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Original Article

Use of Vineland Adaptive Behavior Scales – II in Children with Autism - An Indian Experience

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Abstract

The Vineland Adaptive Behavior Scales – II Edition 2005 (Vineland-II) is useful in assessing abilities in autism spectrum disorder, where an accurate assessment of intelligence using standardized tools is difficult both due to the unique social and communication difficulties that these children present with and the behavioral issues that occur as co morbidity. We describe the scale and our experience in using the scale. Difficulties in administration of the scale to Indian children are illustrated. The main reasons for these difficulties center on cultural differences in gender roles and differences in the way some self care tasks are performed.

Key words: Vineland II, Indian experience, Autism

Introduction

Adaptive behavior and its assessment has been part of all evaluations of children especially those with developmental disorders. One of the popular tools to assess adaptive behavior has been the Vineland –II [1]. This is an individually administered measure of adaptive behavior. It is the revision of Vineland Adaptive Behavior Scales [2] and Vineland Social Maturity Scale [3] (VSMS). It can be used from birth to ninety years of age. Three versions of the Vineland – II are available-two survey forms, the expanded interview, and the teacher rating form.

The semi structured interview technique is used to collect data and score the Vineland-II. This allows greater efficiency than item by item questioning. In depth information is got as the respondent responds to open-ended questions rather than answering yes or no. The instrument is available in English, but the authors of the instrument suggest that it can be administered in any language by a bilingual interviewer, because the basis of the Vineland-II semi structured interview is the use of questions and probes by the interviewer, in the interviewer's own words.

It takes 20-60 min to administer and an additional 15-30 min is required for scoring. It can be administered by any mental health professional that is well versed in conducting a semi structured interview. The interviewer has to have a thorough understanding of the test items. The survey form can be administered to the caregiver or can be rated by the caregiver with whom the form is reviewed.

The Vineland-II has a total of 383 items, divided into four domains. The domains are Communication (receptive, expressive, written); Daily living skills (personal, domestic, community); Socialization (interpersonal relationship, play and leisure time-coping skills) and Motor skills (gross, fine). The comprehensive content allows a finer distinction of functioning especially in the 0-3 years. It allows better assessment of developmental delays and to monitor progress. There is also a Maladaptive Behavior index at the end of the scale that elicits internalizing, externalizing and other behavioral problems that may interfere with an individual's adaptive behavior. Each domain and sub domain score is calculated, and the adaptive level and age equivalent is derived.

Utility of the Vineland- II in Pervasive Developmental Disorders

Although cognitive level is a significant predictor of outcome in autism, as it is in other conditions [4, 5] adaptive skills are another aspect of development that contributes strongly to prognosis [6]. Adaptive skills are those involved with using whatever capacities the individual possesses to function within the everyday environment. These skills are particularly important in individuals with autism and related conditions because it is these, rather than cognitive level, that contribute most to the individual's ability to function successfully and independently in the world [7]. Literature attesting to the adaptive deficits in autism dates back at least to Volkmar, et al [8]. Several later studies confirmed that the Vineland Adaptive Behavior Scales [2], a well-standardized semi-structured caregiver report instrument for assessing adaptive behavior, could be used to document delays in adaptive development in individuals with autism [9,10]. Gillham, Carter, Volkmar, and Sparrow [6] reported that autism could be differentiated from both PDD-NOS and non-autistic developmental disorder (DD) by means of scores on the Socialization and Daily Living scales of the Vineland Adaptive Behavior Scales.

These authors suggested that the broad domains of the Vineland employed in their study might miss subtle differences between performance in autism and PDD-NOS. Looking more closely at the specific items that comprise the scales on the Vineland might yield better ability to discriminate PDD-NOS from autism in several areas of adaptive skills. Their study provides a micro-analysis of differences in adaptive functioning seen between well-matched groups of school-aged children with autism and those diagnosed as PDD-NOS.

The conceptualization of mental retardation includes deficits in cognitive abilities as well as in behaviors required for social and personal sufficiency, known as adaptive functioning or behavior [11, 12]. Wide acceptance of this definition has led to the consensus that an assessment of both social adaptation and intelligence quotient (IQ) are necessary to determine the level of mental retardation. Adaptive behavior, as mentioned, is the performance of daily activities required for personal and social sufficiency. It is age related, defined by expectation of others, it is modifiable and is defined by typical performance and not ability. Measures of adaptive function assess competency in performance of everyday tasks, whereas measures of intellectual function focus on cognitive abilities. The adaptive behavior composite scores derived from Vineland II

correlates well with infant intelligence tests, childhood intelligence tests, achievement tests and other adaptive behavior inventories [13-16].

Intelligence is not a unitary characteristic but is assessed on the basis of a large number of different, more -or- less specific skills. Although the general tendency is for all these skills to develop to a similar level in each individual, there can be large discrepancies, especially in persons who have Autism Spectrum Disorder (ASD). This presents problems when determining the diagnostic category in which a person should be classified. Another difficulty in using routine tests of intelligence in ASD is that it can assess only small proportion of mental abilities. Also, many factors can cause test score to vary e.g. fatigue, anxiety, inattention, inability to generalize learnt tasks [15]. Individuals with ASD may have limited verbal abilities and often only performance subtest scores may be used. Because of these reasons it is advantageous to rely on scales which use adaptive behavior to assess the level of functioning and classify persons with ASD in appropriate IQ diagnostic category.

One disadvantage while using adaptive behavior scales is that, rating is based on the information provided by the informant. Unless the informant is chosen carefully "Third party'' administration can give erroneous scores.[16,17]. When examiners are aware of these limitations, they can scrutinize the completed form and use probes to resolve any discrepancies similar to conducting a semi structured interview this bias can be eliminated.

The Vineland-II can also be used to elicit symptoms of ASD. Autism presents as a combination of unusually delayed maturational stages constrained by neuropathology that also produces many atypical behaviors. It is important to rate autistic symptoms in the context of the child's mental development in areas of intelligence not specifically affected by the autism (i.e., nonverbal intelligence) in order to be sure that the symptom is characteristic of autism and not just reflective of the degree of mental retardation and this is achieved by using an adaptive behavior rating scale.

Traditional autism diagnostic schemes typically list symptoms (e.g., lack of eye contact), but provide little guidance. Standardized measures of adaptive behavior can provide information about person's communication, socialization, and other behavior relative to their age and are useful tools for diagnosing autism.

Discriminant function analyses of Vineland-II in studies indicate that the autism and non autism groups could be differentiated on the basis of socialization, daily living skills, and serious maladaptive behaviors [18, 19].

Our experience

We have used the Vineland-II Survey Interview Form in 20 children with a clinical diagnosis of autism spectrum disorder, aged 4-8 years. The Male: Female ratio is 15:5. We have also used the caregiver/parent report form in 100 children. In this paper, we focus on the difficulties we encountered during administration of the survey interview form.

One major difficulty we encountered was that some items of the scale are not applicable in our culture. Other studies have highlighted the cultural difference [20-23]. 85% of the items of Vineland-II can be used in our setting without any difficulty. 11.7% items of the

scale need modification and 3.3% items of the scale are difficult to modify table 1. Table 2 shows some of the items which were not applicable in our setting, suggest some modification and suggest possible reasons for items not being suitable.

Table 1 Items in Vineland II those are difficult to use in the Indian setting

DOMAIN	ITEMS NEEDING MODIFICATION	TOTAL NUMBER OF ITEMS
Communication		
Receptive	1	20
Expressive	5	54
Written	2	23
Daily Living Skills		
Personal	8	41
Domestic	10	24
Community	15	44
Social Skills		
Interpersonal Relationships	2	38
Play and Leisure Time	2	31
Coping Skills	4	30
Motor Skills		
Gross	0	40
Fine	8	36

TABLE 2: Examples of some of the items requiring modification.

Item No	Item	Suggested modification	Need for modification
I. Communication Domain			
40	Says month and day of birthday when asked	Approximate answer, or DOB in relation to festival	Recording birth, for example according to the constellations or in relation to festivals
29	Says first and last name when asked	Can say initials or father's name	Concept of last name may not be practiced in all communities and Father's name is often used as last / surname
II. Daily Living Skills Domain			
06	Feeds self with spoon; may spill	Uses fingers to eat Chapati/ Dosa appropriately	Family may not regularly use spoon at meal times.
33	Finds and uses appropriate public restroom for his or her gender.	Finds and uses appropriate place	Restrooms may not be available
3	Clears unbreakable items from own place at table	Shows appropriate care handling crockery	All these items may depend not only on availability of appliances but also the differences in culture and gender role. Most of these domestic tasks are not generally expected of male members of family, and going out, or being employed is not expected of
8	Helps prepare foods that require mixing and cooking (for example, cake or cookie mixes, macaroni and cheese, etc.)	Can help prepare simple meals like instant noodles, dosas from available batter or poha (beaten rice)	
38	Travels at least 5 – 10 miles to unfamiliar destination (i.e., bikes, uses public transportation or drives self).	Can find a way of reaching the place with or without escort.	

39	Earns money at a part time job (i.e., at least 10 hours a week) for one year.	Is able to do a job assigned to him / her.	female family members, especially
III. Socialization Domain			
37	Goes on group dates	Goes out with friends	Dating is not considered appropriate behavior in most cultures and may not be a task to learn
38	Goes on single dates		
31	Goes places with friends in evening without adult supervision (for example, to a concert, lecture, sporting event, movie, etc).		

Discussion

The Vineland- II is an excellent tool to assess a child with developmental issues. We found, that most of the items could be used unmodified in the urban client. The items which ascertain development using biological parameters, for e.g. toilet training, which are applicable in all human beings, are easy to use. Some items that have been difficult to use mainly depend on the cultural differences between the West and India. Important cultural differences centre around gender role and expectation. For example, the domestic tasks used in many items are not part of the repertoire of most males in the Indian culture, and are neither required nor encouraged among boys. Other cultural differences include issues pertaining to behavior. e.g., going out unescorted, dating, and being employed outside the home. For some items the task itself may be done differently in our culture e.g. eating with fingers rather than using cutlery.

Some items that focus on use of different commonly available materials in the West are difficult to use because of the lack of that material. An example of this would be the use of scissors. Of course all these cultural differences were not apparent in clients exposed to the Western culture. It is only a very small number of Indians who are not exposed to western culture, as is evident from the fact that we needed to modify items only in 20% (i.e. 4/20) of our clients.

Conclusion

One conclusion that definitely can be drawn from our brief experience is that adaptive behavior assessment is more informative than a formal assessment of intelligence, especially in children with PDD. Adaptive behavior scales aid diagnosis of ASD apart from giving a comprehensive assessment of functioning. Vineland II is comprehensive in its assessment and user friendly but entirely dependent on caregiver for rating. Some

difficulties in administration of Vineland-II due to differences in culture are noted, and modifications have been suggested to overcome them without losing the essence of the skill that is being assessed. Development of Indian normative values and translations are needed to use Vineland-II more extensively.

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