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ADVANCED SCORING AND INTERPRETATION OF VINELAND SOCIAL MATURITY SCALE: PROCEDURE TO OBTAIN 'IMPAIRMENT ADJUSTED SOCIAL QUOTIENT'

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ABSTRACT Vineland Social Maturity Scale (VSMS) is generally used to determine three related but different aspects, which is (i) social and adaptive functions, (ii) level of disability and (iii) intelligence. Despite having different uses or despite being used for different purposes, VSMS has been administered, scored and interpreted in a similar way, which many times can lead to erroneous results. When VSMS is used to assess intelligence in children with autism, speech, hearing and other impairments, the very symptoms these children have (such as 'not playing with peers', 'not able to talk', 'not interested to read') can pull down their SQ (IQ) score, which adversely affects these children in different ways. To overcome such limitations, the current article proposes a procedure, where particular items (symptoms) that pulls down the SQ (IQ) score are completely omitted from scoring calculations. This procedure overcomes a major limitation in the assessment of intelligence (that has existed from decades), especially for those children, for whom, no other tests could be carried out except VSMS. Hence, this procedure can benefit thousands of children, families, special education teachers, mental health and other professionals who work with children.

KEYWORDS : Vineland Social Maturity Scale, intelligence, disability, social and adaptive functions

INTRODUCTION:

Vineland Social Maturity Scale (VSMS; Doll, 1953) is a widely used test across the globe, especially with respect to the assessment of social and adaptive functions. It has eight domains and has 117 items that assess the individual from birth to about 25 years. VSMS is usually administered through the care-giver, with evaluation of the child. While the test administration is relatively simple and takes only a few minutes, it provides valuable information about the child's development in multiple domains of day-today functioning. Due to this, the test has achieved immense popularity across the globe and is used in clinical, teaching and research settings by nearly all professionals who work with children and adolescents. The test has very good reliability and validity, and has a good correlation with intelligence, of about 0.80 correlation with intelligence (Malin, 1965). As it is common with any psychological assessments, VSMS has also been adapted into different regions/cultures, with varying number of items and ages. The current article, though reflects and applies to the version standardized and practiced in India which has 89 items in 8 domains and assesses from 0 to 15 years (Malin, 1965), it could as well apply to other versions adapted in other countries. Given the differences among various versions across different cultures in terms of number of items, age range assessed, number of domains, administration, scoring and interpretation; readers are advised to use their judgment in evaluating and utilizing what has been discussed in the current article.

THE THREE MAIN USES OF VSMS

Depending on the laws prevalent in different countries, VSMS is used at least for three different (but mutually not exclusive) purposes. Such as,

(i) To assess social and adaptive functions, in different domains and to plan intervention
(ii) To assess the extent of disability, for certification and providing disability benefits, and
(iii) To assess intelligence

Each of the above will be discussed separately, from the last one first, due to the relevance to the purpose for this article.

PURPOSE - TO ASSESS INTELLIGENCE

VSMS is often used to assess intelligence, by proxy, especially when other standardised intelligence tests cannot be administered. The reasons for the inability to administer proper/core intelligence tests might be several. Some of the reasons are,

- Child is very young, i.e., the age of the child is less than 3 years old, and most standardized intelligence tests are designed/ standardized/ adapted for children around 3 years of age and upwards.
- Child is not very cooperative owning to various issues or comorbidities, such as hyperactivity and/or autism.
- Child having developmental delays or impairment/disability in speech, hearing, and vision.
- Child with gross and/or fine motor disabilities or motor control, such as cerebral palsy.
- Problems with comprehension, such as child having severe/profound intellectual disability
- Practical difficulties, non-availability of proper standardized intelligence tests; when tests have to be administered to many children within a relatively short amount of time, such as rural camps (mainly to assess for disability benefits); and for research purposes.
- Other reasons, such as professionals (such as paediatricians, physiotherapists, speech therapists, occupational therapists), who are not formally trained to administer, score and interpret core intelligence tests, sometimes use VSMS in their practice and research.

The above points mainly highlight the major reasons for using VSMS to get 'intelligence equivalent score'. However, using VSMS purely to get this 'intelligence equivalent score' has its own limitations, both theoretical and practical.

In terms of theoretical, the usual and extensive debate is on the topic of, how much of the 'Social Quotient' obtained by VSMS represents actual 'intelligence quotient or intelligence'. As the scope of this article is not to discuss these aspects, it is not attempted here.

On the other hand, in terms of practical limitations, there are a few issues. Such as, the direction and the strength of the relationship (i.e., correlation) between social quotient (SQ) and intelligence quotient (IQ) at different age groups, socioeconomic status, comorbidities and other disabilities. Such as, SQ and IQ at lower ages might correlate better, compared to mid or late adolescence; children from higher socioeconomic status might show better SQ compared to children from low socioeconomic status when the IQs are matched between the groups; and children with hyperactivity, autism spectrum disorder, learning disability, speech and hearing impairment, and gross/fine motor difficulties can get lesser SQ compared to their actual intelligence.

In the latter aspect, where VSMS is used mainly to know the 'intelligence equivalent score / intelligence' for children with comorbidities and disabilities; this test does not do justice. That is, in the above scenario VSMS yields lesser SQ score, owing to the fact that VSMS has items that assesses the very functions that are compromised in children with impairment. For example, a child with average intelligence but with motor coordination difficulty may not be able to eat with a spoon and/or may not be able to mix rice properly. In this case, the inability to perform the above motor functions, will pull down the child's score. Similarly, a child with average intelligence but has autism spectrum disorder, might not do some of the items in socialization domain, such as 'playing with peers'. Similar to the above case, this child also might get lower scores. If this lowered/pulled down SQ score is considered as equivalent to the IQ, then in the above examples, these children will be considered to have far lesser intelligence than they actually have. As mentioned above, this same results/phenomenon applies to any child that has significant

comorbidity and/or disability, such as, children with speech, hearing and visual impairment (Note: As mentioned above, this applies mainly when using VSMS to assess intelligence, and should not be confused with the assessment of disability. Assessment of disability has been discussed below in a separate section).

Almost every professional who regularly uses VSMS is aware of this limitation, and according to the available knowledge of this author, till now there are no clear mechanisms to overcome this limitation. When faced with the above scenario, many professionals do not do anything, and report the obtained score as it is. However, few professionals try to compensate by providing 'half marks/credit' to such items, which they think, the child would have cleared/achieved/done if the child did not have any impairment in that domain/area. For example, if a child has significant tremors in her hands and due to which the child cannot eat with the spoon, then some professionals might give half credit, or in rare cases full credit for this item, to determine actual intelligence. However, giving of 'half/full credit' is primarily a guessing method, and one of the main limitations of this method is that the professional will not know for how many items and/or up to what age level of the child half/full credit can be given. Further, when this 'guessed half/full credit' needs to be justified, for example in a medico-legal case, it would be difficult to justify. Due to these important reasons, many professionals may not attempt this approach.

This brings to the fore the question of whether it is necessary to compensate/adjust VSMS scores in order to determine the intelligence of the child. The answer to this question is affirmative, i.e. 'Yes', it is very important to know what is the intelligence of the child that is unaffected by a few items on the VSMS that may or may not assess intelligence per se. The following case examples justify this need.

A compelling case of Spinal Muscular Atrophy: A referral was made to this author to assess the intelligence of a 3 year 9 months old girl Sama (name changed to maintain confidentiality) who was diagnosed with Spinal Muscular Atrophy (SMA). SMA is a type of motor neuron disease, which causes muscle wasting, leading to muscle weakness and loss of control of the movements of their muscles. The parents as well as the physician this author spoke to, informed that there is an experimental treatment for which, the child at least needs to be of average intelligence (Here, this author neither knows the reason nor the authenticity for such a requirement). It can be expected that the VSMS would be the automatic choice of test as the child had a motor control problem. When VSMS was administered, the child's SQ came to be 77, when scored according to the old and less-appropriate method of scoring (for different methods of scoring and their merits and demerits, please refer to the article 'Vineland Social Maturity Scale: An update on administration and scoring'; Roopesh, 2019). SQ of 77 is considered to be in the range of 'borderline level of social and adaptive functioning'. However, interactions with Sama indicated that she has possibly higher ability than a 'borderline' level, and hence the Binet Kamat Test (BKT) (Kamat, 1967) was administered. On BKT, the child's (adjusted) IQ came to be 106 (Roopesh, 2020), which is in the 'average' intelligence category. It clearly shows that Sama's SQ had been pulled down by her motor weakness (her separate domain/profile scores are shown in figure 1). This final result of this case could have gone wrong, (i) if the consultant would not have interacted with the child (there can be times when students/trainees do the assessment and discuss with the consultants; and in many situations, consultants may not interview the child, such as during a busy OPD and assessment camps); (ii) if the child is less than about 3 years of age where BKT administration would not be possible; and/or (iii) if the child would have had any delay in speech and language abilities.

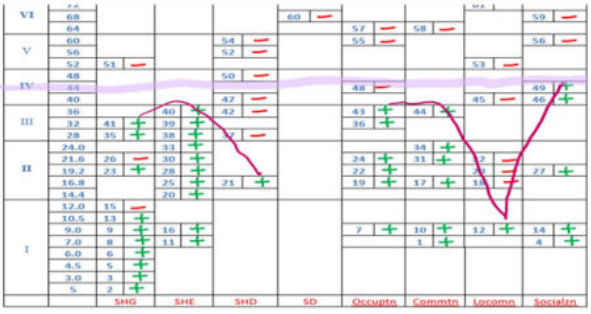

Figure 1: Showing the domain scores of the child Ms. Sama, diagnosed with SMA

Autism spectrum disorder: Mental health professionals, paediatricians, speech therapists, occupation therapists are all familiar with how the two domains, i.e., communication and socialization are disproportionately lower in children with autistic spectrum disorder, and how this pulls down the overall SQ in VSMS. This becomes a concern only when the professional is interested to know the intelligence/performance of the child, and not when the child is assessed to know the type and the level of disability. The latter assessment is mainly carried out to issue disability certification and benefits (disability assessment using VSMS is discussed in the later section).

Speech delay/impairment: It is a common knowledge that speech is one of the important functions, and speech contributes to, as well as is evaluated directly and indirectly in many intelligence tests. However, it is a common knowledge that though speech impairment does affect the general functioning of the person, intelligence to a great extent can be independent of speech (it is easy to comprehend this when one observes person with speech impairment using sign language to communicate, is gainfully employed and functioning independently). Given this, when VSMS is used to assess intelligence on a child with speech delay/impairment, the same impairment will pull down the SQ of the child. The performance of a 5 year 9 months old child Ms. Spedel (name changed to maintain confidentiality), across 8 domains of VSMS, as depicted in figure 2, clearly shows the disproportional lower scores in communication.

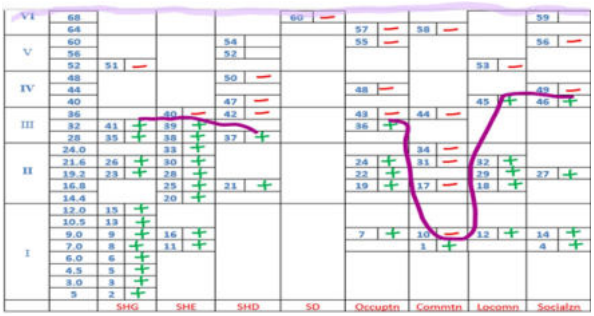

Figure 2: Showing the domain scores of the child Ms. Spedel, who has speech delay

Intervention Planning: In addition to the above-mentioned scenario, an important concern is of planning for intervention, as well as requirement of a certain level of intelligence for school admission. Usually schools, especially special and integrated schools differ in their target audience and require particular level of functioning/intelligence before admitting any child. Hence, they ask parents to get a report of child's intelligence, especially about 'what the child is able and not able to do' and/or 'can and can't do', before admitting the child. If the intelligence/ability is lower than the particular school's criteria, the school might not be willing to admit the child.

Due to the various reasons mentioned earlier in the article, sometimes, children can only be administered VSMS to arrive at an SQ, which in these situations, will be treated as IQ. If a child with average intelligence, but having a particular difficulty or impairment, such as motor problems is assessed using the VSMS, the child's SQ might be pulled down due to the motor impairment. So, therefore, certain conditions/ disabilities can lower the child's SQ and would not reflect what the child can actually learn, achieve and perform. This will put the child at a disadvantage and might even cause suffering, because the intervention planned and provided to the child will cater to the (lower) SQ compared to the child's higher capacity to perform. This will be a gross injustice to the child.

Therefore, there is a long-standing, urgent and important need for a mechanism/procedure in the VSMS scoring and/or interpretation that addresses this issue and plugs the loop-holes. This is not be possible, when the classic/old VSMS scoring method is used (Roopesh, 2019). However, when the appropriate VSMS scoring method is adopted as explained in the article 'Vineland Social Maturity Scale: An update on administration and scoring' (Roopesh, 2019), a procedure/mechanism can be adopted to correct the significant error.

The procedure/mechanism - 'Impairment Adjusted Social Quotient':

The proposed procedure/mechanism henceforth will be referred to as 'Impairment Adjusted Social Quotient', or IA-SQ in the current article. The procedure works only with the 'Add-months-to-years-wise' scoring method, as given in page number 97 of the article 'Vineland Social Maturity Scale: An update on administration and scoring' (ibid). According to the 'Add-months-to-years-wise',

(i) Each item has a particular weightage in terms of months
(ii) The weightage of each item varies, with respect to how many items are there in that particular year
(iii) Hence, each item acts as an independent item, with is its own independent score.

For example: 3 years to 4 years has 6 items (item numbers – 45, 46, 47, 48, 49 and 50); and hence between 3 to 4 years, each item gets the score/weightage of 2 months (i.e. 12 months divided by 6 items, results in 2 months per item). On the other hand, 8 to 9 years has 4 items (item numbers = 71, 72, 73 and 74); and hence between 8 to 9 years, each item gets the score/weightage of 3 months (i.e., 12 months divided by 4 items, result in 3 months per item) (refer figure 3).

Figure 3: Showing the appropriate scoring method as given in Roopesh (2019)

Given the above, i.e., when each item acts as an independent item, then OMITTING/REMOVING THAT PARTICULAR ITEM ALTOGETHER FROM SCORING, will adjust/compensate for the impairment experienced by the person. It is as though the item itself was not there in the first place.

For example, if the child is not able to do item number 47 (due to the impairment of concern and we need to adjust omit/remove that item from pulling down the SQ), where the item is between 3 to 4 years; then the examiner can completely omit/remove item 47. Earlier, 3 to 4 years had 6 items, and each item with this year carried a weightage of 2 months each (12 months divided by 6 items, results in 2 months each). After the omission/removal of one item, 3 to 4 years will have 5 items, and now each item will carry the weightage of 2.4 months each (12 months divided by 5 items, results in 2.4 months each) (refer figure 4, left-sided green colour encircled example).

Similarly, if the child is not able to perform item number 71 (due to the impairment of concern and we need to adjust omit/remove that item from pulling down the SQ), which is between 8 to 9 years; then the examiner can completely omit/remove the item 71. Earlier, 8 to 9 years had 4 items, and each item carried a weightage of 3 months each (12 months divided by 4 items, results in 3 months each). After the omission/removal of one item (i.e., item 71), 8 to 9 years will have 3 items, and now each item will carry the weightage of 4 months (12 months divided by 3 items, results in 4 months each). If the child can do the items 72, 73, and 74 of year 8 to 9 years, then the child will get the credit of 12 months (3 items of 4 months each, results in 12 months).

However, the examiner should remember that this adjustment applies to only those items that are affected by impairment and is to be used only when we need to adjust for that impairment. There can be a scenario, in the above-mentioned example, that item 71 is affected by the impairment that we need to adjust for. Then we remove item 71. As mentioned in the above paragraph, 72, 73, and 74 items will carry 4 months credit each. However, there is all the possibility that a child cannot perform one or more items due to other reasons, other than the one we need to do the adjustment for. That is, if we have to remove the effect of motor delay on intelligence, we will omit/remove that particular item/s. However, there may be another item/s that the child cannot do (due to various other reasons, intelligence being one among them), and this item we cannot/should not omit/remove. For example, if we consider that the child cannot do the item 73 (due to reasons other than the to be adjusted impairment), then we will consider that the child cannot do item 73 and we will not omit/remove item 73. Here, the examiner should remember that omitting/removing an item as part of IA-SQ is different from the child not being able to perform an item (refer figure 4, right sided orange colour encircled example).

Figure 4: Showing the 'Impairment Adjusted Social Quotient method' of scoring

Now, let us see how this new adjustment procedure will work with some actual examples.

Autistic Spectrum Disorder Scenario:

In one of the case examples mentioned above, the child Sama obtained a Social Age of 34.4 months, her Chronological Age was 45 months, and so the corresponding SQ would have been 77. Her VSMS profile was shown in figure 1 above and her scoring is shown in figure 5a below.

It can be seen from the profile that (figure 1), Sama could not perform the item numbers 15 (stands alone), 26 (walks without support), 37 (removes shirt of frock if unbuttoned), 42 (puts on shirt/frock unassisted, need not button), 47 (buttons shirt or frock), 50 (washes hand unaided), 48 (helps at little household work), 18 (walks about room unattended), 29 (goes about house or yard), 32 (walks upstairs unassisted), and 45 (walks downstairs one step at a time) due to her having SMA. If we omit only these items (which are affected by her motor impairment) from scoring, and then if we recalculate (refer figure 5b), her Social Age would be 48 months, and the corresponding SQ would be 107. That is, after the adjustment is made, her 'IA – SQ' is 107.

Kindly compare the yellow-coloured circles between figure 5a and 5b to see how IA-SQ changes values. This IA-SQ of 107 almost exactly matches her BKT (adjusted) IQ of 106. This clearly gives direct proof or can be considered as proof that the procedure/mechanism mentioned above, is correct and does justice to the child [The author reiterates here that the case of Sama (name changed to maintain confidentiality) is an actual case of the assessment was carried out by a post-graduate trainee and discussed with this author; and the scores that the child obtained both in VSMS (i.e., before adjustment) and BKT are exactly as mentioned in this article. Further, for the report that was provided to the parents, the author neither used IA-SQ procedure on the child's VSMS score, nor did he mention the VSMS score in the certificate. VSMS score was not mentioned in the report as the referral was mainly for intelligence assessment and the BKT test results was sufficient for the same].

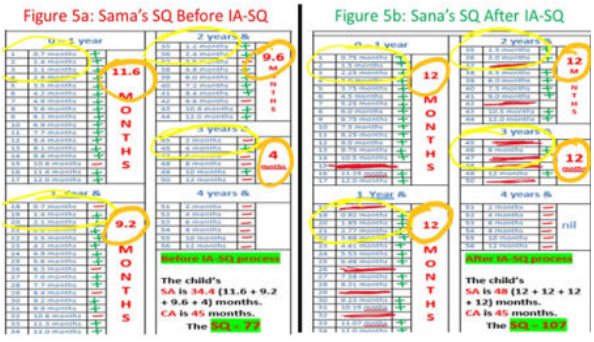

Figure 5: Shows the scoring before (5a) and after (5b) the 'Impairment Adjusted Social Quotient' procedure is used, for the child Sana, who was diagnosed with SMA

Speech delay scenario:

In one of the above-mentioned examples, one can see that Ms. Spedel (figure 2) has obtained a low score in communication aspect owing to her speech impairment. It can be observed that though her Chronological Age is 5 years and 9 months (the thick light-purple coloured horizontal line in figure 2), her social and adaptive functions are around 2 ½ to 3 ½ years (Locomotion and Socialization are around 3 years, 4 months; Self-help general, Self-help eating and Occupation are around 2 years, 8 months; Self-help dressing is around 2 years, 4 months), except in the Communication domain in which she is around 7 months of age. Given this, her overall SA would be 32.4 months; and as her CA is 69 months, her SQ would therefore be 47 (refer figure 6a). If one has to adopt the IA-SQ procedure, then they can omit the item numbers 10 (talks or imitates sound), 17 (follows simple instructions – on verbal requests), 31 (uses name on familiar objects) and 34 (talks in short sentences). The examiner has to note that, even though the next item in the same domain, item number 44 (relates experiences) is affected by her verbal impairment, it is not advisable to adjust/consider this item for IA-SQ procedure. This is because, as mentioned above, her social and adaptive functions on 3 domains are less than 32 months. According to the IA-SQ procedure, if we omit the items 10, 17, 31 and 34, then her new SA would be 35.2 months; and as her CA is 69 months, her SQ would be 51 (refer figure 6b). Please compare the yellow-coloured circles between figure 6a and 6b to see how IA-SQ changes the values.

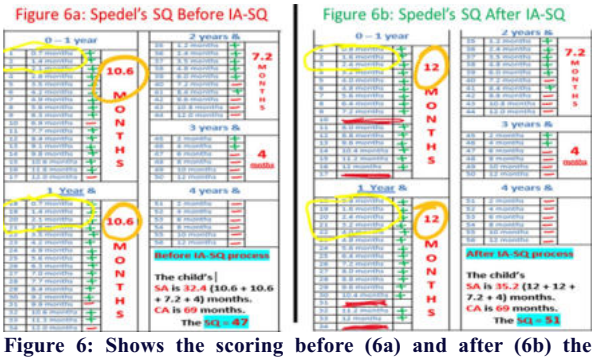

Figure 6: Shows the scoring before (6a) and after (6b) the 'Impairment Adjusted Social Quotient' procedure is used, for the child Spedel, who was diagnosed with speech delay

Learning Disability (LD) Scenario:

Though VSMS is not used to assess intelligence in children with LD, sometimes psychologists use it as part of the comprehensive assessment. Here their rationale of using VSMS might be to check the child's social and adaptive functions along with intelligence. However, one should remember that (irrespective of whether to know the intelligence or social and adaptive functions), VSMS pulls down the SQ score due to the items present in the communication domain.

The domain of Communication in VSMS has about 6 items out of 12 that are directly related to child's ability to read and write. It is common knowledge that children with LD, especially dyslexia and dysgraphia have problems in reading and spelling, due to which they might not be 'able to', 'does not' and/or be 'willing to' read or write. These items are, item 58 – writes simple words, 63 – uses pencil/chalk for writing, 73 – reads on own initiative, 78 – writes occasional short letters to friends, 81 – answers ads/writes letter for information, and 84 – enjoys reading books, newspaper and magazines.

It is beyond the scope of the current article to discuss about the merits or demerits of having items on reading and writing to be part of the communication domain in VSMS.

However, psychologists should need to know about these items influencing the SQ, and it is left to their discretion whether or not to use IA-SQ.

Points to remember with respect to IA-SQ

- IA-SQ can be used in other cases apart from the three scenarios given above.
- If IA-SQ procedure is used for a greater number of items in a particular domain, then in the final report that particular domain should not be included/mentioned.
- IA-SQ should not be used for comorbid issues, especially when on those items, where determining what actually affects the performance of that item is difficult. For example, a child with autism having comorbid intellectual problem. In this case, if the child does not 'take turn when playing' (an item in VSMS), one cannot be sure whether the 'not taking turn when playing' is due to autism and not due to intellectual issues. As one cannot determine the actual reason, one cannot adopt IA-SQ procedure for that particular item. However, IA-SQ can be used for other unambiguous item/s.
- It is recommended that VSMS with or without IA-SQ to be used to assess intelligence mainly for children at younger ages (preferably around less than 10 – 12 years). This is because, social and adaptive functions improve (compared to intelligence) as the child receives more practice and training, or as the child grow up. For example, bathing without assistance, complete self-care during meal time and so on. However, this might not directly equate to improvement in intelligence. This can be observed more in children with borderline intelligence and mild IDD. Further, compared to children living in cities, children living in rural and village areas have better social and adaptive functions. For example, in rural areas it is easier/safer for a child of 7-8 years old to 'go around neighbourhood/town', compared to the child of same age in cities. Further, demands of independent living is relatively less in rural areas compared to cities. For example, it will be easier for a child with mild IDD to have a gainful employment of taking care of the livestock (feeding them, washing them, cleaning, milking and handing over the milk to a designated place/person), compared to similar ability of a child from the city, where mere travel to the work place and back itself might be a big challenge.
- It is recommended that VSMS with or without IA-SQ to be used to assess intelligence only when other tests aren't possible to administer.
- Another very important thing to remember is that intelligence is associated with 'ability', which translates to 'can do and/or able to do'. In several cases, the child might 'not have a chance to do', but might be 'able to do' if given the conditions are safer, or when given the chance. For example, when assessing for intelligence, a child does not go outside to buy something from a shop, due to not-being-allowed by parents due to traffic and safety issues (but parents think that the child can do it if allowed and if less traffic is there), is given credit for that item. However, in some conditions, the above condition cannot be applied to all cases of 'able-to' blindly, such as in children with autistic symptoms. Here, in a child with autism, who is not interested to play with peers, and/or who helps out in the family only after several repeated reminders; this question of 'able to or not able to' takes a different turn. Here, the dilemma would be, the child is 'able' but due to the autistic symptoms, the child 'does not do' the task. Therefore, in this scenario, if this child with autism is assessed for intelligence, IA-SQ is recommended, and if this child is assessed for disability, then the child should not get any credit for the above items, even though the child 'can do' the task (this is discussed in more detail below in the disability section).
- Professionals should exercise extreme discretion when using IA-SQ procedure for more than one domain. As there are no research on this, the opinion of this author is that, IA-SQ may not be used for more than two domains, and when two domains are considered, it should have appropriate rational. For example, IA-SQ procedure can be used for a child with cerebral palsy (motor) and has problems with speech.

Though IA-SQ works, is it ok to do it?

No change is easily accepted. Especially when anybody suggests a modification for a well-established test that was/is followed across several countries. Further, generally psychologists swear by standardization and resist any tampering with the standardized tests and hence many might dismiss the new procedures. However, it is not the scope of this article to discuss the merits and demerits of particular items, standardization process of item analysis, and/or the classic way the Social Age is arrived at in VSMS. However, the following provides examples of other tests and procedures that have diverted from their classical standardized methods. They indicate that the IA-SQ procedure is well within the possibilities of what usually followed in ability assessment.

- Weschler Intelligence Scale for Children – IV (WISC-IV; Wechsler, 2003) is a well standardized test. WISC has about 10 core subtests and 5 subtests that are supplemental. It allows for proration, if for any reason a particular core subtest could not be administered. This shows that even without administering a particular subtest/s, assessment of IQ is possible.

- Weschler Abbreviated Scale of Intelligence Test – II (WASI-II; Wechsler, 2011) is actually an abbreviated scale of larger Weschler Adult Intelligence Scale – IV (WAIS-IV, Wechsler, 2008). WASI-II allows the administration of 2 or 4 subtests to arrive at an IQ. This shows that even with 2 or 4 subtests (as against 10 + 5 subtests in WAIS-IV) one can obtain an IQ based on a standardized procedure.
- Many subtests, such as Object Assembly, Picture Arrangement which were once part of WISC/WAIS are not there in the recent revisions/versions. This shows that, what was once believed to be important subtests of intelligence test, can turn out to be not important in subsequent updates.
- Bhatia's Battery of Performance Test of Intelligence (Bhatia, 1955) has 5 subtests. However, some psychologists use shorter battery of just 2 subtests (Murthy, 1966; Verma, 1988; Roopesh, 2020), despite it being modified by other psychologists and not having good correlation to the original battery (Roopesh, 2020).
- Binet Kamat Test [Kamat, 1967), the other most widely used test in India, allows the use of 'alternative items' to be administered when the subject is not able to perform a particular item for any reason/s.
- Psychologists have used and some still use Sequin Form Board (SFB) test to arrive at IQ. SFB assesses mainly just two interrelated domains of 'reaction-response time and visuomotor coordination' (Venkatesan, 2014; Roopesh, 2021). That is psychologists are comfortable using only 1-2 domain/functions to arrive at an IQ. Going by this argument, VSMS has about 8 domains, and not having one or two domains, might not be a major contraindication, especially when it is used to plug the loophole and to benefit a child.

PURPOSE – TO ASSESS DISABILITY

In India, VSMS is mandatory to administer to arrive at the level of disability, for certification as well as for and providing disability benefits (Gazette of India, 2018).

One important thing to remember is that IA-SQ should NOT be carried out when one is assessing the child for disability. When assessing for disability, VSMS is not used to assess whether the child 'can or can't do' / 'able to or not able to do'. It is used to assess whether the child 'does that or does not do that'. For example, if a 10 years old child with autism 'plays with his/her peers' only when substantially forced to, the child should not be given credit for the item. The same applies when this child 'takes bath' only when forced to and/or very rarely, (i.e., should not get the credit for the item). This is because, the child is assessed for disability. To reiterate, for disability the child is assessed for its current level of functioning, such as 'what the child does or does not do', that is, for example, 10 years old child not take bath on its own contributes to disability.

Another important thing to remember is that, as mentioned earlier, the social and adaptive functioning as assessed by VSMS of the child improves as the child gets older. Given this, it is automatically understood that the disability in social and adaptive functioning as assessed by VSMS decreases as the child gets older. The phrase, 'as assessed by VSMS' carries special significance when VSMS is used to assess the level of disability. That is, a 10-year-old mild IDD child might get a relatively appropriate VSMS score that matches his actual/day-today disability level. However, a 15-year-old mild IDD child might get a relatively lower VSMS score compared to his actual/day-today disability level. This can be observed easily in children with borderline intelligence, mild IDD and in those who receive extensive training/stimulation in social and adaptive functions. Therefore, it is advisable for examiners to consider other core intelligence test scores along with VSMS score to arrive at a disability level whenever possible. Which intelligence test to consider and how to arrive at a conclusion about the type and level of disability is beyond the scope of this article and so, it is not discussed further here.

PURPOSE – TO ASSESS SOCIAL AND ADAPTIVE FUNCTIONS

Here the VSMS is administered for the main purpose of determining the social and adaptive functions. While administering for this reason, there is no necessity in making any adjustments or modifications to either administration or scoring, except for small variations in some items that are not suitable due to changing times and technology development. Example for the latter is, writing mails in olden days to writing emails/sending messages in current generation.

Further, in contrast to intelligence which is relatively stable over time, social and adaptive functions are modifiable and can change with respect to age, development and other conditions. For example, depending on the type and extent of involvement from parents/family, knowledge and expertise of the teachers, type of school/institute the child goes to, extent of occupational/vocational stimulation the child receives, a child's functioning can worsen or improve. Further, as mentioned above, as age increases, children will have more chances/ opportunities to practice several functions and hence can show improvement in functions.

In addition to the above, social and adaptive functions will be affected in several psychiatric disorders. As how training, stimulation and exposure can change the social and adaptive functions, several medications apart from improving the psychiatric symptoms, directly and/or indirectly reduce impairment in these functions.

Similarly, cochlear implant surgery for a child with hearing impairment; corrective surgery for an adolescent for visual impairment; teaching and providing alternative and augmentative communication for a person with speech impairment; all can improve social and adaptive functions of the person.

On the other hand, certain neurodegenerative disorders and/or chronic psychiatric illnesses can adversely affect the social and adaptive scores with time.

Therefore, it is advisable to assess social and adaptive functions on a regular basis, to plan for appropriate intervention for the child/person.
When one assesses purely for social and adaptive functions, it is relevant to know that American Association of Mental Retardation (currently referred to as American Association of Intellectual and Developmental Disabilities) in its 9th edition suggested that, it is better to use the extent of support needed, such as 'Intermittent, Limited, Extensive and Pervasive' supports, instead of using 'Mild, Moderate, Severe and Profound IDD' while defining intellectual disabilities (Richards, Brady & Taylor, 2015).

CONCLUSION:

Professionals need to remember that what a child 'can do / able to do or cannot / not able to do' is related to the child's ability, which is usually equated with cognition/intelligence. However, with respect to adaptive functions, it is usually what a child 'does do' or 'does not do' or otherwise refers to the child's 'performance'. Social and adaptive functions are those tasks that the child 'does without pressure/force, prompts or supports on a day-today basis', irrespective of whether the child has the ability (can do) or not. This aspect should be remembered especially when evaluating social and adaptive functions.

A child without any intellectual disability can still have social and adaptive function deficits. For example, children with autism and attention deficit hyperactivity disorders, show such deficits. Further, in conditions such as autism, social and adaptive functions can be far lower than the age expected levels (Volkmar, Carter, Sparrow & Cicchette, 1993) and intellectual ability.

Depending on the diagnosis and other conditions, children's functioning can differ across the domains.

The current article mainly suggested a procedure (Impairment Adjusted – Social Quotient) to overcome the limitations of unrelated symptoms affecting the scores, if one uses VSMS as a tool to assess intelligence. Further, the article also provides examples of how to do it and rationale for doing so. However, it is up to the professionals/institutions to weigh in the merits and demerits of the procedure and to decide for themselves whether to use this procedure or not.

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