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Measuring symptoms of post-traumatic stress disorder in people with intellectual disabilities: the development and psychometric properties of the Impact of Event Scale – Intellectual Disabilities (IES-IDs)

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Abstract

Background: The aims of the study were to (a) revise the Impact of Event Scale – Revised for use with people with intellectual disabilities (IDs), creating the Impact of Event Scale – Intellectual Disabilities (IES-IDs), (b) assess the reliability of the IES-IDs, and (c) compare it to an existing measure post-traumatic stress disorder symptomatology, namely the Lancaster and Northgate Trauma Scale (LANTS), along with measures of anxiety and depression.

Methods: Forty adults with IDs who had experienced at least one traumatic event were recruited and completed the IES-IDs and the LANTS on two occasions, separated by two weeks. Participants also completed the Glasgow Depression Scale and the Glasgow Anxiety Scale, along with the Trauma Information Form which was used to collect information about trauma history.

Results: Fifteen percent of the sample had encountered five or more traumatic events. The IES-IDs and the LANTS had good to excellent internal consistency and test-retest reliability. Both measures correlated with self-report measures of depression and anxiety, although the strength of this correlation was greater with the LANTS. There was a significant positive correlation between trauma frequency and the IES-IDs, but not the LANTS.

Conclusions: Both the IES-IDs and the LANTS appear to have good reliability.

Practitioner Bullet Points:

- There is a lack of well-developed questionnaires that can be used to assess symptoms of post-traumatic stress disorder in people with intellectual disabilities.
- The Impact of Event Scale-Revised was augmented creating the Impact of Event Scale-Intellectual Disabilities (IES-IDs). The IES-IDs was shown to have good psychometric properties.
- The IES-IDs was compared to the Lancaster and Northgate Trauma Scale (LANTS), but the LANTS did not correlate with trauma frequency.
- However, this study had a small sample size, and a much larger study is needed to examine the factor structure of both the IES-IDs and the LANTS. Future studies should attempt to recruit people with IDs who have a diagnosis of PTSD.

KEYWORDS: LEARNING DISABILITIES, ANXIETY DISORDERS, ASSESSMENT, POST TRAUMATIC STRESS DISORDER, TRAUMA, IMPACT OF EVENT SCALE-INTELLECTUAL DISABILITIES, LANTS, IES-IDs, TRAUMA INFORMATION FORM, NEURODEVELOPMENTAL DISORDERS

Measuring symptoms of post-traumatic stress disorder in people with intellectual disabilities: the development and psychometric properties of the Impact of Event Scale – Intellectual Disabilities (IES-IDs)

Recent estimates have suggested that between 1.2–27% of individuals with IDs have unmet mental health needs (Balogh, Ouellette-Kuntz, Bourne, Lunskey, & Colantonio, 2008). Historically, diagnostic overshadowing meant that psychiatric symptoms amongst people with intellectual disabilities (IDs) were incorrectly attributed to their intellectual disability rather than being seen as separate mental health problems (Reiss, Levitan, & Szyszko, 1982). As a consequence, mental health symptomatology were often under-reported and under-recognised amongst this population (Charlot, Deutsch, Hunt, Fletcher, & McIlvane, 2007; Cooper, Smiley, Morrison, Allan, & Williamson, 2007; Moss et al., 2000; Patel, Goldberg, & Moss, 1993).

It is not surprising that people with IDs have an elevated risk of developing mental health problems, considering the evidence that people with IDs are more likely to experience traumatic life events (Beail & Warden, 1995; Focht-New, Clements, Barol, Faulkner, & Service, 2008; Hatton & Emerson, 2004; Mansell, Sobsey, & Moskal, 1998; Ryan, 1994; Sequeira, Howlin, & Hollins, 2004; Turk & Brown, 1993; Wilson & Brewer, 1992). There is an association between life events and psychiatric problems in individuals with IDs (Hubert-Williams & Hastings, 2008), and evidence that significant life events precede psychological problems (Esbensen & Benson, 2007; Monaghan & Soni, 1992).

Bearing this in mind, Mevissen and de Jongh (2010) reviewed the literature about posttraumatic stress disorder (PTSD) and its treatment amongst people with IDs. They concluded that there is evidence that having a developmental disability may increase the risk of developing PTSD and they commented that having a

disability may be intrinsically traumatising; something which had been suggested by others (Hollins & Sinason, 2000; Levitas & Gilson, 2001). For people with IDs, they went on to point out that there is a lack of evidence for empirically validated treatments for PTSD, although there is emerging evidence that psychological therapies can be beneficial for people with IDs who have mental health problems (Vereenoghe & Langdon, 2013). Mevissen and de Jongh (2010) further commented that well developed assessment instruments for PTSD that can be used with people with IDs is clearly needed.

Wigham, Hatton and Taylor (2011b) have also reviewed the literature in this area and concluded that there have been difficulties with the lack of a clear definition of trauma for people with IDs, along with the lack of well-developed instruments measuring the effects of trauma amongst people with IDs. Others have previously tried to make use of existing measures of PTSD (Finzi-Dottan, Dekel, Lavi, & Su'ali, 2006; Mehtar & Motavalli Mukaddes, 2011), or modified instruments (Mitchell, Clegg, & Furniss, 2006; O'Callaghan & Murphy, 2003; O'Callaghan, Murphy, & Clare, 2004) but the need for well-developed measures with robust psychometric properties remains.

Wigham, Hatton and Taylor (2011a) attempted to address these concerns by developing the self-report and informant versions of the Lancaster and Northgate Trauma Scales (LANTS) for adults with IDs. Ninety-nine adults with IDs, and 88 informants were asked to completed the LANTS, along with the Impact of Events Scale (Horowitz, Wilner, & Alvarez, 1979). The authors reported that the LANTS had good validity and reliability, and the self-report version correlated significantly with the IES, although this was calculated using a small sample ($n = 15$ and 16).

The self-report version of the LANTS also correlated with some other measures, including the Brief Symptom Inventory (Derogatis, 1993) and a measure of life events, while the informant version correlated with the Pediatric Emotional Distress Scale (Saylor, Swenson, Reynolds, & Taylore, 1999) and the Psychiatric Assessment Schedule for Adults with Developmental Disabilities (Moss et al., 1998). However, as the IES is one of the most widely used measures of traumatic stress, the issue around whether or not it is appropriate for use with people with IDs remains unaddressed. The instrument has been revised to include items which measure hyperarousal (Weiss & Marmar, 1997), and the IES-Revised (IES-R) has been shown to correlate highly with the PTSD checklist (Creamer, Bell, & Failla, 2003), but the use of the instrument with people with IDs has not been considered.

Considering the lack of well-developed instruments to assess PTSD symptomatology with people who have IDs, the current study was completed which broadly aimed to revise the IES-R and consider its psychometric properties, along with the LANTS. In order to achieve this, a sample of people with IDs who had experienced trauma was recruited from the community and asked to complete several questionnaires that aimed to assess PTSD symptomatology. The exact aims of the current study were, (a) to revise the IES-R, creating the IES-IDs, for use with people with IDs, (b) to examine the reliability of the IES-IDs and the LANTS, and (c) to examine the validity of the IES-IDs and the LANTS by considering correlations between the two measures, and other measures of depression and anxiety. It was specifically hypothesised that, (a) the IES-IDs and the LANTS would show good to excellent internal consistency and test-retest reliability, (b) the IES-IDs and the LANTS will positively correlate with each other and measures of depression and anxiety, and the number of traumatic events.

Method

Participants

Forty adults with IDs ($M_{age} = 36.95$, $SD = 14.84$, 57.5% women, $M_{IQ} = 60.68$, $SD = 6.13$) were recruited from NHS teams, residential services and day centres across the counties of Norfolk, Cambridgeshire and Suffolk in England. The specific inclusion criteria were, (a) aged 18 or above and spoke English, (b) had mild intellectual disabilities as evidenced by a Full Scale IQ that ranged from 50 to 70; difficulties with adaptive behavior were assumed to be present if the person was receiving specialist services for people with IDs, and (c) the person had the capacity to give or withhold consent to take part in the study. Participants were excluded if they did not have a history of at least one traumatic event as defined within the Trauma Information Form (TIF). In addition to recruiting adults with IDs, 36 carers were also recruited and asked to complete the informant versions of several measures.

Design

The study made use of a simple correlational and a repeated-measures design in order to examine test-retest reliability and questionnaire validity. A single group of adults with IDs were recruited, and completed measures on two occasions, separated by two-weeks, in order to allow for examination of the test-retest reliability of the measures.

Measures

General intellectual functioning. The Wechsler Abbreviated Scale of Intelligence (WASI, Wechsler, 1999) was used to estimate the general intellectual functioning of participants. The WASI is a shortened version of the Wechsler Adult Intelligence Scale – III (WAIS-III, Wechsler, 1998), and contains four subtests which assess verbal and non-verbal reasoning. The WASI has excellent reliability and

validity, and correlates highly with Full Scale IQ from the WAIS-III (Wechsler, 1999).

Posttraumatic stress and trauma-symptoms. The Lancaster and Northgate Trauma Scales (LANTS), the Impact of Events- Intellectual Disabilities (IES-IDs), and the Trauma Information Form (TIF) were used to measure symptoms of PTSD or frequency of traumatic events.

The self-report version of the LANTS consists of 34 items with a four-point visual rating scale that examines trauma-related symptomatology. The LANTS was developed as a "...a measure of trauma...", which aims to measure the "...effects of traumatic life events for people with intellectual disabilities..." (p. 2652, Wigham et al., 2011a). The informant version of the LANTS is completed by someone who knows the respondent well. It is composed of 47 items and has three subscales: "Behavioural Changes", "Frequency", and "Severity", which each item being rated on a 6-point frequency scale and a 3-point severity scale. Both the self-report and informant versions of the LANTS have been found to have good internal consistency, $\alpha = .84$ and $\alpha = .89$, respectively, and test-retest reliability that ranged from $r = .59$ to $.72$. However, limited convergence was found between the two versions of the LANTS, with the self-report version correlating with the behavioural changes subscale of the informant LANTS ($r = .20$) but not Frequency or Severity.

The IES-IDs was developed for this study by modifying the IES-R. The IES-R was designed as a screening self-report questionnaire to assess the subjective distress caused by traumatic events. It includes 22 items that are measured using five-point scales (scored 0-4). We decided to revise the IES-R for a number of reasons. Firstly, it corresponds directly to the Diagnostic and Statistical Manual of Mental Disorders - IV (DSM-IV; American Psychiatric Association, 2000) symptoms of PTSD which are

comprised of three subscales: avoidance, intrusion and hyperarousal symptoms. Secondly, the IES-R is relatively short and easy to complete. Finally, it has well-established psychometric properties, and relates well to other measures of PTSD, such as the PDS (Foa, Cashman, Jaycox, & Perry, 1997), and is considered to be the most widely used measure of traumatic stress (Creamer et al., 2003). A score of 33 has been suggested to be an appropriate clinical cut-off (Creamer et al., 2003).

In order to modify the IES-R, and create the IES-IDs, professionals in an Adult Community Learning Disability Team were consulted (two clinical psychologists, a speech and language therapist, and an assistant psychologist). The extent of modifications was limited to item organisation, format and wording, in order to preserve the validity of the original questionnaire and the meaning of the items. Initial changes included developing an interviewer script so that the IES-IDs could be administered as a semi-structured interview. The language of the IES-R was also changed to ensure that items were comprehensible and appropriate for individuals with IDs. Guidance was followed to ensure that the question structure was simple and avoided the use of technical vocabulary (Finlay & Lyons, 2001), and the text was made larger to increase the accessibility of the measure (Stenfert-Kroese, 1997). The order of the items was also changed so that some “easier” questions (mainly those that asked directly about somatic symptoms; hyperarousal symptoms) would appear at the start and end of the questionnaire.

In terms of specific changes to question content, the items were changed so that many referred to the specific event the respondent had been previously asked to identify as part of completing the interview. For example, the item, “I was aware that I still had a lot of feelings about it, but I didn’t deal with them” was changed to read, “Have you been upset because of [event identified] but have not asked for help?”

This approach was taken as it can be difficult for people with IDs to understand contextual implications and therefore questions that refer to specific events are more helpful (Finlay & Lyons, 2001). Considering that people with IDs present with higher levels of socially desirable responding (Finlay & Lyons, 2001; Jobson, Stanbury, & Langdon, 2013; Langdon, Clare, & Murphy, 2010), it has been recommended that when asking about sensitive content it is important to ask about specifics, rather than generalities, and the use of scripted probes has been recommended as a method to aid and check comprehension, reducing the chances of acquiescence or socially desirable answers.

In terms of response format, the rating scale was changed from five to three, as five point rating scales can be confusing for those who have reading difficulties (Chachamovich, Fleck, & Power, 2009). Other changes included that respondents were asked whether they have experienced each symptom, initially, before rating the distress experienced. Respondents provided a simple 'yes/no' response to this initial question. If the symptom had not been experienced, the item was coded a zero. This approach was adopted to simplify the assessment and reduce confusion. If the respondent had experienced the symptom, they were then asked "how much has that upset or scared you?" Possible responses and associated scores were then: "a little bit" (score = 1), "in the middle" (score = 2) or "a lot" (score = 3). This was augmented with a visual scale to improve the reliability and validity of the Likert scales (Hartley & MacLean, 2006). The items and Likert Scale for the IES-IDs can be found in Table 1. The IES-IDs is available from the authors.

The Trauma Information Form (TIF) was also developed and used within the current study in order to obtain specific information about the traumatic experiences (i.e. experiences that would meet PTSD Criterion A in the DSM-IV; APA, 2004)

participants had experienced. There is an absence of appropriate measures of traumatic experiences that can be used for people with IDs, and this has been recognised by other researchers (Newman, Christopher, & Berry, 2000). As a consequence, the TIF was developed as a semi-structured interview; the language was made simple and non-technical, with large text. Following an introduction, respondents were asked whether they have experienced or witnessed 13 traumatic events. These were chosen to cover those outlined in DSM-IV (American Psychiatric Association, 2000) and included: violent personal assault (e.g. sexual assault, physical attack), torture, natural disasters, severe automobile accidents or other accidents (i.e., fire or explosion), being diagnosed with a life-threatening illness, being in a war zone, and witnessing the unexpected death of a family member or a close friend. It was decided to also include bullying as it has been found to associated with symptoms of PTSD (Idsoe, Dyregrov, & Idsoe, 2012). Each event was accompanied by a pictorial representation to aid comprehension, and the respondent was asked to tick if they had experienced each event. Following this, a section was provided for participants to describe if anything else had occurred in the lives which made them “very upset or very frightened?” to probe for other experiences which may not have been included on the original list. If the respondent had selected more than one traumatic event, they were then asked to pick the one event that had upset them the most. When completing the IES-IDs, questions were asked in reference to this selected event. Following this, further questions were asked to assess whether the event happened recently, less than a year ago, more than a year ago, or when they were a child. The TIF is available from the authors.

Anxiety and depression. The Glasgow Depression Scale (GDS; Cuthill, Espie, & Cooper, 2003) and the Glasgow Anxiety Scale (GAS; Mindham & Espie,

2003) were used to measure depression and anxiety. The GDS is comprised of a 20-item assisted self-report scale and is accompanied by a Carer Supplement (GDS-CS). The GDS has excellent internal consistency ($\alpha = .90$) and test-retest reliability ($r = .97$), as does the GDS-CS ($\alpha = 0.98$; test-retest: $r = .88$). The GAS also has excellent test-retest reliability ($r = .95$) and internal consistency ($\alpha = .95$). These measures were selected because they were developed specifically for people with IDs, and they have good psychometric properties, and are quick to administer.

Procedure

A favourable ethical opinion for this study was gained from Hertfordshire National Health Service (NHS) Research Ethics Committee. Initially, information about the study was distributed to managers who were asked to share this information with team members. Following on, a presentation about the research was made to staff teams who expressed an interest in helping with the study. Individual team members were asked to identify and contact potential participants that matched the inclusion criteria, and to invite them to participate in the study. People with IDs and their carers were provided with an information sheet, and if they were interested, asked to complete a “consent to share information with the researcher” form. Following this, the researcher contacted participants who provided consent in order to arrange a mutually convenient time to explain the study further, and seek signed informed consent to take part; when a participant and their carer provided consent to take part, two mutually convenient appointments separated by two-weeks were agreed to allow for completion of the study questionnaires.

At the start of each assessment the researcher went through the information sheet with the participant and their carer to ensure it was understood, and reminded participants that they could withdraw from the study at any time. Participants were

given the opportunity to ask any questions and were informed that they could request a break or stop the assessment session at any time. Permission was sought from participants to share any abuse or risk that not had been previously disclosed with a third party. The study was designed to minimise the risk of distress to any participant. Participants were told before the data were collected and at each session that there were no right or wrong answers. It was planned to halt the study should anyone become distressed, although this did not actually happen. Participants were given the name and contact details of the researchers so that they could discuss any distress or concerns. As an additional precaution to help ensure that individuals with IDs did not leave the assessment sessions upset, participants were asked to undertake a brief mood induction exercise at the end of the assessment. This involved asking participant to visualise an event that made or makes them feel happy for 1-2 minutes (Bryan & Bryan, 1991). This task has been used successfully with individuals with IDs (Yasutake & Bryan, 1995). If a carer was unable to attend the appointment, the questionnaires were posted to them or left for them to collect.

Data Analysis Plan

All analyses were completed using SPSS Version 21.0.0.0 (IBM, 2012). Cronbach's α was calculated for the IES-IDs and the self-report and informant version of the LANTS and associated subscales. Test-retest reliability was determined by calculating the intraclass correlation (*ICC*) coefficient. Values were interpreted with reference to McDowell (2006) and Cicchetti and Sparrow (1990). Some of the data collected were non-normal, and as a consequence, in order to explore the relationships between the questionnaires, Spearman's rank correlation coefficients were calculated. Whether there was a significant difference between correlation coefficients was determined using the method recommended by Meng, Rosenthal and Rubin (1992).

Results

Trauma History

Information about the history of traumatic events experienced by participants was collected using the TIF (Table 2). The mean number of traumas experienced was 2.60 ($SD = 1.50$, $Range = 6$), while 15% of the sample reported experiencing five or more different traumatic events. The most common reported traumatic experience was sudden bereavement, with bullying being the second most prevalent. A number of these experiences, such as natural disasters, torture, and being held as a hostage had not been encountered by this sample. Only one participant reported experiencing something that was not on the TIF; this person described a time when they were followed home by another person in the evening. It was notable that only one individual reported experiencing a traumatic event within the last month, as the majority had occurred over a year ago. There were significant positive correlations between trauma frequency and Full Scale IQ, $r(40) = .27$, $p = .048$, and Performance IQ, $r(40) = .28$, $p = .040$, but not Verbal IQ, $r(40) = .18$, $p = .132$.

Internal Consistency and Test-Retest Reliability

Descriptive data for all the measures is found in Table 3. The internal consistency and test-retest reliability was calculated for the IES-IDs and the associated subscales, as well as for the self-report and informant versions of the LANTs, and again, any associated subscales (Table 3). The results indicated that the IES-IDs Total Score demonstrated excellent internal consistency at both Time 1 and 2. Overall internal consistency for the subscales was acceptable across the two time points with the exception of the internal consistency for the Avoidance subscale which was fair at Time 1, but was unacceptable at Time 2; however, this increased to,

$\alpha = .72$, when item 7 was deleted. The LANTS Self Report and Informant versions evidenced good to excellent internal consistency at Time 1 and 2 (Table 3).

The test-retest reliability of the IES-IDs Total Score, as well as the Intrusion and Hyperarousal subscales, was excellent; the test-retest reliability for the IES-IDs Avoidance subscale was good. The test-retest reliability for the LANTS Self-Report and Informant versions was also excellent (Table 3).

Correlations between Measures

Table 4 displays all the correlation coefficients for the following analyses. There were significant positive correlations between the Intrusion, Hyperarousal and Avoidance subscales of the IES-IDs. All three subscales also significantly correlated with the IES-IDs Total Score. The self-report version of the LANTS significantly correlated with the Behaviour Changes, Frequency and Severity Scales of the informant version of the LANTS.

Turning to consider the relationships between the IES-IDs and the LANTS, Table 4 shows that the IES-IDs Intrusion, Hyperarousal, Avoidance, and Total Score significantly correlated with the self-report version of the LANTS. The IES-IDs Total Score also correlated significantly with the Behaviour Changes, Frequency, and Severity Scales from the informant version of the LANTS. These three Scales from the informant version did not significantly correlate with the Hyperarousal subscale, but did correlate significantly with the Intrusion subscale of the IES-IDs. The IES-IDs Avoidance subscale correlated significantly with the Frequency Scale from informant version of the LANTS but did not significantly correlate with the Behaviour Changes or the Severity Scales, again both from the informant version of the LANTS.

Table 4 also shows that there were no significant relationships found between any of the measures and general level of intellectual functioning, with the exception

of the Avoidance subscale of the IES-IDs, where there was a significant negative correlation with Full Scale IQ and Performance IQ.

Considering the relationships between depression, the IES-IDs, and the LANTS, revealed that the IES-IDs Total Score significantly correlated with the self-report GDS but not the informant version of the GDS (see Table 4). There was also a significant positive correlation between the three IES-IDs subscales and the self-report GDS, but again, not the informant version of the GDS (Table 4). The self-report LANTS significantly correlated with the self-report GDS but not the informant version of the GDS. The Behaviour Change and the Severity Scales of the informant version of the LANTS did not correlate significantly with the self-report GDS. However, there was a significant correlation between the self-report GDS and the Frequency Scale of the informant LANTS. All three Scales of the informant LANTS correlated significantly with the informant version of the GDS (Table 5).

Turning to anxiety, the IES-IDs Total Score, and the IES-IDs subscales all significantly correlated with the GAS (Table 4). This was also the case for the self-report LANTS, and the informant LANTS, as all Scales significantly correlated with the GAS. However, the GDS and GAS had lower correlations with the IES-R-IDs than the LANTS suggesting that the IES-IDs may have better discriminant validity. The strength of the correlation between the GDS and the LANTS was significantly greater than the correlation between the GDS and the IES-IDs, $z(37) = 1.98, p = .047$, two-tailed. However, the correlation between the GAS and the LANTS was not significantly greater than the correlation between the GAS and the IES-IDs, $z(37) = 1.76, p = .079$, two-tailed.

Relationships with Trauma History

There was a significant positive correlation between the frequency of traumas and the IES-IDs Hyperarousal, $r(40) = .40, p = .006$, and Avoidance, $r(40) = .31, p = .024$, subscales, as well as the Total Score, $r(40) = .35, p = .014$. The IES-IDs Intrusion subscale did not significantly correlate with frequency traumas, $r(40) = .22, p = .085$ (Table 4). Neither the self-report LANTS, nor any of the informant LANTS Scales correlated significantly with trauma frequency (Table 4).

Discussion

The results from the study indicated that the IES-IDs Total Score had excellent internal consistency, while the internal consistency of the IES-IDs subscales was good, with the exception of the Avoidance subscale, at Time 2, and this appeared to be mainly associated with Item 7 of the questionnaire. The self-report and informant versions of the LANTS evidenced good to excellent internal consistency. The test-retest reliability of the IES-IDs and associated subscales ranged from good to excellent, while the test-retest reliability of the LANTS was excellent. As a consequence, the results suggest that the IES-IDs and the LANTS have good psychometric properties, consistent with our first hypotheses, and similar to what has been previously reported for the LANTS (Wigham et al., 2011a). However, the internal consistency of Avoidance subscale of the IES-IDs appeared to be problematic, but improved with the deletion of a single item.

Turning to consider validity, the IES-IDs and the self-report LANTS were highly correlated. The IES-IDs Total Score also significantly correlated with the Scales from the informant version of the LANTS, although this was not consistently the case with the subscales of the IES-IDs and the informant version of the LANTS. The IES-IDs and the subscales, along with the self-report LANTS, were also highly correlated with self-reported depression. However, the IES-IDs and the self-report LANTS did not correlate with informant-reported depression, while there was a correlation with the informant version of the LANTS. Both the IES-IDs, and the self-report LANTS, along with the informant version correlated with the measure of anxiety. As a consequence, our findings are consistent with our second hypotheses that both measures of PTSD symptomatology would correlate with measures of depression and anxiety. However, this was not consistent with the informant measure

of depression; it may be the case that covert symptoms of depression are more difficult for carers to rate.

We also hypothesised that those who have experienced a higher frequency of trauma should score more highly on both the IES-IDs and both versions of the LANTS. However, our findings indicated that there was a positive association between trauma frequency and symptomatology as measured by the IES-IDs, but not the self-report or informant versions of the LANTS. This is problematic as there is a relationship between the number of traumas experienced and PTSD symptomatology (Brewin, Andrews, & Valentine, 2000). There appear to be several likely reasons why the LANTS does not relate to the number of different traumatic experiences. Firstly, the method of administration used by both the IES-IDs and the LANTS is different. When completing the IES-IDS, participants are asked questions specifically in response to a traumatic event, which may help improve how people with IDs understand the questions, and therefore, their ability to consider whether or not they have symptoms. The self-report version of the LANTS invites respondents to answer questions with reference to how they have been feeling over the “past few days”, and as a consequence, it may be the case that explicit symptoms of PTSD, in response to a specific trauma, are not considered by respondents. Secondly, it is unclear how many of the items on the self-report LANTS relate specifically to PTSD, as many of the items seem to be asking questions about depression or anxiety, more generally, although both of which have been found to be highly co-morbid with PTSD (e.g. Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). For example, the question “I feel down e.g. I feel sad, I cry a lot, and don’t enjoy things” is likely to relate to depression, rather than specifically to low mood associated with having experienced traumatic events. It is worth noting that although both the IES-IDs and the LANTS

correlated strongly with measures of depression and anxiety, as expected, the strength of the correlation was greater with the LANTS. However, it is clearly the case that some of the items on the LANTS do relate to PTSD, for example, the item “I have bad dreams of nightmares”, although this again is not considered in reference to a trauma. As a consequence, it is possible for someone to report that they are having nightmares, consistent with PTSD, but these may not be in relation to a traumatic event specifically experienced by the respondent. As a consequence, the LANTS may measure psychopathology more generally, rather than psychopathology which is specific to PTSD. Thirdly, the IES-IDs is based upon diagnostic criteria for PTSD, while the LANTS does not appear to relate to diagnostic criteria explicitly, and as a consequence, which may also partially explain why the LANTS does not correlate with number of different traumatic events.

There are some clear strengths and weaknesses to this study. Firstly, considering strengths, the sample recruited had experienced at least one traumatic event, with 15% of the sample had experienced five or more different traumas, meaning that the sample were at risk of experiencing symptoms of PTSD. This therefore allowed for some investigation into the validity of the questionnaires. Secondly, considering weaknesses, the sample size of the study is small and the design is correlational. As a consequence, the factor structure of the measures could not be considered, and little can be said about causality, although this study did not aim to investigate causality. The factor structure of the IES-IDs should be addressed in a future study as there have been some concerns noted about the factor structure of the original questionnaire, the IES-R (Creamer et al., 2003). Moreover, future research should also compare the scores of participants with IDs with and without a

formal diagnosis of PTSD to allow for further investigation into the validity of the IES-IDs.

Moreover, in their systematic review, Wigham *et al.* (2011b) suggested that people with IDs may develop further difficulties with challenging behaviour as a consequence of experiencing trauma, which included stereotypy, and poor self-care. These symptoms are not included in DSM definitions of PTSD, and as a consequence, are not measured by the IES-IDs, meaning that the further development work is needed to adequately capture symptoms of PTSD amongst people with IDs who have experienced trauma. There is some evidence that psychopathology may vary according to the severity of IDs as Hove and Havik (2010) reported both linear and curvilinear relationships between different symptoms of mental health problems and level of intellectual disabilities. This could also explain why the intrusion subscale did not correlate with trauma frequency within this study as this subscale measures cognitive intrusions which could vary according to developmental level.

Further to this, it is worth noting that previous studies have demonstrated a relationship between low IQ and PTSD symptomatology (Brewin *et al.*, 2000; Macklin *et al.*, 1998; McNally & Shin, 1995; Vasterling, Brailey, Constans, Borges, & Sutker, 1997), although many of these studies have been carried out on soldiers during times of war. Other studies have also suggested that a low IQ, along with low socio-economic status are risk factors for PTSD, in addition to family factors, such as the loss of a parent (Koenen, Moffitt, Poulton, Martin, & Caspi, 2007). However, within the current study, there was a positive relationship between IQ and number of different traumas, and a negative relationship between the Avoidance subscale of the IES-IDs and Full Scale IQ, while there was no relationship between Full Scale IQ and PTSD symptoms as measured by the IES-IDs Total Score or the LANTS. Although a

relationship between PTSD and IQ has been robustly reported within the literature, the relationship for people with actual IDs may be somewhat different, and further investigation, using much larger samples of people with IDs, is needed, considering that this population is at greater risk of encountering significant life events (Focht-New et al., 2008; Hatton & Emerson, 2004; Hubert-Williams & Hastings, 2008; Monaghan & Soni, 1992). Finally, and looking towards the future, further psychometric data regarding the IES-IDs is needed, along with some further work around the addition of items that may capture the clinical symptoms of PTSD amongst people with IDs more effectively before the measure is routinely used in clinical practice. Related to this, it would be valuable to have several brief screening and in-depth measures of trauma standardised for use with people who have IDs, but there continues to be little work within this area, which has been recognised by others (Mevissen & de Jongh, 2010). Although there is some limited evidence that psychological therapies are helpful for some types of mental health problems experienced by people with IDs (Vereenooghe & Langdon, 2013), there have been no specific clinical trials examining the effectiveness of psychological therapies for PTSD amongst people with IDs.

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Table 1

The modified items of the Impact of Event Scale – Intellectual Disabilities (IES-IDs) and the Likert scale used.

-
1. 1. Have you had trouble getting to sleep? (e.g., staying awake for a long time when you are trying to sleep)
 2. Have you felt angry? (e.g., have you wanted to smash or break things?)
 3. Have you being jumpy or easily scared? (e.g., when someone walks up behind you)
 4. Have you not wanted to talk about _____? (e.g., when people ask you questions about it, have you tried not to answer them?)
 5. Have you tried not to get upset when you remembered _____? (e.g., have you tried to stop crying when you remembered _____?)
 6. Have you remembered _____ when you didn't mean to? (e.g., thoughts of _____ have popped into your head when you were doing something else?)
 7. Have you felt that _____ hadn't really happened? (e.g., has it felt like you had dreamt it)
 8. Have you tried to keep away from places or people that make you remember _____?
 9. Have pictures of _____ come into your head when you didn't want them to? (e.g., Have pictures of what happened pop into your head when you were doing something else?)
 10. Have things kept making you remember _____? (e.g., do you keep seeing or hearing things that makes you remember _____?)
 11. Have you tried not to talk about or think about _____?
 12. Have you been upset because of _____ but not asked for help?
 13. Have you found it difficult to have strong feelings? (e.g., difficulty crying or being very happy)
-

-
14. Have you felt like _____ was happening again?
15. Have you felt upset or scared when something reminds you of _____?
16. Are there times when the feelings about what happened are too much (e.g., times when you have cried so much/ been so scared you don't think you can cope with them on your own).
17. Have you tried to get rid of memories of _____? (e.g., have you told the memories to go away?)
18. Have you found it hard pay attention to the same thing? (e.g., have you found it hard to watch the whole of a TV program?)
19. Have you had feelings in your body when you think about _____? (e.g., sweating, trouble breathing, feeling sick, and heart beating fast).
20. Have you had bad dreams or nightmares about _____?
21. Are you being extra careful? (e.g, checking to see who is around you)
22. Have you had trouble staying asleep? (e.g., have you woken up a lot in the night?)

Likert Scale

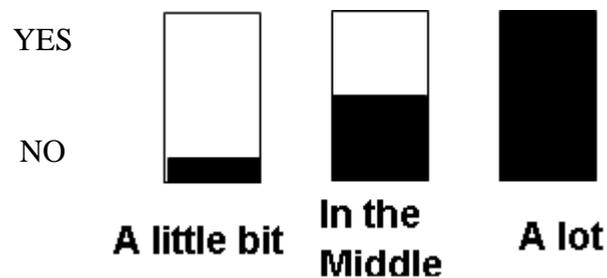


Table 2

Frequency of trauma information as collected using the Trauma Information Form.

Trauma experience considered most traumatic	n =	%	Number of traumas	n =	%	Time since trauma	n =	%
Car/plane crash	5	12.5	1	10	25	Child	15	37.5
Fire or explosion	0	0	2	12	30	Over a year ago	22	55
Natural disaster	0	0	3	11	27.5	Last year	2	5
Physical assault	3	7.5	4	1	2.5	In last few weeks	1	2.5
Assault with weapon	1	2.5	5	4	10			
Bullied	11	27.5	6	1	2.5			
Sexual assault	1	2.5	7	1	2.5			
Rape	2	5						
War Zone	0	0						
Prison	0	0						
Hostage	0	0						
Torture	0	0						
Serious illness	3	7.5						
Sudden bereavement	13	32.5						
Other	1	2.5						

Table 3

Descriptive and psychometric data.

Measure	Time 1		Time 2	
	<i>M</i> =	<i>SD</i> =	<i>M</i> =	<i>SD</i> =
IES- IDs Total	15.85	12.68	16.32	13.42
IES-IDs Intrusion	5.77	6.31	5.65	6.62
IES-IDs Avoidance	5.83	4.13	5.35	4.59
IES- IDs Hyperarousal	4.73	4.22	5.05	4.47
LANTS Self Report	57.72	14.57	57.58	15.62
LANTS-Behaviour Changes	11.69 ^a	10.48	8.75 ^c	8.69
LANTS-Frequency	20.92 ^a	19.07	16.31 ^c	18.68
LANTS-Severity	10.31 ^a	9.00	8.28 ^c	10.16
GDS-Self Report	8.60	6.05	-	-
GDS-Carer	4.00	3.33	-	-
GAS	15.43	8.13	-	-
FSIQ	60.68	6.13	-	-
VIQ	59.43	6.31	-	-
PIQ	67.40	7.63	-	-

Psychometric Properties	α =		<i>ICC</i>
	Time 1	Time 2	
IES-IDs Total	.90	.91	.86
IES-IDs Intrusion	.79	.88	.85
IES-IDs Avoidance	.72	.61	.65
IES-IDs Hyperarousal	.74	.77	.82
LANTS Self Report	.89	.89	.92
LANTS-Behaviour Changes	.90 ^a	.86 ^b	.81 ^c
LANTS-Frequency	.89 ^a	.90 ^b	.80 ^c
LANTS-Severity	.88 ^a	.92 ^b	.84 ^c

Note. LANTS = Lancaster and Northgate Trauma Scales; IES-IDs = Impact of Event Scale – Intellectual Disabilities; GDS = Glasgow Depression Scale; GAS = Glasgow Anxiety Scale; FSIQ = Full Scale IQ; VIQ = Verbal IQ; PIQ = Performance IQ; ^a*n*=36; ^b*n*=25, ^c*n*=32

Table 4
Correlation coefficients between measures ($p =$)

	IES-IDs I	IES-IDs H	IES-IDs A	IES-IDs TS	LANTS	Behav	Freq	Sev	GAS	GDS	GDS-C	FSIQ	VIQ	PIQ
No. Tr	.22 (.085)	.40** (.006)	.31* (.024)	.35* (.014)	.22 (.086)	.16 (.173)	.28 (.051)	.23 (.089)	.16 (.161)	.29* (.033)	-.07 (.353)	.27* (.048)	.18 (.132)	.28* (.040)
IES-IDs I		.72** (<.001)	.67** (<.001)	.87** (<.001)	.71** (<.001)	.38* (.010)	.41** (.007)	.37* (.012)	.41* (.005)	.53** (<.001)	.21 (.127)	-.12 (.225)	-.07 (.338)	-.14 (.195)
IES-IDs H			.74** (<.001)	.90** (<.001)	.71** (<.001)	.16 (.177)	.27 (.056)	.24 (.084)	.43** (.003)	.64** (<.001)	.02 (.451)	-.20 (.107)	-.17 (.153)	-.17 (.149)
IES-IDs A				.90** (<.001)	.63** (<.001)	.21 (.106)	.29* (.045)	.27 (.053)	.32* (.024)	.50** (.001)	.08 (.342)	-.33* (.019)	-.13 (.212)	-.33* (.020)
IES-IDs TS					.76** (<.001)	.28* (.050)	.37* (.014)	.32* (.030)	.40** (.006)	.60** (<.001)	.09 (.312)	-.25 (.063)	-.10 (.264)	-.25 (.064)
LANTS						.41** (.007)	.36* (.017)	.34* (.020)	.58** (<.001)	.70** (<.001)	.28 (.061)	-.10 (.278)	-.06 (.358)	-.09 (.296)
Behav							.92** (<.001)	.94** (<.001)	.38* (.012)	.13 (.222)	.60** (<.001)	-.04 (.419)	.15 (.198)	-.10 (.280)
Freq								.96** (<.001)	.39* (.011)	.30* (.038)	.58** (<.001)	-.12 (.246)	-.01 (.470)	-.13 (.228)
Sev									.37* (.014)	.24 (.078)	.60** (<.001)	-.09 (.293)	.01 (.488)	-.12 (.252)
GAS										.52** (<.001)	.32* (.038)	.02 (.449)	.01 (.468)	.05 (.375)
GDS											.27 (.065)	-.07 (.325)	-.23 (.076)	-.02 (.443)
GDS-C												.07 (.344)	.12 (.266)	-.01 (.47)
FSIQ													.67** (<.001)	.96** (<.001)
VIQ														.48** (.001)

Note. No. Tr = Number of Traumas; IES-IDs = Impact of Event Scale – Intellectual Disabilities; I = Intrusion; H= Hyperarousal; A = Avoidance; TS = Total Score; LANTS = Lancaster and Northgate Trauma Scales – Informant Version; Behav = LANTS Informant Version Behaviour Changes Scale; Freq = LANTS Informant Version Frequency Scale; Sev = LANTS Informant Version Severity Scale; GAS = Glasgow Anxiety Scale; GDS = Glasgow Depression Scale; GDS-C = GDS – Carer Version; FIQ = Full Scale Intelligence Quotient; VIQ = Verbal Intelligence Quotient; PIQ = Performance Intelligence Quotient; *p < .05; **p < .001