Adaptive and Developmental Behavior Scales

Jasper A. Estabillo and Johnny L. Matson

Introduction

The purpose of assessment is to integrate information to inform clinical decision-making (Sattler, 2001). Adaptive and developmental behaviors scales are used in assessment for childhood disorders to evaluate the child's level of functioning across various adaptive and developmental domains. These measures may be used in conjunction with developmental history, interviews, rating scales, and clinical observations to assess the child's abilities, make diagnostic decisions, and aid in treatment planning. This chapter reviews a number of widely used adaptive and developmental behavior scales in the assessment of childhood disorders.

Adaptive Behavior Scales

As specified by the American Association on Intellectual and Developmental Disabilities (AAIDD), "for the purpose of making a diagnosis of ruling out Intellectual Disability (ID), a comprehensive standardized measure of adaptive behavior should be used in making the determination of the individual's current adaptive behavior functioning in relation to the general population. The selected measure should provide robust standard scores across the three domains of adaptive behavior: conceptual, social, and practical adaptive behavior" (Schalock et al., 2010). Adaptive behaviors refer to "one's performance of daily activities that are required for personal and social sufficiency" (Bullington, 2011). They may also be defined as how well an individual meets their community's standards for personal independence expected for their age group and sociocultural background (APA, 2013; Bullington, 2011). As such, adaptive behaviors may be understood as the interaction of personal, cognitive, social, and situational variables (Sparrow, Cicchetti, & Balla, 2005). Broadly, areas of adaptive behaviors include communication, community living, self-care, and socialization skills.

Adaptive behaviors may also be referred to as "activities of daily living." Activities of daily living refer to behaviors that are important for self-management of one's health and independent living (Guerra, 2011; Troyer, 2011). These behaviors vary depending on one's developmental level and may be influenced by cognitive functioning (Guerra, 2011). As such, expectations for independent self-care are very different for young children than for adults. Self-care behaviors range from feeding, dressing, and toileting to money management and driving. An individual's

J. A. Estabillo (✉) · J. L. Matson
Department of Psychology, Louisiana State University, Baton Rouge, LA, USA
e-mail: jestab1@lsu.edu

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ability to engage in these routines independently is central to the assessment of adaptive behaviors.

As defined by the AAIDD, adaptive behaviors are composed of the following:

1. Conceptual skills: memory, communication, reading, and mathematical concepts. These abilities are mostly related to areas of cognitive functioning and intelligence.
2. Social skills: social awareness, interpersonal skills, friendship abilities, and social responsibility. Social skills are related to one's ability to interact with others and function within their community.
3. Practical skills: self-care, activities of daily living, occupational skills, and safety awareness. These skills are related to one's ability to independently care for oneself.

Adaptive behavior assessment is central to the evaluation of intellectual and developmental disabilities. Additionally, it may assist with determining an individual's eligibility for special education programs and social services (Tassé et al., 2012). As current definitions for ID and developmental delays include deficits in adaptive functioning, adaptive behavior assessment may be required by agencies for provision of services. It is important for professionals to note that when assessing adaptive behaviors, scales normed with the general population are appropriate for diagnostic purposes, while scales normed with individuals with ID are appropriate for treatment planning and progress monitoring.

Adaptive behavior scales are also used within this population because individuals with developmental disabilities may require ongoing supports (Sheppard-Jones, Kleinert, Druckenmiller, & Ray, 2015). Identification of one's areas of strengths and weaknesses may be helpful in determining what domains require more support and what services to provide the individual with. Additionally, teaching individuals with disabilities adaptive skills to foster their independence is important. Behavior intervention programs have been found to be effective at teaching individuals with developmental disabilities a range of skills critical to adaptive and developmental behaviors (Alwell & Cobb, 2009; Bouck, 2010; Van Laarhoven & Van Laarhoven-Myers, 2006). These programs provide individuals with living skills that encourage their agency and self-sufficiency and promote their quality of life.

This section reviews some of the most commonly used measures of adaptive behaviors with individuals with ID and developmental delays. These measures assess abilities in a range of domains and are used in a variety of settings.

Vineland Adaptive Behavior Scales, Third Edition (Vineland-III)

The *Vineland Adaptive Behavior Scales, Third Edition* (*Vineland-III*; Sparrow, Cicchetti, & Saulnier, 2016) is a measure designed to assess adaptive behaviors in individuals from birth through 90 years old. The measure was created from the *Vineland Social Maturity Scale* (Doll, 1935) and has since undergone several revisions and re-standardizations. It is the most commonly used adaptive skills measure for assessment of adaptive deficits in individuals with intellectual disabilities and developmental delays (Cicchetti, Carter, & Gray, 2013).

The *Vineland-III* may be administered to parents and other informants familiar with the individual being assessed. There are several forms: interview form, parent/caregiver form, and teacher form. Administration time for the *Vineland-III* is approximately 10–60 min, depending on the form completed. A comprehensive (i.e., full-length) and domain-level (i.e., abbreviated) version of each form is available. In the interview form, the examiner administers questions to the informant in a semi-structured interview. Questions are meant to be open-ended in order to elicit information regarding the examinee's ability to perform various skills. With the parent/caregiver form, the parent/caregiver may rate information themselves. Spanish versions of the parent/caregiver rating forms are available. The teacher form is available for individuals 3–21 years and contains items that are equivalent to domains on the parent report forms.

The *Vineland-III* assesses adaptive behaviors in the domains of communication, daily living,

socialization, and motor skills. The communication domain includes expressive and receptive language subdomains, as well as a written domain for older individuals. The daily living skills domain includes behaviors related to self-care (e.g., dressing, health care), domestic, and community living skills. The socialization domain includes skills related to relationships, friendships, and age-appropriate play and leisure. It contains subdomains of interpersonal relationships, play and leisure, and coping skills. The motor domain includes subdomains for both gross and fine motor skills. The motor domain is normed for children through age 9. An Adaptive Behavior Composite is calculated from the communication, daily living, and socialization skills domains to indicate the individual's overall adaptive functioning. In the parent rating form, the *Vineland-III* also contains items pertaining to maladaptive behaviors and includes both internalizing and externalizing subdomains.

Items are rated on a 3-point Likert scale. A "0" indicates that the individual does not perform the behavior, "1" indicates the individual sometimes performs the behavior, and "2" indicates the individuals performs the behavior most of the time. Raw scores yield age-normed standard scores, percentiles, and age equivalents. A broad adaptive behavior composite score is computed to indicate the individual's overall level of adaptive functioning.

Psychometrics for the *Vineland-III* indicate high internal consistency (coefficient alpha ranges 0.90–0.98 across domains). Test-retest reliability is 0.80–0.92 for the adaptive behavior composite. Inter-rater reliability is 0.79 for the adaptive behavior composite and ranges from 0.70 to 0.81 for different domains.

The *Vineland-III* may be used to assist with diagnosis of intellectual and developmental disabilities, as well as intervention planning and progress monitoring. The broad domains computed by the *Vineland-III* correspond to the AAIDD's domains of conceptual, practical, and social domains for adaptive behaviors. The *Vineland-III* may also be used to measure adaptive behaviors in individuals with traumatic brain injury and neurocognitive disorders (e.g., Alzheimer's disease).

Adaptive Behavior Assessment System, Third Edition (ABAS-3)

The *Adaptive Behavior Assessment System, Third Edition* (*ABAS-3*; Harrison & Oakland, 2015) assesses adaptive behaviors in individuals from birth through 89 years old. There are five forms of the *ABAS-3* available: parent form for ages 0–5 years, teacher/day care form for ages 2–5 years, parent form for ages 5–21 years, teacher form for ages 5–21 years, and adult form for ages 16–89 years. Forms in French-Canadian and Spanish are also available. Administration time is approximately 20 min.

Skills areas of communication, community use, functional academics, health and safety, home or school living, leisure, self-care, self-direction, social, and work skills are assessed. These areas produce standard scores in the domains of conceptual, social, and practical domains, which are aligned with the *DSM-5* and AAIDD models of adaptive behaviors. For young children, motor skills are also assessed. The conceptual domain includes skill areas of communication, functional academics, self-direction, and health and safety skills. The practical domain includes social and leisure skills. Lastly, the social domain includes self-care, home or school living, community use, health and safety, and work skills.

Items are scored on a 4-point Likert scale, where responses indicate if the individual "is not able," "never or almost never when needed," "sometimes when needed," or "always or almost always when needed" performs the behavior. Raw scores are then used to calculate domain composite scores for conceptual, social, and practical skills, as well as a general adaptive composite. The conceptual, social, and practical domains directly align with *DSM-5* and AAIDD domains for adaptive behavior. The general adaptive composite is used to determine the individual's overall level of adaptive functioning.

Psychometrically, the *ABAS-3* has high internal consistency ranging from 0.80 to 0.99 across the general adaptive composite, adaptive behavior domains (i.e., conceptual, practical, social), and skill areas (Burns, 2005). Test-retest reliability ranges from 0.70 to 0.90, and inter-rater reliability ranges from 0.70s to 0.80s depending on the raters and skill areas.

The *ABAS-3* may be used for diagnosis, intervention planning, and monitoring. It may be used to evaluate individuals with developmental delays, autism spectrum disorder (ASD), ID, learning disabilities, and other impairments.

AAMD Adaptive Behavior Scales

The *American Association for Mental Deficiency Adaptive Behavior Scales* (*AAMD ABS*) has two versions, *Adaptive Behavior Scales-Residential and Community, Second Edition* (*ABS-RC:2*), and *Adaptive Behavior Scales-School, Second Edition* (*ABS-S:2*) (Lyman, 2008). The *ABS-S:2* may be used for individuals aged 3–21 years and the *ABS-RC:2* may be used for individuals aged 18–79 years. These measures are an assessment of adaptive behaviors in terms of personal independence and maladaptive behaviors that are specifically for individuals with intellectual disabilities. Items are rated as yes/no, on a 4-point Likert scale, or by frequency. The *ABS-RC:2* was historically used in institutional settings; however, it is now also used in community settings as well. The *ABS-RC:2* and *ABS-S:2* may be completed by a professional familiar with the individual or administered to an informant.

The *ABS-S:2* was created for use in the school system. Administration time ranges from 20 to 120 min. There are nine adaptive subscales including independent functioning, physical development, economic activity, language development, numbers and time, prevocational/vocational activity, self-direction, responsibility, and socialization. The behavioral domains include social behavior, conformity, trustworthiness, stereotyped and hyperactive behavior, self-abusive behavior, social engagement, and disturbing interpersonal behavior. Raw scores are converted to standard scores, percentiles, and age equivalents for each subdomain. Scores also loaded onto five factors including personal self-sufficiency, community self-sufficiency, personal social responsibility, social adjustment, and personal adjustment. These factor scores also may be converted to percentiles, standard scores, and age equivalents.

The *ABS-RC:2* also has two parts, but a greater number of subscales. Administration time ranges from 15 to 50 min. The adaptive subscales include independent functioning, physical development, economic activity, language development, numbers and time, domestic activity, prevocational/vocational activity, self-direction, responsibility, and socialization. The behavioral subscales include social behavior, conformity, trustworthiness, stereotypes and hyperactive behavior, sexual behavior, self-abusive behavior, social engagement, and disturbing interpersonal behavior.

Both the *ABS-S:2* and *ABS-RC:2* have good psychometrics. The *ABS-S:2* internal consistency ranges from 0.79 to 0.98, and inter-rater reliability ranges from 0.95 to 0.98 for Part I and 0.96 to 0.99 for Part II (Lyman, 2008). For the *ABS-RC:2* internal consistency ranges from 0.81 to 0.97. When examining discriminant validity, the *ABS-RC:2* Part II was not found to be related to the Vineland Adaptive Behavior Scales or Adaptive Behavior Inventory. The *ABS-S:2* was normed on students with and without intellectual disabilities, but the *ABS-RC:2* was not.

Adaptive Behavior Inventory (ABI)

The *Adaptive Behavior Inventory* (*ABI*; Brown & Leigh, 1986) assesses functional adaptive behaviors in children aged 6 years to 18 years, 11 months. It was designed to identify children who may have intellectual disability. This measure takes approximately 30 min to administer. A short form of the ABI is also available. It is typically completed by the child's classroom teacher.

The measure has five subtests: self-care skills, communication skills, social skills, academic

skills, and occupational skills. Items are rated on a 4-point Likert scale. Responses of "0" indicate that the student does not perform the behavior, "1" indicate that the student is beginning to perform the behavior, "2" indicate that the student performs the behavior most of the time, and "3" indicate that the student has mastered the behavior. Raw scores are used to calculate standard scores and percentiles. Scores can be compared to two different sets of norms. One set of norms are used to compare the student with individuals with normal intelligence, while the other set is representative of students with ID.

The *ABI* has good psychometrics, with good internal consistency and test-retest reliability (Brown & Leigh, 1986). Coefficient alpha was found to range from 0.86 to 0.97 depending on age group. Internal consistency was above 0.90 for each age group. For test-retest reliability, the subtests, composite score, and short-form composite were all above 0.90.

Scales of Independent Behavior – Revised (SIB-R)

The *Scales of Independent Behavior – Revised* (*SIB-R*; Bruininks, Woodcock, Weatherman, & Hill, 1996) is a standardized measure of adaptive behaviors for individuals 3 months to 80 years old. There are three forms: early development form for children 3 months to 8 years, full-scale form for individuals 3 months to 80 years, and short form for individuals 3 months to 80 years. Both the early development and short forms are abbreviated versions of the full-scale *SIB-R*. The full-scale *SIB-R* takes 45–60 min for administration, and the early development form and short form each take approximately 15–20 min.

The *SIB-R* may be administered via either a structured interview or checklist procedure. Raw scores are used to calculate standard scores, percentile ranks, age equivalents, and instructional and developmental ranges. The measure has 14 subscales that are organized into four adaptive domains: motor skills, personal living skills, social interaction and communication skills, and community living skills. The maladaptive indices include general, internalized, asocial, and externalized behaviors. The *SIB-R* also has a functional limitations index, which provides details on the presence and severity of limitations of one's adaptive behavior. Support scores are also provided, which may assist in determining the level of support the individual needs (e.g., pervasive, extensive, frequent, limited, intermittent, or infrequent/no support). The measure also includes an individual plan recommendation form that may be used by professionals to plan and monitor the individual's needs and progress.

Adaptive Behavior Diagnostic Scale (ABDS)

The *Adaptive Behavior Diagnostic Scale* (*ABDS*; Pearson, Patton, & Mruzek, 2016) is an interview-based measure that assesses adaptive behaviors in individuals ages 2 through 21 years. Administration takes approximately 30 min. The *ABDS* is one of the newest standardized adaptive behavior scales available for use.

Items on the *ABDS* yield scores across the domains of conceptual, social, and practical. There are 50 items in each domain. Raw scores are used to calculate standard scores for each domain and an overall adaptive behavior index. These standard scores may be interpreted for diagnostic purposes, as well as determining target areas for treatment planning.

Psychometrics for the *ABDS* have been found to be good; internal consistency was at least 0.90 for all domain and composite scores. Additionally, sensitivity was found to be 0.85, specificity was 0.99, and classification accuracy was 0.98. However, because the *ABDS* is a newer measure, outside validation studies have not yet been conducted. Additional research on this scale with individuals with and without intellectual and developmental disabilities is needed.

Diagnostic Adaptive Behavior Scale (DABS)

The *Diagnostic Adaptive Behavior Scale* (*DABS*; Tassé et al., 2016) is another new standardized measure for adaptive behaviors. It was specifically designed to aid in diagnosis for ID individuals aged 4–21 years. The *DABS* is administered via a semi-structured interview which takes approximately 30 min to complete. It contains a total of 75 items that were tailored to adhere to the tripartite definition of adaptive behavior (i.e., conceptual, social, practical). A unique component of the *DABS* is that the measure was developed based on item response theory rather than classical test theory.

Items are administered to an informant who answers based on the individual's performance of certain behaviors. Responses of "0" indicate "no, does not do," "1" indicates "does it with reminders," "2" is "does it sometimes independently," and "3" is "yes, does it." Raw scores are converted to standard scores for the domains of conceptual skills, social skills, practical skills, and a *DABS* total score.

The *DABS* was normed on the general population for the purpose of being used as a diagnostic measure. Its sensitivity ranges from 81% to 98% depending on the age group, and specificity ranges from 89% to 91%, also depending on age group (Balboni et al., 2014). The measure also has good convergent and divergent validity with the *VABS-II* (Balboni et al., 2014).

Developmental Behavior Scales

When conducting evaluations for developmental disabilities, assessing across several developmental domains provides information on the individual's functioning overall, as well as within specific domains. Evaluating abilities in cognitive, motor, social, and communication domains provides a picture of the child's functioning within each area, and such measures allow for comparison with same-aged peers and a better understanding of the individual's strengths and weaknesses. Assessing developmental milestones in children is particularly helpful due to the instability of IQ tests at young ages (Rapin, 2003). Because assessing IQ in young children is not reliable, evaluation of capabilities in various domains may provide professionals with a broader assessment of the child's functioning.

In addition to full developmental scales, abbreviated screening measures have been created for use in clinical settings. These measures allow for quick assessment of a child's development, and if their scores meet established cutoffs, they are typically referred for further evaluation. The purpose of screening is to identify individuals who may be at risk for disorders (American Academy of Pediatrics, 2001; Baird et al., 2001). Various screening measures for specific disorders (e.g., ASD) are available; however, this chapter will review some broader developmental screening measures for overall delays rather than specific disorders. Screening measures are appropriate for use in settings where full evaluations are not necessary or feasible. They are cost effective and allow for greater numbers of children to be screened for possible delays. Ultimately, screening allows for the early identification of disorders in order to facilitate earlier diagnosis and intervention (American Academy of Pediatrics, 2001). This section reviews some of the most commonly used developmental behavior scales and abbreviated screening measures for the assessment of developmental delays in children.

Battelle Developmental Inventory, Second Edition (BDI-2)

The *Battelle Developmental Inventory, Second Edition* (*BDI-2*; Newborg, 2005), is a widely used developmental measure that assesses a child's skills in the domains of personal/social, adaptive, motor, communication, and cognitive skills. It is valid for children from birth through 7 years, 11 months old. Administration time ranges from 60 to 90 min. Examiners rate the quality of the child's development on a scale of 0–2 based on direct observation of the child's behavior or per informant report. A score of "0"

indicates "no ability," "1" indicates an "emerging ability," and "2" indicates "ability present." Raw scores are converted to standard scores, age equivalents, percentile ranks, and developmental quotients, which all provide information on the child's developmental level. The developmental quotient is based on a mean of 100 and standard deviation of 15; it can be understood as the child's general functioning level. The *BDI-2* has acceptable test-retest reliability of $\alpha = 0.80$ and excellent internal consistency of 0.98–0.99 (Bliss, 2007; Newborg, 2005).

Skills are assessed through interaction and observation with the child, as well as interview with parents/caregivers. Domains may be administered in any order. The adaptive domain assesses skills related to self-care and personal responsibility and includes items pertaining to eating/feeding, dressing, toileting, and safety awareness. It is divided into the subdomains of adult interaction, peer interaction, and self-concept and social role. The personal/social domain assesses the child's capacity for self-concept and ability to interact with peers and adults. Communication is divided into receptive (i.e., comprehension) and expressive skills (i.e., ability to communicate with others through use of vocalizations and gestures). The motor domain assesses the child's gross motor, fine motor, and perceptual motor skills, where perceptual motor requires integration of perceptual and fine motor abilities (e.g., stacking blocks). The cognitive domain is divided into attention and memory, reasoning and academic skills, and perception and concepts. It assesses skills related to attention, perception, thinking, and information processing.

Concurrent validity studies of the *BDI-2* and *Bayley Scales of Infant Development, Second Edition* (*BSID-II*; Bayley, 1993) showed moderate to moderately high correlations between corresponding domains on each measure. Studies with special populations including children with autism and various developmental delays indicated very good specificity in correctly identifying children across diagnoses (Hilton-Mounger, 2011).

The *BDI-2* is also useful in assessing areas for intervention. Because of the various domains assessed, the *BDI-2* provides a profile of development that may be used by providers to determine broad areas for treatment.

Bayley Scales of Infant and Toddler Development – Third Edition (Bayley-III)

The *Bayley Scales of Infant and Toddler Development – Third Edition* (*Bayley-III*; Bayley, 2006a, 2006b) is another widely used developmental measure that is designed for identification of children with developmental delays across domains of cognitive, language, motor, social-emotional, and adaptive skills. It is valid for administration with children 16 days to 42 months, 15 days old, and administration time is typically 30–90 min.

Examiners administer items to the child through playful activities which aid in assessing the child's level of functioning in the cognitive, language, and motor domains. Start points are based on the child's chronological age, and once a basal is established, items are administered until the ceiling is achieved. Items are scored as "1" if the behavior is observed/child receives credit for their performance and "0" if the behavior is not observed/no credit given. Subtests may be administered in any order, with the exception of the Receptive Communication subtest, which must be given prior to the Expressive Communication subtest. The cognitive domain evaluates abilities such as the child's sensorimotor development, concept formation, memory, visual acuity, and visual preference. Tasks include age-appropriate skills including object assembly, puzzle completion, and pattern discrimination. The language domain assesses both expressive and receptive language. Expressive skills include babbling, gesturing, and vocabulary development, while receptive skills include the child's ability to identify objects and understanding of pronouns and prepositions. In the motor domain, examiners assess fine motor skills (e.g., grasping, reaching, functional hand

and finger skills) and gross motor skills (e.g., locomotion, balance, motor planning).

To assess the child's social-emotional and adaptive development, parents/caregivers provide ratings for the child's abilities. To assess social-emotional development, parents/caregivers answer questions related to the child's social-emotional growth and functioning to determine if deficits or problems are present (Greenspan, 2004). All questions in the social-emotional scale must be completed until the informant reaches the child's age-appropriate stop point. Lastly, adaptive behaviors assessed by parent ratings include communication skills, functional pre-academic skills, home and community skills, self-care skills, social skills, and motor skills. All questions on the adaptive behavior scale are completed by parents/caregivers.

Scores obtained from the *Bayley-III* provide information on the child's developmental level. Raw scores are converted to standard scores, age equivalents, percentiles, and T-scores to allow for comparison with peers. The *Bayley-III* may be used in intervention settings to calculate growth scores and monitor the child's progress. While other measures of adaptive and developmental behavior may not be appropriate for individuals with severe delays, a strength of the *Bayley-III* is that it may also be used for individuals over 42 months who experience significant delays. Additionally, a screening measure is available. The *Bayley-III Screening Test* contains selected items from the *Bayley-III* full assessment battery and takes approximately 15–25 min to administer. The abbreviated measure allows for quick assessment of the child's developmental functioning and aids in determining if comprehensive evaluation is needed.

Mullen Scales of Early Learning: American Guidance Service Edition (MSEL:AGS)

The *Mullen Scales of Early Learning: American Guidance Service Edition* (*MSEL:AGS*; Mullen, 1995) is an assessment measure for young children's cognitive and motor abilities. It is appropriate for use with children from birth to 68 months old. Administration time ranges from 15 to 60 min, depending on the age of the child being assessed.

The measure comprises of 124 items which assess abilities pertaining to gross motor, visual reception, fine motor, expressive language, and receptive language abilities. The gross motor scale is only administered to children up to 33 months. Items are scored based on the child's completion of various tasks or through interview with an informant. Items may be scored as "1" to indicate that the child exhibited a correct response or "0" to indicate an incorrect response. Scores on the visual reception, fine motor, receptive language, and expressive language scales are combined to compose an Early Learning Composite (ELC), which may be interpreted as a measure of the child's overall cognitive functioning. Raw scores are used to calculate T-scores, percentile ranks, age equivalents, and standard scores.

Studies on the measure's psychometrics have shown good internal consistency and reliability (Mullen, 1995). Internal consistency coefficients ranged from 0.75 to 0.83 for the four scales and 0.91 for the ELC. Test-retest reliability was 0.96 for the gross motor scale and 0.82–0.85 (younger children) or 0.71–0.79 (older children) for the cognitive scales. Inter-rater reliability was also found to be high, ranging from 0.91 to 0.99.

The *MSEL:AGS* may be used to aid in identifying strengths and weaknesses and is recommended for use in early intervention programs and assessing for school readiness. As recommended by the creator, the *MSEL:AGS* may be used to determine eligibility for services (e.g., early intervention, special education), evaluation for developmental delays, and individualized program planning (Mullen, 1995). As such, the measure is useful in a variety of clinical and educational settings.

Ages and Stages Questionnaires (ASQ-3)

The *Ages and Stages Questionnaires (ASQ-3): A Parent-Completed Child Monitoring System, Third*

edition (*ASQ-3*; Squires et al., 2009), is a screening measure designed for early identification of delays in infants and young children. The *ASQ-3* has 21 separate questionnaires for ages 2, 3, 6, 8, 9, 10, 12, 14, 16, 18, 20, 22, 24, 27, 30, 33, 36, 42, 48, 54, and 60 months, which are intended to be completed at each age for monitoring. The *ASQ:SE* (social-emotional) is also available for the child's social-emotional development. Completion of both components of the *ASQ* provides information regarding the child's functioning across a number of domains. The questionnaires are completed by parents/caregivers, and completion time is approximately 15 min. Scoring may be completed in 2–3 min. Questionnaires are available in English, Spanish, and French.

Each questionnaire is comprised of 30 items pertaining to communication, gross motor, fine motor, problem solving, and personal-social skills. Items are answered as "yes" (i.e., child performs behavior), "sometimes" (i.e., emerging behavior), or "not yet" (i.e., child does not perform behavior). Items are scored and total scores are compared to established cutoff points.

Standardization studies have indicated good psychometrics on the *ASQ-3* (Squires et al., 2009). Test-retest reliability was high (0.92), as was inter-rater reliability (0.93). The *ASQ-3* also has a sensitivity of 0.86 and specificity of 0.85.

As a screening measure, the *ASQ-3* provides valuable information regarding a child's development starting at very young ages. Because of its various forms, parents/caregivers and professionals may monitor a child's progress over time. This may be particularly useful for intervention purposes, as the *ASQ-3* may identify difficulties at very early ages. Scores that are found to be in the "monitoring zone" are useful to aid in treatment planning and progress monitoring.

Denver Developmental Screening Test II (DDST-II)

The *Denver Developmental Screening Test* (*DDST*; Frankenburg & Dodds, 1967) was the first widely used screening measure designed for identification of young children at risk for developmental delays. The subsequent *Denver II* (Frankenburg, Dodds, Archers, Shapiro, & Bresnick, 1992) was created as an update to the *DDST*. The instrument was created for children 0–6 years and assesses skills in personal-social, fine motor-adaptive, language, and gross motor domains. An examiner administers the measure through various standardized items (e.g., blocks, pictures). Administration time is approximately 10–20 min. Items are rated based on if the child's response falls within or outside of the expected range for the child's age. The child's scores are compared to same-aged peers on bar graphs which indicate the ages that 25%, 50%, 75%, and 90% of typically developing children were able to complete each task. Items which the child could not complete but 90% of typically developing children could are considered to be delays. Items that the child could not complete but 75–90% of typically developing children could are marked as "cautions." The graphs provide a visual to depict where the child is developmentally compared to same-aged peers.

Standardized on over 1000 children, the *DDST* showed high specificity (>0.87) but very low sensitivity (0.13–0.46). Thus, the *DDST* was not good at detecting children with delays, which is a major concern given the purpose of the measure was to screen children. With the *Denver II*'s re-standardization, sensitivity improved to 0.83 but specificity decreased to 0.43 (Glascoe et al., 1992). As such, this led to concerns regarding high numbers of typically developing children being screened as needing further evaluation for delays. Test-retest and inter-rater reliability were both reported to be 0.90 or greater (Frankenburg et al., 1992).

At present, the *Denver II* is no longer widely used for screening for developmental delays. However, as the first developmental screening tool widely used in the health field, it is important to note. There are currently a number of other screening tools and comprehensive developmental measures available to aid in the assessment of developmental delays and disabilities in children.

Conclusion

This chapter discussed a number of adaptive and developmental behavior scales available to aid in the assessment of developmental delays. Adaptive behavior scales are designed to assess skills across domains relevant to an individual's ability to care for oneself. Delays are determined by the social and cultural expectations at each age. Changes in the conceptualization of ID have led to many of these measures to evaluate behaviors in conceptual, social, and practical domains, which reflect the current *DSM-5* and AAIDD definitions for ID. Similarly, developmental behavior scales are designed to assess skills across a variety of domains; however, these measures tend to be broader in the areas assessed and are primarily for use in the assessment of developmental disabilities in children. Because of the broad domains assessed in these measures, they may also be used for intervention planning and progress monitoring. Both adaptive and developmental behavior scales are widely used in the field of child psychopathology and developmental disabilities, and their use is central to the assessment and treatment of these disorders.

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