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Preliminary Analysis of the Psychometric Properties
of the Mood, Interest & Pleasure Questionnaire (MIPQ)
for Adults with Severe and Profound Learning Disabilities

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Running Head: Psychometric Properties of the MIPQ

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ABSTRACT

Objectives. There are few reliable and valid methods for assessing emotional constructs in adults with severe and profound learning disabilities who are unable to self report. The aims of this study were to develop an informant questionnaire on affect for use in relation to adults with severe and profound learning disabilities and to examine its psychometric properties.

Methods. The Mood, Interest & Pleasure Questionnaire (MIPQ) is a 25 likert scale based item questionnaire with two subscales (Mood; Interest and Pleasure). The MIPQ and the Aberrant Behavior Checklist were completed on 53 participants with severe or profound learning disability who were partly or non-verbal. 23 (43%) participants were included in an examination of test-retest and inter-rater reliability of the MIPQ.

Results. Reliability of the MIPQ was good for subscales and total score: test-retest and inter-rater reliability coefficients for the total score were .87 and .76 respectively. Internal consistency was excellent (.94). A significant correlation between the MIPQ total score and the Aberrant Behavior Checklist's lethargy, social withdrawal subscale provided preliminary evidence of construct validity ($r(48) = -.59, p < .001$).

Conclusions. A preliminary analysis of the psychometric properties of the MIPQ is encouraging and further validation of the measure is warranted. The measure might be used to examine depression in people with severe and profound learning disabilities as well as in investigations of issues such as quality of life.

INTRODUCTION

Historically, there has been little research interest regarding the emotional lives of adults who have a learning disability (Benson & Ivins, 1992). Although this has changed in recent years, the range of research is limited and largely excludes people with more severe disabilities. One consequence of this neglect is the lack of methods for assessing emotional states (Benson & Ivins, 1992; Clark, Reed & Sturmey, 1991). Clark et al. (1991) emphasise the need to design standardised instruments which do not rely on self-report and this is clearly of relevance to people with severe and profound learning disabilities.

Current research on the assessment of constructs such as mood predominantly aims to improve psychiatric diagnosis. This reflects the growing interest in the co-occurrence of mental health problems and learning disability (Sturmey & Sevin, 1993) and the methodological and conceptual debate surrounding the prevalence and phenomenology of psychiatric disorder in people with learning disability. The majority of research focuses on the assessment of affective disorders, especially depression, and is hampered by the lack of established measures. Whilst some physical symptoms of depression are amenable to objective measurement (e.g. sleep and appetite changes), others are more problematic. For example, the core symptoms of major depression identified in DSM-IV (American Psychiatric Association, 1994): low mood and reduced levels of interest and pleasure (anhedonia), are dependent on accessing internal states. The availability of reliable and valid methods of assessing these core symptoms is essential for accurate diagnosis.

In people with mild and moderate learning disabilities, the assessment of depressive symptoms reliant on self-report presents challenges due to language and memory problems, as well as the issue of social desirability (Stenfert Kroese, 1997). Nevertheless, Stenfert Kroese (1997) observes that people with mild and moderate learning disabilities are able to reliably self-report when modified questions are used e.g., revised editions of the Zung self-rating depression scale (Zung, 1965) and the Beck Depression Inventory (Beck, 1961). However, more research is needed to explore the reliability and validity of these modified questionnaires (Benson & Ivins, 1992; Cooper & Collacott, 1996), as preliminary studies have produced equivocal results (e.g. Kazdin, Matson & Senatore, 1983).

Assessing depressive symptoms in people with severe and profound learning disabilities is more challenging, given that people cannot report their subjective experiences (Meins, 1996).

Nonetheless, a limited number of informant-based assessment measures have been devised to assess symptoms. There has been only one attempt to design an informant rating scale to assess depression across all levels of disability (the Mental Retardation Depression Scale, MRDS, piloted by Meins, 1996). No further studies have explored either the utility of the scale for people with severe and profound learning disabilities or the psychometric properties of the measure.

An alternative approach has been to develop measures of general psychopathology, which include depression subscales. Notable examples include the Reiss Screen (Reiss, 1988), the PAS-ADD (The Psychiatric Assessment Schedule for Adults with a Developmental Disability, Moss et al., 1993) and the PIMRA (Psychopathology Inventory for Mentally Retarded Adults; Senatore, Matson & Kazdin). For the Reiss Screen there is evidence of moderate inter-rater reliability (item median 0.56, range 0.07-0.83), although test-retest reliability appears less satisfactory (item median 0.31, range 0.01-0.69) (Sturmey, Burcham & Perkins, 1995). Internal consistency on the total score is good (alpha 0.85) and generally acceptable at subscale level (Sturmey et al., 1995). Preliminary evidence of reasonable concurrent validity with the PIMRA (Psychopathology Inventory for Mentally Retarded Adults, Senatore, Matson & Kazdin, 1985) has been provided (Sturmey & Bertman, 1994), although some subscales are compromised (e.g. the schizophrenia subscale). The PAS-ADD interview has moderate inter-rater reliability (mean Kappa across item codes of 0.65, range 0.35-0.94), although there appear to be some problems with individual item codes (Costello, Moss, Prosser & Hatton, 1997). Results of the PAS-ADD have been compared with referrers' diagnoses to explore validity; this appears to be good for psychotic and depressive symptoms, but poor for anxiety symptoms (Moss et al., 1997). The PIMRA was designed for use with people with mild or moderate intellectual disabilities and thus is inappropriate for people with severe or profound intellectual disabilities. Additionally, Sturmey and Ley (1990) have questioned the psychometric properties of the PIMRA.

The only measure of general psychopathology designed specifically for use in relation to people with severe and profound learning disabilities is the Disability Assessment for the Severely Handicapped-II (DASH-II, Matson, 1995), a revised version of the DASH (Matson, Gardner,

Coe & Sovner, 1991). This informant interview assesses the frequency, duration and severity of psychopathology, is based on the DSM-III-R (American Psychiatric Association, 1987) diagnostic classification system and includes a depression subscale. Internal consistency of this subscale has been reported as 0.48 for the DASH (Matson et al., 1991) and 0.53 for the DASH-II (Paclawskyj, Matson, Bamburg & Baglio, 1997). Inter-rater and test-retest reliability on the depression subscale appear poor: Kappa values of 0.41 and 0.52 for inter-rater and test-retest reliability respectively on the frequency dimension. There is however, some evidence of convergent validity for the DASH and DASH-II with the Aberrant Behavior Checklist (ABC, Aman & Singh, 1986), e.g. Paclawskyj et al. (1997). The ABC has been employed as a measure of emotional disorders, since the subscales correspond to categories of emotional disorders cited in the literature (Paclawskyj et al., 1997). Sturmey & Bertman (1994) used the ABC to explore the validity of the Reiss Screen.

The appropriateness of the MRDS, Reiss Screen, PASS-ADD and DASH II for people with severe and profound learning disabilities might be questioned. In each measure some items relevant to low mood appear to rely on self-report or may be difficult to ascertain (e.g., “inner tension” in the MRDS, “suicidal tendencies” in the Reiss Screen, “loss of self-confidence” in the PAS-ADD and “complains about mental disabilities” in the DASH II). This problem might be dealt with by rating the item as ‘not applicable’. However, this might decrease a subscale score inappropriately.

An alternative method for assessing symptoms of affective disorders in people with severe and profound learning disabilities has been proposed by Lowry (e.g. Lowry, 1993). It is suggested that behavioural methodology might be appropriate, whereby clearly operationally defined behaviours associated with, for example, the symptoms of depression outlined in DSM-IV, could be directly observed to assess and monitor symptoms of affective disorders. Although this approach has the advantage of relying exclusively on directly observable behaviours, it has only been applied to individual case studies (e.g. Lowry & Sovner, 1992), hence the generalisability of the method is uncertain.

As yet, no attempt has been made to combine the two methods of assessing constructs such as mood, interest and pleasure already identified, i.e. informant-based questionnaires or interviews

and the rigour of behavioural methods. It should be possible to develop an informant measure including items based solely on the observations of informants that relate to internal states (e.g. crying as a reflection of low mood). This approach would have two main advantages. Firstly, it would be practical, since direct observation can be time-consuming and labour-intensive. Secondly, it would avoid the limitations already noted in existing measures for people with severe and profound learning disabilities. A measure of this kind could be applied in a number of contexts, not just in order to improve psychiatric diagnosis. For example, assessment of constructs such as mood, interest and pleasure could provide valuable information regarding quality of life in people with severe and profound learning disabilities.

The aim of this study is to examine the psychometric properties of an informant-based questionnaire measure for use in relation to people with severe and profound learning disabilities. The main focus of the study is the reliability of the measure given the results on other measures. The ratings of items are designed to correspond to levels of mood and interest/pleasure. Items will be based on descriptions of the two core symptoms of depression (low mood and anhedonia) in DSM-IV and the “symptomatic behaviours” proposed by Lowry (e.g. 1998). Mood and interest/pleasure have been selected, partly because they correspond closely to the core symptoms of major depression in DSM-IV; thus the questionnaire (the Mood, Interest & Pleasure Questionnaire, MIPQ) might be of value in tracking these symptoms. In addition, mood and interest/pleasure were selected in order that the MIPQ’s applicability could extend above and beyond the arena of psychiatric diagnosis, as alluded to above.

Validating a measure of this kind is problematic, given both the inability to compare findings against self-report and the limited number of available measures against which to compare the MIPQ. However, it is possible to compare scores from the MIPQ with those on the ABC’s lethargy, social withdrawal subscale. This appears to be an appropriate preliminary way of validating the MIPQ because the ABC has been used elsewhere to validate measures of emotional constructs and disorders (e.g. Paclawskyj et al., 1997; Sturmey & Bertman; 1994). Furthermore, the items on this subscale of the ABC seem to relate well to the constructs incorporated within the MIPQ. It is predicted that scores on the MIPQ will be negatively correlated with scores on the ABC’s lethargy, social withdrawal subscale.

METHOD

Participants

Participants were randomly selected from a community sample if they met the criteria of “partly-verbal” or “non-verbal” on the speech category of the Wessex Scales (Kushlick, Blunden & Cox, 1973) and were over 18 years of age. Initial contact was via home/centre managers who distributed questionnaires to participants’ carers. Of 231 potential participants approached, 67 (29%) relatives and carers of people with severe and profound learning disabilities agreed that the person with a learning disability could participate in the project. 64 (96% response rate) questionnaires were returned. Ten participants were excluded as the Wessex Scale showed them to be verbal. Four participants were excluded as five or more items on the MIPQ were not completed. Of the remaining 53 participants the Wessex Scale showed 30 (56.6%) individuals were non-verbal and 23 (43.4%) were partly verbal, 22 (41.5%) were fully mobile, 53 (100%) were ‘not literate’ and with regard to self help 48 (90.5%) were either ‘not able’ or ‘partly able’. Table 1 provides a summary of relevant demographic information. Of the 53 informants, 36 (67.9%) were keyworkers, 4 (7.5%) were support staff, 11 (20.8%) were managers and 2 (3.8%) were parents. The majority (47, 88.6%) of informants had known the participant for over 12 months and 3 (5.7%) had known the participant between 6 and 12 months (3 missing data).

----- Insert Table 1 about here -----

Measures

Informant questionnaires

The Aberrant Behavior Checklist (ABC, Aman & Singh, 1986). The ABC consists of 58 items describing a range of “behaviour problems” which correspond to five empirically derived categories: (1) irritability, agitation, crying, (2) lethargy, social withdrawal, (3) stereotypic behaviour, (4) hyperactivity, noncompliance and (5) excessive speech. Studies have demonstrated that this measure has adequate psychometric properties (Aman et al., 1985b, reporting on the first version of the ABC, Aman, Singh, Stewart & Fisher, 1985a ; Newton & Sturmey, 1988). The ABC has been used in other studies as a measure of emotional disorders, since the subscales correspond to categories of emotional disorders outlined in the research literature (e.g. Paclawskyj et al., 1997). It was selected for this study to examine the association

between the lethargy, social withdrawal subscale and the subscales of the MIPQ as a preliminary test of construct validity.

The Mood, Interest & Pleasure Questionnaire (MIPQ). Items for the Mood, Interest and Pleasure Questionnaire (MIPQ) were based on definitions of low mood and anhedonia outlined under “Criteria for Major Depressive Episode” in DSM-IV and on operationally defined “symptomatic behaviours” proposed by Lowry (e.g. Lowry, 1998). Table 2 summarises both the DSM-IV definitions and the corresponding symptomatic behaviours.

~~~~~ Insert Table 2 about here. ~~~~~

Items for the MIPQ were determined by identifying behaviours noted by Lowry, examination of the behavioural literature on behavioural correlates of affect (e.g. Green et al., 1996; Oliver et al., 1998; Ivancic, Barrett, Simonow & Kimberly, 1997) and examination of items in existing measures (DASH II, PIMRA, PASS-ADD, Reiss Screen).

The MIPQ contains 25 items with a response format of a five-point Likert scale. All items are based on informants’ observations of participants over the preceding two week period. The items are divided into two subscales to reflect the dimensions of low mood and anhedonia: 12 items in the Mood subscale and 13 items in the Interest & Pleasure subscale. An abbreviated version of the MIPQ is shown in the appendix. Lower scores denote lower mood levels and lower levels of interest and pleasure. The maximum possible scores for the Mood subscale, Interest & Pleasure subscale and total scale are 48, 52 and 100 respectively.

The informant questionnaire was piloted in relation to nine people with learning disabilities who met the inclusion criteria for the study (seven men and two women, age range: 29-50 years). Each questionnaire was completed by the participant’s keyworker. Additional questionnaires completed for the purposes of preliminary inter-rater reliability analysis were distributed to another staff member who had known the participant for at least six months. Keyworkers were invited to provide written feedback on the questionnaire.

No suggestions were made by keyworkers regarding improvements to the questionnaire. The preliminary data analysis on the questionnaire demonstrated adequate reliability and internal consistency. For these reasons, no changes were made to the MIPQ.

## **Procedure**

### *Informant questionnaire distribution*

Day service and residential home managers provided names of staff members who would complete the questionnaires. It was specified that nominated staff members should have worked with the participant for at least six months and preferably should be the participant's keyworker. A questionnaire pack was distributed via home and centre managers to each nominated staff member. The questionnaire pack contained a covering letter, the Wessex Scales, the ABC, the MIPQ, instructions for each questionnaire and a pre-paid envelope. The presentation of the ABC and the MIPQ was counter-balanced to prevent order effects.

To establish inter-rater and test-retest reliability of the MIPQ, 23 (43.3%) participants were randomly selected. A primary rater completed the entire questionnaire pack and a second MIPQ for test-retest reliability purposes was sent one week after the initial questionnaire. A second rater completed a copy of the MIPQ only for inter-rater reliability purposes. Pairs of raters were instructed not to confer. A prompt was given if questionnaires had not been received one week after the requested return date.

## **RESULTS**

Preliminary analysis of the raw data indicated that parametric tests were appropriate. In order to investigate the reliability of the MIPQ, the initial stage of the data analysis consisted of two phases. The first phase investigated the association between scores on the MIPQ when administered to the same informants on two occasions a week apart (test-retest reliability) and when administered to different informants on the same occasion (inter-rater reliability). For this analysis, Pearson product-moment correlation coefficients were calculated for item, subscale and total scores on the MIPQ. Mean MIPQ scores derived from questionnaires with no missing data for the reliability sample were 35.77 (n = 22, range 22-46, SD, 8.46) for the Mood subscale, 28.78 (n = 22 range 13-46, SD 9.25) for the Interest & Pleasure subscale and 64.96 (n = 21, range 38-91, SD 16.72) for the total score. Analysis of the association between the two subscales

revealed a significant positive correlation ( $r(48)=.67, p<.01$ ). Table 3 provides a summary of the results of the Pearson product-moment correlations at subscale and total score level on the MIPQ for test-retest and inter-rater reliability. The results described in Table 3 demonstrate that all correlations were good and provide evidence that reliability of the MIPQ is highly satisfactory.

~~~~~ Insert Table 3 about here. ~~~~~

The second phase of the reliability analysis was an analysis of the internal consistency of the MIPQ using Cronbach's alpha. Table 3 shows the alpha coefficients for the MIPQ at subscale and total score level. All coefficients were above .70, the generally accepted standard for reliability estimates (Nunnally, as cited in Huck & Cormier, 1996, pp 81). In addition the mean scores and the range of scores presented in table 3 demonstrate that there is no evidence of floor or ceiling effects and the ranges and standard deviations indicate there is good variability in the data.

In order to explore the validity of the MIPQ, the association between scores on the MIPQ and the ABC's lethargy, social withdrawal scale was determined. It was predicted that MIPQ scores would be negatively correlated with the lethargy, social withdrawal subscale score. The results of this analysis, and all other correlations between MIPQ and ABC subscales, are shown in table 4. As can be seen, there is a significant negative correlation between the lethargy, social withdrawal subscale and the MIPQ at total score and subscale levels. This supports the prediction made. Additionally, the MIPQ mood subscale is negatively correlated with the irritability, agitation and crying subscale of the ABC, and the MIPQ total score and subscale scores are strongly negatively correlated with the stereotypic behavior subscale.

----- Insert table 4 here -----

DISCUSSION

This is the first study of the psychometric properties of an informant-based questionnaire for use in relation to affect in people with severe and profound learning disabilities. All items in the MIPQ reflect the observations of informants and correspond to the constructs of mood, interest and pleasure. This initial investigation of the psychometric properties of the MIPQ is

encouraging. Test-retest and inter-rater reliability were found to be good for the two subscales and for the total score. Test-retest reliability was conducted with a brief interval as affect might vary over a longer period. It is possible that the brevity of the period has inflated this reliability index. Internal consistency was also demonstrated to be very good for the Mood Subscale and excellent for both the Interest & Pleasure Subscale and for the total score. Furthermore, there is preliminary evidence for convergent validity, as indicated by the predicted negative correlation between scores on the MIPQ and scores on the ABC's lethargy, social withdrawal subscale. There was also a significant correlation between the Mood Subscale and the irritability, agitation and crying subscale of the ABC. This finding might indicate convergent validity between items in the ABC subscale related to crying and Mood as assessed by the MIPQ. In addition to these psychometric properties of the MIPQ, there are practical advantages. Most notably, it is less labour-intensive than interview or observational methods, it can be completed by unqualified members of staff or caregivers and is quick to complete.

Clearly it would be premature to suggest that the MIPQ might be used as a measure of depression in people with profound or severe learning disability. The diagnosis of depression incorporates the notion of behaviour change and the MIPQ does not identify change. However, a reliable measure of correlates of affect does offer an alternative approach to examination of the phenomenology of depression and the evaluation of interventions. The validity of the MIPQ warrants further examination. However, finding appropriate ways of validating measures of emotional constructs and disorders such as depression for people who do not have a learning disability can be problematic (Snaith, 1993). Concepts such as "depression" are not used consistently, hence scales which claim to measure the same concept can often be measuring different constructs (Snaith, 1993). The validity question is clearly more challenging amongst people with severe and profound learning disabilities in the absence of self-report. Despite these difficulties validity of the MIPQ might be examined by comparison with subscale scores on measures such as the DASH II, PAS-ADD and MRDS. An alternative approach to validity is by direct observation. Performance on the MIPQ should be related to operationally defined behaviours associated with low mood and low levels of interest and pleasure. Finally, validity might be appraised by examination of agreement between staff completed MIPQ and self-report in individuals with mild intellectual disability.

Whilst it is hypothesised that the behaviours corresponding to the items on the MIPQ map on to the internal states of mood and interest & pleasure, three points of caution seem important. First, it is possible that the MIPQ might identify individuals falling within the autistic spectrum, particularly in view of the behaviours included in the Interest & Pleasure subscale (e.g. items relating to social withdrawal). This seems important as a significant correlation between low scores on the MIPQ and high scores on the ABC's Stereotypic Behavior subscale was identified and stereotyped behaviour is recognised as a common characteristic of autism (Nijhof, Joha & Pekelharing, 1998). Interpretation of the meaning of scores should therefore be cautious as low scoring on the MIPQ might be related to aspects of the phenomenology of autism that are also observed when low mood is present. Further studies investigating this issue would be beneficial. Second, it has been noted elsewhere (Green & Reid, 1996, pp. 76-77) that mood states, such as happiness, are essentially private events "...not readily amenable to direct study in the manner typically used in behavior analysis". This assertion clearly applies to informant based measures. However, it is clear that indirect methods are the only means available for investigating mood and emotions in individuals with severe disabilities and limited or no expressive language. Third, the strong positive association ($r = .67$) between the two subscales might indicate that the subscales are not assessing entirely separate constructs. Future research could address the factor structure of the MIPQ.

It has been observed that some profoundly disabled individuals demonstrate such limited movement, including facial expressions, that it is extremely difficult to identify behavioural indicators of internal states such as happiness (Ivancic, Barrett, Simonow & Kimberly, 1997). This observation might mean that the MIPQ lacks an element of external validity in its broad claim to be appropriate for use in relation to people with severe and profound learning disabilities. Indeed, it might overestimate the degree to which someone with very limited movement may be experiencing low mood or low levels of interest and pleasure. In this respect, it may be that the individual has never been able physically to display the range of behaviours included in the MIPQ. However, the range of scores on the MIPQ does indicate that all participants scored on at least some items.

In a clinical setting it might also be important to consider the influence of medication side-effects on the behaviours presented by individuals with severe and profound learning disabilities, as

measured by the MIPQ. One possible side-effect of anti-psychotic medication is sedation (Clarke, 1999); this clearly could influence the manifestation of certain behaviours included within the MIPQ. Similarly, medication prescribed for the treatment of epilepsy can contribute to depressive symptom presentation (Marston, Perry & Roy, 1997). Hence, scores obtained on the MIPQ could suggest artificially low levels of mood and interest & pleasure for individuals on anti-psychotic and/or anti-epileptic medication.

In summary, this study offers preliminary evidence of a reliable and valid informant-based questionnaire measure for use in relation to people with severe and profound learning disabilities which focuses on informants' observations of phenomena hypothesised as correlates of the internal states of mood and interest/pleasure. The MIPQ measures behaviours that map on to levels of mood and interest and pleasure (i.e. constructs which relate closely to the two core symptoms of major depression identified in DSM-IV). Thus, it provides a more objective way of monitoring the efficacy of either pharmacological or psychological treatments of depression. In terms of wider applications, the MIPQ can offer valuable information regarding subjective aspects of quality of life amongst individuals with severe and profound learning disabilities, given that satisfaction might be reflected in the kinds of behaviours included in the MIPQ. It could also be a useful way of monitoring the effects of loss and change events (e.g. bereavement; change of residence; loss of a keyworker) on individuals with severe and profound learning disabilities who are unable to self-report. Finally, the measure can be used to examine the effect of modification of environmental and service characteristics alongside more traditional approaches.

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Table 1. Characteristics of total group of people with a learning disability and the sample involved in informant interviews

| Characteristic | Total group | Reliability sample | Interview group |
|---|--------------|--------------------|-----------------------|
| Number of males (%) | 32 (60.4) | 14 (60.9) | 15 (62.5) |
| Number of females (%) | 21 (39.6) | 9 (39.1) | 9 (37.5) |
| Mean age (SD) | 39.36 (9.90) | 40.35 (9.42) | 39.96 (10.88) |
| Age range | 22.0 – 58.0 | 23.0 – 56.0 | 22.0 – 58.0 |
| Number with epilepsy (%) | 18 (34.0) | 7 (30.4) | 7 (29.2) |
| Number with diagnosis of autism (%) | 2 (3.8) | 0 (0.0) | 4 (16.7) ^a |
| Number with history of mental health problems (%) | 10 (18.9) | 5 (21.7) | 6 (25) |
| Number referred to psychiatrist in past year (%) | 16 (30.2) | 7 (30.4) | 7 (29.2) |
| Number on anti-psychotic medication (%) | 21 (39.6) | 13 (56.5) | 10 (41.7) |
| Number on Carbamazepine (%) | 10 (18.9) | 5 (21.7) | 4 (16.7) |
| Number on anxiolytic medication (%) | 5 (9.4) | 3 (13.0) | 3 (12.5) |
| Number on anti-epileptic medication (%) | 14 (26.4) | 6 (26.1) | 4 (16.7) |
| Number on anti-depressant medication (%) | 3 (5.7) | 0 (0.0) | 0 (0.0) |

^aDifferent responses to this question were made in relation to two participants at the questionnaire and interview phases of the study.

Table 2. Descriptions of low mood and anhedonia on which MIPQ items are based

| Symptom | DSM-IV(American Psychiatric Association, 1994) definition | Suggested symptomatic behaviours (Lowry, 1998) |
|-----------|---|---|
| Low mood | Depressed mood most of the day, nearly every day, as indicated by either subjective reports (e.g. feels sad or empty) or observation made by others (e.g. appears tearful) | Sad or flat facial expressions; rarely smiles or laughs; cries out of the blue; often whines or complains |
| Anhedonia | Markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day (as indicated by either subjective account or observation made by others). | Refuses preferred activities; participation without obvious signs of enjoyment; spends excessive time alone; avoids social activities; diminished sexual activity |

Table 3 Means, standard deviations, Alpha coefficients and test-retest and inter-rater reliability coefficients for the MIPQ. (The n varies across and within analyses due to missing data).

| | n | Mean
(SD) | Range | Alpha | Test-retest
reliability (n) | Inter-rater
reliability (n) |
|-----------------------------------|----------|----------------------|--------------|--------------|--|--|
| Mood Subscale | 49 | 34.65
(8.21) | 10-48 | .89 | .90 (22) | .69 (21) |
| Interest and Pleasure
Subscale | 53 | 26.87
(9.17) | 12-46 | .90 | .84 (22) | .76 (19) |
| Total Score | 49 | 61.82
(16.07) | 26-91 | .94 | .87 (21) | .76 (18) |

Table 4. Pearson correlation coefficients between ABC subscales and MIPQ subscales and total score.

| | MIPQ Total
Score | MIPQ Mood
Subscale | MIPQ Interest
and Pleasure
Subscale |
|---|-----------------------------|-------------------------------|--|
| ABC: Irritability,
agitation, crying
subscale | -.24 | -.30* | -.10 |
| ABC: Lethargy, social
withdrawal subscale | -.59*** | -.40** | -.63*** |
| ABC: Stereotypic
behavior subscale | -.50*** | -.46** | -.42** |
| ABC: Hyperactivity,
non-compliance
subscale | -.22 | -.22 | -.14 |
| ABC: Excessive
speech subscale | .10 | .00 | .20 |

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

The Mood Interest and Pleasure Questionnaire

1. In the last two weeks, did the client seem..... (*sad all of the time*). (M)
2. In the last two weeks, how often did you here positive vocalizations* when this client was engaged in activities*? (*all of the time*) (I&P)
3. In the last two weeks, to what extent did the client’s facial expressions* suggest that s/he was interested in what was going on around him/her*? (*all of the time*) (I&P)
4. In the last two weeks, do you think this client’s facial expression looked “flat”*.... (*all of the time*) (M)
5. In the last two weeks, did this client seem to have been enjoying life..... (*all of the time*) (I&P)
6. In the last two weeks, how often did this client seem to seek out the attention/company of others*? (*at least once every day*). (I&P)
7. In the last two weeks, would you say this client.... (*cried every day*). (M)
8. In the last two weeks, how interested did this client appear to be in his/her surroundings? (*all of the time*) (I&P)
9. In the last two weeks, do you think this client’s facial expression looked happy.... (*all of the time*) (M)
10. In the last two weeks, how often did this client refuse to participate* in activities? (*at least once every day*). (I&P)
11. In the last two weeks, would you say this client smiled.... (*at least once every day*). (M)
12. In the last two weeks, how disinterested did this client seem to be in his/her surroundings? (*disinterested all of the time*). (I&P)
13. In the last two weeks, did this client’s vocalizations* sound.... (*sad all of the time*). (M)
14. In the last two weeks, when this client was engaged in activities*, to what extent did his/her facial expressions* suggest that s/he was enjoying him/herself? (*enjoying him/herself all of the time*). (I&P)
15. In the last two weeks, did the client seem.... (*happy all of the time*). (M)
16. In the last two weeks, when this client was engaged in activities*, to what extent did his/her facial expressions* suggest that s/he was interested in the activity? (*interested all of the time*). (I&P)

17. In the last two weeks, would you say that this client.... (*laughed every day*). (M)
18. In the last two weeks, how often did this client seem to avoid social contact* with other people s/he is believed to like? (*all of the time*) (I&P)
19. In the last two weeks, how often did you see gestures which appeared to demonstrate interest* when this client was engaged in activities*? (*all of the time*) (I&P)
20. In the last two weeks, do you think this client's facial expression looked sad.... (*all of the time*) (M)
21. In the last two weeks,, did this client seem.... (*dissatisfied all of the time*). (M)
22. In the last two weeks, how often did you see gestures which appeared to demonstrate enjoyment* when this client was engaged in activities*? (*all of the time*) (I&P)
23. In the last two weeks, did this client's vocalizations* sound distressed.... (*all of the time*) (M)
24. In the last two weeks, did this client's behaviour suggest that s/he was interested in what was going on around him/her*.... (*all of the time*) (I&P)
25. In the last two weeks, how often was this client heard whining or making moaning sounds? (*at least once every day*). (M)

* Parts of the item were operationally defined or expanded upon to cater for physical disability or opportunity.