

Behavioural Assessment of Children and Adolescents

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Abstract : This article is an overview for pediatricians who conduct behavioural assessments of children and adolescents. It identifies the most common behavioural problems encountered by pediatricians and brief descriptions of selected tests that are administered by psychologists and other trained mental health professionals. Also covered are suggestions for the pediatrician on conducting diagnostic interviews and information regarding referral decision making. (*Indian J Pediatr* 1999; 66 : 389-399)

Key words : Psychosocial development; Diagnostic interview; Standardized tests; Behavioural assessment.

In a recent epidemiological study in India, it was reported that 18.3% of a sample of Indian school children were categorized as "disturbed" according to scores on behaviour rating scales.¹ In the United States, it has been estimated that between 5 and 20% of children meet criteria for a mental, behavioural, or developmental disorder^{2,3}. Despite these high prevalence rates, it has been estimated that only a small proportion of these children receive specialized services in the United States (2-5%)⁴, and estimates for utilization of mental health services among Indian children are not currently available.

These findings underscore the need for effective identification and referral of children experiencing a range of behavioural, emotional, and developmental disorders. The purpose of the article is to provide pediatricians and other child health care

providers with an overview of the types of problems typically reported in the medical setting, the kind of services that are routinely provided by pediatric mental health specialists (e.g. psychologists, psychometricians, clinical social workers), and diagnostic interview information that can be implemented to determine referral needs.

PEDIATRIC PROBLEMS

Pediatric physicians have generally been shown to detect only a small proportion of mental health problems in the children they see⁵. Data from a number of studies indicate that pediatricians generally recognize 20-50% of children who meet criteria for a psychiatric diagnosis⁶. Increasing the rates of identification of children experiencing such problems will most likely have beneficial results not only for the mental health of children, but for their physical health as well. One recent study demonstrated that children and parents (participating in an

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HMO) who received brief (1-6 sessions) problem focused treatment for common behaviour, school, toilet, and psychosomatic complaints experienced a 74% reduction in the problem behaviours with a high degree of satisfaction⁷. These children were also less likely than a matched comparison group to require acute primary medical care in the year following the treatment. Thus pediatricians may benefit from the identification of mental and behavioural problems and the utilization of psychological services.

One way to better understand the behavioural and emotional needs of children in the primary health care setting is to become familiar with the most common types of problems reported in such settings. A recent survey highlights the referral patterns to a pediatric psychology clinic and provides information on the degree of satisfaction experienced by the referring physicians⁸.

The first part of this investigation examined archival data from a pediatric psychology consultation service over a four year period. The service was housed in the medical centre of a large university in the U.S. where consultation was typically solicited via telephone or written request. Records were registered on the basis of the source of the referral, the referring problem, the location of service delivery, and the provider of consultation services. Results showed that the service received 1467 consultation requests in the four year period examined. The proportion of age groups involved was as follows : less than 2 years old (4%), 2-5 years old (20%), 6-9 years old (29%), 10-12 years old (12%), 13-15 years old (24%), and 16-21 years old (12%). General Pediatrics requested the most consultations (26%) followed by pediatric neurology (22%), surgery/transplantation (16%), and child and

adolescent psychiatry (11%). Faculty and resident physicians accounted for 83% of referrals from within the health sciences centre.

Based on the survey of Rodrigue *et al.*, the most common primary referral problems were for cognitive/neuropsychological evaluation (24.9%), externalizing behaviour problems (20.0%), comprehensive psychological evaluation (16.8%), pre-surgery/transplantation evaluation (14.9%), and illness specific adjustment problems (6.8%)⁸. The most frequently administered interventions for these problems were as follows : intelligence tests (67.4%), behavioural inventories (52.5%), personality tests (38.6%), achievement tests (31.0%), developmental tests (20.6%), family inventories (15.3%), neuropsychological batteries (15.0%), or interview only (10.8%).

Based on the results of this survey, it would be useful to highlight the manner in which each of the most commonly presented referral problems can adversely affect the well-being of the child and to discuss how the assessment strategy selected by the pediatric mental health worker can be used to develop treatment.

ASSESSMENT

As noted by Rodrigue *et al.*, the most common referral problem/requests is for cognitive or intellectual evaluation⁸. Borderline or deficient intellectual or neuropsychological functioning can either be a direct result of medical problem⁹ or can impede the implementation of effective treatment regimens for chronic medical problems. Children and adolescents who need to engage in complicated treatment programmes such as metabolic control associated with insulin dependent diabetes mellitus or factor re-

placement therapy associated with hemophilia may be at risk to carry out such regimens if they are cognitively less advanced than their peers. Intelligence tests can provide information regarding how the child is functioning in terms of general cognitive abilities compared to typically developing peers of the same age and gender.

The most commonly used intelligence tests include the Wechsler Intelligence Scales; particularly the Wechsler Intelligence Scale for Children, Third Edition (WISC-III, used for children ages 6-16) and the Wechsler Preschool and Primary Scale of Intelligence (WPPSI-R, used for children ages 3-7). For older adolescents (16+), the Wechsler Adult Intelligence Scale, Third Edition (WAIS-III) may be used. The Stanford-Binet, Fourth Edition (SB-IV, used for ages 2-23) is also well-standardized and widely used. Hindi, Punjabi, Gujarati, Marathi, Kannada, and English versions are available.¹⁰

In the case of infants, developmental scales are used when developmental delays

are suspected. Commonly used scales include the Bayley Scales of Infant Development (BSID-II, for ages 1 month through 42 months) and the Gesell Developmental Schedules (birth to 18 months)¹⁰. Information is gathered through direct observation of the infant and questions posed to the parent or caregiver. These tests are designed to assess the infant's current level of development. They do not predict long term development¹¹. The Vineland Adaptive Behaviour Scale (birth through 18 years) measures adaptive functioning in daily life. It consists of a series of questions that are answered by the caregiver. This scale is often used in assessing mentally retarded children and adults.

Mental health workers who administer standardized intelligence tests and developmental scales must have specialized training in tests and measurements that include test construction, administration, scoring, and interpretation. Results from intelligence and developmental tests are usually presented in a narrative format. The ex-

TABLE 1. Standardized Intelligence Tests

Intelligence tests	
Instrument	Age range (Years)
Stanford-Binet IV	2-23
Wechsler preschool and primary scale of intelligence - R	3-7.3
Wechsler intelligence scale for children - III	6-16.11
Wechsler adult intelligence scale - III	16-89

TABLE 2. Developmental Scales

Instrument	Age range
Bayley scales of infant development - II	1-42 months
Gesell developmental schedule	Birth - 18 months
Vineland adaptive behaviour scales	Birth - 18 years

aminer's interpretation of the test responses, scores, and a comparison of the child's response to others in his/her cohort group are typically included.

In some cases, the medical problems of a child or adolescent may interfere with school functioning to a significant degree. When the academic functioning of a child is of interest, standardized achievement tests may be used by the pediatric mental health worker. Such scales yield information about how a child is functioning compared to her/his peers in the same grade in common school subjects, such as reading, math, spelling, writing, and, in some cases, other subjects. It should be noted that achievement tests, while highly correlated with intelligence tests, do not measure the same domains of functioning. The most commonly administered achievement tests include the Woodcock Johnson Psychoeducational Battery (WJ-R), the Wide Range Achievement Test 3 (WRAT-3), and the Peabody Individual Achievement Test (PIAT).

Externalizing behaviour problems such as noncompliance, aggression and delinquency, attentional problems, disruptive behaviour, and others were identified as the second most common referral problem⁸. The most common way of assessing these kinds of behaviours is through behaviour rating scales. These are typically completed by parents or other adults in frequent contact with the child (i.e. teachers) and provide developmental information about a number of commonly observed behaviour problems. One of the most widely used and well-standardized scales is the Child Behaviour Checklist¹². This scale provides information across a range of child behaviour problems, including validated scales for problems in the following areas : anxious/withdrawn,

somatic complaints, social problems, attention problems, thought problems, and delinquent behaviour. It has been shown to be sensitive in identifying externalizing behaviour problems in a sample of Indian children¹³. The Developmental Psychopathology Checklist (DPCL) is another behaviour rating scale that was developed exclusively with an Indian sample and has been shown to identify seven clusters of behaviour problems : emotional disorder, hyperkinesis, childhood psychosis, learning disorder, hysterical syndrome, conduct disorder, and autism¹⁴. The DPCL has also been shown to have adequate psychometric properties and external validity.

Pre-surgery and transplantation evaluations as well as illness-specific adjustment problems can often be addressed through the use of personality and family adjustment measures. Although the identification of specific assessment instruments to measure these features is beyond the scope of this article, Wallander, Varni, Babani, Banis, and Wilcox have provided a model for assessing the psychological and behavioural functioning of children experiencing chronic medical problems¹⁵. The specific domains identified (and that have empirical support) as being related to positive outcome include disease parameters, particularly as they relate to levels of functional independence; psychosocial stressors, including major life events and daily hassles; interpersonal factors as temperament, problem solving ability, and motivation; social factors, as level of family support, family environment, and family adaptation to the illness, and stress processing, or how the children appraise and cope with stress. Each of these areas can be assessed to provide a clear picture of the child's adaptation to the medical problems and his/her

level of mental health impairment.

After reviewing the kind of problems for which children in pediatric settings are typically referred for mental health services and the kind of assessment strategies employed by psychologists and other professionals, we now explore in detail the pediatric assessment interview and the decision to refer for further assessment and/or treatment.

DIAGNOSTIC INTERVIEWING

A thorough diagnostic interview is critical in assessing the psychosocial adjustment of children and adolescents. It is the pediatrician's best tool for gaining an accurate picture of the complexity of a child's or adolescent's life and the impact of the environment on his/her overall development. If pediatricians forego a complete diagnostic interview and treat only the immediately recognizable symptoms, it is likely that they will miss critical factors that impact health.

Good interviewers share three characteristics: they are able to obtain a significant amount of accurate, relevant information; they obtain this information in a relatively short period of time; and they maintain a good working relationship with the patient¹⁶. The goal of the diagnostic interview is to gain as much knowledge of the patient's life situation as is possible in the time allotted and to use this knowledge to provide accurate assessment and treatment. Respect, empathy and a comfortable exchange of information using a shared collaborative approach are integral to effective interviewing¹⁷.

A mistake commonly made by physicians is to exclude children from diagnostic interviews and from explanations of proce-

dures and findings. Although most information regarding a child will be gathered by interviewing the parents or caretaker, children can and should be included in interviews by making eye contact and explaining concerns, procedures and findings at a level which is understandable to them. Additionally, asking them about their concerns as age appropriate is a technique for including them in the interview. Explanations and questions to children are best formulated and presented in a brief, non-technical, jargon-free manner.

Wolraich¹⁸ states that parents voice concerns that professionals often "fail to recognize parents as knowledgeable sources of information, observations, and judgments about their child" (pg 112). When interviewing parents, he recommends that the pediatrician must be cognizant of both the verbal and non-verbal aspects of the interview. The physician should be careful to talk at a rate that is slow enough to allow the parents, who may be somewhat anxious, to reflect upon what is being asked. The pediatrician should be patient when pauses in parental responses occur, as the parent may still be formulating a complete response to the question posed. It is important to include open-ended questions in the interview rather than only questions that can be answered with a monosyllabic response. Open-ended questions such as "Tell me about what you observe in your child" allow parents to more fully express their concerns, what has triggered these concerns, and to provide invaluable information for the formulation of a diagnosis and/or a plan of action.

For many pediatricians, interviewing the adolescent is less familiar and of more concern than interviewing parents.

Interviewing Adolescents

In dealing with the adolescent, it is important to gather information from both the adolescent and the parents. This may mean interviewing the adolescent and the parents separately or as a unit. The decision regarding how to proceed should depend on the nature of the primary concerns and the relationship among family members. If the family has open communication patterns, it is appropriate to interview the family members together. If the family has closed communication patterns and the issues are of a sensitive nature, it is wise to interview the adolescent and parents separately. This decision should be discussed with the family prior to beginning the interview, to enlist their support.

The questions should be posed in clear, unambiguous terms that are appropriate for the adolescent's level of development. Using terminology above the adolescent's level of comprehension may result in confusion and hinder the establishment of rapport.

A number of tasks should be accomplished in the beginning of the diagnostic interview. The first is to ensure that the adolescent has an appropriate understanding of the reason he/she is participating in the interview. Often adolescents come into contact with physicians due to situations imposed on them by their parents, teachers, or other authority figures. Given this, they may not understand fully why they are being seen for an evaluation and/or treatment and may resent the interview.

Indicating at the onset of the interview about how much time it will take and the nature of the questions to be posed is important, as the pediatrician needs to develop a secure environment that allows the

adolescent as much control as possible¹⁶. An overview of what to expect from the interview allows the adolescent to ask questions and make comments. This, in effect, permits him/her to exercise a degree of control over the situation and promotes security.

Taking notes while following a written format of questioning is important. Some physicians believe that note taking hinders rapport. However, accurate recording of information for later evaluation is critical. It is appropriate and helpful to state to the adolescent about the importance of taking down notes as this communicates respect for the adolescent.

In order to gather enough information to make a correct diagnosis, the interview must be structured, and the interviewer must steer the conversation. The interviewer should use a focused line of questioning to help the adolescent remain on topic. Whenever possible, open-ended questions should be used. This allows the adolescent to fully explain concerns and reduces the risk of influencing the adolescent's responses. Studies have shown that patients give the most valid information when allowed to answer freely¹⁶. Valid information results in accurate diagnosis and better referral and/or treatment outcomes.

It is important for pediatricians to be aware of the pervasiveness of co-morbidity¹⁹. It is rare for adolescents coping with psychosocial difficulties to have only one problem. Troubled adolescents typically have multiple emotional, psychological and environmental difficulties. It is imperative that the interviewing pediatrician probe for all possible issues.

Accurate assessment often involves obtaining information from a number of sources, including the adolescent, the par-

ents, the school and significant others¹⁷. The pediatrician should contact all significant individuals in the adolescent's life to investigate her/his functioning throughout the environment. The more comprehensive the concerns, the greater the probability that the adolescent experiences significant psychological difficulties. If concerns appear focused in particular areas or with specific individuals, greater is the likelihood that the difficulties are specific to that environment or relationship.

After gathering demographic information, the pediatrician should begin the interview by asking the adolescent why he/she is seeking treatment. It is common for adolescents to be uncommunicative at the beginning of the interview process. At that point it is appropriate for the pediatrician to state that he/she will begin by interviewing the parents and the adolescent can add information. Typically adolescents become more communicative as the process continues. Explore thoroughly the problems that have brought the adolescent into treatment.

Adolescents coping with psychosocial difficulties often engage in behaviours that are inappropriate or detrimental. It is important not to exhibit disapproval of the behaviour unless necessary. The adolescent may interpret immediate disapproval as a personal attack and refuse to engage in further dialogue with the interviewer. The interviewer should focus on developing a trusting relationship before criticizing or challenging behaviours. For obvious reasons, actions that pose an immediate danger to the adolescent or others should be addressed as quickly as possible.

As the adolescent tells his/her story, pediatricians should probe for the presence of vegetative symptoms. Vegetative symptoms refer to changes in body function including sleep, appetite, weight and energy

level. Many patients with serious problems such as anxiety, depression and psychosis experience vegetative symptoms¹⁶. While adolescents experiencing psychological and emotional difficulties frequently exhibit conscious or unconscious denial, significant changes in body functioning are warning signs of disturbance.

After exploring the primary concerns, a natural transition is to explore the adolescent's family history. Here the pediatrician has the opportunity to accomplish a number of tasks: develop a biographical sketch, learn about relationships, and learn about family history of disorders¹⁶.

The pediatrician should explore the history of both the immediate and the extended family. A family history of mental illness or emotional difficulties increases the likelihood that the adolescent copes with similar issues. A family history of disorders may be genetically linked or the result of historical environmental factors.

Next the pediatrician should explore the adolescent's educational history. How is she/he performing in school, both academically and socially? If problems exist, when did they begin? Has the adolescent changed schools? Troubled adolescents frequently cope with academic difficulties that have not been identified or addressed due to the more visible emotional and behavioural issues.

The interviewer should explore the adolescent's medical history. Does he/she have a medical condition that contributes to psychological difficulties and vice versa? If the adolescent has a medical condition, by whom has he/she been evaluated? Do they require additional referrals for assessment?

Does the adolescent have a history of legal involvement? Legal involvement is typically a sign of significant psychological or emotional difficulties. If the adolescent has

committed a crime, what was it and when did it occur? Is he/she currently being monitored by the legal system? If so, it is wise to contact the court to gather information regarding the extent of the illegal activity.

Any events in the adolescent's history that are considered traumatic or abusive should also be recorded. Trauma and abuse usually leave psychological and emotional damage that is often left unaddressed. Does the adolescent currently experience trauma or abuse? If so, what steps should be taken to resolve the situation?

Pediatricians should investigate any current stress factors in the adolescent's life that contribute to his/her difficulties. An adolescent exhibiting behavioural, emotional or psychological difficulty frequently experiences some triggering event in the environment that either causes or exacerbates the problem.

It is also helpful to explore the adolescent's treatment history. Which physicians, psychologists or other helping professionals have evaluated or treated this adolescent? Material obtained from other professionals can be helpful in the current assessment process.

Exploring sensitive subjects such as sexual activity, substance abuse, and suicidal behaviour is a must¹⁶. Most adolescents will feel as comfortable as the pediatrician appears to be. It is appropriate to state that these are general questions that all patients are asked as part of the interview. If the adolescent indicates that he/she is sexually active or uses psychoactive substances, these responses should be followed by open-ended questions to explore the extent of the activity.

When adolescents indicate a positive history of suicidal ideation or behaviour, it

is important to assess their current level of risk. Has the adolescent ever made a suicide attempt? If so, the likelihood that he/she will make another attempt increases. Is he/she currently suicidal? If so, does the adolescent have a plan to engage in self-harm? The more concrete the plan, the greater the risk that the adolescent will make a suicide attempt. Does the adolescent have the means to carry out the plan? If so, the risk for an actual attempt increases. A family history of suicide or previous attempts at self-harm by the adolescent can indicate a high risk of suicide attempt. Drug and alcohol use also increase the risk, as most completed suicides occur while the victim is under the influence. A significant, but sometimes overlooked, risk factor is a sense of hopelessness. Asking the adolescent about future hopes and plans is one way to assess hopelessness.

Sometimes adolescents threaten self-harm while they are angry with their parents or other authority figures. If the adolescent is threatening while angry, the threats are non-specific, no history of suicide attempts exists, no history of alcohol or other psychoactive substance use exists, and no on-going preoccupation with self-harm or death exists, the likelihood of an actual suicidal attempt decreases. If, however, the adolescent has positive risk factors and poor impulse control, the chance of a suicide attempt increases. It is critical that the pediatrician determines the level of risk and takes appropriate steps to prevent a suicide attempt.

A diagnostic interview should include a mental status exam. Typically, this exam explores both behavioural and cognitive functioning¹⁶. The behavioural portion of the exam includes an evaluation of the adolescent's appearance, mood, and flow of

thought - aspects that are observable by the interviewer and do not require questions. Behavioural observations provide the pediatrician with immediate information regarding the adolescent's functioning.

The cognitive portion of the exam explores the adolescent's thinking and requires direct questioning. The pediatrician is looking for inaccuracies in the adolescent's thought processes. Does he or she experience delusions or hallucinations? Is the adolescent oriented appropriately regarding time and space? Does he/she cope with any anxieties, phobias or obsessions? Are there problems regarding concentration or attention? How accurate is the adolescent's long and short term memory? Does he/she exhibit appropriate judgment?

A mental status exam is critical in ruling out serious psychological impairment and should not be omitted unless the interviewing pediatrician is positive that the adolescent is not experiencing serious psychological disturbance.

REFERRAL

Pediatricians routinely refer children and adolescents to psychologists or mental health workers when intellectual, academic and/or developmental delays or deficiencies are suspected. These professionals typically use the standardized test batteries and behavioural checklists discussed early in this article. The pediatrician's dilemma over whether to refer to the mental health professional most often occurs when the child or adolescent exhibits inappropriate behaviour. As a result of the diagnostic interview, pediatricians may be able to identify areas of concern in the psychosocial domain that require further exploration by a mental health professional.

When deciding whether or not to refer, Patterson²⁰ suggests that pediatricians ask themselves questions such as?

"What is the natural course of this particular situation if no intervention is made?"

"What is the minimal intervention necessary to achieve the changes I or the family want?"

"What is the child's or family's attitude about this problem and about therapy? What do they want to happen?"

"Do I have the time, energy, and skills to treat this problem?"

"Am I unwittingly colluding with this adolescent or family by minimizing what is potentially a very serious situation?"

"Are there any experiences from my own childhood that are clouding my judgment in this situation?"

Another basic question that pediatricians in rural areas may need to ask is, "Are there referral resources available to this family?" If not, the pediatrician may have to develop creative ways to obtain assistance for families in need. This may involve enlisting extended family members or community members, such as religious leaders or teachers, to assist.

Cruikshank and Cooper²¹ developed a flow chart that provides an additional framework from which the referral decision can be made if referral resources are readily available.

One final rule of thumb: If the problem is so severe or complex that two to three visits with the pediatrician combined with reading materials and/or informational videos will not resolve it, a referral is in order.

Conclusion

An overview of behaviour assessment for

children and adolescents has been presented. Also addressed are the types of childhood and adolescent problems that result in referral to mental health professionals; the types of tests typically administered by those professionals; the pediatrician's role in diagnosing through interviewing; and suggestions for making the referral decision.

Given that most health care services in India are located in the metropolitan areas, with services in the rural communities being limited²², this article will apply most directly to pediatricians who work in the metropolitan areas. In rural and isolated areas, pediatricians may find themselves most concerned with issues of safe water, adequate nutrition, and the physical health of patients²². Time and ability to address behavioural or mental health issues may be limited. Referral resources to address pediatric mental health concern may also be limited. In these situations, the diagnostic interview section of this article may be of maximum use and interest as the basic tenets of interviewing can be applied when gathering medical or mental health information.

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LAPAROSCOPY IN MANAGEMENT OF IMPALPABLE TESTIS

A study from U.K. was done to analyse, critically, both the laparoscopic findings and results of the laparoscopic interventions for both unilateral and bilateral impalpable testes. It included 87 consecutive boys who were undergoing laparoscopy for 97 impalpable testes. A retrospective analysis of clinical findings, interventions and outcomes was conducted.

By groin exploration, 57 testes were removed which were absent or present as remnants. Twenty seven were intra-abdominal in nature out of which 4 were hypoplastic and laparoscopically removable. The remaining 13 testes were in the groin. In 17 cases it was possible to successfully conduct a conventional orchidopexy after laparoscopy for 21 testes. In 8 cases out of 13 intra-abdominal testes, a two-stage laparoscopically assisted Fowler-Stevens orchidopexies were done. The number of orchidopexies was reduced significantly by use of ultrasound. Thus, it was concluded that laparoscopy is safe and useful in the management of unilateral/bilateral impalpable testes.

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