Psychopathology in borderline intellectual functioning : explorations in secondary mental health care

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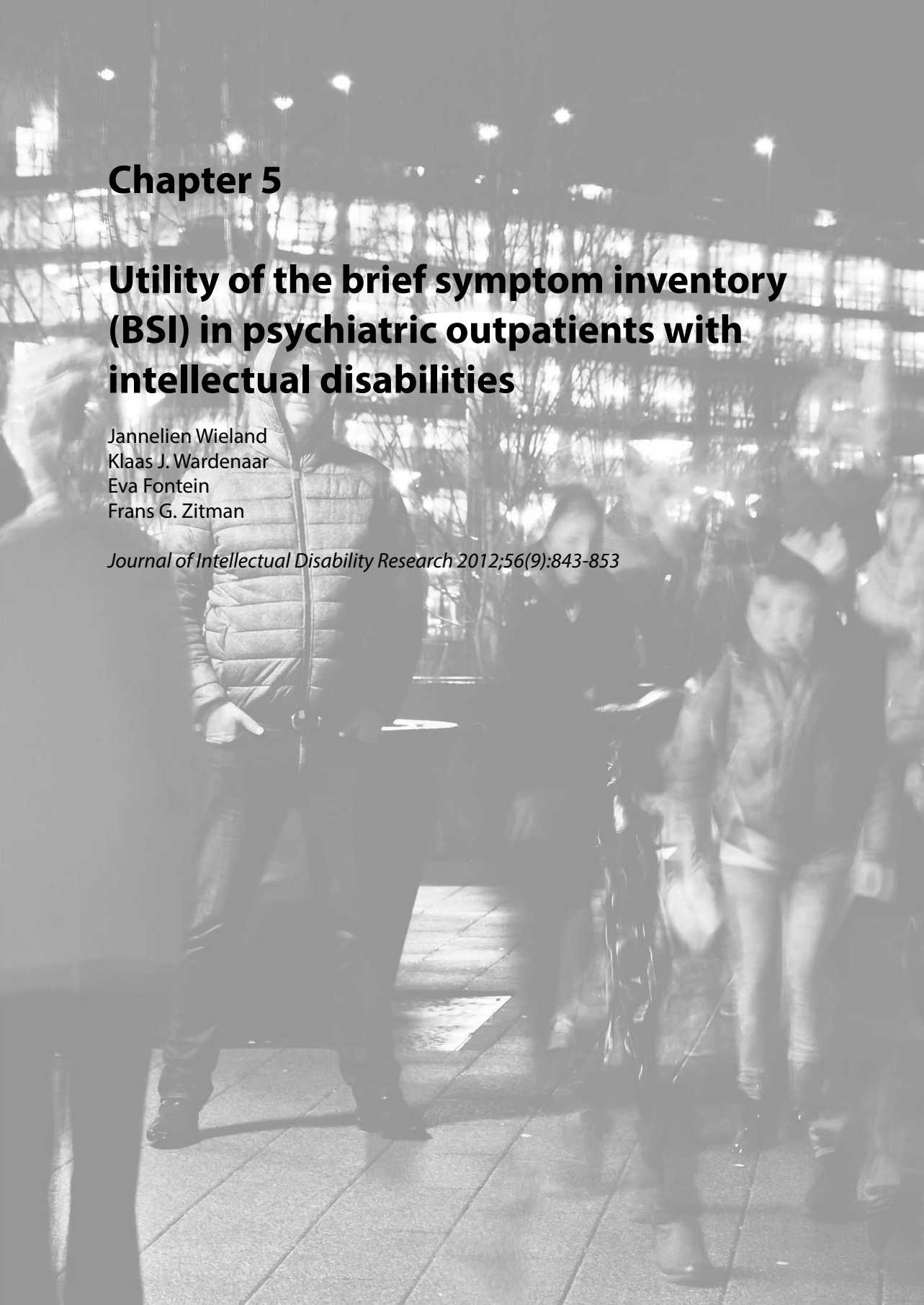

Chapter 5

Utility of the brief symptom inventory (BSI) in psychiatric outpatients with intellectual disabilities

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Abstract

Background Diagnostics and care for people with intellectual disabilities and psychiatric disorders need to be improved. This can be done by using assessment instruments to routinely measure the nature and severity of psychiatric symptoms. Up until now, in the Netherlands, assessment measures are seldom used in the psychiatric care for this population.
The objective of the present paper is to evaluate the use of the BSI, a widely used standardised questionnaire in general psychiatry, in a well-defined sample of people with borderline intellectual functioning (BIF) or mild intellectual disabilities (ID) diagnosed with one or more psychiatric disorders.

Method A total of 224 psychiatric outpatients with either BIF or mild ID participated in this study. All participants were new patients of the two Centres for Psychiatry and Intellectual Disability (CPID) of Rivierduinen, a large regional mental health care provider in the Netherlands, in the period between April 1 2008 and October 1 2009. All participants were assessed by a multidisciplinary team. DSM-IV-TR criteria were applied. The mean total intelligence coefficient (TIQ) was measured with the Wechsler Adult Intelligence Scale (WAIS-III). The BSI was administered in an assisted fashion. Psychometric properties of the BSI were investigated. Bivariate correlations between the subscales were computed to assess differentiation between the scales and mean subscale scores were compared between different DSM-IV-TR subgroups to investigate the discriminant abilities of the scales. A confirmatory factor analysis was conducted.

Results The results suggest that the BSI is practically useful. Internal consistencies ranged from 0.70 – 0.96 and thus are considered good to adequate. Subscale intercorrelations showed there is a degree of differentiation between the subscales. Discriminant validity was shown for the subscales *Depression*, *Anxiety* and *Phobic anxiety*. Confirmatory factor analysis showed that de underlying structure of the BSI could be described by the same 9-factor model as reported in previous studies.

Conclusions As a result of the psychometric properties illustrated, this study supports the use of the BSI as a screener for psychopathology and a general outcome measure in people with intellectual disabilities.

Introduction

It is commonly known by now that people with intellectual disabilities (ID) experience the full range of psychiatric disorders. And even though prevalence rates vary, in most studies, they turn out much higher than in the general population.[1–8] In contrast, psychiatric diagnoses are often missed and little is known about the effectiveness of treatment of psychiatric disorders in this population.[4,7,9] Therefore diagnostics and care for people with ID and psychiatric disorders need to be improved. This can be done by using assessment instruments to routinely measure the nature and severity of psychiatric symptoms.

In the Netherlands, assessment measures are seldom used in the psychiatric care for this population. This is at least in part due to the lack of adequately translated and tested assessment instruments in the Dutch language.

In the Dutch language there are only a few measures available specially developed for people with ID and little is known about the utility of existing 'regular' assessment measures. This is especially true for self-report measures.

Using self–report measures may present challenges due to language and memory problems, a reduced ability to conceptualize and express emotions, as well as due to social desirability.[7,10]

However, people with borderline intellectual functioning (BIF) or mild ID are generally quite capable of reporting about their own behaviours and feelings.[11–15]

If self-report measures are used, they are usually developed or modified for people with ID, but with little attention paid to psychometric properties and comparability with existing psychiatric ratings.[16]

One could argue, as did Kellett et al.,[17] that it is ethically and theoretically more appropriate to explore the application of existing non-altered assessment measures before modifying existing, or developing new instruments.

Examples of existing self-report measures from general psychiatry already researched for their use in people with ID are the Beck Depression Inventory and the Zung Self-Rating Depression Scale,[18] the Beck Anxiety Inventory,[19] the Zung Self-Rating Anxiety Scale,[12] and the Hospital Anxiety and Depression Scale.[20] Although more research is needed, all authors stress the applicability and potential utility of these instruments in people with ID.

Kellett et al.[21,22] evaluated the use of the Brief Symptom Inventory (BSI), a widely used assessment measure in the general psychiatry, in people with ID in the United Kingdom. Their first study consisted of 200 mild ID participants from three distinct groups: a clinical, a community and a forensic group. The second study consisted of 335 participants, all diagnosed with mild ID, but with no reference of psychopathology.

Kellett et al.[21,22] found that people with ID respond to most questions of the BSI in a similar way as do people without ID and that internal consistency of the different subscales was satisfactory. Moreover they concluded, in their first study, that the BSI

could effectively discriminate between the different groups. They concluded that the BSI can be employed as an assessment instrument and as a treatment outcome measure in people with ID.
The objective of the present paper was to further extend the research on the utility of the BSI in a well-defined sample of people with BIF or mild ID. In view of the findings of Kellett et al.[21,22] it is reasonable to hypothesize that the BSI has adequate psychometric properties and can be used in this population.

Method

Participants

A total of 224 people participated in the study. All participants were new patients of one of the two Centres for Psychiatry and Intellectual Disability (CPID) of Rivierduinen, a large regional mental health care provider in the Netherlands, between April 1 2008 and October 1 2009. All participants were assessed by a multidisciplinary team, including a certified psychiatrist, and were classified according to the criteria of the Diagnostic and Statistical Manual of mental disorders (DSM-IV-TR) with either BIF or mild ID. In addition, 92.9% were classified with one or more DSM-IV-TR psychiatric disorders. Intelligence could be assessed in 205 (91.5 %) participants. The mean total intelligence coefficient (TIQ), measured with the Wechsler Adult Intelligence Scale (WAIS-III), was 71 (SD=8.1; range 50-87). 44.6% of participants were diagnosed with a mild ID; 53.9% with BIF. Two people had a TIQ of respectively 86 and 87. TIQ could not be obtained for 19 participants, either because no IQ-test was administered (13 cases) or because the discrepancy between verbal and performal IQ was too large to make a reliable statement about the total IQ score (6 cases).

Instrument

The Brief Symptom Inventory (BSI)[23] is a essentially the brief form of the SCL-90-R, a self-report inventory that has been developed and used in a wide variety of settings and applications.[24,25] It is a self-report (or interview administered) symptom scale consisting of 53 items, covering nine symptom dimensions: *Somatisation* (SOM), *Obsession-Compulsion* (O-C), *Interpersonal Sensitivity* (I-S), *Depression* (DEP), *Anxiety* (ANX), *Hostility* (HOS), *Phobic anxiety* (PHOB), *Paranoid ideation* (PAR) *and Psychoticism* (PSY). Each item is ranked on a 5-point Likert scale ranging from 0 (not at all) to 4 (extremely). Rankings characterize the intensity of distress during the past seven days. Next to scores on all of the nine symptom dimensions, 3 global indices of severity of psychopathology can be calculated: The average score on all 53 items together, the number of items with non-zero responses (or: the number of symptoms experienced by the respondent) and the severity of the existing symptoms (or: the total score divided by the number of symptoms experienced by the respondent).[26]

Several studies have shown the BSI to have adequate internal consistency in the general population. Cronbach's alphas of the original American version of the BSI range from 0.71 (PSY) to 0.85 (DEP), with 4 out of 9 scales having an alpha over 0.80.[27,28] Also the BSI had adequate construct validity: a 9-factor structure.[27,29]
In Kellett's study[21] of ID patient population, the Cronbach's alphas for all participants (all three groups included) ranged from 0.63 (PSY) to 0.78 (O-C). Using normal varimax rotation Kellett et al.[22] derived 8 interpretable factors. However they also found a marked degree of overlap with the existing BSI factor structure.
De Beurs & Zitman[30] translated the BSI in Dutch. They did a large-scale evaluation of the BSI and found that the reliability of the different subscales of the Dutch version of the BSI was good and that the convergent and divergent validity was adequate. The Dutch translation of the BSI showed Cronbach's alphas of 0.71 (PSY) to 0.87 (DEP and ANX), with 8 out of 9 scales having an alpha over 0.80, and the same 9-factor structure. De Beurs & Zitman[30] concluded that the BSI is an excellent screener for psychopathology and a good general outcome measure.

Procedure

The BSI was administered in an assisted fashion, much like the "assisted completion format" for the SCL-90 as described by Kellett et al.[17,21] They concluded that the assisted completion format was shown not to influence respondents' ratings of symptoms excessively and did not affect the psychometric properties of the test.[17,21]
Our assisted administration consisted of the following: The assessment was conducted in a one-to-one setting. Both the instruction and the items of the BSI were read in order. The items were either read together with the respondent or verbatim to the respondent. The answer feedback sheet contained both numerical and grammatical representations. Language was adapted when needed, meaning that the same item was repeated in simplified wordings. Using this format, administration time was between 10 and 30 minutes, on average 20 minutes.
A list of difficult items was kept for part of the sample (n= 43). A question was considered difficult when either the respondent indicated not understanding the question completely, or when the administrator noted that the question was not understood properly. The latter was confirmed by asking the respondent to rephrase the question in his or her own words. Afterwards items were explained as needed.

Statistical analyses

To investigate the utility of the BSI in our patient group, for each item, the number of times an item needed explaining was counted to identify difficult items. To investigate the role of intelligence for ease of administration, a regression analysis was conducted with the number of items that needed explaining as dependent variable and TIQ as independent variable. For each item the distribution of responses on the

Likert-scale was inspected to identify possible response tendencies. Several additional analyses were conducted to investigate the psychometric characteristics. First, internal consistency coefficients (Cronbach's alphas) were computed for the total scale and the subscales. Second, bivariate correlations between the subscales were computed to assess differentiation between the scales. Third, mean subscale scores were compared between different DSM-IV-TR subgroups to investigate the discriminant abilities of the scales. Fourth, confirmatory factor analysis (CFA) was conducted to investigate whether the previously identified 9-factor structure[23] fit to our data. Because the items were categorical and non-normal, robust maximum likelihood fit-estimations[31] were used, based on a polychoric correlation matrix[32]. Model-fit was investigated with fit-indices instead of a traditional χ^2-test, because the latter is oversensitive to minor deviations from perfect model-fit for complex model.[33] The used fit robust indices were: the normed fit index (NFI), the comparative fit index (CFI) and the root mean square error of approximation (RMSEA). An NFI and CFI of at least 0.90 indicate adequate fit ($\geq$0.95 indicates good fit) and an RMSEA smaller than 0.06 indicates good fit. Analyses were conducted with the SPSS version 16.0 (SPSS Inc, Chicago, IL) and EQS 6.1 (Multivariate Software inc., Encino, California, USA) software packages.

Ethical Considerations and privacy issues

Within the regional mental health care organisation Rivierduinen, it is part of the general policy to monitor treatment outcome using a method called ROM (Routine Outcome Monitoring).[34] The two CPID of Rivierduinen have their own form of ROM, using instruments especially developed for people with ID and instruments from regular psychiatry such as the BSI. People are informed at the beginning of the assessment that if data from these instruments is used for research purposes, this is done in anonymous form. If people object to such use, their data is removed. A comprehensive protocol safeguards anonymity of the patients and ensures proper handling of the data. This protocol is available for patients on request. The Medical Ethical Committee of the Leiden University Medical Centre (LUMC) approved the regulations and agreed with this policy.[34]

Results

Descriptive and diagnostic information

Both the descriptive and diagnostic information about the study group are shown in Table 1. There were 136 (60.7%) women and the mean age was 32.2 (Standard Deviation (SD)= 12.1; range 16-71). The TIQ had a mean of 71.3 (SD= 8.3) and ranged from 50 to 87. The large majority (92.3%) of the group had a broad variety of DSM-IV-TR diagnoses. Most prevalent were anxiety disorders, which were present in 17.9% of the patients and pervasive developmental disorders (PDD) (17.9%), followed by posttraumatic stress disorders (PTSD) (12.9%), ADHD or ADD and disruptive beha-

viour disorders (9.8%) and mood disorders (9.4%). A DSM-IV-TR personality disorder (PD) was diagnosed in a total 25.4% of all patients. Of those patients diagnosed with a PD, almost half (47%) was also diagnosed with an axis I disorder. Not taking into account classifications for BIF and ID, 24.6% of participants had two psychiatric diagnoses and 6.7% had three or more psychiatric diagnoses.

Table 1. Demographic and psychopathology information in a sample of psychiatric outpatients with BIF or mild ID (n= 224).

Descriptive information	
Female (%)	136 (60.7%)
Male (%)	88 (39.3%)
Mean age (SD)	32.2 (12.1)
Age range	16-71
Mean TIQ (SD)	71.3 (8.3)
TIQ range	50-87
Axis I diagnoses (DSM-IV-TR)	
Pervasive developmental disorders	40 (17.9%)
Mood disorders	21 (9.4%)
Anxiety disorders	40 (17.9%)
Somatoform disorders	7 (3.1%)
Posttraumatic stress disorder	29 (12.9%)
ADHD, ADD and disruptive behaviour disorder	22 (9.8%)
Psychotic disorders	9 (4.0%)
Addictive disorders	15 (6.7%)
Adjustment disorders	17 (7.6%)
Other*	61 (29.0%)
Personality Disorders (DSM-IV-TR)	
Borderline	15 (6.7%)
Other**	10 (4.4%)
Not Otherwise Specified	33 (14.7%)
No DSM-IV-TR diagnosis	17 (7.6%)

TIQ= total intelligence quotient, ADHD= Attention-Deficit Hyperactivity-Disorder, ADD= Attention Deficit Disorder, *mainly DSM-IV-TR V-codes, **This group includes mostly cluster C, dependent and avoidant personality disorders

Practical utility

A list of difficult questions was kept for part of the sample (n= 43). The mean number of questions that needed explaining was 3.9 (SD= 3.6). Only 14.0% of participants needed 6 or more questions explained to them. And 51.2% of participants needed explaining of only 3 questions or less. Also, 16 (30.0%) of the 53 BSI items were

understood by all participants. Only 4 items needed explaining in more than a third of cases. Those items were The idea that someone else can control your thoughts (item 3), Feeling blocked in getting things done (item 15), Your mind going black (items 32) and Never feeling close to another person (item 44). A regression analysis showed that there was an association between the number of explained items and TIQ (regression coefficient (b)= -0.19; p= 0.007). These results indicate that TIQ plays a role in the number of items needing explanation: with an increase of roughly 5 points in TIQ, the number of explained items decreases with (0.19*5≈) 1.

Internal consistency

The internal consistency of the BSI was calculated using Cronbach's coefficient alpha. The number of items and internal consistencies of the different BSI subscales are given in Table 2. Alpha coefficients of the different subscales ranged from 0.70 to 0.86 and alpha was 0.96 for the BSI-total. For 5 subscales, coefficient alpha exceeded 0.80, which indicates good internal consistency. The other 4 subscales all had alpha coefficients exceeding 0.70, which is considered adequate.

Table 2. Description of the Brief Symptom Inventory (sub)scales and their Cronbach's alpha coefficients in a sample of psychiatric outpatients with BIF or mild ID (n= 224).

BSI scale	Description	Included item numbers	Cronbach's α
SOM	*Somatic complaints*	2, 7, 23, 29, 30, 33, 37	0.83
O-C	*Obsession-compulsion*	5, 15, 26, 27, 32, 36	0.81
I-S	*Interpersonal Sensitivity*	20, 21, 22, 42	0.80
DEP	*Depression*	9, 16, 17, 18, 35, 50	0.86
ANX	*Anxiety*	1, 12, 19, 38, 45, 49	0.82
HOS	*Hostility*	6, 13, 40, 41, 46	0.78
PHOB	*Phobic anxiety*	8, 28, 31, 43, 47	0.78
PAR	*Paranoid ideation*	4, 10, 24, 48, 51	0.77
PSY	*Psychoticism*	3, 14, 34, 44, 53	0.70
BSI Total	*Brief Symptom Inventory Total score*	1-53	0.96

All alpha coefficients that indicate good internal consistency are printed in bold font; all alpha coefficients that indicate adequate internal consistency are printed in italic font

Subscale intercorrelations

To investigate the relationships between the different BSI subscales, bivariate correlations were computed. The correlation coefficients are shown in Table 3 and ranged from 0.39 to 0.79, which indicates that there are different inter-scale relations. For instance, the DEP subscale showed substantial correlations with the PSY scale (r= 0.79) and the I-S scale (r= 0.70) and somewhat lower correlations with the HOS scale

(r= 0.45), the SOM scale (r= 0.54) and the ANX scale (r= 0.64). In addition, the ANX scale showed its most substantial correlation with the PHOB scale (r= 0.73). The SOM scale showed its strongest correlation with the ANX scale (r= 0.62). These results indicate that there is a degree of differentiation between these subscales, based on their content.

Table 3. Inter-correlations of the Brief Symptom Inventory (sub)scales in a sample of psychiatric outpatients with BIF or mild ID (n=223).

BSI scale	SOM	O-C	I-S	DEP	ANX	HOS	PHOB	PAR	PSY
SOM	0.83	-	-	-	-	-	-	-	-
O-C	0.56	0.81	-	-	-	-	-	-	-
I-S	0.48	0.69	0.80	-	-	-	-	-	-
DEP	0.54	0.67	0.70	0.86	-	-	-	-	-
ANX	0.62	0.68	0.66	0.64	0.82	-	-	-	-
HOS	0.39	0.45	0.51	0.45	0.54	0.78	-	-	-
PHOB	0.58	0.62	0.71	0.61	0.73	0.42	0.78	-	-
PAR	0.56	0.67	0.66	0.67	0.60	0.58	0.58	0.77	-
PSY	0.52	0.67	0.71	0.79	0.66	0.37	0.71	0.65	0.70

The coefficients are Pearson bivariate correlation coefficients; underlined numbers correspond to the Cronbach's alpha coefficients of the subscales

Discriminant validity

To investigate discriminant validity, mean subscale scores and BSI Total were compared between groups with- and without a DSM-IV-TR disorder and between groups with different DSM-IV-TR diagnoses. The mean BSI Total scores are shown in Figure 1. Subjects with DSM-IV-TR axis-I (Mean BSI Total score= 1.10) disorders had higher total scores than subjects without a diagnosis (Mean BSI Total Score= 0.72; p= 0.03). Patients diagnosed with a PD or both an axis-I and a PD (Mean BSI Total score= 1.51) scored much higher than patients with only axis-I disorders (p= 0.001). Interestingly, patients diagnosed with an autism spectrum disorder scored lower (mean BSI Total score= 0.78) than other patients (p< 0.001) and had a mean score that was similar to subjects without a DSM-IV-TR disorder. At the subscale level, patients with a DSM-IV-TR diagnosis had significantly higher scores on all of the subscales than subjects without a diagnosis, except for phobic anxiety (p= 0.13). When patients with PDD were left out of the analyses, the differences between subjects with and without a DSM-IV-TR diagnosis on each of the BSI-subscales all became significant. To investigate the discriminative validity of some of the subscales, mean scores were compared between patients with a mood, anxiety or somatoform disorder. Patients with a major depressive disorder (MDD) scored significantly higher on the DEP sub-

scale (mean 1.79) than patients with other disorders (mean 1.21; p= 0.02); see Figure 2. Patients diagnosed with an anxiety disorder scored significantly higher on the ANX subscale and on the PHOB subscale (mean ANX 1.71; mean PHOB 1.28) than patients with other disorders (mean ANX 1.19; mean PHOB 0.87; respectively: p= 0.005 and p= 0.035); see Figure 3. Patients with a somatoform disorder scored higher on the SOM subscale (mean 1.24) than patients with other disorders (mean 0.89); see Figure 4. However, this difference was not statistically significant (p= 0.43), likely due to the small group-size (n= 7). Taken together, these results indicate that the DEP, ANX, PHOB and maybe SOM subscales have the ability to discriminate between different DSM-IV-TR diagnoses.

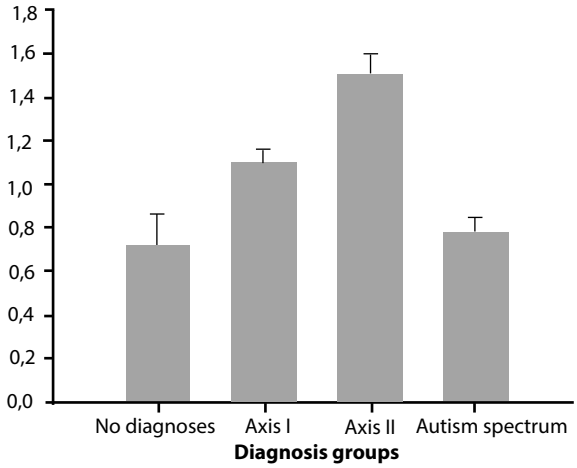

Figure 1. Mean total Brief Symptom Inventory scores for subjects without a psychiatric diagnosis (n=17), patients with an axis I diagnosis (n=150), patients with an axis II diagnosis (n=59) and patients with an autism spectrum diagnosis (n=40). Error bars indicate standard errors.

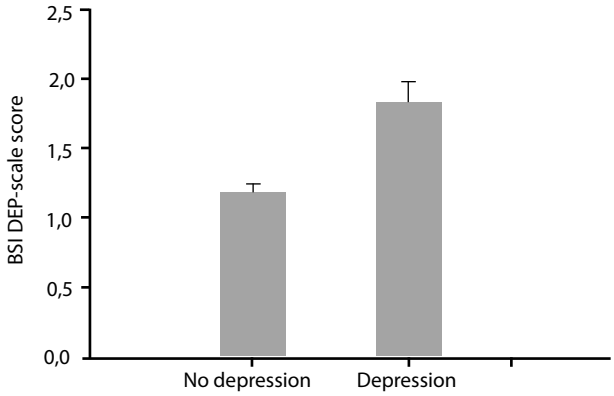

Figure 2. Mean scores on the Brief Symptom Inventory DEP-subscale for subjects with and without a current depression diagnosis. Error bars indicate standard errors.

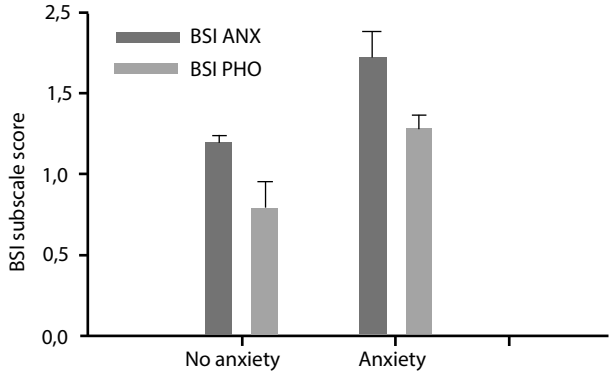

Figure 3. Mean subscale scores on the ANX and PHO subscales of the Brief Symptom Inventory for subjects with and without an anxiety disorder. Error bars indicate standard errors.

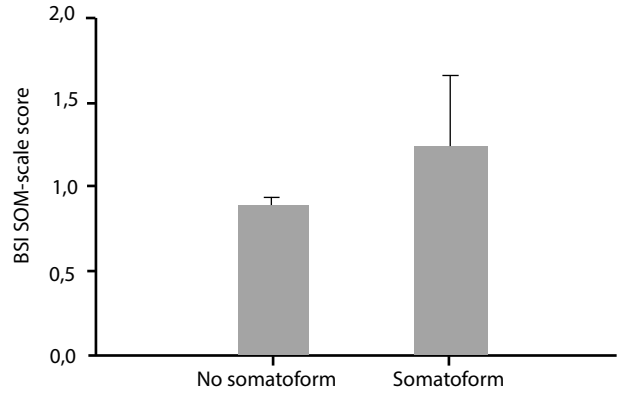

Figure 4. Mean scores on the Brief Symptom Inventory SOM scale for subjects with or without a current somatoform disorder. Error bars indicate standard errors.

Facture structure

To investigate whether the 9-factor structure of the original BSI also fit to the BSI-data from the current ID group, a CFA was conducted. The NFI was 0.94, the CFI was 0.98 and the RMSEA was 0.048 (90% CI 0.043-0.053), which all indicated the model to fit well to the data. These results indicate that the underlying structure of the BSI in the current study can be described by the same 9-factor model, as reported in previous studies.

Discussion

The present study investigated the practical utility and different psychometric aspects of the BSI when applied in people with BIF or mild ID. The results suggest that the BSI is practically useful and has adequate internal consistency and validity. These results have several interesting implications.

Our study especially demonstrated the practical utility of the BSI. Even though Derogatis[27] didn't intend the BSI to be used in people with ID, using the BSI in people with below average intelligence turned out to be not as difficult as previously thought. Most questions of the BSI were easily understood by most participants. On average only 4 questions needed explaining. This is about 7.5% of the total of 53 questions. There was a relation between TIQ and the number of questions participants found difficult. With a decrease of roughly 5 points in TIQ, one more item of the BSI needed explaining.

Concerning the psychometric properties, it can be reported that internal consistencies across the different subscales were good to adequate. The Cronbach's alphas obtained (0.70-0.86) were quite similar to the Cronbach's alphas of the original published norms (0.71-0.85)[26] and the study by De Beurs & Zitman[30] in a large Dutch non-disabled sample (0.71-0.87) and not very dissimilar from the alphas in the study of Kellett et al.[21](0.63-0.78).

Construct and discriminant validity was comparable to those in other non-disabled as well disabled populations.[21,30] The factor structure of the BSI indicated that the underlying structure of the BSI in the current study can be described by the same 9-factor model, as reported in previous studies.[23,30] And even though Kellett et al.[22], using normal varimax rotation, derived only 8 interpretable factors, they did find a marked degree of overlap with the existing BSI factor structure.

Kellett et al.[21] already demonstrated that the BSI could reliably discriminate between a clinical, a community and a forensic group. In terms of clinical utility and discriminant validity, the present study also demonstrated that patients diagnosed with a psychiatric disorder had a significantly higher BSI Total score compared to those without a psychiatric diagnosis. Patients had significantly higher scores on all of the subscales except Phobic anxiety. The BSI could reliably distinguish between patients with either a MDD or other disorder, using the scores on the Depression subscale. The same holds true for people with an anxiety disorder, using the scores on the Anxiety and Phobic anxiety subscales. For the Somatisation subscale there was a tendency, however statistically insignificant, to distinguish between people diagnosed with a somatoform disorder and those diagnosed with other psychiatric disorders. Important to note is the fact that people with PDD scored significantly lower than other patients on all subscales of the BSI and comparable to people without a psychiatric diagnosis. This is likely because the problems generally experienced by people with PDD (qualitative impairment in social interaction and communication and restricted repetitive and stereotyped patterns of behaviour, interests and activities) are not reflected in the different

items of the BSI. Therefore the BSI might not be of use in people with PDD. Another finding was that patients diagnosed with a (co-morbid) PD, scored above average on all the subscales of the BSI. This difference was significant for 7 out of 9 of the BSI subscales including the BSI Total. One could hypothesize, that patients with (co-morbid) PD score above average compared to patients with only axis I disorders because they experience a lot of emotional dysregulation and interpersonal problems, and will recognize themselves in many items of the BSI. This of course applies mostly to patients with cluster B personality traits, which was the cluster of personality traits mostly seen in our sample. We found a prevalence rate of PD of 25.4%. This may seem high, but it is in accordance with findings in other studies. Corbett[35] found a prevalence of PD of 25.4% in a sample of 402 participants. Eaton & Menolascino[36] found a prevalence rate of 27.1% in a community-based sample of 115 people. And in a population of 100 individuals, with mild or moderate ID, Reid & Ballinger[37] found a prevalence rate of 22%. Khan et al.[38] even reported a warranted personality diagnosis in 31% of their community sample.

On a more general note it should be said that in the Dutch version of the BSI the dimension of *Obsession-Compulsion* (O-C) was translated in *Problems in Cognitive Functioning*, because next to obsessive-compulsive symptoms, this dimension also measures – for instance – concentration loss.[30] This re-titling was also proposed by Kellett et al.[22], who argued that the scale's item constructions appeared to reflect traditional cognitive difficulties reported by people with ID, rather than obsessive-compulsive symptomatology. Limitations of the present study include the fact that the results from the present outpatient population cannot without further research be generalised to an inpatient population. Also there is a lack of data comparing the assisted completion format with the self-report format. But, not only would this comparison be hard to make, the assisted completion format did not harm the psychometric integrity and was shown by Kellett et al.[17,21] not to influence respondents' ratings of symptoms excessively. Evidently more research is needed concerning reliability (e.g. test-retest reliability) and convergent and divergent validity of the BSI in intellectually disabled populations. In conclusion, as a result of the psychometric properties illustrated, this study supports the use of the BSI as a screener for psychopathology and a general outcome measure in people with BIF or ID.

Because of the nature of this study, we are hopeful that results will also apply to other intellectually disabled psychiatric outpatient populations. One advantage of the BSI is that it can be used in many patients across a wide range of symptoms and diagnoses.[e.g.21,30,39–41] Another advantage is that it can be applied across different therapeutic interventions (e.g. pharmacotherapy, cognitive behavioural therapy).[42–44]

A more general implication of the present study should be that other self-report measures developed for the general psychiatric population might also be of use with patients with BIF or ID. Even though this should not be done without special attention for the psychometric properties in this population, using assessment measures

from general psychiatry could greatly increase the number of available assessment instruments for these patient populations. This in turn will allow for routinely measuring the nature and severity of psychiatric symptoms or Routine Outcome Monitoring (ROM) in this population.

ROM is a method for the systematic use of assessment instruments for collecting information about patients.[45] In the Netherlands ROM is used in a growing number of mental health care organisations. First, in addition to the clinical interview, to establish the nature and severity of symptoms at baseline or first presentation. This is important for making the right treatment decisions. Second ROM is used to establish the course of symptoms over time, visualizing the effect of the treatment, both on an individual level as well as on group level (for instance all people being treated in a certain way or all people suffering from the same mental illness). An important part of routine outcome monitoring is the fact that the system allows for feedback to treating psychiatrists, psychologist and other health care practitioners, allowing them to talk about the effect of the treatment with their patients and thus use the results therapeutically.[45] Using ROM in people with BIF and ID will improve psychiatric diagnostics and care and using instruments like the BSI will make ROM possible in this population.

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