphasia, it is important that clinicians be able to differentiate between different types of aphasia. Typically this involves differentiating between various types of aphasia. For more information about types and causes of aphasia go to *aphasia*.

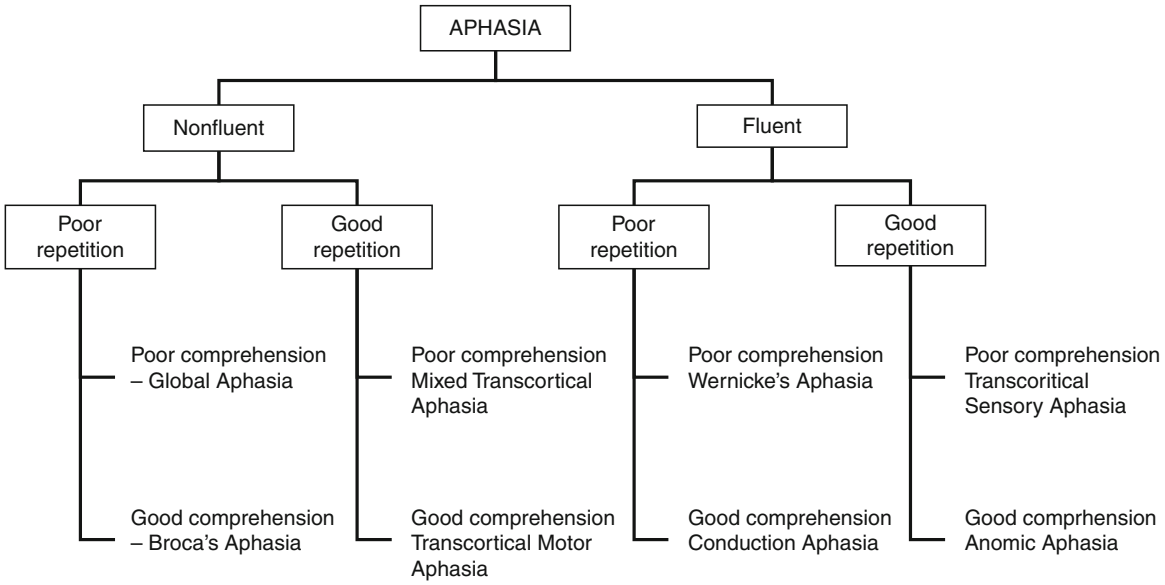
Examination

The examination of aphasia can take on a number of different looks and there are a number of accepted aphasia screening tests which are available. There are however some basic components which most aphasia screening tests will examine with the patient to help in diagnosis. Lezak (2004) suggested that when evaluating aphasias a review of language and speech functions will help an examiner to determine whether or not problems are present. The areas that Lezak suggests should be covered with verbal ability are:

1. Spontaneous speech
2. Repetition of words, phrases, sentences
3. Speech comprehension
4. Naming
5. Reading
6. Writing

The following examination is a common form of an Aphasia screening tests and is known as the Bedside Language Exam.

1. *Spontaneous speech* – observation of patient's speech and comprehension. The most important aspect of spontaneous speech is the fluency of the individual being tested, as well as attention and articulation.
2. *Naming* – naming is a test which asks patient to name objects, object parts, colors, pictures, of other items. In most aphasia screenings it's important to differentiate between recognition of objects and the ability to actually form and articulate the name of the object being presented.
3. *Auditory comprehension* – patients are asked to follow simple commands which are presented auditoorally. In many circumstances the tasks are presented as multistep commands that require the examinee to understand directions and then motorically carry out the commands.
4. *Repetition of words and phrases* – it is common to find difficulty with rapid consonant articulation and speech in rapid sequences.



Aphasia Screening Test. Fig. 1 Differential diagnoses for aphasic syndromes [3, 6].

5. *Reading* – examinees are asked to read aloud and then is tested on comprehension.
6. *Writing* – obtaining a writing sample provides a sample of expressive language but also allows the examiner to analyze spelling. Writing also tends to be seen as sensitive to the degree of aphasia.

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Aphasia Voluntaria

►Selective Mutism

Aphasia with Convulsive Disorder

►Childhood Aphasia

Aphemia

►Childhood Aphasia

Aplenzin

►Bupropion

Apnea

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Definition

An impermanent interruption of breathing during sleep.

Description

Apnea is a reoccurring obstruction of air from the lungs or a problem in the brain that controls respiration. This is a sleep disorder that can cause sleepiness during the day because of the disruption of sleep. Some times an individual can stop breathing during sleep and then struggle for air. This constant struggle for air affects the quality of sleep often leaving the person feeling drained. This condition has been found in infants, children and adults.

Relevance to Childhood Development

Sleep apnea in children can affect cognitive and behavioral difficulties. Often, sleep disorders in children have been over looked. Current research shows a relationship of sleep disorders with Attention Deficit Disorder.

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Appearance Satisfaction

►Body Image

Appearance-Reality Task

►False Belief Task

Applied Behavior Analysis (ABA)

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Synonyms

Applied behavioral assessment; Behavior analysis

Definition

Applied behavior analysis (ABA) is a scientific approach in which procedures based on the principles of behavior are systematically applied to identify environmental variables that influence socially significant behavior and are used to develop individualized and practical interventions [2–4].

Description

Rooted philosophically and theoretically in the science that informs the practice of Behaviorism, behavior analysis is an umbrella term that encompasses three interrelated branches including applied behavior analysis (ABA), experimental analysis of behavior (EAB), and behaviorism. ABA involves experimental single-subject designs used to demonstrate the functional relationship between environmental variables and socially significant problem behavior. Findings derived from ABA research embody the breadth of literature behavior analysts use to guide their professional practice. EAB also involves single-subject laboratory research; however, it is aimed at examining the effects of independent variables (i.e., treatment) on dependent variables (i.e., target behaviors) to clarify the basic principles of behavior further.

Although proposed nearly 40 years ago, Baer et al. coined seven dimensions that are still regarded as the primary criteria for defining and reviewing ABA as a science today [2, 3]. Foremost, they stated that a study must be *applied* or, in other words, socially significant to the individual and all related parties (i.e., parents, caregivers, teachers, etc.) and aim to improve the lives of others through meaningful interventions. Secondly, they claimed that studies must also be *behavioral*, in that the target behavior should be measurable, chosen based on importance and not convenience for others, and be closely monitored to insure that change is attributable to the individual and not external factors (i.e., the behavior of the researcher). A study in ABA must also be *analytic*, or demonstrate experimental control between the manipulated events, or the treatment, and the behavior of interest. In other words, the experimenter is able to demonstrate control over the occurrence and nonoccurrence of the target behavior. Another hallmark of an ABA study is that it must be *technological*, or provide sufficient detail to allow for replication of the behavioral procedures to produce similar results. Additionally, the behavioral procedures described should be *conceptually systematic*, or described using the basic ►behavioral principles from which they were derived, to facilitate and promote a cohesive discipline. Lastly, an ABA study must also be *effective* in deriving socially significant results for the

behavior under investigation and be *generalizable* longitudinally, across different contexts, and different behaviors. Additional ABA criteria were later proposed by Heward who suggested that the science was also accountable, public, doable, empowering, and optimistic [8].

There is an abundance of literature supporting the use of ABA in treating a wide topography of behaviors and related diagnoses. Much of the research produced in the field of ABA has been conducted with individuals diagnosed with developmental disabilities due to the severe behavioral excesses and deficits that commonly co-occur with these disorders. To name a few, Hagopian and Boelter cited studies in which ABA has been successfully used to treat aggression, self-injurious behavior (SIB), stereotypic behavior, and pica [6]. Furthermore, once the function of an aberrant behavior is identified, ABA-based procedures are then used to teach adaptive behaviors, such as communication, academic skills, and self-help skills, to replace behavioral deficits. ABA has been used to address behavioral excesses and deficits in individuals with the following diagnoses: ▶autism spectrum disorders (ASD), schizophrenia, mental retardation, attention deficit hyperactivity disorder, stereotypic movement disorder with self-injury, Down Syndrome and pediatric feeding disorders [6]. Lastly, ABA has also proven effective with typically developing populations to address more benign behavior issues, such as controlling personal habits, increasing athletic performance, and promoting a healthy lifestyle [4].

The field of ABA is broad and has been implemented in a wide range of settings and across a variety of behaviors. ABA procedures are commonly implemented in homes, schools, and hospital settings but have also been generalized to the community to address such issues as littering, recycling, unsafe driving, seatbelt use, and speeding [4, 15]. ABA is also implemented in businesses, industries, and in human services, to improve employee and supervisor performance, to address job safety, and to promote business productivity. Although procedures used in these types of settings are generally derived from basic behavioral principles and procedures, study in this setting is typically subsumed under industrial organizational psychology (I/O Psychology) or organizational behavior management (OBM).

Although it is often assumed that ABA is only one standardized treatment approach, there are a number of different applications used to address a variety of socially significant behaviors. There is a large body of empirical support for the use of ABA-based skill acquisition techniques and behavior reduction interventions. The UCLA Young Autism Project, or early intensive behavioral intervention (EIBI), developed by Ivar Lovaas is one of many applications of ABA used to optimize children's functioning [12]. Lovaas' method employs a standardized set of procedures, otherwise known as discrete trial training (DTT), which consists of one-to-one interaction with a therapist, delivery of clear and concise instructions, the use of three-step prompting procedures (i.e., "tell, show, do"), and the delivery of immediate and consistent reinforcement (see [11] for more information). Lovaas' early research was not only monumental in advancing the field of ABA and in facilitating a greater understanding of autism in preschool children, but it also emphasized the necessity of early and intensive intervention using behaviorally-based procedures to increase both language and academic skills [19].

Skinner's analysis of verbal behavior is yet another application of ABA that has been extensively reviewed and disseminated to a growing number of families of individuals with autism and other developmental disabilities. In his book, *Verbal Behavior*, Skinner provided a conceptual framework of what he termed to be controlling variables of language [18]. Unlike traditional linguists who generally conceptualize language based on meaning or syntax, Skinner examined language as verbal operants, which were each defined by their functional relationship to environmental events [17]. For instance, a child who learns to vocally request a toy would not be conceptualized as understanding what that word means or the timeliness of its use in a social context. Rather, through Skinner's analysis of verbal behavior, one would examine the antecedents, or motivating operations, that elicited the child's request, or mand, for the item and the consequences that maintain this verbal behavior across social environments. Therefore, the speaker and listeners' behaviors and the use of basic verbal operants are seen as the foundational building blocks for more sophisticated language. Typically, information about a child's pre-existing language repertoire, if any, is assessed using the assessment of basic language and learning skills (ABLLS). Information derived from this assessment is then used for establishing language or target goals that are then taught using intensive language training [17].

Another application of ABA that capitalizes on a child's motivation in the natural environment is Incidental Teaching. This procedure entails the instructor manipulating or structuring the learning environment so that preferred items and activities are used to create learning opportunities [13, 14]. This list of commonly used skill acquisition procedures is not exhaustive; however, it does represent the diverse ways in which ABA, namely the principles of behavior, are used to teach or improve behavior.

Behavior reduction interventions and techniques used in the field of ABA focus on the operant functions of

a target behavior as opposed to attributing its occurrence to an underlying pathology [1]. Specifically, ABA focuses on antecedents and consequences that can be used to alter or reduce problem behavior [10]. Antecedents are stimuli, settings, and contexts that occur before a target behavior; consequences are events that follow a target behavior. Furthermore, consequences for behavior rely heavily on positive and negative reinforcement and positive and negative punishment [10]. Behaviors become associated with and highly influenced by certain types of consequences or antecedents that can either increase or decrease the likelihood of the occurrence of that behavior.

One of the most common ABA-based procedures for identifying operant functions of problem behavior involves a unique assessment technique known as a functional behavior assessment (FBA). This comprehensive assessment method is designed to systematically identify variables responsible for maintaining problematic behavior through record reviews, indirect assessments or interviews with caregivers, direct assessments through observations, and a functional analysis (FA), which involves the experimental manipulation of environmental events. Based on the results of the indirect and direct assessments of the FBA, hypotheses regarding the variables maintaining problem behavior are formulated and tested during the FA. The results from this analysis yield information pertaining to the maintaining variables of problem behavior, which are then used to identify and test probable intervention(s) through a treatment analysis (TA). Because there are many different approaches one can take in reducing problem behavior (e.g., reinforcement-based treatments, such as differential reinforcement, and punishment-based treatments, such as time-out procedures), a TA is typically conducted in an analog setting to ensure the effectiveness of the treatment selection prior to generalizing it in to the natural environment.

Seminal Figures

Although a complete historical account of the evolution of ABA is beyond the scope of this reference (see [2–4, 10], suggested resources for more information), a review of some of the early seminal leaders and the revolutionary work upon which the scientific principles of ABA are based is both noteworthy and warranted. The foundation of ABA began with the early proclamations of Charles Darwin (1809-1882), who focused his research efforts on evolution and the continuity among species. Specifically, he recognized that humans and infrahumans, although different, were subject to similar influences and principles based on survival. This declaration by Darwin spawned the importance of the study of animal behavior in order to gain a greater understanding of human behavior.

Animal research continued to serve a prominent role in the study of behavior through the work of Ivan Pavlov (1849-1936), who unveiled the processes of respondent conditioning, and Edward Thorndike (1874-1949), whose experiments with felines led to the development of the Law of Effect. John B. Watson (1878-1958), who was a seminal leader in the movement towards behaviorism, is recognized for his development of stimulus-response (S-R) psychology, which focused solely on direct observation of environmental stimuli (S) and the responses the stimuli evoked (R). B.F. Skinner (1904-1990) later expanded the work of Watson and the field of behaviorism through the publication of his book, *The Behavior of Organisms* (1938/1966). In this great work, he recognized Pavolv's S-R psychology as respondent behavior and, because he found that it was unable to explain the mechanisms responsible for spontaneous or voluntary behavior, Skinner coined what he called operant behavior or operant conditioning. His discovery of the three-term contingency (Antecedent-Behavior-Consequence) and his successful account of these basic principles in identifying a functional relationship between human behavior and one's environment marked the beginning of experimental behavior analysis and behavior modification. Skinner is also well known for his extensive writings on the philosophy of this science, which later came to be known as "radical behaviorism" [4]. In 1968, the publication of the *Journal of Applied Behavior Analysis* (JABA), which was the first journal in the Unites States to address applied behavioral problems, marked the formal beginning of contemporary ABA [4]. To date, this publication continues to provide researchers with new methodological variations on the assessment and treatment of aberrant behavior and serves as a launching ground for the publication of current trends and novel work.

Despite its growth within the past 40 years, ABA is still a new science with much to be researched and explored. Ongoing trends in ABA research are its continual efforts to examine variations in the use of basic behavioral principles and methods, focusing on the overall effectiveness of treatment methodologies, and evaluating the social validity of treatment interventions. In a report analyzing current trends in presentations at annual conferences for the Association of Behavior Analysis (ABA), Kangas and Vaidya [9] reported that the number of registered attendees has increased from 21 to 346% since its original inception in 1974. Furthermore, they found that applied research, or ABA presentations generally outnumbered both basic and conceptual research and have concentrated more on topics related to autism, developmental disabilities, and education. Another trend in the field of ABA is

the increasing number of researchers seeking certification as board-certified behavior analysts (BCBA) or board-certified associate behavior analysts (BCABA) since its initiation in 1998. The growing popularity of obtaining certification would suggest that many researchers are now eager to put the empirically-based behavior analytic procedures they have investigated into practice.

Relevance to Childhood Development

As noted previously, many of the research efforts in the field of ABA have focused on individuals diagnosed with ASD [15]. From the behavioral analytic perspective, autism and ASD are characterized as syndromes of behavioral deficits and excesses [5]. Behavioral deficits of children with autism include language or communication impairments, failure to develop peer relationships, and an inability to engage appropriately in reciprocal social interactions. Behavioral excesses may take the form of aggression, self-stimulatory behaviors, or SIB. ABA has been used to treat these behavioral deficits through skill acquisition techniques, such as those mentioned previously, and behavioral excesses through a variety of differential reinforcement interventions paired with extinction. The individualized procedures of ABA that are systematically applied to behavior not only help to bring about change, but ultimately alter the developmental trajectory of children with autism [7].

ABA-based procedures used for assessing and treating comorbid behaviors related to this diagnosis and for teaching these children have been extensively researched and empirically supported [6]. Furthermore, based on the empirical evidence produced by ABA interventions, many professional and government agencies have recognized treatments derived from these principles as both highly effective and as best-practice procedures. Specifically, a report published by the National Research Counsel of the National Association of School Psychologists (NASP) summarizing necessary components of effective interventions for children with autism recommended active participation in intensive ABA programming for a minimum of 25 h per week, which is equivalent to a full school day for 5 days a week [16]. Additionally, the Surgeon General of the United States recognized ABA as the treatment of choice for children diagnosed with ASD: "Thirty years of research demonstrated the efficacy of applied behavioral methods in reducing inappropriate behavior and increasing communication, learning, and appropriate social behavior" [20].

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Suggested Resources

Journal of Applied Behavior Analysis at http://seab.envmed.rochester.edu/jaba/

Behavior Analysts Certification Board at http://www.bacb.com/cues/frame_about.html

Applied Behavioral Assessment

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Synonyms

Applied behavior analysis (ABA); Operant learning and applied behavior analysis (ABA)

Definition

Applied behavior analysis (ABA) is the branch of psychology that is devoted to understanding and improving socially important human behavior ([1], p. 63). Furthermore, it involves the scientific study of behavior through the use of techniques underlying positive behavior support. ABA uses the principles of operant psychology to reduce problem behavior or increase positive behavior ([2], p. 321).

Description

Practitioners who use operant learning and applied behavior analysis principles as a part of their practice believe that behavior is learned and therefore can be unlearned, or that the individual involved can be taught new behaviors ([3], p. 32.) Using an ABA approach, the teacher or therapist analyzes an observable behavior and the antecedents and consequences which seem to support the behavior. An antecedent is defined as "an environmental event or stimulus that precedes a behavior and influences the probability that it will recur in the future" ([3], p. 32); therefore, it is imperative to identify antecedents. Additionally, an analysis of behavior consequences is equally important because behavior is controlled by the consequences that follow it ([3], p. 33).

Following the analysis of a behavior in the context of antecedents and consequences, a behavior intervention plan can then be designed to manipulate them so that a new behavior can be taught or an undesirable behavior can be eliminated. There are specific principles and practices which promote the increase of desirable behaviors, and different principles and practices are available to decrease undesirable behaviors. Appropriate principles/strategies are incorporated into the behavior intervention plan depending upon the objective derived from the target behavior.

Relevance to Childhood Development

Typically, children learn developmentally appropriate academic and social skills without direct instruction or intervention; yet some children, including individuals with special needs and those specifically with emotional and behavior disorders, require a structured environment designed to provide the conditions to learn appropriate academic and social skills. Applied behavior analysis is used by learning therapists, teachers and other professionals as a systematic and data driven approach to the teaching and charting of academic and social skills. The methodology is frequently used to understand and plan interventions which address the inappropriate behaviors of students with emotional and behavior disorders (EBD) [4].

Typical ABA Training Assignment

Learning therapists, teachers and other professionals who are interested in the role of environment in behavior change are taught to use ABA principles in a systematic manner as a teaching and assessment tool leading to data-based teaching and charting of academic and social behaviors. The following set of training instructions written in a step by step format serves as typical assignment given to behavior interventionists to help them design a behavior intervention plan to be implemented in an applied setting using ABA principles.

Applied Behavior Analysis (ABA) Behavior Intervention Plan

An ABA behavior intervention plan will be required in this course on *one student* or a *small group of students* in a classroom or other approved setting concerning an *academic* or *social behavior* you feel needs to be addressed through an intervention. If you choose to address *an academic behavior*, you must identify an academic task or task sequence that student/s must learn or improve. If you choose to target *a social behavior*, you will observe and record *one appropriate behavior* which needs to be increased "*or*" *one inappropriate behavior* which needs to be decreased.

In either case, you will be required to observe and record the behavior as it is occurring in *baseline condition* and during your *treatment condition*. You will need 3–5 pinpoints of data for the baseline condition, and 7–10 pinpoints of data for the treatment condition. (Approximately 15 contact sessions with student/s.) You will be required to graph the data collected and to submit it with a written report concerning the total project following the format below.

Directions: Respond to All of the Questions Below. Be as *Specific* as You Can

1. General description of the behavior problem and purpose of the behavioral intervention plan.
2. *Subject*: General description; use first name only.
3. *Setting*: Where will the plan be carried out?
4. *Target behavior*: Explain the behavior you have chosen and why. Provide the label you have given the behavior, and define it within the context of your project.
5. *Objective of behavior intervention plan*: State a measurable behavioral objective (BO) for the plan to include the following components and written in one long sentence format: conditions (setting/circumstances), behavior (action verb), criteria (degree of mastery), evaluation (method used to evaluate), and time expectation (when behavior is to occur).
6. *Baseline phase*: Explain the baseline condition. Describe your observations and the development of your record keeping. How was the baseline target behavior recorded? What measurement/graphing techniques were employed? If any special equipment and/or forms are used, please attach and explain. *Be detailed.*
7. *Intervention phase*: What will you do to meet your stated objective? Explain a selected treatment procedure and how it was carried out. Be sure to refer to textbooks, professional journals, etc. as you develop your intervention procedures. *Be specific.* Explain *in detail* how the intervention was done to improve the behavior. Then, *select* two (2) *additional treatments* which you "*might*" use if your first treatment failed. Explain how you will carry out these interventions in detail.
8. *Raw results*: Report the Mean of Baseline and Treatment data collected. Graph on a line graph both baseline and intervention phases.
9. *Maintenance and generalization*: Explain in writing what features you might design into your program to increase the probability that desired behavior change *will be maintained* after treatment.
10. *Rationale/defense/additional comments*: Explain the usefulness, practicality, generalizability, and possible long range effects of your proposed plan. In short, defend it! How do you know this will benefit the child? What made you think your first intervention would effectively change the behavior? You will build a stronger defense if you refer to textbooks, professional journals, etc. and cite references.

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Apprehension

►Anxiety

Appropriateness

►Validity

Apraxia

Apraxia is a disorder of motor planning. Apraxia comes from the Greek praxis for an act, work or deed preceded by privativea meaning without. Apraxia is a disorder caused by damage to specific areas of the brain leading to the loss of ability to execute or carry out learned, purposeful movements despite having the desire and physical ability to perform the movements. It can be acquired or related to atypical development. Apraxia is different from abulia in which individuals do not have the interest or desire to carry out an action and allochiria in which individuals confuse one side of the body with the other.

Archival Research

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Definition

This methodology is primarily concerned with the examination of historical documents. Secondarily, it is concerned with any recorded data. All data are examined ex-post-factor by the researcher [1].

Description

Unobtrusive methods are archival records where one is given the opportunity to assess the impact of natural events and examine other issues. They are strong on external validity because of the subjects unawareness of the research or its aims. When using archival records, we must control for the possibility of internal invalidity or spurious relationships. Archival research may require the collection of additional data and temperature records. A significant issue in archival research is construct validity and reliability of the data for research purposes. Archives are subject to gaps and incompleteness that make it difficult to determine whether the data, which was available, represented the population, which was of interest. The use of archives is economical, the researcher is spared the time and costs in data collection and recording. The advantage to archival data is availability of extensive data drawn from high-quality samples over time, which would be beyond the ability of the researcher to collect themselves or herself. Low cost is involved when using archival data [2].

Arcuate Fasciculus

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Synonyms

Arcuate fasciculus

Definition

Arcuate fasciculus: The arcuate fasciculus is a bundle of fibers that serves as the neural pathway connecting the expressive (i.e., Broca's area) and receptive (i.e., Wernicke's area) language areas to one another and plays a vital role in repetition [3].

Description

The arcuate fasciculus is a neural pathway compiled of fiber bundles that extend anteriorly from the posterior portion of the temporal lobe to the posterior region of the inferior prefrontal lobe, thereby linking the expressive (i.e., Broca's area) and receptive (i.e., Wernicke's area) language centers of the cortex [2, 3]. In terms of neurocognitive functioning, the arcuate fasciculus is said to play a vital role in repetition [1]. Specifically, as auditory information comes into the neural system that is to be repeated, it is first processed by the receptive center of the brain (i.e., Wernicke's). Upon recognizing the nature of the information to be repeated, the neuronal transmission must be sent anteriorly to the expressive center by way of the arcuate fasciculus in order for the word or phrase to be said [3]. As such, lesions of the arcuate fasciculus have been attributed to manifestations of conduction aphasia in which speech remains and largely preserved, as does comprehension, yet repetition is impaired due to a disruption of this posterior to anterior transmission [1]. While repetition may be the most recognized function the arcuate fasciculus plays a vital role in modulating, it may also be important in reading aloud [3].

Receptive language skills involve reading, in addition to auditory comprehension [3]. While silent reading appears preserved in lesions of the arcuate fasciculus, reading aloud may be impaired [3]. Specifically, the prior (i.e., silent reading) appears to not require anterior transmission thus the function is not dependent upon the integrity of the arcuate fasciculus pathway and rather ends transmission at Wernicke's area. However, reading aloud involves reception as well as an anterior transmission to Broca's area in order to say the material aloud [2]. In this way, reading aloud may be dependent upon the integrity of the arcuate fasciculus and thus demonstrate dysfunction in those cases where this structure is impaired in some way.

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Aripiprazole (Generic Name)

►Abilify

Arithmetic

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Synonyms

Basic number facts; Operations

Definition

Arithmetic is the understanding and use of the mathematic operations of addition, subtraction, multiplication, and division.

Description

Arithmetic is a multi-component process that includes the abilities to complete addition, subtraction, multiplication, and division operations, to recall basic number facts, and to understand and apply the principles and the relationships of the operations to solve problems.

The acquisition of arithmetic skills is based upon the understanding of the number system. This includes the concepts of counting, cardinality, and adjusting sets to change number value. Children learn to combine sets to develop the understanding of addition. Reversing the process leads to the understanding of subtraction and the relationship between the operations. Also, children use counting strategies when learning to compute addition and subtraction problems. As children gain experience with adding and subtracting, the basic number facts become more automatic and are registered in long-term memory for access.

Children learn to group numbers into equal sets. Combining the equal groups, or repeated addition, leads to the understanding of multiplication. At a young age, children learn to share an item or an amount among their friends thus learning the underpinning of division. More commonly, children learn division as the reverse operation to multiplication. The basic operations of addition, subtraction, multiplication, and division are the foundations for calculating the results of quantitative situations.

Procedural knowledge and the understanding of arithmetic principles are included in the construct of arithmetic. Procedural knowledge is the understanding of the steps needed to perform the operation. The principles or the properties of arithmetic include the commutative, the associate, and the distributive properties. Understanding and applying the properties of arithmetic are necessary to solve complex mathematical statements.

Arithmetic is a component of mathematic proficiency.

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Arithmetic Operations

►Computational Skills

Army Alpha Examination

►Army Alpha Intelligence Test

Army Alpha Intelligence Test

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Synonyms

Army Alpha Examination; U.S. Army Alpha Intelligence Test

Definition

The Army Alpha [5] was developed shortly after the United States entered World War I by an American Psychological Association (APA) Committee on the Psychological Examination of Recruits, led by ►Robert Yerkes. It was one of three intelligence tests that were designed to identify Army recruits with low intelligence and allow for the recognition of those who were candidates for special assignments and officer-training schools. The Army Alpha emphasized verbal skills, and was given to all recruits.

Description

Development of the Army Alpha

Once the United States decided to enter World War I, Robert Yerkes, the President of the APA at the time, was anxious to show the value of the field of psychology and the unique contribution it could make to the war effort. He first approached the United States Navy but was turned down; however, the United States Army was agreeable to have APA assist the war effort. They

responded by setting up twelve committees, one of which, the Committee on the Psychological Examination of Recruits, was chaired by Yerkes. This committee was tasked with developing a quick-to-administer intelligence test to be used when deciding what sort of advanced training a recruit would receive. Yerkes, Lewis Terman, David Wechsler and other committee members collaborated to develop three such tests, the Army Alpha, the Army Beta (for non-English speakers and illiterate recruits), and an Individual Examination (a spoken test for those who failed the Beta).

The Army Alpha emphasized verbal abilities and was based on the previous work of Arthur Otis, Henry Herbert Goddard and Leon Lewis Thurstone, pioneers in the young field of intelligence testing and the quantification of cognitive skills. For those developing the test, "...the critical points were abilities to understand language to perform reasoning with semantic and quantitative relationships, to make 'practical judgments,' to infer rules and regularities from data, and to recall general information" ([1], p. 36). The test took 25 min to administer (via group administration), was made up of eight subtests, and produced a ▶mental age score.

A trial was conducted with the test on 80,000 men. The army was happy with the trial and agreed to test all new recruits beginning in 1918. The tests were administered at a rate of 200,000 per month, and over 1,750,000 had been administered by the end of the war in November of 1918 [2].

Data and Findings

After the war, the data from the Army Alpha and Beta were analyzed, with surprising results. It appeared that the average recruit had a mental age of around 13 – a mild level of retardation. Also, data showed it was possible to grade European immigrants by their country of origin, and the average score of Black men was 10.4, which was considerably below the White average. The reason for this had to do mainly with the level of education of the recruits rather than low native intelligence, but Yerkes and others concluded incorrectly that the intelligence deficit was real, sounding alarm bells about the "menace of the feeble-minded" and the idea that the average scores from the different national groups reflected innate racial differences [3].

At least partly based on Yerkes' findings, the United States Congress passed the Immigration Restriction Act (1924), which set immigration quotas based on the US population in 1890 (immigration from Southern and Eastern Europe had been relatively low before this date).

Criticisms and Confounds

Gould [4] presented criticisms and confounds associated with the use of the Army Alpha and Army Beta, in particular the cultural bias in the tests. There were also a number of problems in the administration of the tests. In particular, many who were unable to read English were still given the Alpha test and obtained a score of zero or close to zero, and those who failed the Alpha test were often not given an opportunity to take the Beta test, on which they may have performed at a higher level. Test conditions were also an issue. For example, the time allowed was insufficient and anxiety surrounded the whole procedure. Gould writes that with such confounds, the data should be looked at with considerable doubt.

Lasting Influence

Despite the confounds involved in the administration of and resulting data from the group of tests developed by Yerkes and his colleagues for use during World War I, their use marked two important shifts in intelligence testing that helped shape the field. It expanded the idea of intelligence testing to include group, rather than only individual, administration. Also, scores were now being used for positive as well as negative selection. Instead of scores indicating what an individual could not accomplish, scores were being used to predict what one might accomplish.

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Army Beta Examination

▶Army Beta Intelligence Test

Army Beta Intelligence Test

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Synonyms

Army beta examination; U.S. army beta intelligence test

Definition

The Army Beta [4] was a non-verbal intelligence test developed shortly after the United States entered World War I by an ►American Psychological Association (APA) Committee on the Psychological Examination of Recruits , led by Robert Yerkes. It was given to non-English speaking and/or illiterate Army recruits in order to assess for low intelligence and allow for the recognition of those who were candidates for special assignments and officer-training schools.

Description

Development of the Army Beta

Once the United States decided to enter World War I, Robert Yerkes, the President of the APA at the time, was anxious to show the value of the field of psychology and the unique contribution it could make to the war effort. He first approached the United States Navy but was turned down; however, the United States Army was agreeable to have APA assist the war effort. They responded by setting up twelve committees, one of which, the Committee on the Psychological Examination of Recruits, was chaired by Yerkes. This committee was tasked with developing a quick-to-administer intelligence test to be used when deciding what sort of advanced training a recruit would receive. Yerkes, Lewis Terman, David Wechsler and other committee members collaborated to develop three such tests, one of which was the Army Beta.

The Army Beta emphasized non-verbal abilities, and required recruits to complete mazes, complete pictures with missing elements, recognize patterns in a series, and solve puzzles. The Army Beta was group administered, strictly timed. and was given to those who either performed badly on the verbally-oriented ►Army Alpha Intelligence Test or those who were non-English speaking or illiterate. Also, in determining who should take the Beta test, decisions were made frequently in terms of the number of years of education reported. Generally, those with fewer than 4, 5, or 6 years of education were sent to Beta testing [2].

Like the Army Alpha, test development was based on the previous work of Arthur Otis, Henry Herbert Goddard and Leon Lewis Thurstone, pioneers in the young field of intelligence testing and the quantification of cognitive skills. The test took 25 min to administer (via group administration), was made up of seven subtests, and produced a mental age score. Due to the fact that examinees were thought to be non-English speaking, instructions were given in pantomime by the examiner and his aides.

A trial was conducted with the test on 80,000 men. The army was happy with the trial and agreed to test all new recruits beginning in 1918. The tests were administered at a rate of 200,000 per month, and over 1,750,000 had been administered by the end of the war in November of 1918 [1].

Data and Findings

After the war, the data from the Army Beta (as well as the Army Alpha) were analyzed, with surprising results. It appeared that the average recruit had a mental age of around 13 – a mild level of retardation. Also, data showed it was possible to grade European immigrants by their country of origin, and the average score of Black men was 10.4, which was considerably below the White average. The reason for this had to do mainly with the level of education of the recruits rather than low native intelligence, but Yerkes and others concluded incorrectly that the intelligence deficit was real, sounding alarm bells about the "menace of the feeble-minded" and the idea that the average scores from the different national groups reflected innate racial differences.

At least partly based on Yerkes' findings, the United States Congress passed the Immigration Restriction Act (1924), which set immigration quotas based on the US population in 1890 (immigration from Southern and Eastern Europe had been relatively low before this date).

Criticisms and Confounds

Gould [3] presented criticisms and confounds associated with the use of the Army Beta (and the Army Alpha), in particular the cultural bias in the tests. Gould noticed that even though the Beta was non-verbal, there still were items that were heavily culturally loaded. Also, administration issues were present that could have biased the results cited by Yerkes and his colleagues. For example, recruits who performed poorly on the Army Alpha were often not given the Army Beta, preventing a true measure of their cognitive skills. Finally, Gould writes that test conditions, such as too little time to take the test and test-related anxiety that accumulated amongst recruits, likely had a negative effect on performance. Due to the presence of issues with bias, administration, and testing conditions, Gould points

out that the findings generated from Army testing during World War I should be viewed with extreme skepticism.

Lasting Influence

Despite the confounds involved in the administration of and resulting data from the group of tests (including the Army Beta) developed by Yerkes and his colleagues for use during World War I, their use marked two important shifts in intelligence testing that helped shape the field. It expanded the idea of intelligence testing to include group, rather than only individual, administration. Also, scores were now being used for positive as well as negative selection. Instead of scores indicating what an individual could not accomplish, scores were being used to predict what one might accomplish.

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Art as Therapy

►Art Therapy

Art Psychotherapy

►Art Therapy

Art Therapy

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Synonyms

Art as therapy; Art psychotherapy; Clinical art therapy; Expressive therapy; Inner landscapes; Play-group therapy; Psychoaesthetics

Definition

Art therapy is a mental health intervention that uses art and the creative process as a central modality. The goal of art therapy, as with any form of therapeutic intervention, is to improve the lives of individuals. Art therapy can be a creative endeavor for expression of feelings, healing painful experiences and a form of retreat.

Description

The therapeutic benefit of making art has been recognized for hundreds of years; however, it has only been in the past century that art therapy has developed into a profession capable of helping individuals to develop insight, solve problems, and resolve conflicts [8]. In art therapy, the focus is on the individual's inner experience, that is, their feelings and perceptions. The art that is created is based on these feelings rather than on something the individual sees. There are many therapeutic orientations in the field of art therapy but most can be categorized in one of two ways [6]. In the first category, the emphasis of the art therapy is on the healing to be found in the process of creating art. This is sometimes referred to as "art as therapy" [6]. The act of making art is viewed as an opportunity for self-expression that can lead to a healthier, happier life. The process of making art is fulfilling and transforming. In the second category, the product that is created within the art therapy session is viewed as a means of communicating symbolically. The drawing, painting, or other artwork is used to communicate the individual's emotions or conflicts. This approach to art therapy is frequently called "art psychotherapy." Psychotherapy is especially important in this approach and the artwork is used to open a verbal exchange between the art therapist and the client. In their discussions of the art, clients develop insights and are able to work through their problems with a better understanding of their own feelings and behaviors [6].

Art therapy integrates a number of fields, including the study of human development, training in the visual arts (i.e., drawing, painting, etc.), and training in counseling and psychotherapy. Art therapists are trained to the level of Master's degree in art therapy or a related field such as counseling. Courses in ethical standards of practice; assessment and evaluation; individual, group, and family counseling techniques; multicultural issues; and research methods are required for practice as an art therapist [1]. Before they begin practice, art therapists spend hundreds of hours completing practicum or internship experiences in clinical, community, or other settings.

Art therapy is used with children, adolescents, and families for a number of mental health or developmental

issues, including depression, anxiety, autism, sexual abuse, posttraumatic stress disorder, substance abuse, and domestic violence [2, 7–9]. Art therapists work in schools, hospitals, community clinics, public and community agencies, and in private practice. They are frequently among the first responders in natural disasters such as the tsunami that hit Sri Lanka and Hurricane Katrina, and to manmade disasters such as the terroristic attack on New York City on September 11, 2001 [3, 5]. In a review of research on art therapy with children, Eaton et al. [4] found art therapy to be very effective in the treatment of children who had experienced trauma. Art therapy provides children a safe outlet for expressing their thoughts, emotions, grief, and/or pain.

Relevance to Childhood Development

Children learn by doing and art therapy helps with fine motor coordination. When children draw or paint it helps in their developmental processes. This correlates with play therapy to understand symbols to help with speech and mirroring. Children need to continue with artistic practice to help the child how to understand how things are made. Clay can help children to see three dimensionally and to help with the development of the brain. Creativity walks hand and hand with art therapy. It is the process not the produce that enhances a child's growth and feelings of well-being. Working on group projects teaches children to be a part of society and to work with others. Children with autism can benefit from the approach and treatment of art therapy.

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Articulation Disorder

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Synonyms

Phonological disorders

Definition

Articulation disorders are difficulties with the way sounds are formed and strung together, usually characterized by substituting one sound for another (wabbit for rabbit), omitting a sound (han for hand), or distorting a sound (ship for sip).

Description

The main characteristic of the disorder is: Omissions - Sounds in words and sentences may be completely omitted. (i.e.) "I go o coo o the bu." for "I go to school on the bus." Substitutions – Children do not pronounce the sounds clearly or they replace one sound for another. (i.e.) Substitutes [w] for [l] or [r], or other similar errors Distortions – An attempt is made at the correct sound but it results in a poor production. (i.e.) a distorted/s/sound may whistle, or the tongue may be thrusting between the teeth causing a frontal lisp. Additions – Extra sounds or syllables are added to the word. (i.e.) animamal.

The most common error sounds are [s] [l] and [r]. The speech is primarily unintelligible and difficult to understand. Articulation patterns that can be attributed to cultural or ethnic background are not disabilities. Developmental delay, is the cause of most articulation disorders. This can be the direct result- of hearing problems. The child cannot hear the fine differences between sounds, so speech perception is inhibited. Articulation disorders are also associated with overall delayed language development. *Differential Diagnosis*: Some disorders have similar symptoms. The clinician, therefore, in his diagnostic attempt, has to differentiate against the following

disorders, which need to be ruled out to establish a precise diagnosis. An articulation problem sometimes sounds like baby talk because many very young children do mispronounce sounds, syllables, and words. *Cause*: In many cases, there is not a clearly identifiable, structural or physiological reason for the problem.

Articulation problems may result from brain damage or neurological dysfunction, physical handicaps, such as cerebral palsy, cleft palate or hearing loss. Or the condition may be related to lack of coordination of the movements of the mouth, even dental problems. However, most articulation problems occur in the absence of any obvious physical disability. The cause of these so-called functional articulation problems may be faulty learning of speech sounds. *Treatment*: A speech evaluation should be performed by a speech-language pathologist. If there is a problem with articulation that is not developmental in nature, speech therapy is recommended. Parent involvement is necessary for the best progress and prognosis. The length of therapy can vary from 3 months to a number of years, depending on the cause, the severity, the child's motivation, and parental support. http://www.psychneuk.com/dsm_iv/speech_articulation_disorder.htm

Articulation Voice, or Fluency Therapy

►Speech Therapy

Articulatory Loop

►Phonological Loop

Asperger's Disorder

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Synonyms

Asperger's syndrome

Definition

Asperger's Disorder is a pervasive developmental disorder characterized by impairments in social interactions; communication; play and imagination; and the development of repetitive patterns of restricted, repetitive patterns of behavior, interests, and activities [1]. It is considered one of the higher functioning Autism Spectrum Disorders.

Description

Asperger's Disorder was named after Hans Asperger, an Austrian physician, who published case descriptions of individuals displaying autistic psychopathy in 1944. The individuals described by Asperger were not as socially withdrawn as individuals with autism but their social deficits were severe with social interactions that were one-sided and lacking reciprocity [2]. Characteristics of Asperger's Disorder vary among individuals and range from severe to mild impairment. Common characteristics include impaired social interaction, behavior that is limited and repetitive, and restricted interests and activities [1]. Unlike individuals with autism, individuals with Asperger's Disorder do not have clinically significant cognitive delays or delays in language acquisition prior to the age of two.

Social Challenges

Social deficits are the most striking feature of Asperger's Disorder. Four qualitative impairments in social interactions have been reported and individuals with Asperger's Disorder may have one or more of them. First, there is impairment in the individual's use of nonverbal behaviors such as eye contact, facial expressions, body postures, and gestures to regulate social interaction. Second, there is a failure to develop peer relationships appropriate to developmental level. Many children with Asperger's Disorder seek out and feel more comfortable in the company of adults or younger peers. Third, individuals with Asperger's Disorder do not seek out opportunities to share with others. Fourth, their relationships lack reciprocity or mutual exchange [1]. Social challenges associated with Asperger's Disorder include a lack of understanding of social cues and subtleties, literal interpretation of others' words, difficulty engaging in reciprocal conversation, a tendency to speak bluntly without regard for the impact of their words on others, and focus on a single topic of interest that may not be of interest to others [7].

Although preschool-aged children with Asperger's Disorder can be difficult to diagnose because there is not the language delay associated with other autism spectrum disorders, they tend to be slower to warm up to others than their typically developing peers and they form relationships with adults but have difficulty interacting appropriately with same-age peers [3]. Social deficits continue across childhood. In elementary school, children

with Asperger's Disorder tend to be quiet and unassuming or to have behaviors that violate social boundaries in their enthusiasm. They need to be taught the social skills that other children pick up naturally from the environment and, even when these skills are taught, children with Asperger's Disorder have difficulty generalizing the skills to other social situations [3]. Middle school aged children with Asperger's Disorder are often described as silly, rude, or very inappropriate. They stand out among their peer group due to their inability to read the social cues of their peers, awkward body posture, awkward use of gestures, annoying habits (such as making noises), highly variable eye contact, and excessive talking about one topic of interest [3]. Most prefer solitary activities and spending time alone. In high school, social interactions continue to be the greatest challenge and, despite some improvement, can result in frustration, anxiety, and depression.

Restricted Patterns of Behavior, Interests, and Activities

Four types of impairments in restricted, repetitive and stereotyped patterns of behaviors, interests, and activities have been noted in children with Asperger's Disorder. The first is an all-consuming interest or focus on a particular topic. They may spend an inordinate amount of time collecting factual information about their topic of interest. Frequently noted topics include dinosaurs, video games, electronic devices, and historical events or figures. Second, individuals with Asperger's Disorder engage in specific, nonfunctional routines or rituals that can be time-consuming and frustrating to those around them. When the routine is disrupted, individuals with Asperger's Disorder can become anxious and engage in inappropriate behaviors. A third type of restricted behavior (seen more frequently in younger children) is stereotyped and repetitive motor movements such as hand or finger flapping or twisting. This appears to decrease with maturity but may be evident in adolescents when they are anxious or stressed. Finally, there may also be persistent preoccupation with parts of objects such as the wheels on a toy vehicle. Children with Asperger's Disorder may engage in each of these types of repetitive behaviors. Repetitive object use, motor movements, and rigid routines appear to be worse in the early years while circumscribed interests worsen with time [6].

Social Communication

Asperger's Disorder is not associated with a language acquisition delay; however, several communication differences have been reported, including poor prosody or speech rhythm, tangential and circumstantial speech, and verbosity [5]. Individuals with Asperger's Disorder tend to engage in long monologues about their topic of interest, not wanting to change the subject, and not noticing when others stop listening. Other communication challenges for individuals with Asperger's Disorder can include difficulty understanding social nuances such as sarcasm or metaphor, echolalia (repeating last words heard without regard for meaning), abnormal inflection and eye contact, inappropriate facial expressions or gestures, and difficulty interpreting others' nonverbal communication cues [7].

Cognitive Development

Asperger's Disorder is not associated with a significant delay in cognitive or adaptive skills [1]. Children with Asperger's Disorder generally have average or above average intelligence and their vocabularies and word identification skills typically exceed their age and grade level. Despite intact cognitive skills, many individuals with Asperger's Disorder have learning difficulties [4]. Some of the difficulties reported include a lack of awareness of time, deficits in expressive and receptive language skills, and difficulty understanding irony and humor in speech. Individuals with Asperger's Disorder tend to be visual learners rather than auditory learners. They have difficulty with abstract thinking and associated problems with comprehension in reading. In addition, students with Asperger's Disorder are not aware of their effect on others during cooperative learning times [4]. Wagner [7] also reported poor problem-solving and organizational skills, concrete literal thinking, difficulty differentiating relevant and irrelevant information, obsessive and narrowly defined interests, and difficulty generalizing and applying learned knowledge and skills across different situations, settings, and people.

Motor Difficulties and Sensory Issues

Although not a diagnostic criteria, sensory issues and motor difficulties are frequently found among some individuals with Asperger's Disorder. Issues include hypersensitivity or hyposensitivity to certain noises, smells, or textures; high threshold for physical pain; difficulties with visual tracking; difficulty with fine motor skills, such as handwriting; and awkward gait and other gross motor movements [3–5].

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Asperger's Syndrome

►Asperger's Disorder

Asphyxia

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Synonyms

Strangulation; Suffocation

Definition

In Greek, asphyxia means without ("a") pulse/heartbeat ("sphygmos"). Asphyxia is a condition of impaired blood gas exchange [2]. When severe, asphyxia can progress to hypoxia (decreased oxygen supply), hypoxemia (deficiency in oxygen concentration in the arterial blood), and hypercapnia (excess carbon dioxide in blood).

Description

Asphyxia can occur from suffocation, strangulation, or ingestion/inhalation of chemicals (e.g., carbon monoxide) [10]. Various types of asphyxia have been delineated: birth asphyxia/perinatal asphyxia, mechanical asphyxia, traumatic asphyxia, compression asphyxia, positional asphyxia, and restraint asphyxia [10]. Traumatic or compression asphyxia is a form of mechanical asphyxia. Birth asphyxia/perinatal asphyxia has garnered the most attention in the pediatric literature, due to its prevalence and the long-lasting sequelae that persist through the school years.

Birth Asphyxia/Perinatal Asphyxia (PA)

Birth asphyxia is a medical condition in which a neonate takes in an inadequate amount of oxygen before, during, or just after birth [2]. Also referred to as perinatal asphyxia (PA), birth asphyxia results from oxygen deprivation (hypoxia), hypoxemia, hypercapnia, and excess acid in the blood (acidosis). Prevalence rates indicate PA occurs in approximately 1–6 per 1,000 live full-term births [7, 14, 17]. Various clinical features of newborns with PA have been observed: fits, atypical movements, and muscle tone alterations, which sometimes result in consistently low Apgar scores in the minutes following birth and oftentimes progress to a diagnosis of neonatal encephalopathy [6]. Specific indicators associated with PA include: labor complications (e.g., ruptured uterus), fetal distress (decelerations in heart rate), signs of disrupted energy metabolism (e.g., acidosis or atypical lactate and phosphorous metabolite levels), and abnormal brain activity monitored by electroencephalogram (EEG) [6]. Additional markers have been outlined: (a) pre-delivery: abnormal fetal heart rate and low pH level in blood sample from the fetal scalp; and (b) at birth: bradycardia/bradyarrhythmia, poor skin color, weak muscle tone and reflexes, feeble cry, gasping or labored breathing, and meconium-stained amniotic fluid. According to guidelines established by the American Academy of Pediatrics (AAP) and the American College of Obstetricians, a diagnosis of PA is made when the following criteria are met: (a) severe acid levels (pH less than 7) in the umbilical cord's arterial blood; (b) continual Apgar score of 0–3 for longer than 5 min; (c) neurological complications as evidenced by seizures, coma, poor muscle tone, and (d) problems with the circulatory, blood, digestive, respiratory, or kidney systems [4]. Specific features pre-, during, and post-delivery have been associated with severe PA: umbilical cord compression, placenta rupture, abnormal uterine contractions, or failure to commence breathing.

PA and the associated lowered oxygen, ischemia, and/or acidosis directly impact body organs. The central nervous system, cardiovascular, gastrointestinal, pulmonary, and renal structures are particularly susceptible. In fact, there appears to be a critical threshold for asphyxia, beyond which brain damage is inevitable. If specific neurological signs associated with hypoxia appear within 7 days following birth, the condition of neonatal

encephalopathy is diagnosed. Neonatal encephalopathy is one of the most severe sequelae of PA.

Results of PA tend to take the form of global brain injury; however, some brain regions appear more susceptible than others [6]. The duration and severity of the asphyxia in addition to the brain's maturity at time of PA determine the pattern of brain damage. Research based on neuroimaging findings reveal that post-PA damage has been found in the basal ganglia, thalamus, and brain stem [6, 12]. Some studies have found specific parasagittal injury infiltrating the grey and white matter. In addition to potentially widespread white matter damage, the hippocampus has garnered attention as a focal lesion following PA.

Due to the complexity of asphyxia, investigators acknowledge the unpredictability and unavoidable nature of PA and urge clinicians to treat promptly in an effort to minimize the deleterious effects of decreased oxygen supply [4]. To treat PA prior to delivery, the mother can be given extra amounts of oxygen. In some cases, emergency delivery via cesarean section and provision of supplemental oxygen for the neonate immediately following delivery is essential. The assistance of a mechanical breathing machine and accompanying medication may also prove beneficial.

Unfortunately, statistics indicate that approximately 15–20% of infants with PA die in the neonatal period [15, 18]. Surviving infants generally fall into two distinct categories: those experiencing significant impairment and those who are essentially impairment-free. Study results indicate that about 25% of infants show major neurological impairments, whereas the remaining 75% are fortunate and experience no significantly harmful sequelae [18].

Mechanical Asphyxia

Mechanical asphyxia occurs when external pressure is applied to the chest, preventing respiration [3, 16, 19]. Traumatic asphyxia, compression asphyxia, and restraint asphyxia are forms of mechanical asphyxia and are reportedly unusual and uncommon in children [8]. When cases of traumatic asphyxia are diagnosed, they have been closely linked with smothering, overlaying (restraining), adult-child bed sharing, and motor vehicle crashes [8, 13]. Other cases of traumatic asphyxia have emerged from compression by heavy machines, furniture, and in rare occurrences, asthma, epilepsy, and deep sea diving [11]. The weight and duration of compression directly affect outcome [13]. Mechanical asphyxia that does not result in death usually leads to congestion of the head and neck and petechiae, or pinpoint hemorrhages, which surface around the eye and on the face. Investigators have postulated that petechia form because of a sudden increase in pressure in small capillaries and venules. The same mechanism is thought to be responsible for visual disturbances which oftentimes follow [1]. Although cases of accidental death have been recorded, the mortality rate from traumatic asphyxia is generally low in children [13]. When other severe injuries including thoracic and head injuries are present, the prognosis is generally guarded. However, in general the prognosis for traumatic asphyxia is good and no long-term disability, with the exception of visual difficulties, persists [1, 13]. Ophthalmological examination is key in children who have experienced traumatic asphyxia.

Positional Asphyxia

Positional Asphyxia is a condition arising due to the adoption of a particular body position that mechanically interferes with pulmonary ventilation. It is usually an accidental occurrence, and when death results, the body is usually found in a position that interferes with normal breathing [9]. Positional asphyxia occurs when the body's position restricts adequate breathing [10]. Most types of mechanical, compression, restraint, or traumatic asphyxia are related to positional asphyxia which obstructs the airway and leads to inadequate oxygen intake.

Relevance to Childhood Development

Literature has focused primarily on perinatal asphyxia and the long-term sequelae. With regard to mechanical asphyxia (traumatic, compression, and restraint asphyxia) and positional asphyxia, the experienced hypoxia and petechia frequently contribute to long-standing vision impairments and potential neuropsychological deficits similar to those resulting from PA. Hence, this section focuses on the relevance of PA to childhood development.

Perinatal asphyxia (PA) has been linked to both immediate (as noted above in terms of clinical features) and delayed onset symptoms. Correlations between PA and subsequent cognitive, motor, and behavioral impairments have been delineated. Neuropsychological deficits following PA have been found in attention, perceptual-motor skills, executive functioning, and memory [12]. Nevertheless, debate ensues regarding the nature and range of outcome severity. General consensus in the field states that poorer outcomes emerge for infants who experienced more severe asphyxia than those with milder forms. Severe PA has been found to cause poor cognitive and motor development and to precipitate neurological impairment such as ▶cerebral palsy, epilepsy or intellectual delay. Of note, many early studies document a direct connection between PA and cerebral palsy (CP); however, more recent

rigorous research has found that fewer than 10% of CP cases are due to PA. Hence, clinicians are cautioned about making direct correlations between CP and PA.

Long-term longitudinal evaluation of children with PA has shown that a significant percentage of survivors without specifically diagnosed neurologic sequelae are likely to exhibit school-related dysfunction [15]. This is true mostly because, at an early age, minor cognitive difficulties may remain undetected; however, when school subject matter increases in difficulty and greater cognitive demands are imposed on the child, he/she struggles and cognitive deficits emerge. Overall, research indicates that children with mild encephalopathy go unnoticed at school; whereas, greater than 40% of children without identified neurologic impairment but with a previous diagnosis of moderate to severe neonatal encephalopathy are identified as at-risk or already experiencing school difficulties.

Two different outcomes of PA have garnered substantial attention: memory impairment and schizophrenia [5, 6, 12]. Associated with bilateral hippocampal abnormalities, memory impairments can arise and present significant difficulty for the pre-school and school-age child. A study of adolescents indicated that those who had experienced moderate to severe PA exhibited significantly worse performance on tests of delayed recall for both verbal and visual information, perceptual-motor speed, and attention and executive functioning [5, 6, 12]. The associated hippocampal injury sheds further light on the memory deficits emerging in children with a history of moderate to severe PA. A mild form of developmental amnesia also has been found to occur as a consequence emerging a long time after the initial moderate to severe PA.

With regard to schizophrenia, some research has linked early onset schizophrenia (between 7 and 13 years of age) with obstetric complications including maternal infection, pre-eclampsia, and hypoxia at birth [5, 6, 12]. It appears that the hippocampus may actually act as a mediator in schizophrenia in that PA can lead to hippocampal abnormalities, and patients with schizophrenia show reduced hippocampal volume. Another hypothesis has surfaced noting the interaction of PA with schizophrenia susceptibility genes in the emergence of schizophrenia. Of note, although there appears to be a significant association between PA and an increased risk for schizophrenia, more than 90% of individuals who experienced PA do not develop schizophrenia.

Memory impairment and schizophrenia are being studied more closely as potentially common outcomes following PA. It is important to note that such sequelae will generally not emerge until later in childhood, usually during the school years. Further study is required to identify factors contributing to the emergence of such impairments and to elucidate the potential precursors of such problems optimally to prevent further exacerbation, specifically in terms of school-related problems.

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Assault

►Aggression
►Physical Aggression

Assessment

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Synonyms

Evaluation; Testing

Definition

A psychological assessment is a formal clinical evaluation of an individual that typically involves the administration of standardized psychological tests.

Description

Assessment refers to the process and outcome of the process that yields information about an individual, based on the individual's history, current performance and expected future performance [2]. While an assessment may involve the use of specific tests, assessment is more than psychological testing. The use of specific standardized tests is just one component of a psychological assessment, which is a multi method approach to synthesizing information about or evaluating a child. A psychological assessment is a formal process of clinically evaluating a child.

Psychological assessments are typically conducted when there is a question about a child's behavior or performance, and information is needed in order to determine the nature of the problem, diagnostic information and/or treatment and program recommendations [2]. So, an assessment may be carried out to screen a group of children for a possible characteristic such as academic giftedness, to diagnose a particular child with a possible disorder such as conduct disorder or to evaluate the progress of treatment.

A typical assessment includes four parts [1]. First, the problem must be identified. Defining the problem is part of the referral process and usually takes place in the context of an interview. Next information must be gathered about the problem. Psychological tests are most commonly administered in this phase. Third, the information must be synthesized. This means that all the gathered information is interpreted in a meaningful way that takes into account the individual and the context surrounding the individual. Finally, recommendations for dealing with the problem such as treatment or coping strategies must be proposed.

A typical school based referral for a psychological assessment includes the administration of a number of standardized tests. Standardized tests allow the child to be compared to broad based normative populations to evaluate the child in comparison to a group of peers [3]. These tests likely include measures of intellectual ability and academic achievement. Further testing will depend on the nature of the suspected difficulty so a child referred for a possible learning disability will also receive tests of memory, attention, phonological processing and reading, etc., while a child referred for a possible developmental delay will also receive tests of adaptive behavior. In both cases there may also be additional testing of social skills, personality and behavior. The results of the testing are evaluated by the psychologist, along with previous test results, past history, school report cards, parent and teacher checklists and/or interviews and direct observation yielding the final assessment which may come in the form of a diagnosis of a disorder and suggestions for treatment and program planning.

A school based assessment may be known as a psychoeducational assessment [1, 2]. A neuropsychological assessment typically involves the administration of tests designed to elucidate brain functioning [1, 2]. A forensic assessment involves legal issues [1, 2].

Assessments may be carried out by various qualified personnel, for example, a psychologist may assess a child for a learning disability or a physician may assess a child for medication for an attention disorder. Assessments may take place in diverse settings such as clinics, hospitals, psychologist offices, or schools and for purposes other than psychological ones.

In educational settings, assessments are sometimes categorized as summative or formative [1]. Summative assessments are conducted at the conclusion of a course and may be used to evaluate the instructor or the student's learning. Formative assessment takes place during the course and can be used by the instructor to improve teaching and to determine next steps to be taught.

School based, educational assessments may also be categorized as authentic, performance or dynamic [1].

Authentic assessment typically occurs in a real-life setting. So, for example, a child may be asked to read from a book assigned in class. Performance assessment is used to measure how well a student performs in class; it uses performance rather than tests, so an essay or presentation might be evaluated. This is the typical assessment performed by a school teacher. One kind of performance assessment is known as portfolio assessment. A "portfolio" of assignments in reading or writing or mathematics is used to evaluate student progress over time. Dynamic assessment attempts to measure a student's learning potential. Pre and post measures are taken of performance on a task to evaluate how readily the student acquired the taught skill.

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Assessment for Learning

►Formative Assessment

Assessment Observations

►Behavioral Observation

Assessment of Major Maternal and Fetal Risk Factors

►Prenatal Screening

Assimilation

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Synonyms

Acculturation

Jean Piaget discusses assimilation as the method by which information is included in existing schemas [1]. If you learned how to drive a car in the United States, you have a schema for driving on the right side of the street. If you live in the U.S., most of your experiences driving will fit into this schema (unless you encounter construction), thus you will assimilate the information. However, if you drive in Australia or Great Britain, you will have to adjust your schema to accommodate new information; namely driving on the opposite side of the street. For some people, accommodating this information takes a great deal of effort. Piaget explains that assimilating information takes much less mental energy, which explains why young children, and a lot of adults, prefer routine. Young children have not developed the repertoire of schemas that most adults have. Thus, they prefer to encounter things in their environment that fit into their existing schemas. If you have been around young children, you will notice that they prefer to have the same stories read to them, again and again. They do better when there is routine in their environment and they know what to expect.

Another example of assimilation involves the terrorist attacks of September 11. The initial reaction of many people watching the coverage of the September 11 attacks on the World Trade Center believed they were watching a movie. The schema that people had for that type of visual (i.e., planes crashing into a building) was "movie" because that is where they had seen that type of event before. Some individuals had to watch the news coverage numerous times before their brains were able to change their schemas to accommodate the new information of a terrorist attack. Now, in the United States, when there is an incident, such as a plane hitting a building, many people assimilate the information; initially categorizing the event as an act of terrorism (since that is the schema they now have).

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Assisted Suicide

►Active Euthanasia

Associated Factors

►Risk Factors

Association

►Comorbidity

Association for Retarded Citizens (ARC)

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Description

The Arc is the world's largest community based organization of and for people with intellectual and developmental disabilities. It provides an array of services and support for families and individuals and includes over 140,000 members affiliated through more than 850 state and local chapters across the nation. The Arc is devoted to promoting and improving supports and services for all people with intellectual and developmental disabilities.

The Arc's vision is that every individual and family affected by intellectual disability in the United States has access to the information, advocacy, and skills they need to participate as active citizens of our democracy and active members of their community. We work to ensure that people with intellectual and developmental disabilities and their families have the supports they need to live an ordinary, decent American life:

- People with intellectual and developmental disabilities and their families are valued, respected and included in all communities.
- People with intellectual and developmental disabilities direct their own lives. People choose their services and supports from many available sources.
- People are empowered through nonprofit advocacy. State and federal governments administer programs and set budgets that meet everyone's needs.

Mission Statement

The Arc of the United States advocates for the rights and full participation of all children and adults with intellectual and developmental disabilities. Together with our network of members and affiliated chapters, we improve systems of supports and services; connect families; inspire communities and influence public policy.

References

1. http://www.thearc.org/

Assumption of Normality

►Homoscedasticity

Asthma

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Synonyms

Bronchial asthma

Definition

Asthma is a chronic inflammatory disorder of the airways, in which individuals experience recurrent episodes of wheezing, breathlessness, chest tightness, and cough.

Description

Asthma is a long term disease that cannot be cured. Symptoms of asthma include coughing, wheezing, chest tightness, and shortness of breath. Coughing is often worse at night or early in the morning, making it harder to sleep. Wheezing is a whistling or squeaky sound that occurs while breathing. Chest tightness has been reported to feel like something is squeezing or sitting on the chest. Lastly, it is often conveyed that asthma makes individuals feel out of breath or feel like it is harder to catch their breath. Not all people with asthma will have all of these symptoms. The physiological reasons for asthma symptoms include the inflammation of airways. Airways are tubes that carry air in and out of lungs. During an inflammation, the tubes swell, the muscles constrict, the lungs become very sensitive, and mucus production increases. The combination of these reactions can make breathing difficult. Sometimes asthma is classified into categories based on severity of symptoms, usually referred to mild, moderate, or severe. Even though the exact causes of asthma are not known, researchers have linked certain factors that can contribute to its development. These factors include an inherited tendency to develop allergies, parents who have asthma, certain respiratory infections during childhood, and contact with some airborne allergens or exposure to some

viral infections in infancy and early childhood when the immune system is developing [3].

Asthma symptoms can be controlled with appropriate treatment. Action plans are strategic lists that include critical guidelines for asthma management and have been associated with improved asthma outcomes [2] and viewed positively by patients with asthma [3]. Doctors recommend controlling the disease by using action plans to reduce troublesome symptoms. Action plans suggest that individuals with asthma take their medicine; either long-term control medication or quick-relief medication. The first type of medication helps to reduced airway inflammation and prevents asthma symptoms; the latter relieves symptoms that may flare up. Due to the different outcomes of the medications, they should not be used in place of each other. Action plans also suggest that individuals avoid environmental contexts that may worsen their asthma. Taxing factors that affect asthma can vary by individual. The most common factors include exposure to pollen or air pollution, animal fur, and health conditions like runny nose or sinus infections. Lastly, the treatment for asthma varies by population. For instance, it is challenging to diagnose children under the age of 5 with asthma, therefore the benefits for long-term control medications are not known for this population. Also, pregnant women with asthma may be at risk for having low birth weight babies [3]. Overall, action plans are used in many nations to control asthma episodes and attacks. To date, action plans for the self management of asthma are the standard for treatment [1].

Relevance to Childhood Development

As mentioned previously, contact with airborne allergens or exposure to viral infections early in infancy or childhood when the immune system is developing can result in asthma. Referred to as the "hygiene hypothesis" some have proposed that many young children no longer experience the same types of environmental exposures and infections as children did in the past. Consequently, the immune system developed by children today is different and may be more prone to develop asthma.

Most children who have asthma develop their first symptoms before 5 years of age. However, asthma in young children (aged 0–5 years) can be hard to diagnose. Sometimes it can be difficult to tell whether a child has asthma or another childhood condition because the symptoms of both conditions can be similar.

Also, many young children who have wheezing episodes when they get colds or respiratory infections do not go on to have asthma. These symptoms may be due to the fact that infants have smaller airways that can narrow even further when they get a cold or respiratory infection. The airways grow as a child grows older, so wheezing no longer occurs when the child gets a cold [3].

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At Risk

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Synonyms

Exposed; In danger: in jeopardy, threatened, susceptible

Definition

The term at risk is used by educators, social service personnel, and others when referring to students who have a high probability of experiencing failure in school.

Description

Has been used to address potential failure, by definition may include students who perform poorly in school subjects. In general terms, there is a suggested notion that the child or adolescent is at risk of failing and will eventually drop out of school. It is also used to point out a set of factors in a family environment and in the individual's attitudes and activities that are associated with (school or other risk environment) failure.

Risk Factors

Research shows that students' economic status is associated with the likelihood of success in school. Whether

measured directly by parents' income or by characteristics such as parents' occupations or the number of wage earners, students from low-income families are less likely to obtain high grades and test scores, less likely to graduate with their entering class, and more likely to experience behavior problems than are students from higher-income families [1].

Behavioral risk factors are behaviors and attitudes closely related to learning. Some examples of behavioral risk are poor attendance, lack of attentiveness in class, failure to complete coursework, poor relationships with teachers, feelings of alienation at school, and developing the outlook that schooling is not important to future successes.

Academic risk factors are deficient outcomes during a school career that can interfere with the chances of success in later grades of schooling. These might include accruing a history of poor grades, low test scores, standardized test scores, and/or failure of one or more grade levels.

Multiple or cumulative risk factors can greatly increase the likelihood for a child to drop out of school.

Effective Strategies for At Risk Students

Students who are at risk of school failure tend to see their teachers as having low interest in them as people. It is imperative that a student with other attendant risk factors for failure has at least one teacher or counselor who they feel cares about them as a person. Although some critics of the at risk label cite isolation as a problem, a successful program has been shown to utilize low student-teacher ratios and separation of the at risk students from the rest of the student body. Programs that focus on basic academic and survival skills, such as attending to tasks, following directions, raising one's hand to speak, and writing legibly are also known to be successful. At risk students need to be maximally engaged in an educational program that is carefully structured to meet their individual needs, and they must be taught by people who firmly believe that these children can and will succeed [2, 3].

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At Risk Infants

▶Very Low Birth Weight

Ataxic Aphasia

▶Broca's Aphasia

ATC Therapeutic Classification Code N05BA02

▶Chlordiazepoxide

Atomoxetine

▶Strattera (Atomoxetine)

Attachment

▶Bonding
▶Emotional Connection, Parent-Child
▶Relationships

Attachment Behaviors

▶Ainsworth's Procedure

Attachment Classifications

▶Ambivalent Attachment
▶Ainsworth's Procedure

Attachment Disorder

▶Disorganized/Disoriented Attachment

Attachment Measures

►Adult Attachment Interview (AAI)

Attachment Patterns

►Adult Attachment Interview (AAI)
►Ainsworth's Procedure
►Ambivalent Attachment

Attachment Representations

►Adult Attachment Interview (AAI)

Attachment Styles

►Adult Attachment Interview (AAI)
►Ambivalent Attachment

Attachment Theory

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Synonyms

Ainsworth's procedure; Infant–mother attachment studies, of ainsworth

Definition

Attachment is defined as the strong affectional tie that connects people; for infants, the first attachment is usually to the mother, and the mother-child tie often remains one of the strongest attachments.

Description

The most familiar form of attachment is between an infant and his mother. John Bowlby and Mary Ainsworth developed theoretical and empirical approaches to advance the understanding of attachment and the myriad lifelong influences of this earliest bond. In infancy, attachment is manifested by the tendency for a toddler to seek *proximity* to their attachment figure or caregiver when they experience distress. When the infant feels safe, he moves away from caregivers to explore the environment, with the confidence that he may return to the *secure base* of his mother's comfort and protection if he becomes frightened, tired or is in distress.

A*ttachment* denotes the emotional bond to a caregiver. Usually an infant's mother is the primary attachment figure, but anyone who has been consistently responsive to the infant may fulfill this need. Over time, multiple attachments may develop. However, the infant usually shows a hierarchy of preferences, with one highly preferred attachment figure. If the preferred attachment figure is not available, the infant will rely on the next person in the hierarchy as a secure base, and may even turn to a kind stranger in moments of distress.

Attachment behaviors refer to the gestures that the infant engages in to gain contact with the mother or other preferred attachment figure. In keeping with his ethological influences, Bowlby posited that humans, like animals, possess species-specific behaviors that help to keep a parent nearby. This proximity satisfies the human species' innate predilection towards forming interpersonal attachments, and offers protection from cold, hunger, and other distressing experiences. Thus, from birth, infants possess a repertoire of behaviors such as crying, orienting, crawling, cuddling, grasping and clinging that draw the attention of the mother and promote proximity. As the infant matures, the repertoire of attachment behaviors increases, and the nature of the attachment bond becomes more nuanced. (See *Bowlby's Stages of Attachment* herein.)

An infant engages in attachment behaviors when a stimulus or condition *activates* the behavior system. Activators may stem from external or internal stimuli, or a combination of both conditions. For example, when a stranger enters the room (an external activator), an infant may look over to see how his mother appears (the attachment behavior.) If his mother is present and appears calm, the child may resume his play (and thus terminate his attachment behavior). If the mother appears apprehensive, the infant responds to that cue with fussing (another attachment behavior) to draw the mother's attention and gain her protection. Alternatively, a toddler may experience stomach cramps (an internal activator) and cry (the attachment behavior). He may not terminate his attachment behavior until his mother picks him up and offers comfort. In general, the degree of contact that the infant needs to terminate the attachment behavior depends on the intensity of the stimulus that activates

the attachment behaviors, the quality of the attachment bond, and the developmental level of the child.

As the infant matures, the threshold of discomfort required to activate the attachment system is higher. With each exposure to distress and the mother's accompanying response to the infant's bid for contact, the infant internalizes a feeling that he associates with proximity. The next time that a similar distressing situation arises, the infant evokes his internal sense of the comfort and safety that he associates with proximity. If the distress is tolerable, the self-generated feelings will suffice and the attachment behavior system will terminate.

With accrued experiences, an infant develops an *internal working model* of his primary attachment relationship. Thru sucking, clinging, following, smiling, crying, and when older, by going to the caregiver when in physical or emotional distress, the child explores his relationships and builds a model or mental image of how they work. This model is a mental representation of the infant's self, his attachment figure, and the nature of their relationship, and is comprised of feelings, cognitions, expectations, behavioral strategies and constructs for processing and organizing memories. This internal working model reflects the child's relationship history, codifies behaviors that belong in intimate relationships and defines how the child will feel when in similar encounters with other people.

Ainsworth observed dozens of mother-infant dyads during her work in Uganda and later in the United States. Through these observations, she became aware of individual differences in infants' responses to distress, especially the pain engendered by separation from their mothers. She devised the *Strange Situation* (see entry herein) to study the ways in which infants use their mothers to cope with the distress. Ainsworth identified a secure baby as one who protested when his mother left the room, greeted her pleasantly upon her return, and was able to resume play. When situated in the room with the mother close by, the infant would use her as a secure base from which he would explore the toys and other objects in the room. In contrast, an infant with an avoidant attachment rarely cried when the mother departed from the laboratory room, and remained aloof on her return. He generally did not show his need for connection, although physiological studies show that he has a physically measurable stress reaction. Finally, an ambivalent (or resistant) infant is anxious before the mother leaves the room, and may become highly upset when she departs. When the mother returns, the infant engages with her in an ambivalent fashion: he seeks contact while resisting her by squirming away or kicking his mother. He has difficulty using his mother to obtain comfort and return to exploration. Later research revealed the disorganized attachment pattern. An infant who reflects this attachment style displays inconsistent or contradictory attachment strategies. For instance, the infant may happily approach the mother but turn away or shriek when she tries to pick him up. At other times the infant may evince extreme distress yet remain frozen and not seek contact with his mother.

Relevance to Childhood Development

Attachment theory offers a way to understand the nature of a developing child's self-concept and relationship patterns. The infant's experiences in his first attachment relationship with his mother sets him on a particular developmental trajectory. From that relationship, he develops an internal working model of the nature of attachments. The actual path that the developing child pursues in his relationships may be altered by subsequent experience. However, the course is generally established based upon the quality and dynamics of his bids for proximity and his mother's responsiveness and accessibility.

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Attention

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Synonyms

Concentration

Definition

Attention is the cognitive process of selectively focusing on one thing, sensation or idea while ignoring others.

Description

Attention has been defined as a state of awareness wherein the senses are selectively focused on components of the environment [14]. Attention is a process that varies on

a number of dimensions and is therefore considered multidimensional. Attention can be under conscious awareness or it can be unconscious, although traditionally when someone is admonished to pay attention what really is being said is focus consciously. On the other hand, a person who is not paying attention to what is being said but who is still able to repeat the message conveyed is said to be engaging in unconscious attention. For example, in an experiment by Gray and Wedderburn [7] named "Dear Aunt Jane" people were given a set of headphones in which different messages were played in each ear, 9-Aunt-6 in the right ear and Dear-7-Jane in the left ear and were told to listen to the message in the left ear only. The researchers found that although the participants were not listening to the message in the right ear they claimed to have heard "Dear Aunt Jane," showing that although they were not consciously attending to one message they were still able to process the information.

Further, attention can be directed specifically to one task or divided among multiple tasks. Attention is also dependent on the type of task. It is easier to remain focused on more stimulating tasks compared to tasks that are not as interesting. Attention can be classified into different types, including selective attention, sustained attention and executive attention. Although attention can be divided into types of attention, they follow similar patterns of development with shifts around age 6 and 11. Attention develops over the first years of life, reaching its peak around the age of sixteen. Improvements in attention are related to maturation of the frontal lobes of the brain. Attention requires arousal which regulates one's state of alertness, vigilance or the ability to select the appropriate stimuli from a set, persistence or the ability to sustain mental effort, and monitoring which is the ability to oversee or supervise one's efforts.

Selective attention is described as the ability to concentrate on certain environmental stimuli while ignoring others. Selective attention is what permits one to carry on a conversation with someone in a noisy environment, often known as the cocktail party effect. Older children perform much better on tasks of selective attention than younger children do; younger children are as likely to pay as much attention to distractor items as to relevant information.

Different models have been proposed to explain selective attention. Broadbent and Triesman both developed models to explain what occurs during selective attention and their models differ on when the information is selected. According to Broadbent's filter model [5], information is selected before it is analyzed for content. This view is also called a pre-categorical view. This model proposed that both the attended stimulus and the ignored stimulus are taken in by the senses, and then proceed through a filter. The filter only allows the attended message to pass through unchanged and the ignored stimulus is lost. The filter's selection is based on physical characteristics. Ultimately, the attended stimulus is processed further to determine higher-level characteristics, such as meaning, by the detector. The reason this model is called a pre-categorical model is because it filters out information before it is analyzed for meaning.

Treisman's [12, 13] Attenuator Model is an example of the post-categorical view. Unlike the model proposed by Broadbent, in Treisman's model the ignored stimulus is not filtered out but it is simply attenuated. Therefore, both stimuli pass through an attenuator after being taken in by the senses, which allows the attended stimulus through unchanged and attenuates the ignored stimulus. After both stimuli go through the attenuator, which happens in parallel, they are analyzed in terms of physical characteristics, language, and meaning. This model is considered a post-categorical model because the selection of stimuli for the final processing does not occur until after the information has been analyzed for meaning [6, 10].

For many years researchers debated over which of these models best explained selective attention. More recently, a third theory has been proposed. The Load Theory provides two mechanisms for selective attention [8]. The first mechanism is perceptual selection which allows for excluding irrelevant stimuli in situations with a high perceptual load. This mechanism is considered to be passive because stimuli may be ignored because they are not perceived. The second mechanism is an active mechanism that involves rejecting irrelevant information that is perceived. This second mechanism is influenced by higher order cognitive functions including working memory. This model shows that increasing perceptual load decreases distractions, but increasing cognitive load increases the effect of distractors. This theory proposes that both of these mechanisms are needed in selective attention.

Sustained attention is the ability to maintain attention over a period of time [9]. Sustained attention develops throughout childhood and reaches its peak by the age of sixteen although this ability is usually well developed by middle childhood [4]. Throughout development the factors that influence sustained attention differ. In children, sustained attention is best when many stimuli are presented during a set time frame, but when the number of target stimuli, or stimuli the child must remember is low. On the other hand, adults are best able to attend to information when fewer stimuli are presented but more of

the target stimuli are presented. This can be explained in terms of level of arousal. When fewer stimuli are presented this may be underarousing for children and the demand placed on their ability to sustain attention is higher making it more difficult to maintain attention on the task [11].

►Attention deficit/hyperactivity disorder (ADHD) is characterized by patterns of inattention and hyperactivity and difficulties with inhibition [2]. This disorder can be very problematic in academic settings as well as other settings. It affects not only academic success but also social functioning. This disorder presents with patterns of deficits in certain types of attention, but not all types. Research has shown that children with ADHD display deficits in sustained attention compared to normal children, but they do not present with deficits in selective attention. Barkley [3] developed a unified theory to explain ADHD in which he states that the primary deficits in the disorder are associated with behavioral inhibition which in turn affects the individual's ability to maintain attention on a specific task.

Executive attention more commonly known as executive functions refers to attention to one's own behavior so as to regulate it [1]. Executive attention is related to choosing what features of the environment to pay attention to and how to respond based on incoming input but also cognitive functioning based on past experiences and future goals. Executive attention involves the ability to maintain or recover information that is not in conscious awareness. Executive attention is often used synonymously with working memory. This ability begins to develop around the age of three, but children do not become proficient with this ability until the ages of 7–11 years. Executive attention is also associated with other executive functions including planning and self-regulation.

Relevance to Childhood Development

In summary, the various components of attention develop over the childhood years leading to improvements in the way children attend. Improvements in selective, sustained and executive attention are related to maturation of the frontal lobes of the brain. The ability to attend is critical to many components of social and academic success.

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Attention Control

►Attentional Strategies

Attention Deficit Disorder

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Synonyms

Attention deficit hyperactivity disorder, ADHD; Hyperkinetic syndrome; Minimal brain dysfunction

Definition

Attention Deficit Disorder (ADD) is an earlier term for the disorder now known as Attention Deficit Hyperactivity Disorder (ADHD; see entry for Attention Deficit Hyperactivity Disorder for a more thorough treatment of this topic).

Description

The term ADD was introduced into the diagnostic classification system with the third edition of the *Diagnostic and Statistical Manual of Mental Disorders* [1], although the disorder was previously recognized as Minimal Brain Dysfunction, Hyperkinetic Syndrome, Hyperkinetic Reaction of Childhood, and various other names. ADD was characterized by developmentally inappropriate inattention and impulsive behaviors, and the disorder was classified into three subtypes: ADD with Hyperactivity (severe levels of inattention, impulsivity, and hyperactivity), ADD without Hyperactivity (severe levels of inattention and impulsivity without severe hyperactivity), and ADD Residual Type (hyperactivity disappeared in adolescence/adulthood, but difficulties with inattention and impulsivity continued). Thus, the DSM-III attempted to differentiate children with attention problems only from children with attention problems in addition to hyperactivity [3].

In the DSM-III, prevalence of ADD was estimated at 3% during childhood, with the disorder much more likely to occur in boys than in girls. The core features of ADD are similar to those of ADHD, although the system of classifying symptoms into subtypes has changed in order to reflect more recent empirical research findings. Whereas ADD was classified into ADD with Hyperactivity, ADD without Hyperactivity, and ADD Residual Type, the current system classifies ADHD into Predominantly Inattentive Type, Predominantly Hyperactive-Impulsive Type, and Combined Type [2]. Given this revised nomenclature, ADD is now seen as an archaic term, and contemporary diagnosis requires use of the current classification system. Research on ADHD over the last decade has greatly enhanced our understanding of the core symptoms, associated features, patterns of comorbidity, etiology, genetic contributions, assessment process, and intervention approaches [4], although debate over the definition and classification of the disorder will likely continue in response to the results of research efforts.

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Attention Deficit Hyperactivity Disorder (ADHD)

►Attention Deficit Disorder

Attention Span

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Synonyms

Sustained attention; Vigilance

Definition

Attention span refers to an individual's ability to attend to a stimulus or object over a period of time. This ability is also known as sustained attention or vigilance.

Description

Attention includes a number of components, one of which, attention span, is the ability to maintain focus and alertness over a period of time. Sustained attention requires persistence and motivation [2]. Thus, individuals with short attention spans may appear to give up or not put sufficient effort into tasks. Attention span increases with age, and is related to, and plays a role in other aspects of functioning including learning, memory, academic performance, and the understanding and processing of large quantities of information [1, 3].

Research has shown that a child's sustained attention develops in a linear fashion until the age of four, but then undergoes a dramatic increase between the ages of 4 and 6 years [1]. Between the ages of 7 and 8 years there is stability in sustained attention relative to slightly older and younger children. This is also the time period when attention problems, such as ►Attention-Deficit/Hyperactivity Disorder (ADHD) are frequently detected, as one of the diagnostic criteria is that some symptoms must be present before the age of seven. By the ages of 9–11 years, children undergo consistent improvements in sustained attention, but their performance is less efficient when compared to adults. Furthermore, children who are nearly 11 years of age demonstrate marked improvement in performance. Therefore, these findings suggest that sustained attention or attention span develops rapidly

between the age of 4 and 6 years. then stabilizes between ages 7 and 8, improving gradually until the age of 16, when adult like levels are achieved, although increases are smaller in magnitude after the age of 11. These periods of improvement have been linked to development of the frontal lobes of the brain.

There are a number of different factors that affect an individual's sustained attention [4]. The conditions that increase sustained attention or attention span in children are opposite to those that increase sustained attention in adults. Research shows that sustained attention in children decreases when the event rate is low. Event rate is measured by the number of stimulus presentations per minute. Adults, on the other hand, perform better when the event rate is low. This means that a child is likely better able to sustain attention when stimuli are presented frequently or quickly, while adult performance improves when fewer stimuli are presented in the same time interval. One hypothesis developed to help explain these results is that, for children, the presentation of a single stimulus (low event rate) may be under arousing and therefore places a higher demand on the child's sustained attention, which taxes attention span, compared to high event rate situations in which they perform better. Another factor that impacts attention span is the probability of an event occurring. The probability of events is the chance of a specific stimulus being presented in a set period of time. Studies have shown that children do better in tasks with low event probability, whereas adults perform better in high event probability situations. Therefore, children display better attention spans when many stimuli are presented per minute and when the target stimulus is presented infrequently. Adults have better sustained attention when fewer stimuli are presented in a minute but more of the target stimuli are presented [4].

Deficits in attention span are commonly associated with Attention-Deficit/Hyperactivity Disorder [5]. This childhood disorder which can be life-long, affects between 4% and 12% of children [6]. ADHD is characterized by patterns of inattention, hyperactivity, and problems with inhibition that cause impairments in several areas of a child's functioning including academic and social problems [7]. The deficits in attention span mean that the child likely encounters difficulty in many school related tasks, such as when faced with reading long, uninteresting material, listening to lengthy, boring lectures, completing homework assignments or projects, and at home, such as when performing household chores; in short anything that requires effort and which may be perceived as boring [1]. Neuropsychological studies which have examined frontal lobe functioning, believed to be associated with sustained attention, have also found that children with ADHD perform more poorly on measures of sustained attention than do children without attention problems. Other studies have found that children with diagnosed attention disorders perform comparably to their peers on measures of other components of attention, such as selective attention, but that their sustained attention is affected [5]. The literature also suggests that children who rate highly on scales used in the diagnosis of ADHD perform similarly to children who have a formal diagnosis. The literature seems to suggest that children with attention problems may be capable of sustaining attention under conditions of high interest but when presented with less engaging material, may shift attention to other events even when these are considered less important. For example, a child may be able to sustain attention when playing a captivating video game but in the classroom, the child will focus on distractions rather than the lesson being taught [1].

Sustained attention is often measured using the Conners' Continuous Performance Test (CPT) a computerized task that requires participants to push the space bar or click the mouse except when an "X" appears on the screen [1, 4, 5]. Research has shown that performance on the CPT is associated with the attention problems seen in children with ADHD.

Relevance to Childhood Development

In conclusion, attention span is the ability to attend to a stimulus over a period of time and is important in accomplishing other tasks. This ability is dependent on different factors including event rate and probability of events but the influence of these factors is dependent on age. Finally, deficits in attention span have been associated with attention disorders.

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Attentional Strategies

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Synonyms

Attention control; Effortful control

Definition

Attentional strategies are plans or actions devised for information processing with the goal of triggering sensory registers, voluntarily or involuntarily, in order to select the desired input and move it on to short-term memory.

Description

Attentional strategies are used to attend selectively to a limited set of cues. In processing information, attentional strategies refer to the actions needed to move new information from short-term memory (working memory) to a longer-term memory, where it is be analyzed and added to new information. Without attentional strategies, the information will be ignored.

Research has shown that a single sensory register can only fully be attended to at any one time. For example as a shift in attention occurs, the management of that information will be to attend to a single stimulus at any moment. It is up to the individuals' central processing unit (CPU) to select the stimulus that will get their attention and potentially lead to new information processing [6].

Relevance to Childhood Development

Children usually begin to learn attention strategies at infancy. An infant responds to certain cues above all others. Auditory and visual stimuli lead to eye and head movements that indicate that sensory registers have been triggered above all other stimuli. It is at this moment that continued stimulation of the registers leads to attention.

As children mature, they refine their attentional strategies to become more selective to relevant information and more adaptable to specific situations [1]. Study of information processing in young children reveals that refinement of attentional strategies evolves through four phases. Production deficiency is the initial phase. During this phase preschoolers make little use of attentional strategies, and their attempts to do so fail. Control deficiency is characterized by inconsistent and ineffective use of strategies by early elementary school children. Consistent use of strategies, but without significant improvement in performance, indicates a child has entered the utilization deficiency phase. Finally, effective strategy use, in which children use attentional strategies consistently and with improved performance, is implemented by mid-elementary years [4].

The more advanced and skilled child uses attentional strategies to attain goal acquisition and to sustain their own thoughts to details to be incorporated into long-term memory and for further analysis.

Elementary Years

Attentional strategies and skills are purposefully used and taught in schools by educators. It is necessary to rehearse and exercise attention skill in order to maintain concentration to information. Strategies are needed since attention capacity is limited. Children learn to attend to specific environmental inputs for further processing in learning. Auditory senses are triggered as a teacher says, "Let's begin," in an authoritative voice indicating a lesson is about to begin. The visual sense cues a child that a classroom has been entered by the characteristics of color and setting. These registers trigger long-term memory indicating that this is a school and prepares a child for the eventual daily lessons.

Elementary educators use proximity, voice modulation, time limits and colorful displays, for example, to gather and sustain the attention of children. Attention will shift to other stimuli in the classroom or from within the child making it necessary to reconnect with the child. Attentional strategies are used to sustain and reconnect to the informational input that is of interest by the teacher and, hopefully, later by the child.

Young students learn by using more visual cues to attend to information. As children get older, they incorporate other sensory registers, and visual cues are not as prominent. In addition, children learn to attend to other cues like printed words. Educators provide cues and educate students on obtaining their own strategies.

Secondary School Years

As a child grows and becomes more self-aware, she/he learns by processing information with more affective dynamics. Informational processing has only recently acknowledged the importance of connecting cognition and affect. In the earlier developmental years, children

are more apt to learn in order to please parents and teachers, but as they get older they want to please themselves [3].

As children enter the secondary school years, new strategies must be incorporated to encourage the input and processing of information. It is vital that teachers equip students with procedures and skills to attend to math and reading independently. Attentional strategies include note-taking skills, class participation, group learning, reading, test-taking skills. As children mature, these usually become automatic and sustained.

Strategies are progressing from teacher-centered strategies to student-centered. To learn, educators must use strategies to stimulate these affective and sensory registers. These attentional strategies take into mind visual, auditory and affective stimuli [3].

Many environmental stimuli act on the body at any one moment in time. In addition, internal factors vie for a child's attention. Most stimuli are ignored, or will be ignored over time. It is necessary to stimulate the sensory registers in order to attend to that which will trigger short-term memory so that the learning process begins. These acts refer to the skills needed by the teacher to trigger attention on the part of the students. Eventually, a child will learn to concentrate on the cues available for learning to begin. Students need skills to plan and manage their sensory registers in order to attend to lessons [2].

Use of Attentional Strategies to Address Attention Deficit Hyperactivity Disorder

Attention deficit hyperactivity disorder (ADHD) is a chronic condition affecting 3–5% of all children. It is a developmental disability caused by delayed brain development and characterized by short attention spans and the inability to focus and pay attention. Children with ADHD are easily frustrated and academic failure is high. Attentional strategies are vital in all environments to the success of children diagnosed with ADHD. Distractors abound in the classroom, as in any environment. It is important to provide a setting with a minimal number of competing sensory signals.

A classroom environment that incorporates physical exercise within the everyday routine is effective and beneficial for students with problems attending and concentrating. Exercise increases neurological activities that relate to memory, spatial perception, language and emotion. It also increases motivation and helps students to manage stress [5].

Behavior intervention strategies are frequently used in classrooms to help reduce inappropriate behaviors of students with attention deficits. Staying on task, remaining seated and interacting with others in a socially appropriate manner are reinforced with the use of reward systems. Many students are able to modify their own behaviors when teachers use low-involvement strategies to get their attention. Such strategies include making eye contact, proximity control and placing a hand on students' shoulders to gain their attention. Children with attention deficits have received much attention. Educational strategies are essential to their learning [5].

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Attention-Deficit Disorder

►Attention-Deficit/Hyperactivity Disorder

Attention-Deficit/Hyperactivity Disorder

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Synonyms

Attention-deficit disorder; Hyperkinetic disorder

Definition

Attention-deficit/hyperactivity disorder (ADHD) is a neurodevelopmental disorder which first appears in childhood but is a lifelong, chronic disorder. ADHD is characterized by developmentally inappropriate levels of hyperactivity, impulsivity, and inattention which result in impairment in the academic, social, or occupational

domains. It is one of the most commonly occurring disorders of childhood with estimates suggesting that it affects 3–7% of the school-age population [2].

Description

Brief History of the Disorder

Characteristics of ADHD have been present in medical literature since the beginning of the twentieth century and the disorder itself has carried a variety of diagnostic labels over the course of the past 100 years [3]. In 1902, George Still produced the first official case study of children with attention difficulties, describing 43 children he had seen in his clinical practice. He described these children as having a major deficit in moral control with aggressive and defiant behavior, and lacking inhibitory volition with a need for immediate gratification. However, significant interest in children with attention problems did not come about until the encephalitis epidemic of 1917. At that time, physicians were presented with large numbers of children who survived the epidemic but had lasting behavioral and cognitive problems. These problems are reminiscent of the way we currently conceptualize ADHD in that they experienced difficulties with attention, impulsivity, and hyperactivity. In the 1930s, brain ablation studies became popular as a way of investigating the effects of lesions on aspects of cognitive functioning such as attention and hyperactivity. Researchers discovered that lesions in the frontal lobes of monkeys resulted in problems with restlessness, hyperactivity, and inattention. In the 1940s, Strauss termed the diagnosis of minimal brain dysfunction, resulting largely from what had been learned in brain ablation studies. Also during this time, clinicians and researchers began to look for pharmacological treatments for the collection of hyperactive, impulsive, and inattentive symptoms. It was at this time medicine discovered that stimulants, notably amphetamines, were effective in reducing the symptoms of minimal brain dysfunction. In the 1950s and 1960s, researchers began to postulate that the underlying causes of the symptoms of inattention and hyperactivity were a result of a CNS deficit or brain damage and was renamed "Hyperkinetic Reaction of Childhood Disorder." In the 1960s the idea of organic brain damage as a cause of the disorder was challenged as to its accuracy and validity. In the 1970s and 1980s as old theories were falling out of favor, and with the rise of diagnostic criteria and the DSM-III, the disorder was characterized as one of primarily an attention deficit; thus, it became referred to as attention deficit disorder (ADD). The 1980s and beyond gave rise to an exponential amount of research on the diagnostic criteria for the disorder as well as treatment research. During this time a plethora of new assessment methods and new treatment methods shifted the focus of etiology onto biological factors. With the rise of neuroimaging in the 1990s and a re-evaluation of the DSM, ADD morphed into a neurodevelopmental disorder with objective specific criteria listed in the DSM and was re-termed attention-deficit/hyperactivity disorder.

Diagnosis and Prevalence

According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV TR: [2]), a child must have experienced six symptoms of inattention and/or six symptoms of hyperactivity/impulsivity for a period of at least 6 months to be diagnosed with the disorder. These symptoms must have first appeared before the age of 7, the symptoms must be disproportionate to the developmental level of the child, and the symptoms must cause impairment in multiple areas of functioning such as in social, academic, or occupational settings. Children who meet diagnostic criteria for ADHD are further classified into subtypes: Predominantly inattentive type, predominantly hyperactive/impulsive type, and combined type. Diagnosis may be made by a health care professional, such as a pediatrician or primary care physician, or by a mental health specialist such as a psychiatrist or psychologist. However, the majority of children are diagnosed and treated by their pediatrician. Research has suggested that males are more likely to be diagnosed with the disorder than females. Estimates have indicated that males are anywhere from two to ten times more likely to be diagnosed with the disorder than females.

While ADHD is considered a disorder first diagnosed in childhood, evidence exists to demonstrate that the disorder continues into adulthood. Indeed, approximately 75% of children diagnosed with ADHD continue to meet diagnostic criteria for the disorder in adolescence. Of those who maintain a diagnosis in adolescence, 40–50% will continue to experience impairment into adulthood. Presentation of the disorder changes as children age; they often no longer demonstrate gross motor hyperactivity as they did as children. Instead, adolescents and adults with ADHD will show motor signs such as fidgeting, restlessness, and shifting in seat. They continue to experience problems with inattention and impulsivity.

Neuropsychological and Neurological Findings

As ADHD is a neurodevelopmental disorder, it is not surprising a large amount of research has been geared towards understanding the neuropsychological and

neurological aspects of the disorder. Approximately 95% of children with ADHD do not show evidence of documented neurological impairment; however, that does not mean neurological factors are not involved. Results of neuropsychological testing have demonstrated that children and adults with ADHD have trouble with some cognitive abilities such as inhibiting behavioral responses, problems with working memory, planning, organization, perseveration, and other aspects of frontal lobe functioning. Several of these areas in which persons with ADHD show deficits are considered aspects of executive functioning. Indeed, in recent years ADHD has been characterized as a disorder of executive functioning [3]. While executive dysfunction is not yet listed in the DSM as a core symptom, problems with planning, organization and other aspects of executive functioning are frequently a dominant problem for those with ADHD. Additionally, some have argued that underlying difficulties with executive functioning are the main cause for impairment in ADHD, rather than the core symptoms as listed in the DSM-IV.

Results of neuroimaging studies have suggested numerous abnormalities in the brain [10]. Some findings include differences in cerebral blood flow, showing that those with ADHD have decreased blood flow to the prefrontal regions following to the subcortical structures, most notably the caudate nucleus. These studies have also suggested diminished metabolism in the frontal lobes. Other studies have found that children with ADHD have a smaller brain volume overall, a smaller corpus callosum, and smaller caudate nucleus compared to children without ADHD. However, while some structural abnormalities have been found in research, there is little consistency in the research literature about the presence of these structural differences. In adolescence and adulthood, there is some evidence that these differences are no longer apparent.

One of the most common guiding theories in ADHD is that symptoms of inattention, hyperactivity, and impulsivity are the result of a neurotransmitter deficit, specifically deficits in dopamine and norepinephrine. This theory originates from the fact that stimulant medication appears to be an effective treatment for ADHD (see treatment section). The neurotransmitter theory suggests that persons with ADHD either produce too little dopamine or their uptake of the transmitter within the brain is deficient.

Associated Impairments

A core feature of the ADHD presentation is impairment [3]. Children with ADHD show impairment in multiple domains, the most notable of which is the academic environment when the disorder is first diagnosed. Children with ADHD often have difficulty in environments they find to be boring, not stimulating, and which last for extended periods of time. Thus, when children enter the school environment the effects of ADHD symptoms may cause children to fall behind other children in their grade. For instance, children with ADHD have difficulty staying in their seats, may run around the classroom at inappropriate times, and are easily distracted by other children and noises. Hence, if a child with ADHD is supposed to be listening to the teacher explaining the alphabet but is instead continually distracted by a peer who frequently makes loud erasure noises, the child with ADHD may not learn the alphabet as quickly as he or she would if they had not been easily distracted. Such intrusions of inattention, hyperactivity, and impulsivity often result in slowed academic progress or prevention of reaching potential in the academic environment. However, several treatments are available to counteract the impairing effect of ADHD symptoms in the school setting (see treatment section). Such problems in the academic environment are also commonly found in the work environment. As ADHD is a chronic disorder, the symptoms can continue to impair people through college and into the workforce. Similar problems can arise, such as difficulty attending to information, restlessness, and trouble completing tasks due to erroneous distractions.

Another area of impairment experienced by many children, adolescents, and adults with ADHD is social impairment. Research has demonstrated that children with ADHD are often rejected by peers and thus have fewer friends. Reasons for such rejection include a perception that those with ADHD are more aggressive, intrusive, and noisy. Rejection by peers can often leads to problems such as lowered self-esteem and aggressive behavior. Children with ADHD also tend to socialize with deviant peers due to social rejection, which may increase aggressive behaviors. These problems have been documented in adulthood. Adults with ADHD report also having fewer friends and difficulty in mixed gender interactions.

As children age into adolescents and adults, more situations in which they can experience symptom impairments arise. For instance, in adolescence teenagers are given the opportunity to operate motor vehicles and begin driving. Research has demonstrated that adolescents and adults exhibit significantly greater frequency of unsafe driving behaviors such as speeding, driving without a license, or running stop signs [4]. Adolescents and adults with ADHD are more likely to have their license suspended, receive speeding citations, and receive greater

numbers of moving citations overall compared to adolescents and adults without ADHD. It is clear that ADHD is associated with impairment across a variety of domains and has a large impact on the lives of those who live with the disorder.

Comorbidities

The term "comorbidity" or "comorbid condition" refers in the psychological literature to the co-occurrence of disorders together. Children and adults with ADHD often suffer from multiple comorbid conditions [7]. Some of the most common comorbid psychological disorders with ADHD are the disruptive behavior disorders, oppositional defiant disorder (ODD) and conduct disorder (CD). Numbers estimate that upwards of 40% of children diagnosed with ADHD also meet DSM-IV diagnostic criteria for ODD. Similarly, estimates of upwards of 45–50% of children with ADHD also meet diagnostic criteria for conduct disorder. Several other disorders are also commonly diagnosed in children who have ADHD. Specific learning disabilities such as reading disorder, mathematics disorder, etc., are also often present.

Several other groups of disorders are also found to commonly co-occur in children with ADHD. For instance, estimates suggest that up to 30% of children with ADHD may also have an anxiety disorder, and 10–30% may have a depressive disorder. Other mood disorders such as bipolar disorder are also highly comorbid with ADHD, with rates of up to 20%. One last disorder that is often discussed in conjunction with ADHD is Tourette's disorder, a tic disorder. While estimates suggest only 7% of children with ADHD have a tic disorder, upwards of 50% of those children diagnosed with Tourette's disorder have ADHD.

Assessment

Assessment for the presence of ADHD may be done by a pediatrician, psychiatrist, or psychologist. The American Academy of Pediatrics [1] offer specific practice guidelines for the diagnosis of ADHD. The guidelines, designed for pediatricians and primary care physicians, suggest healthcare providers observe the child, conduct an interview with the parent(s) and child to gather necessary background data for diagnosis, and administer specific parent-report rating scales, such as the Conners' Parent Rating Scale. The AAP also recommend that children should be assessed for common comorbidities, but this is not required for diagnosis of ADHD. Of note, use of cognitive tests is not mandatory or recommended for use in diagnosis of ADHD. However, such tests may provide descriptive/qualitative information on the specific cognitive and executive functioning deficits experienced by a particular child.

Knowledge of prevalence rates for comorbid conditions also has implications for assessment. While assessing for comorbid conditions appears simple at first notion, there is significant complexity in the assessment of comorbid conditions. This complexity stems from the concept of symptom mimicry with disorders which are found to co-occur with ADHD [7]. For instance, there is considerable overlap in symptom presentation between ADHD and pediatric bipolar disorder. Bipolar disorder in children often presents with significant motor agitation similar to that of ADHD. Thus, teasing apart the two disorders can be an intricate endeavor. Similarly, decreased attention capacity is a symptom common to many disorders including anxiety disorders, depressive disorders, and posttraumatic stress disorder. Thus, if a child or parent reports significant symptoms of inattention, this should trigger a knowledgeable evaluator to not only assess criteria for ADHD, but also for the various disorder types mentioned in order to ensure that the cause of attention difficulties is not a function of another disorder.

In addition to mimicry with psychological disorders, persons evaluating children for the presence of ADHD also need to consider several general medical conditions (GMCs) which may result in a presentation similar to that of a child with ADHD. For instance, children with sensory impairments such as hearing difficulties are often described as inattentive or easily distracted. Thus physicians often check for hearing impairments before moving on to further assess for ADHD. Similarly, seizure disorders such as absence seizures may first be described as a child looking as if they are not paying attention. Again, this is often a GMC ruled out during an ADHD evaluation. There are several medications which may result in a significant increase in hyperactivity or difficulty concentrating. These include some medications for seizure disorders such as Phenobarbital as well as certain asthma medications. During assessment, a background information interview can help rule out such medications as causes of any reported symptoms.

Treatment

Treatment for ADHD may take many forms including psychopharmacological, parent behavioral training, or classroom management strategies. The most commonly recommended form of treatment for ADHD across the lifespan is the use of stimulant medications [5]. It has been found to be the most effective treatment option for the core symptoms of ADHD for both children and adults [5, 8]. Commonly prescribed medications include

Ritalin, Adderall, Concerta, and Vyvanse, as well as their derivatives and other available stimulants. Stimulants are available in many forms including immediate and delayed-release, and are available in various mediums such as pills, liquids, or transdermal patches. Stimulants predominantly work by affecting the levels of the neurotransmitter dopamine in the brain, either by increasing the amount of dopamine or the rate of uptake. Stimulant medications are recommended by the AAP as the number one method of treatment for ADHD. As the various stimulants have slightly differing mechanisms of action and dosing schedules, if one type of stimulant is not found to be effective, another type of stimulant is often prescribed by physicians and may have beneficial effects for the child. However, there is evidence that approximately 30% of those with the disorder do not respond to stimulate medication or have significant side effects. Thus several other medications are offered as second-line treatments for ADHD.

Side effects of stimulant medication can include loss of appetite, weight loss, sleeping problems, irritability, headache, stomachache, and a sudden deterioration of behavior. Symptoms of depression, sadness, crying, and withdrawn behavior can also occur. Some studies have also shown that stimulant medication will increase the frequency of tics for those who suffer from Tourette's disorder or another tic disorder. While side effects are certainly possible, they are often the result of inaccurate dosing or are transient in nature. Similarly, while one stimulant many produce side effects in one person, another stimulant medication may not result in any side effects for that same person.

Other medications that have been prescribed for the treatment of ADHD that are not classified in the stimulant domain include atomoxetine, which affects norepinephrine levels in the brain, tricyclic antidepressants, and bupropion. These medications have, in clinical trials, been found to be more effective than a placebo medication. Of these medications, tricyclic antidepressants have the most research support behind them as being an efficacious treatment for ADHD. Atomoxetine is a treatment often requested by patients and parents as it is not a stimulant medication and has less of a chance of producing side effects. While research studies on atomoxetine are more limited than for those of stimulants as it is a newer medication, it has demonstrated to be an effective treatment compared to placebo.

In addition to psychopharmacological treatments, parent management training or behavioral, treatments have also been found to be effective, particularly in conjunction with medication and for children who also have comorbidities [6, 8, 9]. Behavioral parent management training is considered to be a "well-established" treatment by the American Psychological Association Task-Force on Empirically Supported Treatments. This type of treatment helps parents to increase the frequency of positive behaviors as well as modify ineffective discipline techniques and parenting practices. The general concept behind the parent management training programs is one of differential attention. Here, after identifying specific problematic behaviors, parents are instructed to reward positive and prosocial behavior using praise and positive attention as well as rewards. Concurrently, parents reduce the frequency of negative behaviors using techniques of ignoring, time-out and other discipline strategies such as the removal of privileges [6]. Spanking or physical punishment is discouraged and parents are taught how to maintain an effective balance between reward and punishment.

Several treatments exist for aiding a child with ADHD in the school environment. Treatments as mentioned above, such as medication or parent management training, will often have effects which extend to the school environment. Indeed, research has demonstrated that medication is an effective treatment for reducing severity of inattention, impulsivity, and hyperactivity in the school setting. However, in addition to treatments which are provided outside the school, public schools provide children with accommodations to help reduce impairment which may be keeping them from succeeding at the level of which they are capable if they were not impaired by the disorder [3]. For instance, common accommodations given to children with ADHD are extended time on tests, taking tests in separate rooms without distracting stimuli, and preferential seating at the front of the classroom near the teacher and away from doors or noisy air conditioners. These accommodations are designed to "even the playing field" for the child with ADHD so they may perform their best regardless of their disorder. In addition, use of a daily report card has also proven to be effective in the school environment [3]. Here, children's behavior is monitored by the teacher throughout the day and then rewarded at the end of the day by a caregiver based on how well they did. This method uses positive attention and reward to help increase frequency of positive and prosocial behaviors in the school environment.

As mentioned previously, common comorbid conditions for children who suffer from ADHD are learning disorders and states are also mandated to provide services to children with specific learning disorders in the "least restrictive environment" possible. This may include additional accommodations such as being assigned a note

taker in classes, being able to have a "reader" for tests and then answer questions orally, or other such exceptions which would be most helpful given the particular type of learning disorder. States have varying statutes and guidelines on how they decide services are needed and who can make diagnoses that are accepted by the school as accurate. Some schools may demand that their own assessors perform evaluations while other districts will only accept diagnoses of ADHD from a licensed medical doctor, as opposed to a psychologist. Regardless of these guidelines, all states must provide the appropriate services to children with ADHD.

While ADHD is a disorder that affects many aspects of functioning, it is clear the there are treatments in several domains where are effective in reducing symptom severity and impairment in these domains. Medications and behavioral treatments have proven to be valid and reliable interventions for persons of any age

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Attentive Listening

►Active Listening

Attitudes

►Cultural Bias

Attribution

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Definition

Attributions refer to the explanations individuals give for their success or failure in a particular performance, explanations that were described by Weiner along three dimensions, *locus*, *stability*, and *control*.

Description

Attribution theory is a cognitive motivation theory based on the assumption that individuals are rational decision makers. Children are motivated to understand the environment and themselves. By seeking explanations and understanding for the underlying causes of their success, they can predict and control the events that affect them and continue working, with the hope of succeeding again and again. Also, the process of ascribing a reason for failure can guide a child so as to avoid failing again. The process, however, is dependent upon one's beliefs. For instance, if a child believes that his or her success is due to the amount of effort he or she has put into the task, the child will expect to do well the next time he or she approaches similar tasks assuming that effort can determine the outcome. Or, if the child fails and believes that failure is due to his or her low ability, the child may avoid similar tasks in the future so as to avoid failing again. This reasoning process is known as making attributions, and it is a concept introduced in the literature to understand child's motivation and achievement in the classroom.

Attributions can be categorized along three dimensions, locus, stability, and control. It is these three causal dimensions that influence individuals to choose to

continue or to disengage doing a task. Locus is concerned with whether the individual perceives the cause of an event as internal or external. For example, a child with an internal locus of control may attribute success to ability, something that may consequently affect his or her pride and will then influence his or her expectancy for future success, while a child with an external locus of control may attribute success to luck, giving little basis for what future outcomes may be like. The stability dimension refers to whether the cause of an event is stable or unstable across time and events. Ability in this case would be characterized as being stable while effort would be unstable depending on an individual's choice in each new situation. Luck is also unstable because no one is able to predict when good or bad luck will strike. The last dimension, controllability, refers to how much control an individual has over a cause. Effort and strategy would be classified as controllable because the child can control how much effort to allocate to a task and can decide on the strategy to use. Ability, along with luck and task difficulty, on the other hand, are all categorized as uncontrollable because ability is often perceived as something that is genetically determined.

Attribution is more likely to occur if an individual comes upon a situation that is unexpected. Failure is more likely than success to lead individuals to search for reasons for the failure. Children are also more likely to find causes for an event that is important to them. Weiner claimed that children's attributions come from situational cues such as their past experiences, feedback from teachers, observation of the performance of peers, and how much help was received. Weiner also maintained that attributions come from child's self-perception.

Relevance to Childhood Development

Researchers have suggested that young children (five and under) do not have a clear understanding of the possible causes of their successes and failures. They especially have trouble distinguishing between effort and skill. By age six, they begin to realize that effort is an important factor for success. By age nine, children often equate "working hard" with "lack of ability." As children get older, they become more aware of the consequences that follow each attribution. Adults tend to be more sympathetic when children fail due to uncontrollable causes such as illness but get irritated when children fail because they don't try hard enough. Over the years, children develop a predictable pattern of attributions. This pattern may develop as a result of past similar experiences or due to teacher feedback. They develop a general sense of their capabilities and make attributions accordingly.

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Atypical and Major Lifetime Events

►Non-Normative Life Events

Atypical Antipsychotics

►Abilify
►Atypical Neuroleptics

Atypical Delivery

►Birth Complications

Atypical Neuroleptics

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Synonyms

Atypical antipsychotics; Second generation antipsychotics

Definition

A specific group of medications used to treat psychiatric conditions.

Description

Atypical neuroleptics are used to treat schizophrenia and similar conditions. They are more widely used than typical antipsychotics. They provide a higher effectiveness rate in treating the negative symptoms of schizophrenia

and a lowered risk of developing movement problems, tardive dyskinesia, and agranulocytosis, a loss of white blood cells [1].

Abilify (Aripiprazole) is used for the treatment of schizophrenia in adults and adolescents aged 13–17, manic or mixed episodes associated with Bipolar I Disorder, adjunctive treatment to antidepressants for Major Depressive Disorder, and treatment of irritability associated with autistic disorder in patients aged 6–17 [2]. Clozaril (Clozapine) is used for the management of schizophrenia when standard treatment has failed, and for the reduction of recurrent suicidal behavior associated with schizophrenia or schizoaffective disorder [2]. Zyprexa (Olanzapine) is used for the treatment of schizophrenia and acute treatment of manic or mixed episodes associated with bipolar I disorder or as an adjunct to valproate or lithium [2]. Symbyax (Olanzapine/Fluoxetine) is indicated for the acute treatment of depressive episodes associated with bipolar disorder and treatment resistant depression in adults. It can be used adjunct to lithium or valproate for maintenance treatment of bipolar I disorder [2]. Seroquel (Quetiapine) is used for the treatment to schizophrenia and bipolar disorder maintenance for both manic and depressive episodes [2]. Risperdal (Risperidone) is used for acute and maintenance treatment of schizophrenia, bipolar I disorder, and irritability associated with autistic disorder [2]. Geodon (Ziprasidone) is used for treating Schizophrenia and Bipolar Disorder [2]. Invega (Paliperidone) is used for treatment of schizophrenia and schizoaffective disorder as monotherapy or as an adjunct to mood stabilizers and/or antidepressants [2]. The atypical neuroleptics may produce extrapyramidal side effects, but they tend to produce fewer extrapyramidal side effects than the typical antipsychotic medications.

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Auditory Cortex

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Synonyms

Auditory cortex; Primary auditory cortex

Definition

Auditory Cortex: The auditory cortex is a region of the superior temporal lobe that is involved in the processing of auditory information.

Description

The auditory cortex, a.k.a. primary auditory cortex, of each hemisphere lies within the temporal lobe, and is localized to Heschl's Gyrus, within the lateral fissure. While that which is specifically referred to as the primary auditory cortex is localized to Heschl's Gyrus, it works in combination with the Planum Temporale which lies posterior to Heschl's Gyrus [5]. While these structures are linked neurologically, they are often separated functionally. These functional differences may be tied to differential symmetry of these structures in relationship to brain lateralization. Specifically, Heschl's Gyrus is generally larger in the right hemisphere in comparison to the left, and consequently, Heschl's Gyrus may play a more prominent role in non-speech aspects of language and musical processing [5]. In contrast, the Planum Temporal is generally larger in the left in comparison to the right and is thus believed to play a greater role in actual speech comprehension [5]. While differences may be seen between Heschl's Gyrus and the Planum Temporal, as a whole, the primary auditory cortex processes all aspects of sound, with the neurons demonstrating specialization to respond to certain frequencies [2]. The columns of neurons that lie in more anterior regions of the primary auditory cortex respond most to higher frequencies while those in more posterior regions respond more to lower frequencies [2]. While the cortex largely presents in a contralateral fashion, such that the right hemisphere corresponds with motor output and sensory input of the left and vice versa, the projections of the auditory system provides both ipsilateral and contralateral inputs to the cortex; so there is bilateral representation of each nucleus in both hemispheres [4]. This is due to the fact that projections of the auditory pathways move up from the auditory nerve which contains both crossed and uncrossed pathways, resulting in stimulation of the auditory cortex in both hemispheres. Thus auditory sensation received in one ear is conveyed to the auditory cortex to both temporal lobes [1]. After stimulation of the eighth cranial nerve, the information then passes on to the cochlear nucleus and then to the inferior colliculus, followed by the medial geniculate and then onto the primary auditory cortex [4]. Additional transmission to secondary and tertiary auditory zones follows. The shared reliance on both hemispheres may be seen as a protective factor. In fact, for one to experience cortical deafness (i.e., inability to process

sound due to neurological insult) extensive bilateral lesion involvement of Heschl's gyrus and/or the underlying white matter of this region is required [3].

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Auditory Memory

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Definition

Specific sequences of sounds predict crucial events whether they are aversive or pleasant. The processing of these sequences of these sounds including the processing of speech by humans requires exceptional quality of memory processing (e.g., see maintenance or storage of auditory events for a period beyond their perception). The memory processing of a sequence of tones constitutes a coherent melody.

Description

Auditory events must be processed sequentially and the saliency of that event is established in relation to the previous, Auditory (phonetic) representations in memory occurs when verbal materials are presented visually. Short-term retention of verbal items is better when presented acoustically than if presented visually. The greater the rehearsal time available for auditory than for visual material; spoken items are somehow greater in amplitude than written items. Regency effect in serial recall of verbal items is greater with auditory than with visual presentation of the items and is susceptible to interference from phonologically similar items. Following, the presentation of a nearly supraspan verbal unit usually 7–8 constantans or words, retention of the last component is reduced when an auditory suffix is interpolated between presentation and recall [1].

Memory is the retention of information over time. There are several types of memory. Auditory memory involves being able to take in information that is presented orally, to process such information, store it in one's mind and then recall what one has heard. Basically, it involves the skills of attending, listening, processing, storing, and recalling. There are two kinds of auditory memory: Short-term auditory memory is the ability to recall something heard very recently, while long-term auditory memory is the ability to remember something heard some time ago.

In her book *Learning Disabilities*: There is a Cure, educational therapist Addie Cusimano states that a weakness in auditory memory can have serious consequences in the realm of learning for students. Because students with auditory memory weaknesses pick up only bits and pieces of what is being said during a classroom lecture, they make sense of only little of what is said by the teacher. Afterwards, they are able to recall only a small amount or none of what was said.

"Students with auditory memory deficiencies will often experience difficulty developing a good understanding of words, remembering terms and information that has been presented orally, for example, in history and science classes," says Cusimano. "These students will also experience difficulty processing and recalling information that they have read to themselves. When we read we must listen and process information we say to ourselves, even when we read silently. If we do not attend and listen to our silent input of words, we cannot process the information or recall what we have read. Therefore, even silent reading involves a form of listening."

Research also suggests that students with spelling problems have deficits in auditory memory skills. http://www.audiblox2000.com/learning_disabilities/dica01.htm

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Auditory Processing

►Central Auditory Processing Disorder

(Central) Auditory Processing Disorder

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Synonyms

Central Auditory processing disorder [8, 9]

Definition

"(Central) Auditory Processing Disorder (C)APD is a deficit in neural processing of auditory stimuli that is not due to higher order language, cognitive, or related factors" ([1], p. 2).

Description

- [A person who has (C)APD may exhibit the following behavioral characteristics] difficulty understanding spoken language in competing messages, noisy backgrounds, or in reverberant environments; misunderstanding messages; inconsistent or inappropriate responding; frequent requests for repetitions, saying "what" and "huh" frequently; taking longer to respond in oral communication situations; difficulty paying attention; being easily distracted; difficulty following complex auditory directions or commands; difficulty localizing sound; difficulty learning songs or nursery rhymes; poor musical and singing skills; and associated reading, spelling, and learning problems ([1], p. 8).

Not all individuals diagnosed with (C)APD display the same symptoms. Different functional symptoms may be connected with different auditory deficit combinations. Furthermore, people who have the same auditory deficit might be impacted in different ways [1]. Conditions that are co-morbid with (C)APD might include learning disabilities, speech and language disorders, attention deficit disorder/attention deficit hyperactivity disorder, peripheral hearing loss, emotional disorders, and psychological disorders [2].

The occurrence rate of (C)APD in children is unknown [7]. However, estimates of the prevalence of (C)APD in children vary between 2 and 5% [6, 7]. Boys are more likely to have this disorder than girls [9].

The underlying cause of (C)APD is usually unknown [6, 10, 11]. The development of (C)APD is most likely influenced by both inherited and environmental factors [10]. The majority of people with (C)APD do not display frank Central Auditory Nervous System (CANS) lesions; however, there is significant evidence from autopsies that they display neuromorphological abnormalities within the Central Nervous System auditory areas [1]. Conductive hearing loss might contribute to (C)APD [10]. Possible risk factors of (C)APD include chronic otitis media, low birthweight, and prematurity [7].

According to the consensus conference of ASHA, the following indicators are used to diagnose (C)APD: case history, systematic observations of auditory behavior, audiological tests, and speech–language pathology measures [9]. Types of tests that are used to diagnose (C)APD include auditory temporal processing and patterning tests, binaural interaction tests, dichotic speech tests, monaural low-redundancy speech tests, auditory discrimination tests, electroacustic measures, and electrophysiological measures [1]. The majority of these tests should not be administered to children younger than the age of 7 [4, 9]. Test batteries designed to assess (C)APD include the SCAN-C: Test for Auditory Processing Disorders in Children-Revised and the SCAN-A: Test of Auditory Processing Disorders in Adolescents and Adults [9]. Assessment can be influenced by other disorders that impact the functioning of audition such as language impairment, ADHD, reading disability, learning disability, Autism, and reduced intellectual functioning [4, 9]. Although the cooperation of a multidisciplinary team is necessary during the assessment process, an audiologist is responsible for making the actual diagnosis of (C)APD [1, 3, 4].

A child might display the following specific deficits: Binaural Separation and Binaural Integration Deficits, Monaural Separation/Auditory Closure Deficits, Auditory Patterning/Temporal Ordering Deficits, Auditory Discrimination Deficits, Binaural Interaction Deficits, and Temporal Processing Deficits [3]. According to the Bellis/Ferre model, (C)APD can be categorized into the subtypes of Auditory Decoding Deficit, Prosodic Deficit, and Integration Deficit based on patterns that correspond to different locations of brain dysfunction. Each of these subtypes is characterized by different result patterns on the auditory assessment [3].

Some professionals doubt that CAPD exists as a separate entity [8]. However, ASHA [1] believes that there is "sufficient evidence to support the neurobiological and behavioral existence of CAPD as a diagnostic entity" (p. 15). Another source of disagreement is whether or not (C)APD is modality specific [1]. American Speech-Language-Association [1] disagrees with definitions of (C)APD that state the condition is completely modality-specific.

Relevance to Childhood Development

Children who have (C)APD often display co-morbid cognitive, learning, and language deficits [6]. Children's learning difficulties, as well as communication deficits, might have an adverse impact on their self-esteem development and self-worth. Also, academic difficulties are typically associated with (C)APD. Children with (C)APD might be more likely to experience behavioral, social, and emotional difficulties. Early intervention is important because treatment may lessen the likelihood of the occurrence of these secondary problems [1]. Treatment usually consists of three procedures: compensatory strategies, direct skills remediation, and environmental modifications that are delivered simultaneously [1, 4].

Compensatory strategies typically help children strengthen their central resources so that they can use these particular resources to help overcome their auditory disorder. Many compensatory strategy approaches instruct children to take responsibility for their personal listening failure or success. In addition, such approaches teach children to actively participate in daily listening activities through various problem-solving and active listening techniques [1, 4]. Examples of activities that can reinforce good listening skills with children, preschool-aged and older, are: listening to stories, following directions, inferencing, engaging in activities that reinforce executive strategies, and participating in activities that help with the development of metalingustic skills [5].

Environmental modifications improve access to information presented auditorily [4]. Examples of such modifications that can be used in the classroom include reducing reverberation by covering reflective surfaces, utilizing acoustic dividers, utilizing other absorption materials all through empty or open spaces, altering the location of study places, and removing external sources of noise from the learning area [1]. Possible environmental accommodations that can be utilized to improve the listening environment are

- preferential seating for the child with (C)APD to improve access to the acoustic (and the visual), use of visual aids, reduction of competing signals and reverberation time, use of assistive listening systems, and advising speakers to speak more slowly, pause more often, and emphasize key words ([1], p. 12).

There are a number of direct treatment attempts to remediate (C)APD. Various treatment activities address particular auditory deficits. Some treatments might be computer-assisted whereas others might incorporate individual training with a therapist. Examples of computer-based auditory training (CBAT) software programs are Brain Train, Fast ForWord, Earobics, Laurete Learning Systems, Foundations in Speech Perception, Listening and Communication Enhancement (LACE), Learning Fundamentals, Sound and Beyond, and Otto's World of Sounds [12]. Treatment might be delivered at school-based, clinical-based, or home-based therapy sessions. There is not a universal treatment approach that is appropriate for every child that has (C)APD. All aspects of therapy, such as the type, duration, and intensity, needs to be very individualized and programmed for the child's specific auditory disorder. The amount of a child's auditory deficits that will improve as a result of therapy cannot be predetermined. Some children are entirely ameliorated of their auditory difficulties whereas others might display some small degree of deficit their entire life [4].

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Augmentative and Alternative Communication (AAC)

►Augmentative Communication

Augmentative Communication

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Synonyms

Augmentative and alternative communication (AAC)

Definition

The use of communication systems other than speech.

Description

Individuals with significant speech impairments (i.e., those with disabilities such as autism, mental retardation, cerebral palsy, deafness, blindness, and quadriplegia) cannot use expressive communication to indicate their needs and share social interactions. Augmentative communication is the term used to represent a set of communication systems used as replacements for speech for these individuals [1]. There are many forms of augmentative communication such as sign language, picture selection, and speech output devices.

Augmentative communication can be divided into "low-tech" and "high tech" categories. Sign language and picture-based communication are two forms of low-tech communication. Sign language is the production of hand movements representing letters and words. Deaf people use sign language as a replacement for speech, though sign language is also used by individuals with developmental disabilities. There are a variety of signing systems such as American Sign Language and signed English. In addition to sign, pictures can be used as an augmentative system. Individuals can be equipped with a set of pictures that can be handed to others to indicate requests or other points of conversation. Sentences can be formed by placing pictures in a row. The Picture Exchange Communication System is a system commonly used with children with autism. High-tech augmentative communication devices vary from a single button that emits a word or phrase to a computer that contains hundreds of icons and speech-output capabilities. Single buttons and laptop computers can be placed on a child's wheelchair for the child to use to communicate.

For individuals with severe motor impairments such as quadriplegia, augmentative communication systems involve moving only the head or parts of the head (e.g., mouth, eyes) to move devices that select messages. People can be equipped with a device that goes in the mouth and subtle mouth movements move a cursor that selects words. Laser devices can be connected to one's eyes so that words or pictures can be selected simply by looking at them. A button that generates spoken messages can be placed next to a child's head so that only a simple head movement activates the message.

Steven Hawking, the British theoretical physicist who has significantly limited muscle control due to amyotrophic lateral sclerosis, uses an augmentative communication device. Dr. Hawking has a computer attached to his wheelchair with words displayed on the screen. A cursor moves along the words and by touching a button with his finger, but without moving his entire hand, Dr. Hawking selects a word to express. Once a string of words is selected, he selects an icon that expresses the words using a speech output device. This type of augmentative communication system can be used with young children as well [2].

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Authoritarian Parenting Style

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Definition

Authoritarian parenting is an approach to child–parent interactions wherein the parent maintains large degrees of control over the child's life and wherein parental interactions are based on a strict hierarchy of power.

Description

The authoritarian parenting style (authoritative parenting style) is one of the four distinctive approaches described in depth by Dr. Diana Baumrind. Of these four approaches, the authoritarian style is most distinctly characterized by an expectation of conformity and strict adherence to the rules determined by the parent figure. This style has been described as a conservative approach to parenting. It is also described as being both high in demands of the child by the parent as well as high in parent responsiveness to the actions of the child [5].

Authoritarian responsiveness to the child's behaviors is commonly characterized by a conditional expression of warmer, more emotional support for the child when compared to other parenting styles. These expressions of emotional warmth are often tied to the child's achievements and successes at matching parental desires [3]. This parental modality of parent-child interaction is related to the conceptualization that the parent can and should act as the sole interpreter and director of the child's life [1].

Within the authoritarian parenting style, the justification of parental expectations is often based upon the parent's role as an authority figure over the child. Having the ability to exercise control over the child is of paramount importance to the authoritarian parent. As such, one of the key, established features of an authoritarian parenting style is the high degree of rule enforcement and the low degree of encouragement for the child's expressions of individuality and independence. [3]

Differentiation of Parenting Styles

In an authoritarian family, the child is often expected, without direction, to figure out the rules governing parental interactions and expectations. As a result of this characteristic of the parent–child interactions, the child is either less likely to develop initiative and curiosity or prone to rebel against parental norms [4]. The authoritarian parent relies on a non-negotiable method of strict direction for the child. This style comes in stark contrast to the direct, explanatory methods of communication employed by the authoritative parent. The use of power by the authoritarian parent in maintaining control over the child has been found to be less effective in adolescence than in childhood, suggesting that the authoritative reasoning style should be adopted at some point [2].

Authoritarian parents do not demonstrate a lack of concern with the actions of their children, as is evident in the neglectful parenting style. Authoritarian parents also do not have a lowered level of behavioral expectations for their children, as is often characteristic of ►permissive parenting. Another point of demarcation between the authoritarian and the permissive parent is the high degree of willingness of the authoritarian parent to blame the child for the results of his actions and punish him accordingly. This demarcation comes in stark contrast to the externalization of blame seen in permissive parenting interactions.

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Authoritative Parenting

►Inductive Parenting

Autism

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Synonyms

Acquired autism; Autism spectrum disorders; Autistic disorder; Classical autism

Definition

Autism is one of the pervasive developmental disorders, as described in the *DSMIV-TR* [1]. It is considered to be a developmental disability, characterized by qualitative impairment in reciprocal social interaction qualitative impairment in communication skills, and by restricted, repetitive and stereotyped patterns of behavior.

Description

History

Although autism has certainly been in the headlines over the last 10 years, the disorder is undoubtedly much older. Autism is thought to have occurred throughout history. It is also known to be present in virtually all human societies known to science. Throughout the years stories have been written about unusual individuals with special abilities,

odd behaviors, or other attributes that set them apart. In the medical literature of the nineteenth century, a boy named Victor was described as a "wild boy." He appears in literature as The Wild Boy of Aveyron, or Victor of Aveyron [15]. Victor was "discovered" and variously institutionalized and "studied" by interested parties in the Toulouse area of France. A young medical student, Jean Marc Gaspard Itard eventually decided to take the case on himself. He worked to teach Victor to speak and to react in the way that persons of that era were expected to behave. Close reading of Itard's report about Victor brings to mind some of the characteristics which Dr. Leo Kanner noted in the late 1930s and 1940s as he wrote in his definitive paper, published in 1943, "Autistic disturbances of affective contact" [7]. In this seminal paper, Dr. Kanner described a group of young patients who had severe social communication deficits, problem behavior, and a seeming pattern of self-absorption.

Prior to Dr. Kanner's work, the word "autism" appeared in the literature of psychiatry in the work of Eugen Bleuler, a Swiss psychiatrist who is thought to have been the first to use the term, writing within the first 2 decades of the twentieth century. His usage referred to the symptoms of aloofness, or poor interpersonal relatedness observed in persons having schizophrenia. Indeed, from the time Kanner's work came into the public arena, until perhaps in the 1960s to 1970s, autism was felt to be a type of schizophrenia. Presumably the disorder was caused by cold, rejecting parents and treatment often involved hospitalization in a psychiatric facility.

In the 1960s investigators began to pay attention to the symptoms they saw in individuals having autism. Further, the emerging field of neuroscience created a mindset that began to consider the possible neuromaturational processes that seemed to be compromised in the persons who had autism. There were differences in relatedness, in verbal and nonverbal communication skills, and in behavior which were evident by a very early age without any evidence of neurological trauma or degenerative disease. Further, many persons having the autism diagnosis had parents who were warm and very appropriately socially related. A consensus gradually emerged rejecting the notion of faulty parenting as the etiological factor in autism. Science began to direct its attention to a variety of causal pathways. Work continues in this vein to the present.

It was not until 1990 that autism was added to the list of disabilities which qualified pupils for special education and related services under the Individuals with Disabilities Education Act [16]. With the publication of the *DSM III* in 1980 autism was added to the lexicon of psychiatry. The criteria which currently are used for diagnosis in the United States have been refined through the subsequent iterations of *The DSM* and will likely improve yet again with the unveiling of the next version of *The DSM*.

Epidemiology

Many investigators have attempted to look at the incidence of autism in the last 5–10 years. In a number of their studies, cases are included for autism, Asperger's disorder and pervasive developmental disorder not otherwise specified (PDDNOS). In such studies, the average rate in the USA is reported to be around 1 in 150. In a Canadian study which looked at incidence for each of the three diagnostic groups, autism was found to occur at a rate of about 2.2 per 1,000 individuals. In the American Academy of Pediatrics' review article on autism published in 2007, it was reported that the best estimate of the occurrence of the autism spectrum disorder in the North America and Europe is about 6 per 1,000 [6].

Criteria

The deficits and behavioral differences of autism are described in terms of three categories of symptoms. For the diagnosis to be given, the affected person must display a total of 6 symptoms from the 3 categories, with at least 2 of the symptoms reflecting differences in reciprocal social interaction [1]. Part of the difficulty in understanding autism lies in the fact that the deficits under consideration are said to represent "qualitative" impairments, rather than concrete deficits which might be characterized in terms of some metric.

With regard to the impairments of social interaction, the *DSM* suggests four types of symptoms. First, there are possible differences in use of nonverbal behaviors to regulate interaction. This might be manifest in poor eye contact, unusual body postures, lack of or inappropriate facial expression, and poor use of gestures to communicate. Next, the *DSM* further posits possible differences in development of peer relationships. It is not uncommon to find individuals with autism who relate with some success to adults but for whom relating with same age peers is markedly different than the norm. The third area where differences in reciprocal social interaction appear is in the area of wanting to share one's enjoyment of an item or activity, for example, as when a youngster proudly displays some project he or she has done for adult admiration. Persons diagnosed with autism spectrum disorders may not have this same drive to share their interests or

achievements. A final area of difference is in the area of social reciprocity. Persons having autism may not display the expected amount of social reciprocity, and may seem insensitive, uncaring, etc.

The *DSM* diagnostic criteria list several potential areas which may reflect the qualitative differences in communication skills. The most obvious symptom which may be seen is significant delay in the acquisition of language, which in some cases may be a total lack of spoken language development. What is most telling about such cases is that there is also a failure to attempt to use nonverbal means to compensate for the spoken language delay. In persons who develop spoken language, a second symptom category may be seen. This symptom is difficulty starting or maintaining conversational interchange. The "small talk" which most persons take for granted is incredibly difficult for many individuals with autism. In the third symptom relating to a lack communication skills one looks for repetitive language patterns or idiosyncratic language. Reciting bits or even whole chunks of movie scripts, immediate and delayed echolalia or odd, indirect ways of naming things are examples of this sort of deficit. The fourth difference in communication skills spelled out in the *DSM* points to a lack of varied, spontaneous make-believe play as well as possible deficits in social imitative play relative to the developmental level of the child. Many children diagnosed with autism have little to no make-believe play and rarely engage with other youngsters in childhood games such as "London Bridge" or the like.

The third category of symptoms listed in *the DSM* is the most apparent at times, at least for the untrained observer. Conversely, these symptoms may be the least salient in actually establishing the diagnosis. According to the *DSM* there must be at least one of these symptoms said to represent restricted, repetitive, and stereotyped patterns of behaviors, interests and activities. It is within this category that some of the unusual behaviors are noted. For example, the first possible symptom listed is preoccupations with interests that are either unusual with regard to intensity or simply with regard to content. A child who is exclusively interested in trash cans to the exclusion of other toys, persons, etc. would be manifesting this difference. Likewise, the young girl who gets interested in dinosaurs and plays with and talks about nothing else would meet this criterion. Second, the DSM describes a fondness for non-functional rituals and routines. Many individuals with autism know precisely how their world is supposed to be and become extremely distressed when there is a deviation from the expected course of action. A little boy in preschool may have a "meltdown" on the day when there is a school-wide assembly and his class fails to follow the usual from school course of events. Likewise a child with autism may become hysterical when a parent drives home from school by a "different" route because of the need to run an errand. The third symptom of this category is repetitive motor mannerisms such as hand-flapping, finger-flicking, rocking, spinning, etc. The final symptom named is preoccupation with parts of objects. Some children with autism line toys up rather than using them as they are intended to be used. Others may enjoy spinning the wheels on their toy cars or opening and closing the doors on the cars rather than racing them about or crashing them into one another.

To conclude the *DSM* criteria is the specification that the differences in functioning must be reported to have existed before 3 years old in at least one of the following areas: social interaction, social language or symbolic or imaginative play. There is also a qualifier which states that the symptoms being noted are not accounted for by Rett's disorder, or childhood disintegrative disorder, two of the five pervasive developmental disorders along with autism, Asperger's disorder, and pervasive developmental disorder not otherwise specified (PDDNOS).

Diagnosis

Although experts are unanimous in considering autism a neurobiological disorder, the diagnosis remains one for which there is no medical test or study. Diagnosis of autism is based upon clinical judgment, which may be built upon several kinds of information. Several practice parameters have been issued by professional groups to attempt to create an irreducible minimum standard for diagnosis. Experts emphasize the need to maintain a developmental perspective in assessment and to realize that symptoms will be present, though changed, across the lifespan of persons having this diagnosis. These considerations form the basis from which the diagnostic process must move. Autism is increasingly being diagnosed in young children with 18 months of age not being an unusually early age in specialized assessment clinics [6].

At the basis of any diagnosis, there must be a careful review of the symptoms as described in the DSM and a consideration of how, or if, the patient's developmental history reflects the deficits that would be said to characterize a person having autism. From the early 1990s until the present, there has been a gradual development of standardized instruments which aim to bring some degree of consistency to the diagnostic process. There are a variety of rating scales, observational tools, and interviews which may be used to look at symptoms of autism. Expert consensus usually holds the Autism Diagnostic Interview [13] and the Autism Diagnostic Observation

Schedule [8] be the "gold standard" in diagnosis [11]. Yet even with that level of endorsement, both instruments' users' manuals state clearly that no instrument is adequate on its own to establish the diagnosis of autism. Clinical skill is of paramount importance. Generally clinicians need the opportunity to develop diagnostic skills under the supervision of a clinician who has wide experience in working with persons having autism.

When the diagnosis of autism is suspected, establishing the hearing acuity of the patient is fundamental. An overall consideration of the patient's health status should also be undertaken. Several sets of expert guidelines prescribe specific patterns of screening and inquiry, and should be of particular value to primary care medical providers. In about 25–30% of cases of children having autism, there is a documented history of regression in language skills. These youngsters have begun to use words but then stop and do not regain their language acquisition appropriately [6]. The inquiry in these cases must include careful examination of neurological pathology.

Causes

Since professionals began to attribute autism to neurobiological causes, many theories have arisen about the possible origins of the disorder. Although a large proportion of funding for research into autism has been directed toward clearly delineating the cause, it is probably safe to say at this point in time that the cause of autism in unknown. Many would agree that the "cause" is probably multi-factorial involving genetic and pre-natal influences. Others would argue that post-natal events are also a part of the picture but this assertion has little evidence to back it.

Among the most widely disseminated theories of causality has been the belief that vaccines, or some components of the vaccines, are somehow related to the onset of autism. Brain research [2,3] has found evidence of differences in brain tissue related to developmental events which occur before the end of the first trimester of pregnancy. If that is indeed the case then the disease would been present long before any vaccines were administered. Research in the USA and abroad has reported over and again that there is no link between vaccines and autism. Indeed, some studies report higher rates of autism in unvaccinated populations probably due to the long known link between certain diseases in early pregnancy and post-natal problems, including autism. The best known of such diseases would be rubella which had been virtually eradicated in the USA through vaccination programs until recently. Rubella in the first trimester of pregnancy is known to have been associated with developmental abnormalities including mental retardation and a pattern of symptoms we would recognize as autism.

Many other potential causes have been postulated and subjected to varying degrees of scientific investigation. Some have written about gut abnormalities and an "endogenous opioid" theory of causality. Others have suggested that there is excessive yeast within the system of the person with autism. Some believe that oxidative stress [5] is important. Others have investigated various neurotransmitters and contended that variability herein lies behind the symptoms of autism. Hypotheses have also been put forward about vitamin or mineral deficiencies. As yet, none of these theories has sufficient support to be regarded as fact.

Genetics

With advances in the ability to look at individual genetic materials, professionals are increasingly aware that differences on certain genes appear to be linked with what clinicians call autism. Knowing that autism is a disorder with a highly variable phenotype, it is not surprising that the disorder has an equally variable genotype, with as many as 7–8 genes implicated as relating to the symptoms which collectively we label autism [6]. It is also significant to note that the risk of reoccurrence is 5–6% in families which have a child with autism. Some hold that the risk is higher if the child with autism is female.

Some medical literature differentiates between what is called idiopathic autism versus autism which is associated with another genetic/medical disorder. In clinical practice and in the educational or social service venues such distinctions are rarely made. It is important to be aware that autism occurs at a higher rate than could be attributed to chance in association with certain disorders. In the arena of genetic disorders, we find autism associated with several disorders, most notably Fragile X, tuberous sclerosis, and Down syndrome, to name but a few. Autism is also associated with metabolic disorders such as PKU, adenIosuccinate lyase deficiency, dihyrdopyrimidine dehydrogenase deficiency and others [5]. In spite of all these links, it is reported that about 90% of all cases of autism are not associated with a known medical disorder [5].

Complications

Even accounting for the variable phenotype seen with autism there are other factors which may need to be recognized and addressed to optimize outcomes for children with this diagnosis. As previously mentioned, intellectual limitations affect a significant number of persons with this diagnosis. Among those having fairly intact basic cognitive skills, there is a relatively high incidence of

inefficient learning. This can in some cases be attributed to organizational challenges, and in other cases may represent a specific learning disability. Hand-writing difficulties also complicate the picture.

Anxiety plays a major role in creating discomfort and sometimes fueling behavioral challenges in this group of patients. Mood disorders may also be seen. Psychotic disorders are not common but sometimes do occur. Persons with autism may also display disruptive behaviors, including problems with impulse control, attention, and activity level, as well as conduct problem. There is an emerging body of literature about alcoholism in persons with autism and likely there are other forms of substance abuse.

In the medical realm, seizures are known to affect between 11 and 39% of the population having autism [9]. Onset seems to be either during the early childhood years or in adolescence to young adulthood. It is difficult to predict which individuals may develop seizures, but some authors suggest that seizures are more common among persons having autism and severe cognitive challenges, or motor deficits or an associated etiologic medical disorder [9]. Some literature also reports a sub-set of persons with autism who have gastrointestinal issues. Feeding problems and childhood eating problems are also extremely common and may pose health hazards if diets are excessively restricted [9]. Disordered sleep is another common problem in children with autism. This may exacerbate challenging behavior and is an important area for intervention.

Relevance to Childhood Development

Individuals who live or work with persons having autism would report that these persons often have differences and challenges with regard to learning, sustaining attention, and dealing with various sensory experiences. Although these differences may have the greatest impact in childhood, their impact remains evident in many cases right into the mature life of the individual.

Given that autism is a very heterogeneous disorder with symptoms affecting persons with incredibly variable abilities and symptoms it is important to consider the ranges of ability and behavior that may be seen within the population diagnosed with this disorder. The variability that is found having children having the autism diagnosis has led to characterizing autism as a "spectrum" disorder. Intellect is perhaps the best single predictor of prognosis. Persons with autism may have abilities covering the full range of abilities. Among persons meeting criteria for the autism diagnosis, epidemiologic data has traditionally suggested a rate of mental retardation approaching 60–80%. Language ability is closely related to intellect and is an area that also predicts outcomes well. Most person having autism eventually develop some spoken language but there are a number of individuals who remain nonverbal and require the use of some sort of augmentative communication system to achieve any degree of independence. Persons with this diagnosis also differ with regard to their social interest. Some persons will have social interest and attempt interaction but lack appropriate social communication skills for success. Other individuals will be highly avoidant and do their best to avoid the need to be in the company of others. Variability is also found in the area of motor skills. Although many person diagnosed with autism develop their gross motor skills in a typical fashion, some display marked delays and may benefit from therapies. Others show delays in the acquisition of fine motor abilities required for self-care activities and basic academic tasks and may benefit from treatment in this area. A fifth area of variability is in sensory responsiveness. Some individuals are hyper-responsive to stimuli in the environment and may avoid loud sound, touch or other specific types of stimulation. Another group of persons is hypo-responsive and may want to move, touch, sniff or taste constantly. Activity level would be the final broad area where variability is seen some persons with autism display extreme levels of hyperactivity, while others are profoundly passive. Most are somewhere in between.

In the literature about autism, psychological theories have been put forward attempting to explain the underlying social communication deficit(s) exhibited by children having autism. Two of the better known theories are Theory of Mind and Central Coherence Theory [4]. Theory of Mind, according to Happe is the ability to attribute thoughts and mental states to others and to oneself in order to explain behavior. Central Coherence refers to the ability to draw upon many pieces of information in order to make sense of things in a given context. Some have said that deficits in central coherence lead to an individual being unable to see the forest for the trees. In all likelihood neither of these theories completely explains the difficulties children with autism have in making sense of the complex world of social communication.

Treatment

At present, there is no treatment that "cures" autism, although such claims are sometimes made. The natural course of the disorder is for some degree of improvement. Skillfully designed and executed educational and behavioral programming can lead to real gains in functional skills and lead to major decreases in problem behaviors and notable improvement in areas of deficit. Interventions

based upon the principles of applied behavior analysis are best supported of all such programs researched [12]. Such programming is high-intensity, expensive, and requires a high commitment from family, caregivers and educators to be successful. Less intensive programs using behavioral principles may be beneficial but are not likely to have the potential impact of a traditional behavioral program. Specially designed educational methodologies, most notably the TEACCH program have also been shown to have value. Such structured educational strategies use simple visual systems including schedules and work space set-up, along with work-reward systems, and building functional communication skills. Many other approaches to autism have been developed and marketed. Many have no scientific backing. Although various purveyors of services often tout their approach as the "best," the evidence at present suggests that young children with autism show benefit from several kinds of daily interventions [12]. The challenge for parents is wading through the competing claims of persons who offer products and services purporting value for children having autism.

Depending upon the age, language level and behavioral presentation of a child with autism, social skills may or may not seem like a high priority for intervention. When children are young, parents and caregivers often are much focused upon acquiring academic skills. If there are behavioral challenges, these too often predominate when interventions are planned. In the long run, social skills are critical for success in independent functioning and successful integration into the community. Social skill interventions need to be designed with levels of service. For example, a child might attend a "social skills group" and learn about specific topics of interest, along with other girls and boys having the autism diagnosis. To insure that the lessons from group are "carried over" family/caregivers must be aware of the focus of group sessions, and attention given to providing various opportunities in natural environments such as school, church, and other social settings to assure generalization of newly presented skills. The need for social skills intervention cannot be emphasized enough and is a key to life success for children with autism [9].

Medically, there is support for the use of several psychopharmacological agents to treat specific symptoms which cause difficulty for some people having autism. Anxiety, aggression, depression, hyperactivity, and attentional/impulse control issues may all respond to medical intervention, at least in a portion of all cases. Other types of medications sometimes prescribed include medicines which help with sleep and medications which address specific gastrointestinal issues [9].

The National Academy of Science assembled a diverse group of autism practitioners to review existing research and make recommendations with regard to the best types of programming for children having autism. In their findings the Academy group [10] notes that there is no data that shows a clear, direct relationship between any particular intervention and children's progress. The group also concluded that treatments must include regular measurement of treatment effects. This presumes that all treatments have measurable, observable goals which would lend themselves to data-collection and analysis. The Council suggested that children begin to receive services as early as possible, and that they be actively and intensively engaged in programming which lasts all day, five days a week, every week of the year. A particularly important finding, in terms of treatment planning is that improving attention to people and improving imitation skills are critical areas to target in early intervention programs.

Future Directions

Attention to the causal factors associated with autism continues to be an important direction for investigation. Equally important however is the development of sophisticated population level research on intervention efficacy in order to determine which interventions work best for specific types of persons having autism. Such knowledge would enable service providers better to tailor services to the needs of the client and guarantee the best utilization of the funds available for services. Consensus building among the autism community is also needed to diminish the conflict which undermines the ability of the community to seek the best services for all members without the rancorous strife which diminishes the voice and resources of the community. Systems of care are needed which support families having children or adult loved ones living with autism. Resources must be directed toward optimizing family functioning as there is a well-documented association between family well-being and positive outcomes for persons having ▶developmental disabilities. In spite of all the gains that have been made in assessment and treatment for autism, there remains a need for realistic aspirations and a practical understanding of outcomes for persons given this diagnosis. A 1996 article by Ruble and Dalrymple [14] wisely stated that there are many factors influencing outcomes beyond those traditionally mentioned (e.g., language and cognition) and urged a reconceptualization of outcomes generally looking at a broad array of factors which may predict outcomes, including those mentioned before, as well as social skills, vocational

development, broad life experience and a host of sometimes neglected factors, all of which may in some way work together to determine "outcome" for persons having autism ultimately.

Another very important area for future emphasis is public and professional awareness efforts. Given the well-documented benefits of early intervention for children having autism, it is imperative that professionals in medicine, early childhood education, and many other fields, along with the general public be aware of possible warning signs that early social communication development may be on an aberrant course. The 2007 AAP article suggests many possible warning signs among them being poor use of gaze, disregard for other's speech and delayed onset of babbling, deficits in prespeech gestures such as pointing and waving, and failure to respond to parents' voices [6].

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Suggested Resources

Autism Society of America: http://www.autism-society.org

NEA educational guide: http://www.nea.org/specialed/images/autismpuzzle.pdf

Autism best practices: http://www.autismtoday.com/articles/article_autismbestpractices.pdf

American Psychological Association link to autism resources: http://www.apa.org/topics/topicautism.html

Families for Early Autism Treatment: http://www.feat.org

American Academy of Pediatrics resources: http://www.aap.org/healthtopics/autism.cfm

Autism Behavior Checklist

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Synonyms

ABC

Definition

The Autism Behavior Checklist (ABC) was designed to offer a method to more objectively identify autism in children. The scale utilizes an observer's rating of the child's behavior to quantify behaviors typically associated with Autism.

Description

The ABC was developed as a clinical measure to screen for autism in individuals 3–35-years-of-age. The scale was developed in 1980 and has not undergone revision since then. The ABC consists of 57 item and 5 scales (1) Sensory, (2) Relating, (3) Body and Object use, (4) Language and (5) Social and Self-help [11].

The items included in the ABC were grouped on the five subscales primarily based on face validity. The items themselves were chosen from many sources, including Kanner's [6] article which first outlined autism and Lovaas et al. [8] work on autism.. After items were written and finalized, internationally recognized experts in the field of autism were asked to provide feedback for the scale. The last stage of scale construction involved sending the scale to 3,000 special education professionals. After feedback from these professionals, weights were then assigned to the individual items [7].

The ABC total score is used to determine the likelihood of autism. Higher scores indicate the presence of more behaviors consistent with autism. The authors of the ABC assigned individual items a weight of 1–4 according to that behavior's relevance to autism. A total raw score of 68 or higher is used as a cut-off for indicating a high probability of autism, whereas a score between 53 and 67 indicates questionable autism, and scores of 53 or lower are considered unlikely to indicate autism. This score corresponds with one-half a standard deviation below the mean of children with autism who were included in the standardization sample [7].

Several researchers have conducted factor analyzes of the ABC to check for the content validity of the scales with mixed results [9]. In these studies, the Sensory scale typically appears to have the lowest validity. This fits with other conceptualizations of Autism; for example, even the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.) does not specifically include sensory deficits as diagnostic criteria for autism [1]. This provides further evidence for the use of the ABC as a screening tool rather than a strict diagnostic measure. Clinicians should exercise caution when using individual scales of the ABC to screen for autism and instead should utilize the entire checklist and its total raw score [5]. In addition, the ABC has not been shown to distinguish autism from other cases of developmental disorders as well as some other autism screening measures, such as the Childhood Autism Rating Scales (CARS) [10]. Overall, the ABC has a concurrent validity coefficient of 0.67 with the CARS [4]. The ABC shows a concurrent validity coefficient of 0.80 with the Pervasive Developmental Disorders Rating Scale (PDDRS) [2, 3].

The ABC total raw score has shown adequate reliability for screening purposes, though the scales individually have shown less reliability. Test–retest reliability reported by the authors is 0.87, but few other studies have examined test–retest reliability with the ABC. Measures of interrater reliability have also shown mixed results. It should be noted that many of the studies which show low interrater reliability tend to compare parent and teacher ratings. In these studies, parents tend to have higher total scores than teachers. It is possible, however, that the different environments seen between the home and school could account for some this variability. Clinicians should carefully consider the lack of strong interrater reliability evidence when comparing scores obtained by parents and teachers on the ABC.

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Autism Spectrum Disorders

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Synonyms

Acquired autism; Autism; Childhood disintegrative disorder

Definitions

A group of developmental disorders that include ►Autistic disorder, ►Pervasive developmental disorder not otherwise specified, ►Asperger's disorder, ►Rett's disorder, and ►Childhood disintegrative disorder. Some experts exclude Rett's and Childhood Disintegrative disorder from the group called "Autism Spectrum Disorders."

Characteristics

Autistic disorder: A pervasive developmental disorder that is diagnosed behaviorally, based upon observation and review of developmental information. Symptoms must include at least two incidents of qualitative in reciprocal social interaction (i.e., failure to use non-verbal behavior to regulate social interaction, failure to develop peer relationships, lack of shared enjoyment, and a lack of socio-emotional reciprocity). There must be at least one deficit in communication skill (i.e., lack or delay in spoken language without use of gesture to compensate, lack of varied spontaneous make-believe or social imitative play, relative failure to initiate or sustain conversational interchange, or stereotyped, repetitive or idiosyncratic speech). There also must be at least one restricted, repetitive and stereotyped pattern of behavior (i.e., encompassing preoccupations or circumscribed interests; apparently compulsive adherence to nonfunctional routines or rituals, or preoccupations with parts of objects or non-functional elements of material). Symptoms must have been present before the age of 3 years, although the diagnosis may not be made until after that age (APA, 2000).

Pervasive developmental disorder not otherwise specified: This pervasive developmental disorder is also labeled "Atypical autism" and generally is construed to be a case where the youngster does not meet the full criteria for the diagnosis of Autistic disorder but nonetheless has significant impairment in reciprocal social interaction. *DSM* criteria do not require communication differences nor are the unusual interests and behaviors necessarily present. Another way this diagnosis is different is in the fact that there is no requirement for symptoms to have been noticed before the age of 3 (APA, 2000).

Asperger's disorder: This diagnosis is a Pervasive Developmental disorder which has the same criteria as Autistic disorder with two notable differences. First, Asperger's disorder presumes a history of no significant delays in language development. To be specific, *DSM* criteria state that there must have been single word s used meaningfully by 24 months of age, and then multi-word utterances used by 36 months of age. The second criterion which sets Asperger's apart from Autistic disorder is the requirement that the individual so diagnosed have relatively intact development in the cognitive and adaptive spheres. Unfortunately, the *DSM* does not specify precisely what is meant by this, and there is no uniform level of ability followed in diagnostic clinics. For the most part clinicians tend to not use this diagnosis for individuals who have full-scale IQ's of less than 70, but variability does exist. To receive the diagnosis of Asperger's disorder the individual must still demonstrate at least two of the symptoms of Qualitative Impairment in Reciprocal Social Interaction (i.e., failure to use non-verbal behavior to regulate social interaction, failure to develop peer relationships, lack of shared enjoyment, and a lack of socio-emotional reciprocity). Symptoms must also include at least one restricted, repetitive and stereotyped pattern of behavior (i.e., encompassing preoccupations or circumscribed interests; apparently compulsive adherence to nonfunctional routines or rituals, or preoccupations with parts of objects or non-functional elements of material) (APA, 2000).

Rett's disorder is listed as one of the Pervasive Developmental disorders within the *DSM* although it is a known genetic disorder. Genetic testing can be done to obtain a definitive diagnostic confirmation. Rett's disorder has its onset early in life and leads to a loss of early developing motor skills between 5 and 30 months of age and a deceleration of head growth which occurs between 5 and 48 months of age. Most individuals who receive this diagnosis are female. Only recently have a very small number of males been identified. Individuals given this diagnosis typically have severe or profound mental retardation. Five symptoms are specified for diagnosis: (1) head growth decelerates between 5 and 48 months (2) loss of previously acquired hand skills in the age range of 5–30 months and development of stereotyped hand movements, sometimes described as resembling hand-wringing (3) loss of social engagement early on, although such skills may later develop to some extent (4) poorly coordinated gait or trunk movements

(5) severe impairment of receptive and repressive language and severely impaired psychomotor skills. This is thought to be a fairly uncommon disorder, and has a poorer prognosis than all of the other Pervasive Developmental disorders except childhood disintegrative disorder (APA, 2000).

Childhood Disintegrative Disorder is considered to be a Pervasive Developmental Disorder. Children with this diagnosis must have documented apparently normal development for at least the first 2 years of life. This diagnosis is given when a marked loss of skills in multiple domains of functioning occurs sometime between ages 2 and 10. Skills losses must be seen in at least 2 of 5 areas, specifically, expressive or receptive language, social or adaptive behavior, bowel or bladder control, play, motor skills. The *DSM* also specifies that there must be abnormality in 2 of 3 areas which are essentially the same symptoms clusters considered for the autism diagnosis. There may be qualitative impairments in reciprocal social interaction. Communication skills may demonstrate qualitative impairment. Finally, there may be restricted, repetitive and stereotyped patterns of behavior, interests, and activities, including motor stereotypies and mannerisms. This is a very rare disorder. The prognosis is generally not good in terms of the recovery of skills lost, although over time some individuals do make limited progress. In most cases skill loss levels off, sometimes at very low levels of ability. It is critical to know that there is no associated medical condition which leads to the loss of skills. Most individuals given this diagnosis have no medical condition which might lead to the observed decline in functioning. If a medical condition did exist, for example, a head trauma, then this would appropriately be thought of as a dementia (APA, 2000).

Autistic

►Acquired Autism

Autistic Behaviors

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Synonyms

Stereotypy; Stereotypic behavior

Definition

Behavior associated with delays in language and social skills as well as restrictive, repetitive, and self-injurious behavior.

Description

A diagnosis of autism is based on three defining features: a delay in the development of language, a deficit in the amount and quality of social interactions with others, and the expression of repetitive behaviors or restricted interests. Autistic behaviors can be grouped in these three areas. In the area of language delay, autistic behaviors include abnormal speech patterns, using the manipulations of the body parts of others to communicate (e.g., leading someone to a desired item), and not responding to the speech of others. A language pattern seen in some individuals with autism is echolalia, which also falls into the category of repetitive behavior. Echolalia is the repetition of another person's speech. Immediate echolalia is the immediate repetition of another person's speech. For example, if a teacher says, "What's your name?" the child with autism says, "What's your name?" Delayed echolalia is the repetition of speech heard at an earlier point in time. Some children with autism repeatedly say, or "script," parts of movies they heard earlier in the day or earlier in the week or month. Another example of delayed echolalia is answering questions with the same phrase each time, such as "I'm a good boy."

Social behaviors characteristic of individuals with autism are gazing away from others during communication, withdrawing from social situations, and playing or spending time by oneself. Social withdrawal is the basis for describing children with autism as "being locked in their own world." Individuals with high functioning autism or Asperger syndrome often have typical language skills but are delayed in the area of pragmatics, the social domain of language. Common behaviors associated with delays in pragmatics include talking only to meet one's needs and not engaging in "social niceties" or small talk. Conversation is often one-sided and individuals with high functioning autism do not show interest in the activities or thoughts of others.

The third defining characteristic of autism is repetitive behaviors and restricted interests [2]. Children with autism, especially in the severe range of autism, engage in repetitive movements such as body rocking, arm flapping, finger manipulations, and repetitive head movements. Attempts to stop these behaviors are often unsuccessful and some describe the movements as compensation for internal, vestibular, sensory deficits. Some

people with autism describe making these movements as "calming." Repetitive movements can also occur with objects such as string and spinning tops. Children with autism can manipulate string, beads on string, or spinning tops for hours at a time. Repetitiveness in individuals with high functioning autism is manifested by their restricted interests. These individuals feel comfortable talking about only one or two areas of interest, such as computers or World War II history. An individual with Asperger Syndrome might talk only about WWF wrestling and if a communicative partner attempted to change the topic of the conversation, the individual might quickly return it to his favorite topic.

A group of autistic behaviors not associated with a diagnosis but common in children with autism are challenging behaviors such as aggression and self-injurious behavior [1]. Self-injurious behavior occurs in many forms, such as hitting one's head, banging one's head again hard surfaces, hand biting, and trichotillomania (i.e., pulling hair out of the head). The damage caused by self-injurious behavior ranges from minor abrasions to severe damage requiring hospitalization and occasionally resulting in death. These behaviors are managed with behavioral intervention and medications.

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Autistic Disorder

►Acquired Autism
►Autism

Autistic Savant

►Idiot Savant

Autobiographical Memory

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Synonyms

Episodic memory; Long-term memory; Personal recollection

Definition

It is memory for specific, genuine events that are personally experienced and when compiled, they form a long-lasting personal narrative. It is high in self-reference and is subject to personal interpretation [1].

Description

Autobiographical memories tend to be more long-lasting than episodic memories because of their self-referent nature. Information and events that are related to the self are better recalled because we process them more extensively. This results in a more elaborate and deeply encoded memory trace, which generates better recall [2].

There are three different levels of autobiographical knowledge: lifetime periods, general events, and event-specific knowledge [2]. Lifetime periods, such as going to college, are contained at the highest level. The middle level holds general events, which are composite episodes that are experienced over days, weeks, or months. For example, these general events might be a snow skiing vacation or attending college basketball games one semester. Event-specific knowledge involves memories of individual episodes, which are measured in seconds, minutes, or hours [3]. For instance, remembering your first day out on the ski slopes when you fell down in front of a crowd. Each of these levels are woven together to form our personal narratives. Lifetime periods are the skeletal structure of autobiographical memories, so locating a period in one's life (e.g., freshman year of college) makes it easier to find general-event (e.g., attending college basketball games) or event-specific memories [4].

Memory distortions are common in autobiographical memories. However, recollections of extended time periods in the past are generally accurate. Errors are more frequent when reconstructing the particulars of a personal event. When remembering the past, source confusions can occur. This is when we fail to connect the time, object, or action of an event, resulting in misremembering the time and place something occurred

[5]. Our biases get in the way of constructing an accurate picture of ourselves or events. Hindsight biases lead to filtering memories of past events so that they more closely match current knowledge. We also hold consistency biases, which cause us to reconstruct the past as overly similar to the present [5].

Relevance to Childhood Development

Our earliest memories are of events that occurred between 3 and 5 years of age, and the majority of events occurring prior to 5 years of age are irretrievable due to *childhood amnesia* [1]. In contrast, personal memories from the period between ten years of age and the early twenties are particularly accessible. This phenomenon is known as the *reminiscence bump*. It is believed to occur because the events of the teens and twenties constitute a critical period in the lifespan, one in which the individual develops a stable and enduring self-concept [4].

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Autoeroticism

►Masturbation

Automized Naming

►Rapid Automized Naming

Autonomic Arousal

►Anxiety

Autonomic Nervous System

►Nervous System

Autonomous

►Piaget's Theory of Moral Development

Autonomous Motivation

►Internal Motivation

Autonomy

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Synonyms

Individuation; Independent decision making; Self-choice; Self-determination; Self-regulation; Self-reliance

Definition

Opportunities to freely choose, self-endorse, and self-direct one's own behavior following inner interests, while maintaining connectedness.

Description

In earlier theories, autonomy has been viewed as independence, self-reliance, and resistance to external control [3]. Erikson (1963) [2], one of the first theorists to conceptualize autonomy, regarded autonomy as an earlier phase of psychosocial development and identity formation. In his theory, between the ages of 18 months and 3 years, the child is confronted with mastering developmental tasks such as potty training, self-feeding and physical mobility, the successful completion of which eventuates in achieving an adaptive sense of autonomy. A failure at these developmental tasks, on the other hand, results in feelings of shame and doubt. In this sense, autonomy has been equated with achieving authority and capabilities to exercise behavioral control over bodily functions as well as to experiment upon the physical and social environment.

The psychoanalytic tradition, on the other hand, describes autonomy as a process of individuation and disengagement from parents, which initially emerges in the toddlerhood years, and reappears in adolescence [5].

Current theories, however, do not construe autonomy as a unitary, one-dimensional concept akin to behavioral independence and disengagement from parents. Rather, autonomy is conceived as consisting of overlapping, yet distinctive components such as behavioral autonomy (i.e., self-regulation of behavior and independent decision making), cognitive autonomy (i.e., beliefs about control over behavior) and emotional autonomy (i.e., individuation from parents), which develop concurrently. In addition, autonomy is regarded as a universal human need, characteristic of individuals of all cultural backgrounds [4]. The role of agency, self-initiation and self-regulation is emphasized. The satisfaction of the need for autonomy results in enhanced psychological well-being. The reverse of autonomous functioning is perceptions and beliefs of being controlled, coerced to engage in a particular action, which do not stem from the self [1]. Autonomy is not only freedom to choose one's own course of action and determine one's course of behavior, but it also indicates the degree to which the individual has internalized societal values and makes effective choices consistent with them [3].

Relevance to Childhood Development

Achieving autonomous functioning is a key task in childhood and children's ability and motivation to be autonomous incrementally increases through adolescence. Providing children with warm, supportive, yet structured environments is considered a key element to the development of autonomous behavioral, cognitive and emotional functioning, regardless of the developmental stage of the child. It has been suggested that overly restrictive and unsupportive environments limit opportunities for individuals to act in accordance with their own inner interests and desires for self-direction and independent decision making, and therefore, interfere with autonomy development. Authoritarian, permissive and neglectful parenting styles have been found to have a particularly negative impact on autonomy development. In addition, specific parental behaviors linked to negative consequences for autonomy development include: power assertion, love withdrawal, manipulation, intrusion, abusive language, personal attacks, negative evaluative feedback, pressuring children to accepts parental unilateral positions, limiting opportunities for choice, self-expression, and action, lack of discourse, and not engaging in joint decision making [5].

Autonomy gradually evolves over the life span, and at different age periods has unique manifestations. In infancy, parents regulate their children's behavior, closely monitor, set limits and impose discipline. This parental regulation of child's behavior creates not only a context for autonomy development, but it also promotes internalization of standards for appropriate behavior and courses of action [3].

In toddlerhood, there are rapid changes in access to contexts as a product of increased mobility, and incremental changes in language, cognition and social skills. Children become increasingly motivated to exercise these emerging competencies. During this developmental stage, the degree to which a child can make an effective choice depends on his developing physical, cognitive and language capabilities, but also on the appropriate limits and constraints set forth by the caregiver. Parental support, control, and demands play a crucial role for internalizing the standards; they also facilitate future effective choice making in unison with the internalized standards. The emerging sense of autonomy in children is demonstrated by their desire and ability to assert themselves in communicating and interaction with parents and other adults. Early signals of autonomy include resistance to compliance, indexed by the use of phrases such as "No" and "I can do it myself." Children develop self-awareness (i.e., who they are and what they can do), which allow them to regulate and control their behavior, thinking and feelings. Engaging in limited negotiations is another sign of autonomous functioning [7].

In the elementary and middle childhood years, not only do cognitive and physical skills develop rapidly, but children's social interactions increasingly expand to new social contexts. Within this developmental stage, children's striving for autonomy is exhibited in their greater desire to control their own thinking, feelings and behavior. Children become progressively more independent from the family. They begin to express their autonomy by the inclination to perform independently actions such as engaging in activities of their own choosing (e.g., doing homework), making decisions on how to spend their time (e.g., hanging out with friends, watching TV, playing videogames), making choices regarding clothing, and expressing their own independent thinking. This developmental stage is marked by child-parent co-regulation of behavior, as individuation from parents is typically not present.

In adolescence, autonomy development is linked to other developmental processes such as physical maturation, cognitive changes, identity formation, and expanding of social relationships, rights and responsibilities. As a result, adolescents become increasingly self-reliant, self-regulating, more capable of engaging in independent decision making while maintaining healthy social connections with family and peers [5]. Parental support for autonomy has been found to predict adolescents'

enhanced emotional and academic functioning. Autonomy-supportive parenting in adolescence has been associated with a range of positive developmental outcomes, which include increased sense of self-esteem, enhanced academic competence, fewer signs of depression and less antisocial behavior. In contrast, parental psychological control during this developmental stage has been linked to psychological and somatic symptoms, depression, and decreased motivation.

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Autonomy Versus Shame and Doubt

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Definition

Autonomy versus Shame and Doubt is the second stage in Erik Erikson's psychodynamic theory of psychosocial development.

Description

Erikson postulates a theory of psychosocial development that spans the lifespan and emphasizes an interaction between biological needs and the environment. According to Erikson, there are stages in development in which a child's unfolding biological needs and abilities engage the child with significant adults, resulting in interactions that help or hinder the child in meeting healthy psychosocial milestones. The patterns that emerge can be described as involving (1) key areas of the physical body, (2) the types of activity that the child is engaged in mastering at that level of development, and (3) the types of social interactions that result as the growing child relates to others with their new abilities [1]. Additionally, the resulting experiences from each stage lay the foundation for transition through the subsequent developmental stages.

Autonomy versus shame and doubt is conceptualized to coincide with the toddler age group defined as between 18 and 36 months of age. This stage represents the second nuclear conflict described in Erikson's theory and is associated with the anal-urethral-muscular stage. Physically, children at this age are maturationally prepared to experiment with retention and elimination. These two conflicting modes of action are crucial in describing the child's new capacities and the interactions that they have with the environment related to the biological need for elimination [3, 4].

The stage of autonomy versus shame and doubt is characterized by the child getting practice with "holding on and letting go" [3]. While this experience is initially associated with biological needs, the child learns about themselves through interactions with the environment and significant others. During toddlerhood, the child is optimally buffered from experiences of shame and doubt by a firm and comforting sense of trust established in infancy in the first Eriksonian stage of development. Therefore, the child can safely exercise choices over their bodily functions on the path to establishing autonomy and control. Simultaneously, they must also be protected from the danger of harsh exposure to others leading to feelings of shame and fears of being punished that lead to doubt. At the successful conclusion of this stage, the child emerges with a "sense of self control without loss of self esteem" [3] leading to pride in one's abilities. Accordingly, if this stage is marked by a loss of self control or the over control of another, then the child may develop a lasting sense of shame and doubt about their abilities [3].

Relevance to Childhood Development

The Eriksonian stage of autonomy versus shame and doubt is significant to child development as it coincides with and lays the foundation for similar theories of development in the young child. Additionally, Erikson's ideas about the mechanism of exercising autonomy over one's physical abilities and protection from the toxic reactions of others to the toddler's exertion of control converges with theories detailing the origins of maladaptive behaviors and psychopathology [1, 2].

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Average

►Norms

Aversive Stimulus

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Synonyms

Negative reinforcer; Punisher; Unpleasant event

Definition

An aversive stimulus is an unpleasant event that is intended to decrease the probability of a behavior when it is presented as a consequence (i.e., punishment). However, an aversive stimulus may also increase the probability of a behavior when it is removed as a consequence, and in this way it will function as negative reinforcement.

Description

Aversive stimuli have been described in learning texts to include stimuli, when used as a consequence will punish a response [1]. They are contrasted with appetitive stimuli that can be used to reinforce responses. While many people consider aversive stimuli as fear and pain-causing events, it is important to realize that an aversive stimulus for one person could be an appetitive stimulus for somebody else. In fact, for the same person in different contexts and at different times, an event could serve as either aversive or appetitive. Examples of aversive stimuli can include (but are not limited to): proximity of others, loud noises, bright light, extreme cold or warmth, and social interaction.

The ethics and morality surrounding the use of aversive stimuli in the modification of behavior has been questioned, and eventually lead "the aversive controversy" in the 1970s, since then, there is a strong anti-aversive movement, including position statements of advocacy groups, legislative efforts, and development of "positive-only" treatment packages [2].

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Avoidance

►Identity Diffusion

Avoidance Learning

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Synonyms

Avoidance responding

Definition

In the operant conditioning of B.F. Skinner, a behavior-strengthening contingency can involve either of two operations. If an operant response is strengthened (the rate of responding increases) by the presentation of an event after the response, this operation constitutes positive reinforcement. If an operant response is strengthened by the contingent removal or prevention of an event, this operation is negative reinforcement. When an operant increases via the removal or termination of an ongoing stimulus or event, the contingency is termed escape. When an operant increases by preventing a stimulus or event from occurring, this contingent relation between response and environmental change is termed avoidance. A stimulus or event whose offset reinforces operant behavior via these contingencies of negative reinforcement would be termed an aversive stimulus [7]. The acquisition of the response controlled by the latter contingency would be termed avoidance learning or avoidance responding [3, 9].

The study of avoidance learning has seen proposed explanations rise and fall and be replaced by proposed alternatives for decades. Organisms typically acquire escape learning more readily than avoidance learning and a history of escape from an aversive stimulus may be a prerequisite for avoidance learning [7, 9]. One account of avoidance learning in effect redefines avoidance as actually always being escape learning [7, 8]. Most of the debate has involved the question of how the prevention or nonoccurrence of an event can function as a reinforcer for avoidance learning [5]. This question has been referred to as the "avoidance paradox," [7].

The differing accounts of avoidance learning are referred to as Two-Factor Theory [8], One-Factor Theory [6], and a Cognitive Theory of Avoidance [10]. Two-factor theory is so titled because it is based on the assumption that two conditioning processes, classical conditioning and operant conditioning, are necessary for avoidance learning [7]. To illustrate the roles for the two processes, a description of Solomon and Wynne [14] is often cited. Solomon and Wynne used dogs as research subjects in a shuttle box, a rectangular enclosure divided down the middle by a barrier the subjects could leap over to cross from one side of the shuttle box to the other. Each side of the shuttle box had an overhead light as well as a metal grid floor through which shock could be delivered. Every few minutes, the overhead light in the compartment where the dog was located would be turned off while the light in the other compartment remained on. Ten seconds after the overhead light was extinguished, an electric shock was presented to the floor of the darkened compartment; the subjects could escape the shock by jumping over the barrier and for the first few occurrences of shock delivery, the subjects engaged in escape responding. After several repetitions, the subjects learned to jump over the barrier within a few seconds after the offset of the light to avoid the scheduled shock via an avoidance response and once this pattern of responding was acquired, most of the subjects never again experienced any shocks [7, 14].

To explain these findings in terms of the two factors, an unconditioned response to electric shock is fear, and through the pairing of classical conditioning, this elicited fear is transferred from the unconditioned stimulus of the shock to the darkness as a conditioned stimulus. Establishing a fear-eliciting conditioned stimulus via classical conditioning, in the case of Solomon and Wynne, darkness, is the first process of this theory. The second factor, operant conditioning, comes into play when the subjects engage in escape in the presence of the fear-producing CS and two-factor theory sees avoidance learning as actually being escape learning [7].

Several questions arise for proponents of two-factor theory. (1) Subjects can acquire avoidance learning in the absence of any discernible CS. While avoidance learning as conducted by Solomon and Wynne included an event that preceded the aversive stimulus, avoidance learning is acquired in the absence of any such "warning signal" or CS. This avoidance learning is referred to as non-discriminated avoidance, Sidman avoidance, or free-operant avoidance [9, 11]. (2) Subjects engage in avoidance learning in the absence of any observable signs of fear. (3) Any trial in which the shock US is not experienced is an extinction trial for the fear-eliciting CS; as a result, the CS will eventually no longer elicit fear and avoidance responding should become less frequent or cease. Two-factor theorists argue that subjects will have to experience shocks again for the CS to be re-established as a fear-eliciting event such that avoidance learning would be acquired, weaken and be re-acquired in a cyclical fashion. Unfortunately for the advocates of two-factor theory, such a cyclical pattern of behavior is rarely if ever observed and avoidance learning fails to undergo the extinction predicted as expected by two-factor theory [7]. The proponents of two-factor theory retort that the necessary fear is still present but is strictly an internal response and that the passage of time alone between scheduled shocks can serve as a fear-eliciting CS [3].

The questions raised concerning two-factor theory, particularly the lack or the slowness of extinction of the learned-avoidance response opened the door for alternative explanations of avoidance learning such as one-factor theory. One-factor theory has the appeal of being a simpler account and it is based solely on operant conditioning [7]. Initially Sidman [11] showed that rats could acquire avoidance learning in the absence of any obvious CS; in his experiment, if rats did not respond via a lever press, shocks were delivered every 30 s, but if an animal made a lever press, shocks were delayed by 30 s. Responding occasionally but regularly, once every 15–25 s or thereabouts would let a rat avoid all shock. While no rat did avoid all of the shocks completely, Sidman's rats did acquire avoidance learning responses that allowed them to avoid the majority of the scheduled shocks [7, 11]. One obvious question for the results of Sidman [11] is that the shocks were a regularly occurring aversive stimulus and that the passage of time since the last shock could be serving as a CS to elicit fear; as a result, results of studies like Sidman [11] were not a conclusive end to two-factor theory [7].

To more definitively challenge two-factor theory, Herrnstein and Hineline [6] performed a study in which electric shocks occurred but which were not a regularly

programmed and predictable consequence. In this study, rats were shocked according to a probability contingency in that at the end of every 2 s, a shock would be delivered according to different probabilities. If a rat did not emit a lever press, the probability of a shock had a p. of 0.3 in the next 2 s. If a rat did emit an operant response of lever pressing, the p. of a shock in the next 2 s was reduced to 0.1. Here, there were no predictable or consistent shock-free periods; the occurrences of shock inevitably followed some responses. Nevertheless, approximately 90% of the rats in this study acquired avoidance learning. Herrnstein & Hineline [6] concluded (1) animals could learn an avoidance response with neither a discernible, external CS nor the passage of time as a reliable predictor of shock, and (2) a reduction in the overall frequency of shock was sufficient for the acquisition of avoidance learning [6, 7].

How does one-factor theory account for the hindered extinction of the avoidance response? The progress of extinction of any operant is slower following intermittent reinforcement relative to behavior that had been maintained by continuous reinforcement or fixed schedules of reinforcement [9]. This partial-reinforcement effect is argued to be due to the difficulty the organism has in discriminating the change from variable reinforcement to extinction relative to the change in conditions from fixed reinforcement to extinction [7, 9]. In the Herrnstein & Hineline study, the responding of the subjects was on a highly variable schedule of negative reinforcement. Predictably, such a schedule would produce a slowed extinction of the operant [7].

It needs to be emphasized that the nature of the operant response has bearing on the likelihood that avoidance learning will be acquired. If an operant reinforced with a escape or avoidance contingency is compatible with an organism's innate responses to a threatening, aversive stimulus, the acquisition of avoidance learning will progress much more rapidly than if the response is incompatible with the organism's innate defensive responses [2]. Bolles argued that animals are born equipped with innate behaviors that serve to protect and defend the organism from predation; these innate responses were termed species-specific defensive responses (SSDRs) by Bolles and such SSDRs were elicited by a pain producing US such as electric shock [2]. As a result, an organism's SSDRs have to be considered as a variable in avoidance learning [2, 3].

The arguments of Bolles [2] seemed to raise questions that a purely operant account of avoidance learning was overlooking variables that had to be considered to explain avoidance learning [3]. This led to the proposal of a cognitive theory of avoidance learning by Seligman and Johnston [10]; this theory introduced the concept of "expectations" or "expectancies" as mental events occurring inside animals that were proposed as being variables needed to account for avoidance [3, 4, 10].

To account for avoidance learning, Seligman and Johnston argued that two important expectancies form in a situation calling for avoidance. (1) An expectancy is formed regarding the consequences of a response, and (2) another expectancy is formed concerning the consequences of no response occurring. During the course of acquiring avoidance learning, the animal gradually forms the expectancy that (1) no shock will occur if a response takes place, and (2) a shock will occur in the absence of a response. Since the second outcome is preferable to the first, the organism engages in avoidance [7, 10]). Once these expectancies are in place, these researchers argue that the animal's behavior will remain constant until the expectancies are breached; extinction is slow because responding avoids shock and the expectancies are upheld. The expectancies lead the animal to continue to engage in avoidance [3].

Seligman and Johnston [10] were only the first in a series of cognitive theories of avoidance learning [3] and the concepts of such theories are agreeable to cognitive theorists. Critics and skeptics raise questions about the reality of unobservable concepts such as expectancies and expectations. Concepts such as these are necessarily circular [15]. The presence of unobservable entities such as expectancies is inferred from behavior, yet the same concepts are then used to explain the behavior in question. If behavior changes, it is inferred that the expectancies changed and the change in expectancies produced the behavior change. The expectancies, however, can never be observed independent of behavior, are uneconomical and circular, and inspire skepticism regarding their reality [1, 12, 13, 15].

Has avoidance learning been unequivocally explained? Probably not, since one-factor theory is still the accepted account by operant theorists but considered inadequate by cognitive theorists [3, 7]. Most of the two-factor theory proponents are now largely cognitive [4]. The concepts of cognitive theorists are critiqued by operant theorists [9] and delegated to the status of "explanatory fictions" [12, 13, 15]. This type of debate is the current state of much of psychology.

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Avoidance Responding

►Avoidance Learning

Avoidant Attachment

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Synonyms

Insecure attachment

Definition

Avoidant attachment is a form of insecure attachment between young children and their caregiver.

Description

To assess the quality of attachment between mothers and infants, Mary Ainsworth developed a standardized process called the Strange Situation Procedure. In this procedure, both the infants and their mothers were brought into a room filled with toys where infants were given the opportunity to explore. In a series of eight situations, the infants were separated from their mother twice, reunited with their mother twice, and also encountered a stranger. Based on the infants' behavior during these eight situations, the infants were classified as either secure, avoidant, resistant, or disorganized [1, 5].

Those infants that were classified as avoidant demonstrated little anxiety upon separation from their mother. Instead, these infants actively avoided, ignored, and resisted interaction with their mother. Upon reunion with their mother, these infants appeared indifferent [1, 5].

Avoidant attachment can develop from two different types of care giving. In the first pattern of care giving, mothers tend to be unresponsive and rejecting towards their infants during times of distress. In the other case, mothers are overzealous. These mothers tend to overwhelm the infant with too much stimulation, which the infant may find discomforting. As a result, they may withdraw from their caregiver's affection [1, 5].

Relevance to Childhood Development

The bond between the infant and their primary caregiver provides the foundation for social development and the manner in which they establish relationships. Infants with insecure attachments are more likely to have social problems than those with secure attachments. They are more likely to be mistrustful and may avoid close relationships with others. Avoidant attachment has been associated with schizoid, narcissism, and obsessional problems later in life [2–4].

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Axon

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Synonyms

Nerve fibre; White matter

Definition

An axon is the part of a neuron that carries messages destined for other cells.

Description

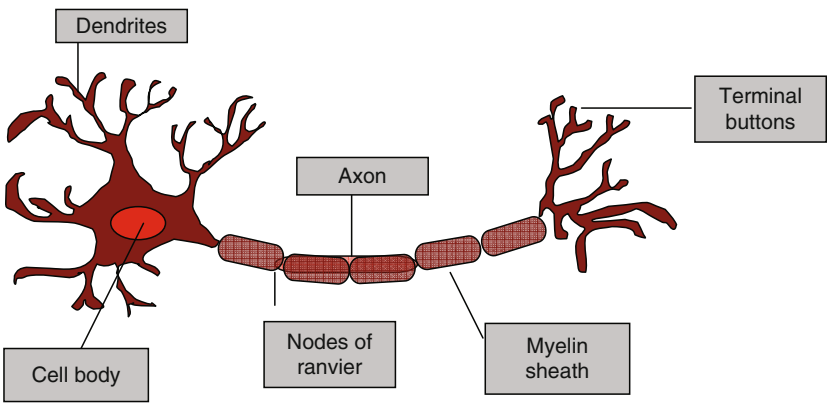
An axon is a long tube like extension coming from the cell body or soma that conducts electrical pulses from the neuron to other cells. The axon is longer than the rest of the neuron. Most axons are just several millimeters long but some axons can extend a meter in length. Most axons are also insulated with a protective coating known as the myelin sheath. The myelin sheath is made up of specialized glial cells that wrap themselves around the axon. Schwann cells sheath the neurons of the peripheral nervous system and oligodendrocytes insulate the neurons of the central nervous system [4]. The majority of myelination is complete by 5 years of age but the process continues into the forth decade of life [2]. A myelinated axon has evenly spaced gaps known as nodes of Ranvier which enable rapid propagation of electrical impulses. Axons involved in the transmission of the most important electrical messages have the greatest concentration of myelin. For example, the information signaling pain is passed through axons with large quantities of myelin. Neurotransmitters are the chemicals stored in the terminal buttons at the end of the axon. The electrical impulse results in the release of the axon's neurotransmitters which can travel across the synapse to a receptor site on another neuron's dendrite. Figure 1 shows an axon in relation to the other main components of the neuron.

The white matter of the brain consists of the myelinated axons that are grouped into bundles (nerve fibers). The grey matter is made up of the neuron's cell body and dendrites. Figure 2 demonstrates that the bundles of axons (nerve fibers) make up a large proportion of the human brain.

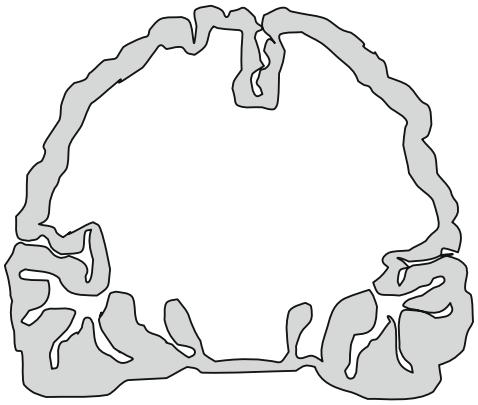
A number of diseases and disorders preferentially effect the white matter in the brain. Multiple Sclerosis (MS) is one of the most common [4]. In MS the myelin insulation around the axon has been destroyed. The amyloid plaques which are characteristic in Alzheimer's disease are known to effect white matter and atherosclerosis is likely to first occur in the tiny blood vessels that irrigate white matter.

Relevance to Childhood Development

The brain continues to develop throughout childhood and the volume of white matter increases linearly into adulthood [2]. The central nervous system is the most vulnerable human system to developmental injury. Children can suffer from a variety of diseases and disorders that effect the axon and specifically the myelin insulation of the



Axon. Fig. 1 The components of a neuron featuring the axon.



Axon. Fig. 2 A schematic picture of a coronal view of the brain depicting grey and white matter.

axon. These diseases are designated the leukodystrophies and include hereditary hypomyelinating diseases such as Pelizacus-Merzbacher disease and metabolic disorders such as Krabbe's disease and Caravan's disease [3]. Considerable research effort is being made to develop cell-based therapeutic strategies that can aid in the restoration of myelin. In addition, several environmental factors are known to interfere with the deposition of myelin. The most influential is malnutrition during the critical period between birth and 24 months of age. MS is increasingly recognised as a disease that effects children with some research suggesting that children may represent up to 10% of all MS cases [1]. As with adult-onset MS, children present with visual and sensory problems and often weakness and ataxia. Children, however, typically have fewer lesions (injuries) than adults, but are more likely to have monosymptomatic illnesses and this poses a difficulty with regard to accurate diagnosis.

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