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Chapter 6

Social skills in children and adolescents with mental retardation with and without autism

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Abstract

Social skills were studied in children with mild and moderate mental retardation with and without autism. The objective was to investigate the value of the CSBQ, as a measure of subtle social skills, added to a measure of basic social skills with the VABS, in identifying children with mental retardation, with or without autism. Measuring basic social skills is not sufficient in differentiating between levels of mental retardation. Communicative skills and subtle social skills, that concern overlooking activities or situations and fear of changes, play a far greater role. Additionally, with respect to identifying autism, basic social skills do not contribute, as opposed to communicative skills and the tendency to withdraw from others. The CSBQ not only seems to have specific value as a measure of subtle social skills to identify pervasive developmental disorders, but also seems to have a specific contribution to differentiating between the two levels of mental retardation. Furthermore, our outcomes imply a slight difference between limitations in subtle social skills as mentioned by the AAMR (2002) and limitations in subtle social skills as seen in milder forms of pervasive developmental disorders. Clinical and theoretical implications will be discussed.

6.1 Introduction

Limitations in social skills are a central characteristic in the definition of both mental retardation and pervasive developmental disorders. First, the level of social skills plays a major role in the overall level of adaptive behavior of individuals with mental retardation (Kraijer, 2000), which is one of the two main characteristics in the definition of mental retardation of the AAMR (2002): *'significant limitations in intellectual functioning and in adaptive behavior as expressed in conceptual, social and practical adaptive skills'*. Second, ineffective social skills are a central characteristic of individuals with a pervasive developmental disorder, defined in the DSM-IV-TR (APA, 2000) as: *'severe and pervasive impairment in several areas of development: reciprocal social interaction skills, communication skills, or the presence of stereotyped behavior, interests and activities'*.

With respect to adaptive behavior in individuals with mental retardation, there has been a debate since the early 90's, concerning the emphasis on adaptive behavior and social skills in defining and classifying mental retardation. In the earlier version of the handbook (AAMR, 1992), social skills were regarded as one of 10 adaptive behavior areas, thus composing a relatively small part of the concept of adaptive behavior and, as a consequence, of the definition of mental retardation. In the discussion following the presentation of the 1992 handbook and its definition, a more substantial role for social skills in adaptive behavior and the definition of mental retardation was argued for. Greenspan (1999) has probably been the one who most heavily emphasizes the role of social skills in the definition of mental retardation. He regards what he calls social intelligence, or the *'mistaken or ineffective handling of difficult interpersonal situations'*, as the critically important prototypic characteristic of people with mental retardation (see also Greenspan & Love, 1997). For a more detailed description of the debate, we refer to the most recent version of the AAMR handbook (2002).

This debate has led to a new definition of adaptive behavior in the 2002 definition of mental retardation. It now consists of three areas, resulting from factor analytical research studies: conceptual skills (language, reading and writing, money concepts, self-direction), social skills (interpersonal, responsibility, self-esteem, gullibility, naiveté, follows rules, obeys laws, avoids victimization), and practical skills ((instrumental) activities of daily living, occupational, maintaining safe environments) (AAMR, 2002). With respect to the social skills area specifically, the refinement of the

specific representative skills places more emphasis on subtle skills, e.g. gullibility, naiveté, or avoids victimization, additional to more basic skills. Understanding the social context of a situation, understanding jokes, taking the other person's perspective, understanding that a friendly acting person actually is doing you harm, etc., are examples of these subtle social skills, needed to handle more complex social situations.

The existing measures of adaptive behavior, however, mainly seem to cover basic social skills, needed in everyday or routine situations, yet seem to reflect subtle social skills that are influenced by e.g. gullibility or vulnerability less well (Greenspan, 1999; AAMR, 2002). Therefore, emphasizing these subtler skills, leads to the call for development of new assessment procedures for adaptive behavior, which incorporate subtle skills. Especially in higher functioning individuals these subtle skills are important, since basic and routine interaction skills are often developed well enough, yet limitations in social skills may be present in more complex interpersonal situations.

Additional limitations in social skills occur with the co-morbidity of a pervasive developmental disorder. It is well known that mental retardation occurs very frequently in children with a pervasive developmental disorder (Wing & Gould, 1979; Wing, 1981; Rutter, 1983; Wing, 1993; Bryson, 1996, 1997). For a long period, standard estimates of 70-90% of children with PDD were supposed to have IQ's of 70 or lower (DeMyer et al., 1974; Steffenburg & Gillberg, 1986). Due to the growing attention for High Functioning Autism and Asperger's Syndrome, this percentage tends to decrease. Nevertheless, it is still substantial (Gillberg, 1999). Estimates of the prevalence of PDD amongst individuals with mental retardation vary widely, ranging from 2%, 3% or 5% (Wing et al., 1979; Wing, 1981; Gillberg, Persson, Grufman, & Themner, 1986; Steffenburg, Gillberg, & Steffenburg, 1996; Kraijer, 1997) to 40%, 50% or even 56% (Wing et al., 1979; Wing, 1981; Gillberg, 1983; King, DeAntonio, McCracken, Forness, & Ackerland, 1994). These estimates depend on the definition of the pervasive developmental disorder under study and of the studied population. The prevalence is higher when lower functioning individuals or the broader spectrum of pervasive developmental disorders are investigated. However, in general, the estimates justify the need of awareness of the possibility of a pervasive developmental disorder in children with mental retardation.

From a clinical perspective, it is very important to discriminate between limitations in social skills due to mental retardation, and limitations in social skills due to a pervasive developmental disorder. In the case of mental retardation, the level of social skills often is the same as other areas of development and behavior. In other words, the profile of strengths and weaknesses is rather harmonious. For children with a pervasive developmental disorder co-morbid to mental retardation, limitations in social skills are often larger than limitations in other areas of adaptive behavior, causing an irregular profile (Volkmar et al., 1987; Loveland & Kelley, 1988; Kraijer, 2000; Bölte & Poustka, 2002). The level of social skills is lower than in children with mental retardation without a pervasive developmental disorder (Njardvik, Matson, & Cherry, 1999; Kraijer, 2000), although there is less difference between the groups in the other areas of adaptive behavior. These findings corroborate an additional effect of a pervasive developmental disorder on the social skills of children and adolescents with mental retardation. Therefore, it is important to identify the background of the observed limitations in social skills, in order to provide adequate support or treatment. For children with a co-morbid pervasive developmental disorder, the character of such support or treatment is different from children with mental retardation only. Knowing that a child suffers from a co-morbid pervasive developmental disorder will lead to an increased insight in why the child acts the way he/she does, which may result in specific interventions, for example special communication techniques, additional structuring of the environment, or lowering social requirements, in order to solve or prevent problems.

For both diagnostic groups considered here, measuring subtle social skills is important, especially for individuals who are less severely affected. The more severe the level of mental retardation, or the pervasive developmental disorder, the larger the limitations in social skills (Bloom & Zelko, 1994; Gillham, Carter, Volkmar, & Sparrow, 2000; Liss et al., 2001). In children with severe or profound mental retardation and in children with severe autism, basic social skills are already limited to such extent, that subtle social skills do scarcely, or even not at all occur. However, for children with mild and moderate mental retardation, and for children with milder forms of pervasive developmental disorders, subtle social skills seem to be a central factor in functioning in daily life. Moreover, when both diagnoses are considered, e.g. mild or moderate mental retardation and a disorder in the spectrum of pervasive developmental disorders, measuring subtle social skills is of crucial importance, in

order to identify the character, severity and background of the limitations. As mentioned above, in the field of mental retardation, measures of adaptive behavior are considered to cover too little of these subtle social skills (Greenspan, 1999; AAMR, 2002). The same is corroborated by Gillham et al. (2000) in the field of pervasive developmental disorders. Based on measurements with the Vineland Adaptive Behavior Scales, VABS (Sparrow, Balla, & Cicchetti, 1984), they found lower social skills in children with AD than in children with PDD-NOS, yet reported no differences between children with PDD-NOS and children with other developmental disorders (e.g. mild or moderate mental retardation, developmental language disorder, or a combination of motor and language delays). The authors conclude that the VABS may be useful in detecting autism, yet seems to have limited value in detecting PDD-NOS. Again, subtle social skills seem to need more emphasis in measuring adaptive behavior.

In the present study, the social skills of 510 children between 4-18 years with mild and moderate mental retardation were investigated, combining a measure of basic social skills, the VABS (Sparrow et al., 1984), with a new measure of more subtle social behavior, the Children's Social Behaviour Questionnaire, CSBQ (Luteijn, Luteijn, Jackson, Volkmar, & Minderaa, 2000a). The CSBQ was specifically developed to measure limitations in subtle social skills as seen in PDD-NOS. This paper aims to investigate social skills in children and adolescents with mental retardation, with and without autistic symptomatology. The main objective is to investigate the value of the CSBQ, as an easy to administer measure of subtle social skills, added to a measure of basic social skills with the VABS, in identifying children with mild or moderate mental retardation, with or without autistic symptomatology.

6.2 Method

Participants

The participants for this study were recruited from Friesland, a northern province of the Netherlands. All 1436 children and adolescents between 4 and 18 years, known to facilities for children and adolescents (suspected) with mental retardation (schools, day-care facilities and institutions) were approached. All levels of mental retardation were included. No participants were excluded based on etiology of mental retardation, presence of sensory or motor impairments, co-morbid psychiatric disorders, behavior problems, epilepsy or use of medication. With this

procedure, 1059 (671 males, 388 females) participated, a response rate of 73.7% (see for more information on this sample and procedure (de Bildt et al., 2003b).

This paper reports on a subsample of this population, consisting of all verbal children with mild or moderate mental retardation, for whom data were available on the VABS and the CSBQ ($n=510$). The classification in levels of mental retardation was based on information from intelligence tests or developmental tests obtained by the facility. These included the Wechsler Intelligence Scale for Children-Revised, WISC-R (Wechsler, 1974; Vander Steene et al., 1986), the Wechsler Preschool and Primary Scale for Intelligence-Revised, WPPSI-R (Wechsler, 1989; Vander Steene & Bos, 1997), the Snijders-Oomen Niet-verbale intelligentie test-Revisie, SON-R (Snijders, Tellegen, Winkel, & Laros, 1996), and the Bayley Scales of Infant Development (Bayley, 1969; Van der Meulen & Smrkovsky, 1983). A classification of moderate mental retardation was defined by an IQ of 36 through 50, a classification of mild mental retardation by an IQ of 51 through 70. Verbality was defined by spontaneous and regular use of at least eight words.

To measure the effect of autistic symptomatology on social skills, the groups (i.e. the group with moderate and the group with mild mental retardation) were divided into a group with autistic symptomatology and a group without autistic symptomatology, based on the classification of the Autism Behavior Checklist (Krug, Arick, & Almond, 1980). Characteristics of the total group and subgroups are presented in table 6.1.

Table 6.1 Characteristics of the group

| | Total group | | | | Autism | | | Non-autism | | |
|------------------------------------|-------------|--------|------|-----|--------|-------------------|-----|------------|------|-----|
| | Sex | | Age | | Age | | | Age | | |
| | male | female | mean | sd | n | mean | sd | n | mean | sd |
| Mild mental retardation | 231 | 132 | 11.8 | 3.8 | 44 | 10.3 ¹ | 4.0 | 319 | 12.0 | 3.3 |
| Moderate mental retardation | 86 | 61 | 11.6 | 3.5 | 23 | 11.4 | 3.3 | 124 | 11.6 | 3.9 |

¹ age difference autism vs. non-autism in mild mental retardation $p<.05$

Instruments

Children's Social Behaviour Questionnaire (CSBQ)

The Children's Social Behaviour Questionnaire is a parent questionnaire that aims to measure problems in subtle social skills in children with milder forms of pervasive developmental disorders (Luteijn, Jackson, Volkmar, & Minderaa, 1998; Luteijn et al., 2000a). Although the CSBQ was originally developed for and investigated in children with normal intelligence, the psychometric qualities of the CSBQ in children with mental retardation were found to be good (Luteijn, Minderaa, & Jackson, 2002; Luteijn, Hartman, Serra & Minderaa, submitted).

The CSBQ has 49 items, divided over six scales (see table 6.2). In the first scale, 'Not tuned', limitations with adapting behavior to the social situation are described. The second scale, 'Tendency to withdraw', describes problems in social interaction. Scale 3, 'Orientation problems' represents problems in automatic orientation in time, place, person and activity. 'Not understanding', scale 4, refers to not understanding the point in a conversation, jokes and problems in processing social information. Scale 5, 'Stereotyped behaviour', describes stereotyped movements and preoccupation with objects and sensory information. Scale 6, 'Fear of changes' refers to fear of and resistance to change. As presented in table 6.2, especially the items in scales 'Orientation', 'Not understanding' and 'Not tuned', represent the subtle social behavior we aimed to measure.

Psychometric qualities, with respect to test-retest reliability, interrater reliability and internal reliability of the scales, and convergent validity were reported to be good (Luteijn et al., 2000b; Luteijn et al., 2002; Luteijn et al., submitted). When various groups of children were studied (PDDNOS, ADHD, a combination of both, High Functioning Autism and clinical controls), the CSBQ proved to be able to discriminate between these groups on social problems (Luteijn et al., 2000b). The same differentiation appears in the group with mental retardation, between children with mental retardation with and without a pervasive developmental disorder (Luteijn et al., submitted). In the present study, raw scores on the CSBQ subscales and the total score were investigated.

Vineland Adaptive Behavior Scales-Survey Form (VABS)

The Vineland Adaptive Behavior Scales-Survey Form (Sparrow et al., 1984) is an internationally well-known interview for parents, measuring the adaptive behavior

of a child. Adaptive behavior is measured over four domains: Communication (Receptive, Expressive and Written), Socialization (Interpersonal Relationships, Play and Leisure Time and Coping Skills), Daily Living Skills (Personal, Domestic and Community) and Motor skills (Gross and Fine). For the purpose of this study, the Communication and Socialization domain and their subdomains were investigated.

As recommended by Volkmar et al. (1987) age-equivalent scores of each domain and subdomain were examined, because these were described as the most useful in a comparative study. The differences between chronological age in months and the age equivalents in months were used in the analyses to investigate the delay of the children in each (sub)domain. This enabled an intra-individual comparison.

Autism Behavior Checklist (ABC)

At the time of the start of this study, the ABC (Krug et al., 1980) was the only available standardized internationally applied instrument for autistic symptomatology, suitable for screening a large population. Although it is not a diagnostic instrument, it was the only available instrument on autism in our sample. To measure the effect of autistic symptomatology on social behavior, the groups (i.e. the group with moderate and the group with mild mental retardation) were divided into a group with autistic symptomatology and a group without autistic symptomatology, based on the criteria as given by Oswald and Volkmar (1991). They proposed a cut-off of 58 and higher for autism and below 58 for non-autism, based on their study of sensitivity and specificity for the weighted sum scores, compared to a clinical DSM-III diagnosis of AD. We emphasize that it was used in this study as a measure of autistic symptomatology, rather than as a diagnosis. Parents completed the ABC.

Statistics

The differences in social skills between the two levels of mental retardation and between autistic symptomatology vs. no autistic symptomatology, were tested with t-tests (SPSS Inc., 1999) for the VABS and with non-parametric Mann-Whitney tests for the CSBQ, since these were raw scores that were not normally distributed.

To investigate the multivariate relationship between identification of level of mental retardation or identification of autistic symptomatology on one hand, and the VABS subdomains and CSBQ subscales on the other, a Logistic Regression was applied (SPSS Inc., 1999).

Table 6.2 The 6 scales of the CSBQ

Scale 1: Not tuned (11 items)

Emotions/behavior is not optimally tuned to the situation

Quickly gets angry.
Does not know when to stop, e.g. goes on and on about things.
Is extremely stubborn.
Stays angry for a long time, e.g. when he/she does not get his/her way.
Is disobedient.
Draws excessive attention to him/herself.
Shows sudden changes of mood.
Makes a fuss over little things; "makes a mountain of a mole-hill".
Over-reacts to everything and everyone.
Cannot be corrected in situations in which he/she has done something wrong.
Makes inconsiderate remarks, e.g. remarks that are painful to others.

Scale 2: Tendency to withdraw (12 items)

Tendency to withdraw in social situations, little need for contact

Has little or no need for contact with others.
Makes little eye contact.
Does not seek comfort when he/she is hurt or upset.
Dislikes physical contact, e.g. does not want to be touched or hugged.
Does not respond to initiatives by others, e.g. does not play along when asked to.
Does not begin to play with other children.
Acts as if others are not there.
Lives in a world of his/her own.
Does not show his/her feelings in facial expressions and/or bodily posture.
Does not look up when spoken to.
Cannot be made enthusiastic about anything; does not particularly like anything.
Does not appreciate it when someone else is hurt or sad.

Scale 3: Orientation problems (8 items)

Inadequately 'automatically' orientates oneself in time, place, activity or person

Does things without realizing the aim, e.g. constantly has to be reminded to finish something.
Does things without realizing what stage of the activity he/she has reached (beginning, middle, ending).
Has no sense of time.
Takes in information with difficulty.
Has difficulties doing two things simultaneously, e.g. he/she cannot dress and listen to father or mother at the same time.
Does not appreciate danger.
Easily gets lost, e.g. when out with someone.
Barely distinguishes between strangers and familiar people, e.g. goes easily with strangers.

Scale 4: Not understanding (7 items)

Difficulties in understanding and sensing social information

Takes things literally, e.g. does not understand certain expressions.
Does not understand jokes.
Does not fully understand what is being said to him/her, i.e. tends to miss the point.
Is exceptionally naive; believes anything you say.
Frequently says things, which are not relevant to the conversation.
Talks confusedly; jumps from one subject to another in speaking.
Only talks about things that are of concern of him/her.

Scale 5: Stereotyped behaviour (8 items)

Stereotyped movements en reactions to sensory information

Constantly feels objects.
Smells objects.
Makes odd, fast movements with fingers or hands.
Is extremely pleased by certain movements and keeps doing them, e.g. turning round and round.
Flaps arms/hands when excited.
Is fascinated by certain colors, forms or moving objects.
Sways to and fro while standing.
Is unusually sensitive to certain sounds, e.g. always hears certain sounds earlier than other people.

Scale 6: Fear of changes (3 items)

Fear of and resistance to change

Remains clammed up in new situations or if change occurs.
Panics in new situations or if change occurs.
Opposes change.

6.3 Results

Not surprisingly, children with moderate mental retardation showed larger mean delays than children with mild mental retardation on both the Socialization domain and its subdomains, and on the Communication domain and its subdomains ($p < .001$, data not shown). In table 6.3, the mean delays are shown for children with and without autistic symptomatology in each level of mental retardation. Within each level of mental retardation, children with autistic symptomatology showed significant larger delays on the Socialization domain and its subdomains, yet not on the Communication domain or its subdomains. Investigating the CSBQ revealed significantly higher scores for children with moderate mental retardation than for children with mild mental retardation, on the subscales Orientation and Stereotyped ($p < .001$, data not shown). As presented in table 6.3, in each level of mental retardation, children with autistic symptomatology scored significantly higher than children without, on all subscales and the total score.

Table 6.3 Differences in VABS and CSBQ scores between autism vs. non-autism per level of mental retardation (Student's *t*-test/Mann-Whitney *U*)

| | | Moderate | | | | Mild | | | |
|----------------------------|--------------------------|----------|------|------------|------|---------|------|------------|------|
| | | autism | | non-autism | | autism | | non-autism | |
| | | mean | sd | mean | sd | mean | sd | mean | sd |
| VABS, | Socialization | 99.3** | 37.4 | 73.6 | 41.3 | 77.3** | 47.6 | 54.8 | 41.0 |
| CA-VA | <i>Interpersonal</i> | 100.1* | 35.8 | 79.3 | 46.3 | 82.8** | 49.9 | 61.6 | 46.1 |
| (Student's <i>t</i> -test) | <i>Play Leisure</i> | 102.5** | 42.7 | 72.3 | 42.5 | 74.4* | 58.0 | 55.8 | 46.9 |
| | <i>Coping skills</i> | 91.6** | 34.6 | 65.6 | 44.5 | 71.5*** | 44.5 | 44.5 | 44.0 |
| | Communication | 96.7 | 37.7 | 86.3 | 39.4 | 74.5 | 39.5 | 68.0 | 32.7 |
| | <i>Receptive</i> | 96.3 | 38.2 | 79.6 | 43.3 | 73.3 | 42.9 | 76.0 | 38.3 |
| | <i>Expressive</i> | 98.4 | 38.4 | 83.4 | 39.3 | 76.6 | 42.0 | 65.1 | 36.8 |
| | <i>Written</i> | 100.1 | 39.1 | 91.7 | 38.7 | 72.6 | 40.4 | 69.6 | 33.1 |
| CSBQ, | Total | 44.7*** | 16.7 | 22.3 | 15.1 | 49.3*** | 13.9 | 19.6 | 13.1 |
| raw scores | <i>Not tuned</i> | 9.7*** | 5.2 | 5.6 | 5.0 | 11.5*** | 5.4 | 5.7 | 4.8 |
| (Mann-Whitney <i>U</i>) | <i>Withdraw</i> | 10.6*** | 6.1 | 3.2 | 3.4 | 10.8*** | 4.9 | 3.2 | 3.4 |
| | <i>Orientation</i> | 8.7** | 4.1 | 5.8 | 4.1 | 8.9*** | 3.3 | 3.9 | 3.4 |
| | <i>Not understanding</i> | 7.0* | 4.0 | 4.7 | 3.4 | 9.5*** | 3.8 | 4.4 | 3.3 |
| | <i>Stereotyped</i> | 6.5*** | 3.7 | 2.0 | 2.3 | 5.0*** | 3.4 | 1.3 | 1.8 |
| | <i>Fear of changes</i> | 2.3* | 2.1 | 1.1 | 1.4 | 3.5*** | 1.9 | 1.2 | 1.5 |

* $p < .05$, ** $p < .01$, *** $p \leq .001$

Table 6.4 presents the contribution of the Socialization and Communication subdomains and the CSBQ subscales to the identification of level of mental retardation, and to the identification of autistic symptomatology in the total sample. The odds ratio's (OR) express the increase or decrease in the probability of being identified as having moderate mental retardation or as having autistic symptomatology, with increasing delays on the subdomains, controlled for the other subdomains/subscales included in the model. With respect to the VABS, the Socialization subdomains had no significant effect on the identification of level of mental retardation or autistic symptomatology. The Communication subdomains Receptive and Written had a significant effect for identification of level of mental retardation. For example, with an increase in delay of one month on the Receptive subdomain, the probability of being identified as having moderate mental retardation decreased with factor .98. The probability of being identified as having moderate mental retardation was elevated with increasing delays on Written. This implicates that a smaller delay on Receptive and larger delays on Written seem to be indicative for identification of moderate mental retardation as opposed to mild mental retardation.

For identifying autistic symptomatology, an increasing delay on Expressive led to an elevated probability of identification of autistic symptomatology, whereas a decrease in delay on Receptive and Written led to a decreased probability. In other words, in the total sample, a larger delay on Expressive and smaller delays on Receptive and Written seem to be indicative for autistic symptomatology.

Also presented in table 6.4 is the additional contribution of the CSBQ, on identification of level of mental retardation and autistic symptomatology, controlled for all the other variables in the model. An increase in score on Orientation and Stereotyped behaviour, elevated the probability of being identified as moderate mental retardation, whereas an increase in score on Fear of changes led to a decreased probability of being identified as moderate mental retardation. The probability of being identified as having autistic symptomatology increased with increasing scores on the subscales Tendency to withdraw and Stereotyped behaviour.

When a logistic regression was applied with only the VABS subdomains in the model, leaving the CSBQ out of consideration, nothing altered with respect to the contribution of the subdomains to the identification of level of mental retardation or

autistic symptomatology (data not shown). This indicates that the CSBQ has an additional contribution, and not a replacing one, when used in combination with the VABS.

Table 6.4 Contribution of the CSBQ in addition to the VABS, to the identification of level of mental retardation and to identification of autism in the total sample (logistic regression)

| | | Mental retardation (mild=0,mod=1) | | Autism (non-aut=0,aut=1) | |
|-------------------|--------------------------|--------------------------------------|-----------|-----------------------------|-----------|
| | | Odd's ratio | 95% CI | Odd's ratio | 95% CI |
| VABS, | Socialization | | | | |
| CA-VA | <i>Interpersonal</i> | 1.00 | .99-1.01 | .99 | .97-1.01 |
| | <i>Play Leisure</i> | 1.00 | .99-1.01 | 1.01 | .99-1.02 |
| | <i>Coping Skills</i> | 1.01 | 1.00-1.02 | 1.02 | 1.00-1.04 |
| | Communication | | | | |
| | <i>Receptive</i> | .98*** | .97-.99 | .98* | .96-1.00 |
| | <i>Expressive</i> | 1.00 | .99-1.02 | 1.03* | 1.01-1.06 |
| | <i>Written</i> | 1.03*** | 1.02-1.05 | .98* | .96-1.00 |
| CSBQ, | <i>Not tuned</i> | .95 | .90-1.01 | 1.02 | .92-1.13 |
| raw scores | <i>Withdraw</i> | .96 | .90-1.02 | 1.31*** | 1.19-1.44 |
| | <i>Orientation</i> | 1.22*** | 1.13-1.32 | .98 | .87-1.11 |
| | <i>Not understanding</i> | .94 | .86-1.02 | 1.10 | .96-1.26 |
| | <i>Stereotyped</i> | 1.16** | 1.05-1.28 | 1.54*** | 1.33-1.79 |
| | <i>Fear of changes</i> | .77** | .64-.92 | 1.14 | .90-1.43 |

* $p < .05$, ** $p < .01$, *** $p < .001$

6.4 Discussion

The present study aimed to investigate social skills in children and adolescents with mental retardation, with and without autistic symptomatology. The main objective was to investigate the contribution of the CSBQ, as a measure of subtle social skills, added to the Vineland, which taps more basic social skills, in identifying children with mental retardation, with and without autistic symptomatology. Insight into the utility of this measure, may contribute to identifying children and adolescents with mental retardation with and without a pervasive developmental disorder, leading to early recognition and planning of specific services or supports. Basic social skills were measured with the Vineland Adaptive Behavior Scales, VABS (Sparrow et al., 1984);

subtle social skills were measured with the Children's Social Behaviour Questionnaire, CSBQ (Luteijn et al., 2000a).

In this study, all children with mental retardation were delayed in their basic social skills, including communicative skills, and the lower the level of mental retardation, the larger the delays. However, none of the Socialization subdomains contributed to identifying the level of mental retardation, whereas the Communication subdomains Receptive and Written did differentiate between the two levels. Apparently, these subdomains measure types of behavior that are not covered by the subscales of the CSBQ or the Socialization subdomains of the VABS. A smaller delay on Written indicating a milder level of mental retardation is not surprising, yet a larger delay on Receptive in mild mental retardation, is a less obvious finding. Conceivably, this is related to the constitution of our sample, only including verbal children, based on an expressive criterion (spontaneous and regular use of at least eight words).

With respect to subtle social skills, the subscales Orientation, Stereotyped behaviour and Fear of changes of the CSBQ differentiated between the two levels of mental retardation. Regarding stereotyped behavior, these results are not surprising, taking into account that an increase in stereotyped behavior is known to be related to a lower level of mental retardation. The subscale Orientation represents items on automatic orientation in time, place, person and activity. Our findings suggest that the ability to overlook activities or situations is an important factor in the level of functioning of children with mental retardation. The better this ability, the higher the probability that a child has mild mental retardation as opposed to moderate mental retardation. It corroborates the need of assessing the areas that '*require planning, decision making and social judgment*' (AAMR, 2002). Additionally, more fear in new situations, or when changes occur, seems to be indicative for mild mental retardation. This could probably be explained by a slightly better grasp of the world in mild than in moderate mental retardation (e.g. orientation), as long as life and its situations are straightforward and predictable. When changes occur, children and adolescents with moderate mental retardation may be less aware of the change, the new arisen situation, or its consequences. In contrast, children and adolescents with mild mental retardation may notice the change, but then lack the skills to handle the new situation, which may lead to fear of changes.

Regarding autistic symptomatology, children with autistic symptomatology have significantly larger delays in basic social skills in both levels of mental retardation, which corroborates numerous other studies (Rodrigue, Morgan, & Geffken, 1991; Vig & Jedrysek, 1995; Carpentieri & Morgan, 1996; Stone, Ousley, Hepburn, Hogan, & Brown, 1999; Gillham et al., 2000; Liss et al., 2001). Nevertheless, the Socialization subdomains do not contribute to discriminating between children with and without autistic symptomatology, without regarding the level of mental retardation. Although no significant differences were found for Communication between children with and without autistic symptomatology within each level of mental retardation, the subdomains did contribute to identification of autistic symptomatology when level of mental retardation was left out of consideration. Again this implicates that the Communication subdomains tap behavior that is distinct from behavior covered by the Socialization subdomains or the CSBQ subscales in identifying autistic symptomatology. Corresponding to the expectations, a larger delay on Expressive indicates a higher probability of autistic symptomatology. Larger delays on Receptive and Written indicate a decreased probability of autistic symptomatology, which is less straightforward to explain. Probably, the constitution of our (verbal) sample again plays a role here.

Additionally, the subscales Tendency to withdraw and Stereotyped behaviour contribute to differentiating between children with and without autistic symptomatology in the total sample. For both subscales, these findings are not surprising. Concerning the subscale Tendency to withdraw, this scale represents a very specific characteristic of individuals with autism: little need or wish for contact. This tendency to withdraw is much less central in individuals with mental retardation, however inadequate their social overtures may be. The subscale seems therefore to be specifically indicative for autistic symptomatology. The subscale Stereotyped behaviour is also indicative for autistic symptomatology, yet less specific, since it contributes to differentiating between levels of mental retardation as well.

Surprisingly, the subscales Not tuned and Not understanding have no effect on differentiating between levels of mental retardation or autistic symptomatology. We expected the items on these subscales to represent some of the subtler social skills as defined by the AAMR (2002), and therefore to differentiate between the two levels of mental retardation. Especially the items in the subscale Not understanding seem to represent the area of concern that Greenspan (1999) describes when trying to

identify the key factor in social intelligence: gullibility (leading to credulity). Naiveté, one of the other social skills specified by the AAMR (2002), seems to be represented by this subscale as well. However, even on the item level ('Is exceptionally naive; believes anything you say'), no difference between the two levels of mental retardation was found.

Three limitations of our study should be kept in mind. First, our sample only consisted of children with IQ's of 70 and lower, and we were therefore not able to compare our findings to scores on the CSBQ of children in the borderline of mental retardation, with IQ's above 70. Examining the CSBQ in children in this borderline group may shed further light on the utility of the CSBQ in measuring subtle social skills for the identification of mental retardation. Second, the inclusion of verbal children only in our sample, may have influenced the role of communicative skills in identifying level of mental retardation or autistic symptomatology. However, we think that being at least a little verbal is important with respect to measuring subtle social skills. Third, in this sample no children were excluded based on etiology, psychiatric, behavior or physical problems, seizure disorders, or use of medication. Since these factors were not considered in the analyses, we have no information on how they may have interfered with social skills.

Summarizing, measuring basic social skills is not sufficient in differentiating between levels of mental retardation. Communicative skills and subtle social skills, that concern overlooking activities or situations and fear of changes in the existing situation, seem to play a far greater role. Additionally, with respect to identifying autistic symptomatology, basic social skills do not contribute, as opposed to communicative skills and the tendency to withdraw from others.

With regard to the CSBQ specifically, we conclude that it not only has specific value as a measure of subtle social skills to identify pervasive developmental disorders, but that the instrument also has a specific contribution to differentiating between the two levels of mental retardation. Furthermore, our outcomes imply a slight difference between limitations in subtle social skills as mentioned by the AAMR (2002) and limitations in subtle social skills as seen in milder forms of pervasive developmental disorders. The need for instruments that measure subtle social skills, does therefore not only exist in order to identify mental retardation. Additionally, such instruments may contribute to refining the specific effects of the dual diagnosis of mental retardation and pervasive developmental disorders on social skills. According

to our findings, the CSBQ gives valuable information on subtle social skills of a child with mental retardation, when concerns about a possible co-morbid pervasive developmental disorder arise. Since the instrument is simple and short, it is a relatively easy way to measure specific social skills.

Additionally, the outcomes of this study are concordant with the need for a broader perspective on mental retardation, as proposed by the AAMR (2002) and even more so by Greenspan (1999), with more emphasis on social skills in the definition of mental retardation. Besides, it corroborates the inadequacy of classifying individuals based on IQ only (AAMR, 1992, 2002). When our sample was viewed as one group, concordant with the discussion on dropping the categories based on IQ (AAMR, 1992, 2002), children with mild mental retardation and autism showed the same level of social skills, measured with the VABS, as children with moderate mental retardation without autism. More emphasis on social skills, being only one other aspect of an individual besides IQ, leads to a different categorization in our study. Although Greenspan (1999) argues that social intelligence is the most important factor in mental retardation, we think categories would change again, when the other dimensions as defined by the AAMR (2002) were integrated in the assessment of our sample: participation, interactions and social roles; health; and context.

