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Chapter 6

Brief Symptom Inventory (BSI) profiles of outpatients with borderline intellectual functioning and major depressive disorder or posttraumatic stress disorder:

Comparison with outpatients from regular mental health care and outpatients with mild intellectual disabilities

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Abstract

Introduction In most countries, people with borderline intellectual functioning (BIF) are not considered a separate group in mental health care. There is little to no research on the impact of BIF on the presentation, nature and severity of mental health problems. The aim of the present exploratory study was to compare, in a naturalistic setting of patients referred to secondary care, symptom profiles of patients with BIF diagnosed with either major depressive disorder (MDD) or posttraumatic stress disorder (PTSD) to patients from regular mental health care (RMHC) and patients with mild ID diagnosed with the same disorders.

Methods We used a cohort of adolescent and adult outpatients (aged 16 to 88) with or without BIF diagnosed with a primary diagnosis MDD or PTSD. Primary outcome was the nature and severity of psychopathological symptoms assessed at baseline using the Brief Symptom Inventory. All outcomes were adjusted for gender and age.

Results Results showed that BIF patients with a primary diagnosis MDD reported less severe symptoms on *BSI Total* and the subscales *Depression*, *Obsession-Compulsion* and *Psychoticism* than patients from Regular Mental Health Care (RMHC). There were no statistically significant differences in reported symptom severity on *BSI Total* and the different BSI subscales between BIF patients with PTSD and either patients from RMHC or patients with mild ID. Patients mild ID, did report significantly less severe symptoms on the subscale *Depression* and on the subscale *Psychoticism* than patients from RMHC.

Discussion Since there were no other published studies into symptom profiles of patients with BIF compared to either patients with higher or lower levels of cognitive functioning, the study was mainly exploratory in nature, providing direction for future research. Results indicate that symptom profiles did not widely differ, but that there might be some characteristics unique to patients BIF separating them as a group from both patients from RMHC and patients with mild ID.

Introduction

Borderline intellectual functioning (BIF) refers to the category of intelligence on the normal curve of 1 to 2 standard deviations below the mean, roughly an IQ between 70 and 85. People with BIF function in between people with normal cognitive development (IQ > 85) and people with an intellectual disability (IQ < 70). According to the normal curve of intelligence as much as 13.6% of the population fall into this category. People with BIF represent a large minority in society and in mental health care. BIF in itself is not considered a disorder, nor a disability. Rather BIF is a vulnerability. People with BIF are more vulnerable for the development of mental health problems like anxiety and depression, than people of average or above average intelligence.¹⁻³ There is little to no research however on the impact of BIF on the presentation, nature and severity of mental health problems and it is unclear to what extent general guidelines are applicable to patients with BIF.

In most countries, people with BIF are not in sight as a separate group in mental health care. BIF is often not noticed and most often not a focus of attention. Psychiatric patients with BIF are diagnosed and treated in the same setting as patients with average or above average cognitive abilities. In theory they are treated according to the same guidelines. Research shows however, that psychiatric patients with BIF are more likely to be treated with psychotropic drugs than psychotherapy.²

In the Netherlands, in contrast to most other countries, people with BIF are eligible to the same specialised mental health care services as patients with intellectual disabilities (ID; IQ < 70). This offers the unique opportunity to examine, in a naturalistic setting, the nature and severity of psychiatric symptoms in an otherwise largely hidden population.

There are no published studies examining the differences in the nature and severity of symptoms reported in mental health care by people with BIF as compared to the nature and severity of symptoms reported by people with average or above average intelligence or people with ID. One of the reasons is the supposed lack of questionnaires useful in both patients with higher and lower IQs.

Meanwhile, several studies have emphasised the importance of self-report questionnaires in patients with low IQs, especially for the assessment of more internalising psychiatric symptoms.⁴⁻⁷ Using self-report questionnaires is important, because when it comes to mood and anxiety disorders like major depressive disorder (MDD) and posttraumatic stress disorder (PTSD), it has been suggested that these disorders might present atypically in people with ID.⁷⁻¹⁰ It is unknown to what extent differences in presentation also occur in patients with BIF.

The Brief Symptom Inventory (BSI) is a self-report screener for psychopathology and a general outcome measure.^{11,12} Several studies have examined its use in people with lower IQs, including BIF and mild ID (IQ 50 -70), and found good to adequate psychometric properties.¹³⁻¹⁵ It is one of the few self-report questionnaires that can be used both in patients with higher and lower IQs.^{15,16}

The aim of the present exploratory study was to compare, in a naturalistic outpatient setting, BSI symptom profiles of patients with BIF diagnosed with two prevalent internalising disorders, MDD or PTSD, to patients from regular mental health care (RMHC) and patients with mild ID diagnosed with the same disorders. Differences and similarities in symptom profiles could improve our understanding of the presentation of MDD and PTSD in BIF, provide clues for improving diagnostics or treatment and further direction of research.

Methods

Patients

We used a sample of adolescent and adult outpatients (aged 16 to 88) with or without BIF referred to either one of the centres for RMHC or one of the two CPID between 2007 and 2012. The cohort consisted of patients with a primary diagnosis MDD or PTSD, who were included in ROM with at least a baseline BSI. Diagnoses were the official diagnoses listed in the electronic patient file and classified following the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition, Text Revision (DSM-IV-TR). For patients with mild ID, DSM-IV-TR diagnoses were formulated using the Diagnostic Manual-Intellectual Disability (DM-ID).¹⁹ The DM-ID provides guidelines for making accurate psychiatric diagnoses in patients with various levels of ID and if necessary offers adaptations of DSM-IV-TR diagnostic criteria. For the diagnoses MDD and PTSD in mild ID, the DM-ID offers no adaptations; thus the criteria from DSM-IV-TR and DM-ID completely correspond.

In the two CPID, level of intellectual functioning was based on routine IQ testing, using the Dutch version of the Wechsler Adult Intelligence Scale III (WAIS-III-NL).²⁰⁻²² Using the TIQ of the WAIS-III-NL, following the DSM-IV-TR criteria, participants were either classified as BIF or mild ID and divided into 2 groups: BIF (TIQ 70-85) and mild ID (TIQ 50-70). There was no IQ testing in the RMHC group. BSI symptom profiles among the three groups were compared for MDD and PTSD.

Routine Outcome Monitoring (ROM)

ROM is the systematic use of questionnaires, to determine treatment effectiveness in everyday clinical practice in a reliable and valid way.¹⁷ The primary goal of ROM is providing direct feedback on diagnoses and treatment results to both the mental health care professional and the patient. In addition, ROM is used for benchmarking procedures and research purposes. Rivierduinen (RD), a large regional mental health care provider in the Netherlands, uses ROM for all outpatients with a mood, anxiety or somatoform (MAS) disorder referred for treatment, including outpatients with BIF or mild ID treated in one of the two outpatient Centres for Psychiatry and Intellectual Disability (CPID) (Kristal, Locations Leiden and Gouda). The Leiden ROM, as it is called, consists of an extensive psychometric battery of self-report and observer-rated

measures administered at intake and at follow-up, every 3-6 months. The main screener for psychopathology and general outcome measure for both the regular mental health care (RMHC) centres as the CPID is the Brief Symptom Inventory (BSI).¹² In the CPID, ROM-assessments are completed in an assisted fashion.¹⁵ The assisted administration consists of the following: The assessment is conducted in a one-to-one setting. Both the instruction and the items of assessment instruments are either read together with the respondent or verbatim to the respondent. The answer feedback sheet contained both numerical and written representations. Kellett et al.^{13,18} demonstrated that the assisted completion format does not influence respondent's ratings excessively and does not affect the psychometric properties of a test. Patients are informed about possible use of anonymised data from ROM for research purposes. 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. The Medical Ethical Committee of the Leiden University Medical Centre (LUMC) approved the regulations and agreed with this policy.¹⁷

Assessment

Primary outcome for the present study was the nature and severity of psychopathological symptoms assessed at baseline using the BSI.¹¹ The BSI is a self-report (or interview administered) symptom scale. It consists 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). Items are ranked on a Likert scale from 0 (not at all) to 4 (extremely). Rankings characterize the intensity of distress during the past seven days. Scores can be calculated for the nine symptom dimensions and for *BSI total*.¹² In ID patient populations the BSI has been shown not only to have adequate to excellent internal consistency and adequate validity and also to have the same 9-factor model.¹³⁻¹⁵

Statistical analysis

Baseline characteristics are presented as number and as a percentage (categorical variables) or as mean (\pm SD). The three patient groups were compared on gender, age, prevalence of MDD and PTSD and baseline total BSI using chi-square for the categorical variables gender and one-way-Anova for the continuous variables age and baseline total BSI. BSI symptom profiles were compared using Generalised Linear Models, correcting for gender and age. All tests were two-tailed with $p < 0.05$ denoting statistical significance. IBM SPSS for Windows 19.0 was used for data analysis (IBM Corp. Armonk, NY).

Results

Sample and demographic characteristics

From 2007-2012, 4265 patients were diagnosed with a primary diagnosis MDD or PTSD and included in ROM with at least a baseline BSI. Baseline sample characteristics are presented in table 1. A total of 96 patients were classified with BIF (2.2%) and 61 patients were classified as having mild ID (1.4%). In all three groups, most of the participants were women, but the percentage of women was highest in the BIF group (76.0%, $p = 0.01$). There was a significant difference among the three groups in mean age ($p < 0.001$), with the mean age of patients in the RMHC group being eldest (40.4 years) ($p < 0.001$). Therefore, all outcomes were adjusted for gender and age.

Major Depressive Disorder (MDD)

Results of BSI symptom profiles among RMHC, BIF and mild ID patients diagnosed with a primary diagnosis MDD are illustrated in figure 1. Symptom profiles did not differ widely, but we found notable differences in self-reported symptoms on the BSI among the three groups. In MDD patients there was a significant difference among the three groups for *BSI total* (overall $p = 0.03$, adjusted for gender and age) and the subscales *Depression* (overall $p = 0.01$, adjusted for gender and age), *Obsession-Compulsion* (overall $p = 0.01$, adjusted for gender and age) and *Psychoticism* (overall $p < 0.001$, adjusted for gender and age).

Compared to patients from RMHC, BIF patients reported less severe symptoms on *BSI Total* (*BSI Total* scores 1.28 vs. 1.55, $p = 0.01$ adjusted for gender and age) and the subscales *Depression* (DEP scores 1.84 vs. 2.22, $p = 0.01$, adjusted for gender and age), *Obsession-Compulsion* (O-C scores 1.68 vs. 2.03, $p = 0.01$, adjusted for gender and age) and *Psychoticism* (PSY scores 1.19 vs. 1.60, $p < 0.001$, adjusted for gender and age). There were no statistically significant differences in symptom severity on *BSI Total* and the different BSI subscales between patients with mild ID and either patients from RMHC or patients with BIF.

Posttraumatic Stress Disorder (PTSD)

Figure 2 show the results of BSI symptom profiles among RMHC, BIF and mild ID patients diagnosed with a primary diagnosis PTSD. Among the three groups there was a significant difference in PTSD patients for the subscales *Depression* (overall $P = 0.02$, adjusted for gender and age) and *Psychoticism* (overall $p = 0.03$, adjusted for gender and age). There were no statistically significant differences in reported symptom severity on *BSI Total* and the different BSI subscales between BIF patients and either patients from RMHC or patients with mild ID. Patients with mild ID, reported significantly less severe symptoms on the subscale *Depression* than patients from RMHC (DEP scores 1.49 vs. 1.93, $p = 0.01$, adjusted for gender and age). Also, patients with mild ID reported less severe symptoms on the subscale *Psychoticism* than patients from RMHC

(BSI total scores 1.07 vs. 1.42, $p = 0.02$ adjusted for gender and age). BSI symptom profiles of patients with mild ID did not differ from patients with BIF.

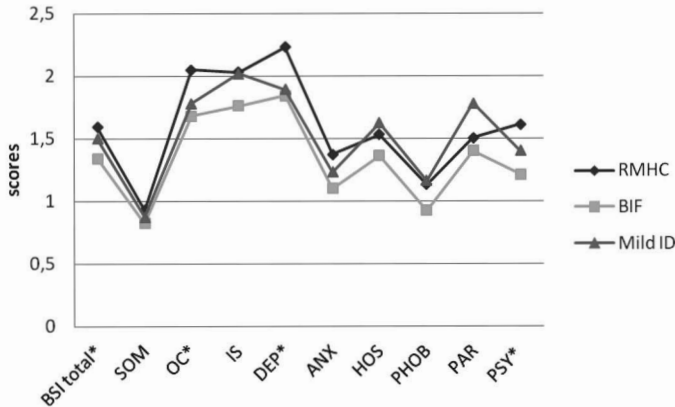


Figure 1. BSI symptom profiles among RMHC, BIF and Mild ID patients with primary diagnosis depression. Outcomes adjusted for gender and age.

RMHC = Regular Mental Health Care, BIF= Borderline Intellectual Functioning, Mild ID= Mild Intellectual Disability. SOM= somatisation, O-C= obsession-compulsion, I-S=interpersonal sensitivity, DEP= depression, ANX= anxiety, HOS= hostility, PHOB= phobic anxiety, PAR= paranoid ideation and PSY= psychoticism. * denotes subscales with significant difference in scores among the three groups ($p < 0.05$)

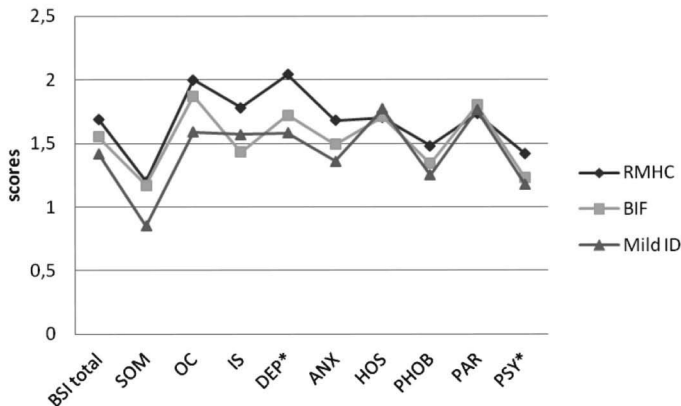


Figure 2. BSI symptom profiles among RMHC, BIF and Mild ID patients with primary diagnosis PTSD. Outcomes adjusted for gender and age.

RMHC = Regular Mental Health Care, BIF= Borderline Intellectual Functioning, Mild ID= Mild Intellectual Disability. SOM= somatisation, O-C= obsession-compulsion, I-S=interpersonal sensitivity, DEP= depression, ANX= anxiety, HOS= hostility, PHOB= phobic anxiety, PAR= paranoid ideation and PSY= psychoticism. * denotes subscales with significant difference in scores among the three groups ($p < 0.05$)

Discussion

The present study explores, in a naturalistic setting, BSI symptom profiles of patients with BIF, diagnosed with either MDD or PTSD to patients from RMHC and patients with mild ID diagnosed with the same disorders. Previous studies have shown the BSI to be a useful screener for psychopathology with adequate internal consistency and validity, including discriminant validity, in patients with both higher ($IQ > 85$) and lower IQs ($IQ < 85$).^{13,15,16} All patients in this study, whether RMHC, BIF or mild ID, scored well above cut-off scores for the BSI, total and subscales, and mostly in the higher range compared to general ROM patient groups.²³ Diagnoses were the official diagnoses as recorded in the registration system of the electronic patient file. All outcomes were adjusted for gender and age.

Results of the present study show that symptom profiles among patients in a naturalistic setting with higher and lower IQs diagnosed with either MDD or PTSD do not differ widely, but there are a few notable differences. BIF patients with a primary diagnosis MDD reported less severe symptoms on *BSI Total* and the subscales *Depression*, *Obsession-Compulsion* and *Psychoticism* than patients from RMHC, but BSI symptom profiles did not differ from patients with mild ID. Comparing patients with PTSD, there were no statistically significant differences in BSI symptom profiles between BIF patients and either patients from RMHC or patients with mild ID.

Since there are no other published studies on MDD and PTSD in BIF nor any studies on symptom profiles in patients with BIF compared to other patient groups, this study is mainly exploratory in nature. We can make some assumptions based on previous studies, from the field of ID.

Mileviciute & Hartley⁷ for instance, compared findings from two self-report questionnaires, Beck Depression Inventory (BDI-II)²⁴ and Automatic Thoughts Questionnaire (ATQ-R),²⁵ to that of an informant questionnaire, the Glasgow Depression Scale – Caregiver Supplement (GDSC)²⁶ in 80 individuals with mild ID of which 30 were diagnosed with a depressive disorder. Unexpectedly, they found that adults with higher IQs in the mild ID range scored less affective depressive symptoms than adults with IQs in the lower range of mild ID. The fact that in our study MDD patients with BIF scored lower on the subscale *Depression* than patients with mild ID could fit in with these findings. Mileviciute & Hartley⁷ hypothesized that mild ID adults with lower IQs utilise a different threshold for judging the severity of their symptoms. If that is the case however, one could wonder where the tipping point is from the lower scores of patients with high level mild ID and BIF, to the higher scores of patients with MDD from RMHC.

We did not find any studies aiding in the explanation of the low scores MDD patients with BIF on the subscales *Obsession-Compulsion* and *Psychoticism*, although it should be noted that even though still adequate, the subscale *Psychoticism* had the lowest internal consistency of all BSI subscales in patients with BIF and mild ID (Cronbach's alpha 0.70).¹⁵ It could be hypothesised that questions of this subscale represent abstract

concepts that are difficult to understand for patients with lower IQs. However, since Cronbach's alpha of the subscales *Depression* (0.86) and *Obsession-Compulsion* (0.81) were considered good, this is probably not a full explanation.

Another hypothesis could be that patients with BIF and mild ID dissimulate answers on questions of the subscale *Psychoticism*, like "the idea that something is wrong with your mind", because of negative connotations and the tendency of especially adults with BIF and higher levels of mild ID to hide their disabilities. Both of these hypotheses should be further examined.

There were no statistically significant differences in reported symptom severity on *BSI Total* and the different BSI subscales among BIF patients and either patients from RMHC or patients with mild ID. PTSD Patients with mild ID, did report significantly less severe symptoms on the subscale *Depression* and the subscale *Psychoticism* than patients from RMHC. These differences should be further examined.

The present study population reflects a naturalistic outpatient population in mental health care. Studies on patients with BIF in mental health care are rare, as are studies comparing mental health problems among patients with different levels of cognitive functioning. This is the first study to compare symptom profiles of MDD and PTSD patients with BIF to patients with higher and lower IQs, using the same reliable and valid self-report assessment instrument. Since psychiatric patients with BIF represent a large minority in mental health care, studying their presentation, nature and severity of psychiatric symptoms is important. Results of the present exploratory study may provide direction for future research.

This study has several potential limitations. First, there was no IQ testing in the RMHC group. Consequently there might be individuals with unidentified BIF in RMHC. Considering BSI symptom profiles however, this most likely results in an underestimation rather than an overestimation of differences. Secondly, even though the group of patients from RMHC was large, the groups of patients with BIF and mild ID were relatively small. Further studies with bigger patient groups might make some of the differences more clear. Third, the BSI is a general psychopathology screener. No specific MDD or PTSD self-report questionnaires were used. The simple reason is, at this point in time, there is no evidenced disorder-specific self-report assessment instrument that can reliably and validly be used in psychiatric patients with average or above average intelligence as well as in patients with BIF and patients with mild ID. Fourth, no informant-report questionnaires or rating scales were used. Both studies in RMHC and ID-specialised care have described the importance of using multiple sources of information in the assessment of mental health.^{27,28} To prevent agreement on presence of symptoms or distress alone, assessment instruments should preferably be disorder-specific.²⁹ Future research there for should focus on comparing outcomes on disorder-specific self-report questionnaires in patients with BIF to those of informant questionnaires and rating scales like the Comprehensive Psychopathological Rating Scale (CPRS).^{30,31} Future research should focus on expanding the knowledge on

symptom profiles of BIF patients by examining larger patient groups, using different instruments and looking at different psychiatric disorders.

Conclusions

Even though people with BIF are at high risk of psychiatric disorders they represent an understudied patient group in mental health care. There is little research on the impact of BIF on the presentation, nature and severity of mental health problems and it is unclear to what extent general diagnostic and treatment guidelines are applicable to patients with BIF. Results of the present exploratory study imply that even though symptom profiles of patients with BIF and MDD or PTSD resemble those of both patients with higher and lower IQs, there might also be some characteristics unique to patients BIF. These unique characteristics have implications for diagnostics and treatment and separates patients with BIF as a group from both patients from RMHC and patients with mild ID.

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