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Development and psychometric properties of the Standardized Assessment of Severity of Personality Disorder (SASPD).

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Abstract

Aims

Personality disorder is increasingly categorised according to its severity, but there is no simple way to screen for severity according to ICD-11 criteria.We set out to develop the Standardized Assessment of Severity of Personality Disorder (SASPD).

Methods

110 patients completed the SASPD together with a clinical assessment of the severity of personality disorder. We examined the predictive ability of the SASPD using the area under the ROC curve (AUC). Two to four weeks later 43 patients repeated the SASPD to examine reliability.

Results

The SASPD had good predictive ability for determining mild (AUC =0.86) and moderate (AUC=0.84) PD at cut points of 8 and 10 respectively. Test retest reliability of the SASPD was high (intraclass correlation coefficient = 0.93, 95% CI = 0.88 to 0.96).

Conclusion

The SASPD provides a simple, brief and reliable indicator of the presence of mild or moderate PD according to ICD-11 criteria.

Declaration of interest: Peter Tyrer chairs the ICD-11 advisory group for the World Health Organization. Roger Mulder and Mike Crawford are also members of the group.

Background

People with personality disorder (PD) have poor mental health and social functioning and are at increased risk of depression, substance misuse and harm to self and others (Coid et al., 2006). It is a common mental disorder with a community prevalence of 4-6% (Huang et al 2009; Coid et al 2006). In secondary care settings, the prevalence rises steeply (Newton-Howes et al 2010; Sato et al 1999). As personality disorder can significantly affect the management and outcome of co-morbid mental illnesses (Reich & Green 1991; Yonkers et al, 2000), an assessment of pre-morbid personality should form part of routine psychiatric assessment (Tyrer et al. 2015).

There is substantial variation in the degree of distress and dysfunction that people with personality disorder experience (Crawford et al., 2011). Current classification systems take no account of this variation, but proposals for diagnosing personality according to severity have been made by the American Psychiatric Association (2013) and will form the basis of the classification of PD in International Classification of Diseases-11 (Tyrer et al 2011). In ICD-11, it has been proposed that personality disorder will be classified as mild, moderate or severe according the extent of social dysfunction and level of harm to self and others (see Text Box 1) (Tyrer et al 2015). Although there is evidence that clinicians welcome the move towards classifying personality disorder according to severity (Morey et al 2014), reliable measures for facilitating assessment of severity according to these criteria do not exist. While the Standardised Assessment of Personality - Abbreviated Scale (Moran et al. 2003) provides a brief and reliable indication of the presence or absence of personality

disorder (Bukh et al 2010, Kongerslevet al 2012), it was not designed to assess the severity of the condition. A number of questionnaires have been developed that assess the severity of subtypes of personality disorder (Arntz et al. 2003; Giesen-Bloo et al 2010), or to assess global severity according to other criteria (Livesley, 2006; Verheul et al., 2008; Hopwood et al., 2011; Hutsebaut et al 2015) but there is currently no instrument that assesses severity based on proposed ICD-11 criteria. We therefore set out to develop and test a short self-report questionnaire for assessing the severity of personality disorder according to ICD-11 criteria: the Standardised Assessment of Severity of Personality Disorder (SASPD). We aimed to examine the reliability and validity of the measure against a gold standard and explore the relative screening performance of this new measure against its predecessor the Standardised Assessment of Personality - Abbreviated Scale (SAPAS).

Methods

We developed the Standardized Assessment of Severity of Personality Disorder (SASPD) from the Standardised Assessment of Personality - Abbreviated Scale (Moran et al., 2003). Rather than asking people whether they experienced a personality-related problem or not, we asked participants to rate the impact of the problem, if any, on a four-point scale (0 = absent, 1 = mild, 2 = moderate and 3 = severe). In keeping with definitions of severity in ICD-11, respondents were presented with prompts about the impact of a particular problem on their social and interpersonal functioning, as well as the potential impact of the problem on their risk

of harm to self and others. A draft version of which was presented to service users, clinicians and researchers and comments were used to refine the content of the questionnaire. Feedback led to the addition of a ninth item (on empathy) and minor changes to the phrasing of other items were also made (see appendix 1).

At the initial assessment all study participants were asked to complete the SASPD, the SAPAS and a diagnostic interview for personality disorders - the Structured Clinical Interview for DSM Disorders-II (SCID-II) (First et al 1997). At the time of completing the SCID-II, the researcher was blind to the results of the SAPAS and SASPD. Information about risk of harm to self or others was obtained from a semi-structured interview (Killaspy et al., 2006) supplemented by an examination of medical records. Finally, participants were asked to complete the Social Function Questionnaire (SFQ), an 8-item questionnaire that provides an accurate assessment of the level of social functioning; a score of 10 or more indicates poor social functioning. The SFQ score has been shown to be high in the presence of PD (Tyrer et al., 2005).

To test the criterion validity of the SASPD we compared scores on the measure against a 'gold-standard' assessment of severity of personality disorder using a clinical judgment made by a pool of nine clinicians, with expertise in the assessment and treatment of personality disorder (JM, PM, GN-H, PT, RM, AFa, AFo, CL, MS). For each study participant, two raters, who were blind to SASPD and SAPAS scores made a diagnosis of the severity of personality disorder based on information from SCID-II, the social functioning questionnaire and the risk event history. Each rater was asked to classify each participant as having no PD or, mild, moderate or severe PD

according to ICD-11 definitions of severity of personality disorder (Tyrer et al 2015). When differences arose between the first two raters, a third rater adjudicated to classify the participant as having no PD or, mild, moderate or severe PD.

Study participants and data collection

Study data were collected between March 2014 - March 2015 from patients in contact with secondary care mental health services in two centers: London (UK) and Wellington (New Zealand). No special attempt was made to select participants with known or suspected personality disorder. Instead we asked clinicians to refer people who were aged 18 or over and were stable enough to complete the study interview. Participants with organic brain disease or any other cognitive deficits that may have prevented them from providing informed consent were excluded from the study. Suitable patients were approached by a member of their clinical team and given written information about the study. Those who agreed to take part in the study were subsequently approached by a researcher to assess eligibility and obtain written informed consent. Participants in the UK who completed the initial assessment were offered a £10 ($15) honorarium to thank them for their help with the study. Two to four weeks after the initial contact the participants were asked to complete the SASPD questionnaire for a second time – in order to determine the test-retest reliability.

Data analysisUsing data obtained from the development of the SAPAS (Moran et al, 2003), we estimated that the prevalence of personality disorder in the study sample would be 55% and that there would be a substantial level of agreement between the SASPD and the gold standard assessment (a kappa of 0.7). Using a 0.05% level of

statistical significance, we estimated that we needed data from at least 92 participants to estimate the true kappa in the range 0.55 to 0.85.

All data were analysed using Stata (version 13.1). The main aim of the analysis was to identify appropriate cut-off scores on the SASPD for predicting ICD-11 diagnoses of mild, moderate and severe personality disorder. Analyses were performed to examine the predictive ability of the scales to detect different levels of personality disorder. We used receiver operating characteristic (ROC) curves to examine the association between the SASPD and each of the three levels of severity of personality disorder. We used the ROC curve results to select the optimum cut-point on the SASPD scale to predict each level of severity. The cut-point was chosen at the level which gave the higher sum of sensitivity and specificity. The diagnostic performance of the scale at each cut-point was evaluated. Calculations of sensitivity, specificity, negative predictive value, positive predictive value, and overall accuracy were made. Corresponding confidence intervals were calculated for each statistic, using the exact binomial method. The same statistical analysis was then performed for the SAPAS, and the area under the ROC curve evaluated the predictive abilities of the two methods. The significance of the difference was compared using a hypothesis test for correlated ROC curves, using the method suggested by DeLong, (DeLong & Clarke-Pearson, 1988). A subgroup of participants was asked to complete the SASPD on two occasions, separated by at least two weeks. We examined test-retest reliability using the intra-class correlation (ICC). We also determined the internal consistency of the individual items which make up the score using the Cronbach's alpha method.

The NHS Research Ethics Committee in the UK and the University of Otago Human Ethics Committee (Health) in New Zealand approved the study prior to the start of data collection.

Results

112 people consented to take part in the study; 90 in the UK and 32 in New Zealand. Data from two participants had to be excluded (one was acutely psychotic and another withdrew consent part way through the interview). The characteristics of the 110 study participants are presented in table 1. Study participants were recruited from inpatient wards and outpatient clinics and most were being treated for non-psychotic mental disorders.

The 'gold-standard' diagnosis of PD, made by two independent clinicians, using ICD-11 definitions demonstrated moderate agreement (weighted kappa = 0.50, 95% CI 0.36-0.64, $p<0.001$).

The prevalence of ICD-11 personality disorder based on expert clinical judgment was 62.7% (n=69): 32 (29.1%) were given a diagnosis of mild personality disorder, 33 (30.0%) were given a diagnosis of moderate and 4 (3.6%) a diagnosis of severe personality disorder.

Performance of SAPAS and SASPD against the gold standard

The ability of the SASPD and SAPAS scores to predict mild and moderate personality disorder is presented in Table 2. It was not possible to calculate a cut-point for severe personality disorder as there were insufficient numbers of participants with severe PD in the sample. Comparing SASPD scores with personality disorder status

as determined by the gold standard, yields the ROC curves presented in Figures 1 and 2. The SASPD and SAPAS had good predictive abilities for predicting mild PD (AUC=0.86). The optimum cut-point for a mild PD was a score of 8 or higher on the SASPD scale compared to 4 or higher on the SAPAS scale. These cut-points gave a sensitivity of 72% and 87% respectively, and a specificity of 90% and 76% respectively. Overall accuracy for the SASPD was 79%, and 82% for the SAPAS. According to the cut points derived from the ROC curve, the results for both the SASPD and SAPAS suggested that almost two-thirds of patients had a mild PD or higher.A graphical illustration of the SASPD ROC curve for mild PD is presented in Figure 1.

The SASPD and SAPAS were again found to have good predictive powers for the determination of moderate PD, with an area under the ROC curve of 0.84 and 0.82 respectively. The optimum cut-point for a moderate PD diagnosis was a score of 10 or higher on the SASPD scale compared to 5 or higher on the SAPAS scale. These cut-points gave a sensitivity of 75% and 74% respectively, and a specificity of 79% and 71% respectively. Overall accuracy for the SASPD was 78%, and 72% for the SAPAS. According to the cut points derived from the ROC curve, the results for both the SASPD and SAPAS suggested approximately one third of patients had a moderate or severe PD. The SASPD ROC curve for moderate PD is presented in the Figure 2.

The predictive ability of the SASPD and SAPAS scores were compared using the area under the ROC curve (AUC). At a level of mild PD, the AUC for both SASPD and SAPAS was 0.87. For moderate PD the AUC for the SASPD was 0.87 (95% CI = 0.78 to 0.95)

and the AUC for SAPAS was 0.83 (0.74, 0.92). Differences between the ability of the two measures to correctly identify moderate PD were not statistically significant (p = 0.14). The strength of agreement between the SASPD and SAPAS scores was examined. Pearson correlation gave a correlation coefficient of 0.83, a result which was highly statistically significant (p<0.001). This suggests a strong positive association between the two measures.

Among 43 participants who completed the SASPD on two occasions, the intraclass correlation coefficient (ICC) was 0.93 (95% CI = 0.88 to 0.96), indicating that the scores are highly reliable. The internal consistency of the SASPD was also high (Cronbach's alpha = 0.76).

Discussion

The results of this study indicate the Standardised Assessment of Severity of Personality Disorder (SASPD)has the potential to assist clinicians and researchers to assess the severity of PD according to ICD-11 criteria. At a threshold of 8 (mild PD) or 10 (moderate PD) the SASPD correctly identified the severity of personality disorder (as determined by clinical raters) in almost 80% of patients. Due to the small number of people with severe PD in the study sample, we were unable to establish the appropriate threshold for this level of severity.

We found that, at a higher threshold than that used to identify probable personality disorder, the SAPAS also provides as good an indicator of moderately severe

personality disorder. While the SAPAS does not enquire about the impact of personality traits on social functioning or harm to self and others, our findings suggest that the more diffuse a person's personality-related problems (as indicated by endorsing a greater number of SAPAS items) the more likely they are to have moderate or severe personality disorder. It has been argued that the complexity of a person's personality disorder also provides a good indication of severity (Tyrer & Johnson, 1996; Bateman & Fonagy, 2013) and the results of this study lend support to this view.

Strengths and limitations

This is the first study to assess the psychometric properties of a questionnaire for the assessment of severity of PD according to ICD-11 criteria. We were able to obtain a gold standard assessment of the severity of personality disorder from an international panel of experts, recruited from the group who are advising the World Health Organization on the new classification of personality disorder. We are therefore confident that their judgment provided a sound basis for examining the validity of the new scale. The expert panels were masked to the participants' scores on the SASPD and researchers who conducted the SCID-II interviews did not see the SASPD score until after they had completed the remainder of the participant's assessment.

A significant weakness of the study is the small number of patients with severe personality disorder in in the sample. Such patients are not routinely found in generic psychiatric settings, and only four were recruited into the study. As a result, we did not have sufficient numbers to establish thresholds on either the SASPD or

SAPAS for severe PD. All data were collected from participants using secondary care mental health services in two countries (UK and New Zealand), and we do not know how it would perform in other settings such as community samples or primary care where the overall prevalence of PD is lower.

While we did not test the reliability of the SAPAS this has been tested previously and the scale was found to have good test-retest reliability (Lin's concordance coefficient for the total score = 0.89).

Implications for clinical practice and future research

The ability of the SAPAS and SASPD to distinguish between no, mild and moderate PD using the new ICD-11 criteria provides evidence of their utility in secondary care settings. One of the advantages of the SASPD over the SAPAS is that, as a self-report questionnaire, the SASPD does not require the additional expense of an interviewer to administer. A further advantage of the SASPD over the SAPAS is its ability to capture the impact of dysfunctional personality traits on social functioning and harm to self and others, a key component of the new ICD-11 criteria for diagnosing personality disorder. It is possible that changes in severity of personality disorder over time or in response to treatment reduce the impact of these dysfunctional traits; as such the SASPD may provide a simple measure of assessing treatment response in trials and clinical practice. But longitudinal research is needed to test if SASPD is sensitive to change.

We conclude that SAPAS and SASPD are both valid and reliable measures for differentiating mild and moderate personality disorder among patients being treated by secondary care services. Further research is needed to determine their ability to

differentiate moderate from severe personality disorder. The ability to rapidly screen patients, without the need for clinical training, means both instruments have the potential to be widely utilised in clinical and research settings. They offer a timely method for assessing the presence and severity of PD that can be used to guide assessment of ICD-11 PD in secondary care mental health settings.

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Text Box 1. Proposed category names and essential features of personality disorders in International Classification of Diseases-11 (Tyrer et al 2015)

Personality disorder

- A pervasive disturbance in how an individual experiences and thinks about the self, others, and the world, manifested in maladaptive patterns of cognition, emotional experience, emotional expression, and behaviour.
- The maladaptive patterns are relatively inflexible and are associated with significant problems in psychosocial functioning that are particularly evident in interpersonal relationships.
- The disturbance is manifest across a range of personal and social situations (ie, is not limited to specific relationships or situations).
- The disturbance is relatively stable over time and is of long duration. Most commonly, personality disorder has its first manifestations in childhood and is clearly evident in adolescence.

Mild personality disorder

There are notable problems in many interpersonal relationships and the performance of expected occupational and social roles, but some relationships are maintained and/or some roles carried out. Mild personality disorder is typically not associated with substantial harm to self or others.

Moderate personality disorder

There are marked problems in most interpersonal relationships and in the performance of expected occupational and social roles across a wide range of situations that are sufficiently extensive that most are compromised to some degree. Moderate personality disorder often is associated with a past history and future expectation of harm to self or others, but not to a degree that causes long-term damage or has endangered life.

Severe personality disorder

There are severe problems in interpersonal functioning affecting all areas of life. The individual's general social dysfunction is profound and the ability and/or willingness to perform expected occupational and social roles is absent or severely compromised. Severe personality disorder usually is associated with a past history and future expectation of severe harm to self or others that has caused long-term damage or has endangered life.

Table 1. Demographic and clinical characteristics of study participants

Factor	**N**	**Summary**
Age Median (range)	108	37 (18 to 79)
Ethnicity: Caucasian Black Asian Other	107	77 (72%) 8 (7%) 7 (7%) 15 (14%)
Gender: Male Female	108	49 (45.4%) 59 (54.6%)
Primary diagnosis Substance abuse Psychosis Mood disorder Anxiety disorder Eating disorder Personality disorder Other	105	 10 (9.5%) 19 (18.1%) 28 (26.7%) 23 (21.9%) 1 (0.9%) 18 (17.1%) 6 (5.8%)
Setting Inpatient Community	107	 60 (56.1%) 47 (43.9%)
Employment status Employed Voluntary employment Unemployed Retired	110	 52 (47.3%) 5 (4.5%) 52 (47.3%) 1 (0.9%)

Table 2. Concurrent validity of SASPD and SAPAS

Measure	**SASPD**		**SAPAS**	
	Mild PD (or higher)	**Moderate PD** (or higher)	**Mild PD** (or higher)	**Moderate PD** (or higher)
Prevalence – N (%)	69 (63)	37 (34)	67 (62)	35 (32)
AUC (95% CI)	0.86 (0.79, 0.93)	0.84 (0.75, 0.92)	0.86 (0.79, 0.93)	0.82 (0.74, 0.91)
Cut-point	8	10	4	5
Sensitivity (95% CI)	0.72 (0.60, 0.82)	0.75 (0.58, 0.88)	0.87 (0.76, 0.94)	0.74 (0.57, 0.88)
Specificity (95% CI)	0.90 (0.76, 0.97)	0.79 (0.68, 0.88)	0.76 (0.60, 0.88)	0.71 (0.59, 0.81)
Positive Predictive Value (95% CI)	0.93 (0.82, 0.98)	0.64 (0.48, 0.78)	0.85 (0.75, 0.93)	0.55 (0.40, 0.70)
Negative Predictive Value (95% CI)	0.66 (0.51, 0.78)	0.86 (0.76, 0.94)	0.78 (0.62, 0.89)	0.85 (0.74, 0.93)
Accuracy (95% CI)	0.79 (0.70, 0.86)	0.78 (0.69, 0.85)	0.82 (0.74, 0.89)	0.72 (0.63, 0.80)
Mean score (SD)	8.5 (3.2)	13.0 (5.4)	4.4 (1.6)	5.8 (2.0)

Figure 1. SASPD ROC curve for mild personality disorder

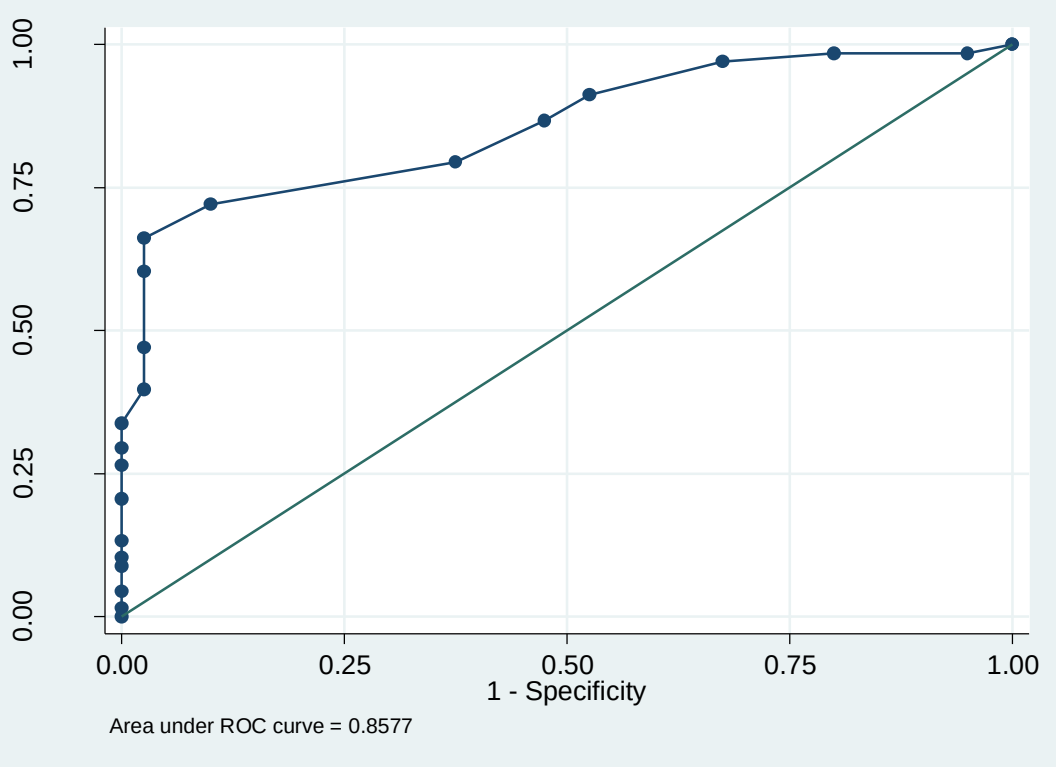
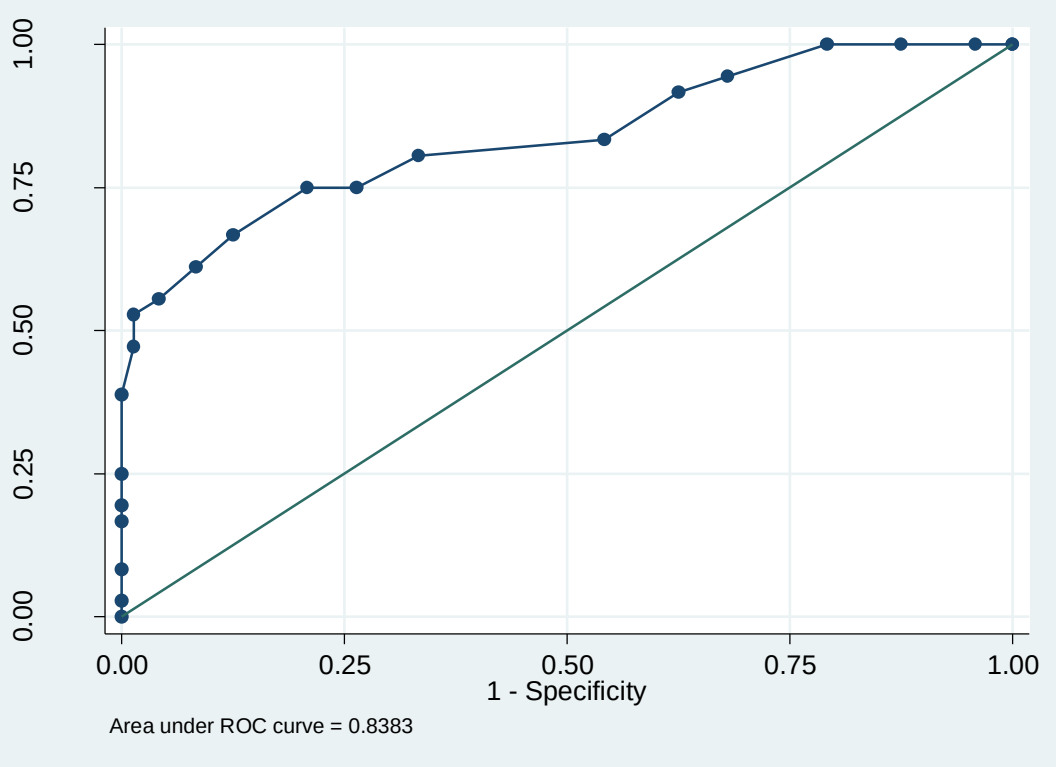


Figure 2. SASPD ROC curve for moderate personality disorder



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APPENDIX 1

Standardized Assessment of Severity of Personality Disorder (SASPD)

This questionnaire contains a series of items related to nine aspects of a person's life. For each area please could you indicate which of the four statements best describes how things are for you **in general**. We are keen to find out how things generally are for you, rather than how things might have been over recent days or weeks.

For each aspect of yourself or your life, please tick **ONE** box that best describes how you generally are.

1. Being with others
☐ I enjoy being with other people
☐ I sometimes find it difficult to be with other people
☐ In general, I do not like being with others
☐ I do not like being with other people at all and do everything to avoid them

2. Trusting other people
☐ I have no difficulty trusting others
☐ At times I find it difficult to trust others
☐ There are very few people I can trust
☐ I trust no one and this stops me from doing things I need to do

3. Friendships
☐ I have no difficulty making and keeping friends
☐ I find it difficult to make and keep friends
☐ I have very few friends
☐ I have no friends

4. Temper
☐ I do not lose my temper easily
☐ I lose my temper more easily than others
☐ I lose my temper easily and this gets me into difficult situations
☐ I lose my temper easily and this has led me to harm myself or other people

5. Acting on impulse
☐ I never or rarely act on impulse
☐ I sometimes act on impulse
☐ Acting on impulse gets me into trouble with others
☐ Acting on impulse has led me to harm myself or other people

6. Worrying

☐ In general, I am not a worrier
☐ I sometimes get worried about things that others don't
☐ I am generally a worrier
☐ Constant worrying stops me from doing things I need to do

7. Being organised

☐ It's fine with me if things are not well organised
☐ I dislike it when things are not well organised
☐ Trying to make things organised interferes with most things I need to do
☐ Trying to make things organised stops me doing everything

8. Caring about other people

☐ I care about how other people feel
☐ I don't pay much attention to whether what I do affects other people
☐ I don't care whether what I do hurts other people's feelings
☐ People say that I am 'cold blooded' or callous

9. Self-reliance

☐ I generally complete the things I need to do on my own
☐ When tackling things, I like to get help from other people
☐ When tackling things, I generally need help from other people
☐ I can't do anything by myself

Each item is scored 0 = absent, 1 = mild, 2 = moderate and 3 = severe and total score therefore ranges from 0 to 27.