Developing a new measure of dissociation: The Dissociative Experiences Measure, Oxford (DEMO)

Emma Černis[a,*], Myra Cooper[b], Carmen Chan[c]

[a] *Department of Psychiatry, University of Oxford, Oxford, United Kingdom*
[b] *Oxford Institute of Clinical Psychology Training, University of Oxford, Oxford, United Kingdom*
[c] *Horizon Service, Oxford Health NHS Foundation Trust, United Kingdom*

ABSTRACT

The field of dissociation is receiving increasing attention, despite a lack of coherent conceptualisation of the construct. Advances in the field would be aided by a measure that reflects service user experiences of dissociative experiences and can be easily scored. The current study describes the development of a new measure of dissociation (Dissociative Experiences Measure, Oxford; DEMO) that aims to fulfil these criteria. The study follows an exploratory, data-driven, measure development design. Resource searching and feedback from clinicians ($n = 3$) and service users ($n = 6$) were used to develop an extensive item pool. An online sample ($n = 691$) provided data for a factor analysis of the item pool. Factor analysis produced a measure with five subscales: 'unreality', 'numb and disconnected', 'memory blanks', 'zoned out', and 'vivid internal world'. Further analysis indicated that the new measure has high internal consistency, and high convergent, divergent, and discriminant validity. The DEMO shows promise as an up-to-date clinical and research tool for the assessment of dissociative experiences. These results are preliminary, and further validation of the measure with a clinical sample is required.

1. Introduction

'Dissociation' according to the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5; American Psychiatric Association [APA], 2013) involves 'disruption of and/or discontinuity in the normal integration of consciousness, memory, identity, emotion, perception, body representation, motor control, and behavior.' (p. 291).

Dissociative symptoms cut across many different diagnoses and have been reported at a rate of 15–30% in post-traumatic stress disorder (PTSD; Wolf et al., 2012), 12% in eating disorders (Vanderlinden et al., 1993), 24% in panic disorder (Segui et al., 2000), and up to 50% in psychosis (Renard et al., 2017). Furthermore, dissociative experiences have been demonstrated to be prevalent at a rate of 3.4% in the general population (Maaranen et al., 2005) (see also Lyssenko et al., 2018).

Experiences of dissociation can cause considerable distress and disruption. In fact, at the most severe end of the spectrum of severity (where dissociation presents in a form that would meet criteria for diagnosis of dissociative identity disorder; DID) the rate of attempted suicide has been reported as being as high as 78% (Ross, 1997), and dissociative symptoms have been demonstrated to be the strongest

predictor of a person making multiple suicide attempts (Foote et al., 2008). In addition, there is a high level of non-suicidal self-injury (NSSI) in this population (Sar, 2011).

The longest-standing and likely most widely-used measure of dissociation, the Dissociative Experiences Scale (DES; Bernstein and Putnam, 1986; also, DES-II; Carlson and Putnam, 1993, which consists of the same items) consists of twenty-eight items that are intended to screen for dissociative symptoms indicative of a dissociative disorder. This measure is not diagnostic, but indicates the likelihood of the presence of a dissociative disorder.

A major weakness of the DES-II, however, is that it is now thirty years old and therefore does not incorporate any new understanding of dissociation gained over the last three decades. Many of the items of the DES-II reflect the contemporaneous focus on multiple-identity-type presentations (e.g. 'some people sometimes find that they are approached by people that they do not know, who call them by another name or insist that they have met them before.'). However, the kind of experiences now considered as 'dissociative' are broader and more complex – including experiences related to one's 'memory' (e.g. amnesia), 'sense of self' (e.g. depersonalisation), 'consciousness/perception' (e.g. 'losing time'), 'somatic/bodily symptoms' (e.g. non-organic

---

* Corresponding author.
E-mail address: emma.cernis@psych.ox.ac.uk (E. Černis).

pain) and 'other phenomena' (such as emotional numbness, mental blanking, and mutism) (Kennedy et al., 2013, p.2).

Furthermore, the DES-II does not provide a clear conceptualisation of dissociation. Kennedy et al. (2004) highlight that the DES-II does not have a 'consistent subscale structure' (p. 32). This means that the DES-II allows an understanding of dissociation only in terms of a 'relatively global construct' (p. 32), not in the detail that may be required for further work in the field.

The Wessex Dissociation Scale (WDS) (Kennedy et al., 2004) may offer a solution to this problem. Published in 2004, it is less than 15 years old, and has a theoretical basis in Kennedy et al. (2004) cognitive model of dissociation.

However, the forty items of the WDS were generated without direct input from service users, and without a review of phenomenological research. Items were developed "by the authors on the basis of their clinical experience according to [their] cognitive model" (Kennedy et al., 2004, p 31).

This cognitive model, to date, has not been validated by other researchers, and Kennedy et al.'s (2004) own analysis of the factor structure of the WDS found inadequate support for their model of dissociation. An exploratory factor analysis - which was run after a confirmatory analysis failed to support the model – only supported two of the model's three factors (i.e. two of the three 'stages' posited by the cognitive model). This calls into question the validity of the measure – as it is not fully measuring what Kennedy et al. propose in their cognitive model.

Although Kennedy et al. (2004) paper has been cited nearly 50 times, the majority of these are due to references to Kennedy et al.'s descriptions of dissociation, not the use of the WDS. To date (May 2018), the WDS has been used in eight research studies or theses. This suggests that researchers are opting not to use the WDS as an outcome measure. This may be because the subscale structure based on 'stages of processing' is less intuitive to use than the DES-II, which uses more thematic subscales.

As well as the DES-II and the WDS, there are seven other scales which claim to measure dissociation specifically (Table 1). Only two of these were published more recently than Kennedy et al. (2004). These are the Multidimensional Inventory of Dissociation (MID; Dell, 2006) which consists of 218 items, making it unwieldy as part of a research or

clinical battery; and the Dissociative Symptoms Scale (DSS; Carlson et al., 2018). The latter addresses many of the problems with the DES-II, but still has certain limitations, such as it not being 'reviewed by outside experts at the outset, which may have resulted in the exclusion of relevant content from the scale' and that it 'is not designed to assess dissociation in those with dissociative disorders', and has initially been tested with only PTSD diagnostic groups.

This study will therefore seek to develop an updated and comprehensive measure of dissociation using a data-driven approach, including consulting with service users. An exploratory factor analysis will be used, since this is an area that is still not clearly understood by theorists.

2. Methods

2.1. Participants

2.1.1. Ethics and data security

Ethical approval for the study was granted by the University of Oxford Central University Ethics Committee.

Informed consent to participate was obtained both for the consulting group and the internet survey sample. For the service user consultant group, oral consent was given and recorded on paper by the researcher (witnessed by the participant). Online, this was achieved by following the British Psychological Society guidelines for obtaining informed consent in online surveys (British Psychological Society, 2007).

Contact details of supportive organisations for follow-up care were provided at the end of the online survey (British Psychological Society, 2007).

2.1.2. Participant group 1: Consultation with service users

A group of six service users (aged over 18 years) who had experienced dissociation was consulted to guide item selection for the new measure. This number was recruited, since the service users were fulfilling an advisory role, and therefore issues of statistical power were not of concern. Participants were recruited from mental health center 'drop in' events run by Mind (a UK mental health charity).

The majority of the service user consultants were White British, and half were female. Ages ranged from 28 to 56 years. Diagnosis was not

Table 1
Summary of existing measures of dissociation (DES-II and WDS omitted).

Measure	Detail
Dissociative Symptoms Scale (DSS); Carlson et al. (2018)	The DSS consists of 20 items, and is available on request from the author. It aims to assess 'moderately severe' dissociative symptoms and has been validated in non-clinical and clinical (PTSD) groups.
Multidimensional Inventory of Dissociation (MID); Dell (2006)	The MID consists of 218 items (168 dissociation items, and 50 validity items). This is too lengthy to use as a clinical routine outcome measure, or to add into a battery of assessments in research trials where dissociation is not the primary variable.
Multiscale Dissociation Inventory (MDI); Briere (2002)	The MDI is a self-report 30-item measure, which its author states has been 'normed and standardized' and has good internal consistency. It is only available by request from the author via email, and prior to this required purchase from a publisher.
Somatoform Dissociation Questionnaire (SDQ-20); Nijenhuis, Spinhoven, Van Dyck, Van Der Hart, and Vanderlinden (1996)	The authors specify that 'somatoform dissociation' is distinct from 'psychological dissociation', meaning that this measure does not comprehensively represent the construct of dissociation as a whole.
Dissociative Experiences Taxon (DES-T); Waller et al. (1996)	The DES-T is a subset of eight items from the DES, which indicate the presence of pathological dissociation, as opposed to variation in a non-pathological dissociative trait. Its validity has been queried, and Leavitt (1999) concluded that 'there was no support for the use of the DES-T in lieu of the DES".
Dissociative Processes Scale (DPS); Harrison and Watson (unpublished /1992)	The DPS is described in an unpublished manuscript by Harrison and Watson in 1992, and is unavailable online.
Dissociation Questionnaire (Dis-Q); Vanderlinden, Van Dyck, Vandereycken, and Vertommen (1991)	The Dis-Q is a 63-item self-report measure. This, too, may be considered too lengthy by many clinicians and researchers. Additionally, like the DES-II, its subscales reflect a less broad and nuanced view of dissociation than is currently held.
Questionnaire on Experiences of Dissociation (QED); Riley (1988)	Like the DES-II, the items of the QED reflect a less broad and nuanced view of dissociation than is currently held. Indeed, it has been described as 'interchangeable' with the DES-II (Anguilo and Kihlstrom, unpublished).

requested, but those spontaneously disclosed included PTSD, Social Anxiety, Depression, Generalized Anxiety Disorder, Dissociative Disorder, and Autistic Spectrum Disorder 'traits'.

All met the inclusion criteria of lived experience of dissociation in any form (i.e. there was no specific inclusion criterion regarding diagnosis), and adequate command of the English language. There were no exclusion criteria. Lived experience was assessed via self-report after a brief layman's description of dissociation was supplied.

2.1.3. Participant group 2: Internet-based validation sample

Participants were recruited via the internet to provide data for factor analysis and subsequent selection of the final items for the measure. Facebook and Twitter were used to publicise the survey, which was created using Qualtrics (2017).

Respondents were required to be aged 18 or above. An eligibility screening question was used to try to ensure that only participants with experiences of dissociation completed the survey. This question asked respondents to indicate whether they had ever had 'odd or unusual experiences' whilst *not* under the influence of drugs or alcohol. Where respondents indicated that they had not had these experiences, the survey skipped to the final (debrief) page, rather than continuing to the survey questions.

There were no other inclusion or exclusion criteria. This was to ensure a representative sample of the general public as far as possible.

Participants were given the option to submit an email address into a prize draw of £50 in Amazon vouchers.

In total, 1354 people responded to the online survey. Of these, 1222 completed the consent form (90.2%).

In response to the screening question, 1119 (82.6% of initial respondents) indicated that they had had experiences. Of the remaining participants, 691 answered all questionnaires with only minimal missing data (51.0% of initial respondents) and were included in analysis. Fig. 1 illustrates this in greater detail.

The demographics of the internet sample are reported in Table 2 below. Ethnicity is omitted, as many respondents gave their country of residence rather than identifying an ethnic group. However, it is likely that the largest ethnic group is Caucasian, as 66.3% of the sample recorded this as their response.

Within the demographic questions, internet participants were asked about their mental health status. The majority (78.9%) reported that they had experienced a mental health difficulty. None declined to specify what kind of difficulty they had experienced, and the most common reported was a form of depression (79.6% of those who identified as having experienced a mental health difficulty). Further, 71.9% ($n = 391$) reported that they would consider their difficulties as 'ongoing' (Table 3).

2.2. Measures

No formal measures or interview schedule were used during service user consultation. Semi-structured questions - developed with the help of service users during university research seminars - were used to prompt discussion.

Demographics of both the consultation group and internet respondent group were collected.

In the online survey, participants were asked to respond to a pool of potential items for the new measure. They were asked to rate each item as 'not at all', 'rarely', 'sometimes', 'often' or 'most of the time'. Participants were also asked to complete the following measures:

2.2.1. Dissociative Experiences Scale II (DES-II) – Carlson and Putnam (1993)

This scale was included as a measure of convergent validity. The DES-II includes 28 items intended to screen for dissociative symptoms (e.g. 'some people have the experience of looking in a mirror and not recognizing themselves'). Respondents are asked to indicate the
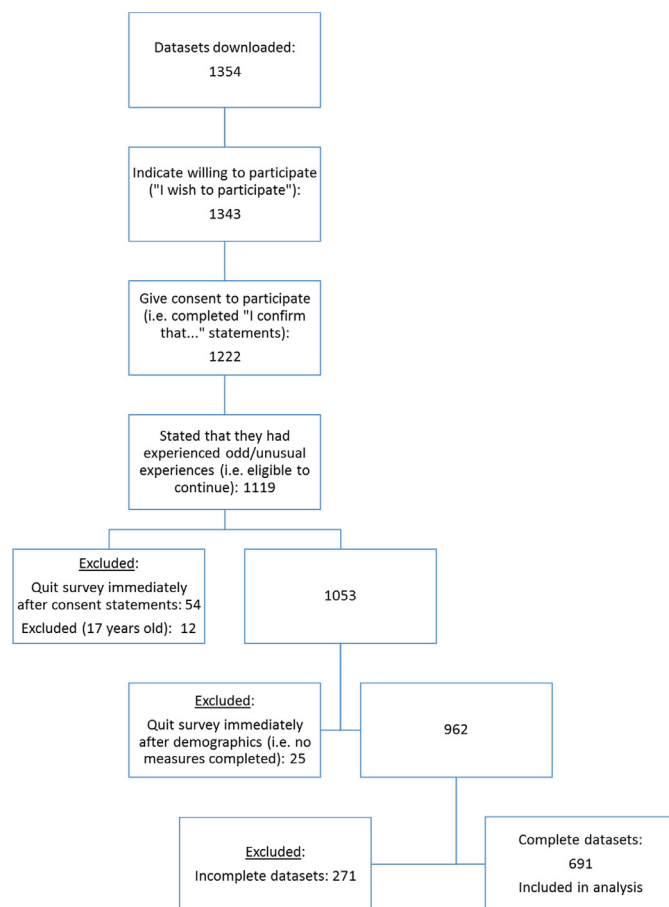

Fig. 1. Illustrating the data cleaning of online responses (*n*).

Table 2
Demographics of the Internet-based sample.

Variable	Mean (SD)	Mode	Minimum	Maximum
Age (Years)	32.3 (10.3)	23.0	18.0	66.0
Years in Education	15.3	16.0	0.0	27.0
Gender	88.6% female ($n = 612$); 10.6% male ($n = 73$); 0.9% other ($n = 6$)			
Country of Residence	88.2% Britain and Ireland 4.9% Europe 2.6% USA and Canada 1.9% Australia and New Zealand 0.7% Asia 1.6% Other (including Philippines, Lebanon, United Arab Emirates)			

percentage of the time that items happen to them in their daily life (increments of 10% from: '0% - Never' to '100% - Always'). Higher scores indicate stronger likelihood of a dissociative disorder, but are not diagnostic.

The DES-II has been demonstrated to be a reliable and valid measure. Kennedy et al. (2004) report internal consistency of Cronbach's alpha = 0.901 for their non-clinical group and Cronbach's alpha = 0.949 for their clinical group. Carlson and Putnam (1993) report that the DES has good convergent validity with the Perceptual Alteration Scale ($r = 0.52$), the Tellegan Absorption Scale ($r = 0.39$), and the Ambiguity Intolerance Scale ($r = 0.24$). Further, they state that the DES also has good discriminant validity, citing Bernstein and

Table 3
Self-reported mental health status of the Internet-based sample.

Identified as ever having experienced mental health difficulties	Yes	No	Prefer not to say
	545 (78.9%)	126 (18.2%)	20 (2.9%)
Of those who answered "yes":			
Depression disorders (including post-natal depression)	434 (79.6%)		
Anxiety, panic, health anxiety, obsessive compulsive disorder	401 (73.6%)		
Post-Traumatic Stress Disorder or trauma disorders	132 (24.2%)		
Eating disorders	91 (16.7%)		
Personality disorders	62 (11.4%)		
Mood cycling disorders including bipolar disorder	48 (8.8%)		
Schizophrenia and psychosis disorders	35 (6.4%)		
Dissociation or Depersonalisation Disorder	13 (2.4%)		
Asperger's or Autistic Spectrum Disorder	6 (1.1%)		
Other (e.g. insomnia, pervasive bereavement disorder, non-epileptic seizures)	6 (1.1%)		

NB: Total is over 100%, as respondents were able to select more than one response.

Putnam (1986) who found no correlation between the DES and sex or socio-economic status (p. 20).

2.2.2. Wessex Dissociation Scale (WDS) – Kennedy et al. (2004)

This measure was also included to assess convergent validity. The WDS consists of 40 items scored on a six-point Likert scale from '0 – never' through to '5 – all the time'. Items include statements developed by Kennedy et al. (2004) to reflect the way dissociation presents in their clinical work (e.g. 'unwanted thoughts come into my head').

Its authors have demonstrated adequate internal consistency (Cronbach's alpha = 0.899, non-clinical group; Cronbach's alpha = 0.947 in clinical group) in the WDS and good convergent validity with the DES-II (non-clinical group: $r = 0.65$, $p < 0.001$; clinical group: $r = 0.80$, $p < 0.001$).

2.3. Procedure

2.3.1. Developing and selecting items

The aim of this stage of the procedure was to generate an item pool that reflected the breadth of dissociative experiences and was fully comprehensive.

A literature search covering the phenomenology of dissociation was undertaken. Journal articles and book chapters identified by database searches (Embase, PsychINFO, PsycARTICLES and Ovid Journals) were scanned for descriptions of dissociative experiences. These descriptors and items from existing measures of dissociation were compiled into an item database.

Search terms used in the literature search were: *dissociation; dissociative; derealisation; derealization; depersonalisation; depersonalization; numbing.* (NB: the wildcard "dissociat*" was not used as this returns many papers entitled "Dissociating… [X] and [Y]…" which are not in the dissociation or trauma literature).

Additionally, web searches for qualitative descriptions of dissociation were carried out and added to the item pool database.

Next, the second and third authors and a local clinician (FW) – clinical psychologists experienced with dissociative phenomena across trauma, eating disorder, and psychosis presentations - were asked to read the item pool and suggest any amendments or additions based on their clinical experience. They were also invited to highlight which items in the pool appeared to be particularly relevant, or less relevant.

Informal feedback on the pooled items was undertaken separately via email.

2.3.2. Service user consultation

Next, the first author attended local mental health charity 'drop in' sessions (unstructured time) to recruit a service user consultation group. Service users were individually asked to describe their experiences of dissociation, and what they felt would be important when developing a measure of dissociative experiences. Each contributor was offered £5 in compensation for their time.

If they expressed interest, consulting service users were also shown sections of the item pool relating to the themes they had identified in conversation ($n = 3$). The purpose of this was for them to provide feedback and comment on the items already gathered. As with the three clinicians, feedback from the service users were used to ensure that the item pool was judged by people with experience of dissociation (clinically, and personally) to be representative, and that no important experiences had been omitted. For example, due to service user input, we noted that feeling emotionally detached was an important experience, and therefore checked that the item pool contained items regarding this.

2.4. Data analysis

Data from the 691 internet survey participants were checked for random error, anomalous responses, and adherence to required statistical assumptions prior to analysis. Analysis was carried out using SPSS version 22 for Windows (IBM, 2013).

3. Results

3.1. Creating the measure

The Kaiser-Meyer-Olkin measure of sampling adequacy, Bartlett's test of sphericity, and communalities satisfied the conditions required for factor analysis to be appropriate.

Exploratory principal components (factor) analysis using a promax rotation was carried out on participants' responses to the 99 items. No items were removed during analysis.

Regarding the number of factors, inspection of the scree plot (Fig. 2) was inconclusive, and therefore the Eigenvalues were also consulted. Since these indicated a good level of total variance explained (51.46%) with five factors, and the eigenvalue for the sixth factor was below 2.0 (eigenvalue = 1.78), a five-factor solution was specified.
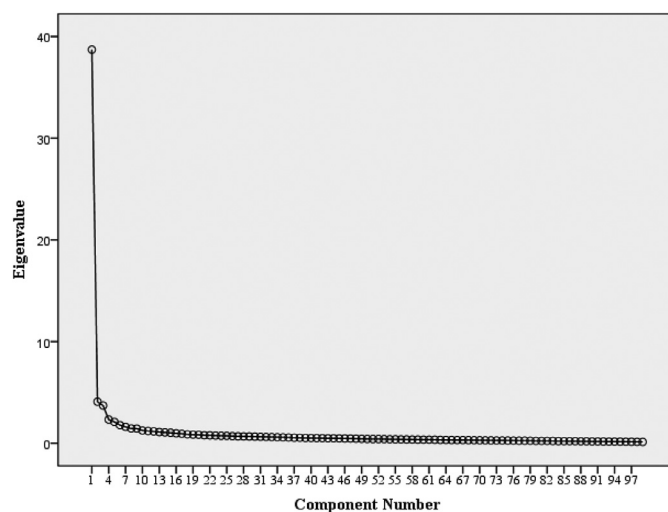

Fig. 2. Scree plot for exploratory principal components analysis with promax rotation.

To create the measure, the six items with the highest loading for each factor were selected (range: r = 0.52 to 0.88). Two of the highest loading items in factor five loaded greater than 0.4 elsewhere, so these were rejected and the next two highest loading items selected. This creates a measure of thirty items (Appendix A), where none of the items load 0.4 or higher on any other factor, and all load higher than 0.4 on their respective factor.

Inspection of these items – particularly the top-loading three items - led to naming the factors as: 'Unreality', 'Numb and Disconnected', 'Memory Blanks', "Zoned Out", and 'Vivid Internal World'.

3.2. Validating the measure

The following analyses were performed in order to validate the 30-item measure described above.

Non-parametric analyses were used since the DES-II, WDS, and new measure (total and subscales) were found not to have a normal distribution using the Kolmogorov-Smirnov test of normality. The significance values for all were $p \leq 0.001$.

3.3. Internal consistency

The five subscales (of six items each) significantly correlated with each other, and all correlations were moderate to high strength positive correlations (Mukaka, 2012) (Table 4).

Cronbach's alpha of the 30 items was high ($\alpha = 0.95$, n = 686), indicating 'excellent' internal consistency for the measure (Cronbach, 1951). Likewise, the Cronbach's alphas for each subscale were also in the 'excellent' range ($\alpha = 0.82$–0.91).

'Cronbach's alpha if item deleted' analyses indicated that for every item (bar one), the subscale Cronbach's alpha would reduce if the item was deleted.

The exception was the item 'I have big gaps in my memory for recent things in my life', which if deleted would raise the 'Memory Blanks' subscale Cronbach's alpha from 0.874 to 0.877. This was judged not to be a large impact, and therefore the item was retained.

3.4. Convergent validity

Convergent validity was established by calculating the correlation between the new measure's subscales and existing measures of dissociation.

For both the DES-II and the WDS, correlation with each of the new measure's subscales was high, statistically significant, and in the direction expected (positive) (see Table 5). By this standard, the convergent validity of the measure was judged to be good.

3.5. Divergent validity

A non-parametric analysis of the correlations between the subscales of the new measure and age were used to demonstrate divergent

Table 4
Correlations (Spearman's Rho) between the five subscales present in the 30-item version of the scale. $p < 0.001$ for all correlations.

Subscale	Unreality	Numb and Disconnected	Memory Blanks	'Zoned Out'	Vivid Internal World
Unreality	–	0.65	0.48	0.46	0.54
Numb and Disconnected		–	0.48	0.57	0.50
Memory Blanks			–	0.54	0.50
'Zoned Out'				–	0.50
Vivid Internal World					–

Table 5
Correlations (Spearman's Rho) between the five subscales present in the 30-item version of the scale and the DES-II and WDS. $p < 0.001$ for all correlations.

Subscale	Unreality	Numb and Disconnected	Memory Blanks	'Zoned Out'	Vivid Internal World
DES-II	0.61	0.58	0.68	0.61	0.70
WDS	0.67	0.74	0.70	0.67	0.73

validity (as dissociation is not expected to associate with age).

Age did not correlate statistically significantly with two of the subscales (Numb and Disconnected: rho = −0.055, p = 0.15, n = 690; Memory Blanks: rho = 0.01, p = 0.81, n = 688).

However, for the remaining three subscales, the correlations were statistically significant, but as was expected, extremely weak (Unreality: rho = −0.10, p = 0.01, n = 687; Zoned Out: rho = −0.19, p < 0.001, n = 686; Vivid Internal World: rho = −0.10, p = 0.01, n = 687).

By this standard, the divergent validity of the scale was judged to be adequate.

3.6. Discriminant validity

In order to determine whether the new measure would show differences between low and high scoring respondents, the top quartile and bottom quartile of each subscale were compared on DES-II total scores using Mann Whitney-U analyses. For all subscales, there was a significant difference in the DES-II scores between the lowest and highest scoring respondents ($p < 0.001$ for all analyses). This indicates good discriminant validity.

4. Discussion

The present study sought to develop a measure of dissociation that reflects the broad range of experiences of people who dissociate (the Dissociative Experiences Measure, Oxford; DEMO). The aim was for this measure to provide an update to the DES-II (Carlson and Putnam, 1993); to facilitate better understanding of the construct of dissociation via its subscale structure; and for these subscales to be more clinically intuitive and descriptive than in the WDS (Kennedy et al., 2004).

Development of the DEMO used a 'bottom up' data-driven approach, where an extensive item pool was formed incorporating input from clinicians and service users, and a large internet sample used to select the final items.

The five main themes of dissociation identified by factor analysis were: subjective experiences of unreality, of feeling emotionally numb and disconnected, having memory blanks, 'zoning out' (including experiences of losing track of time), and experiencing a vivid internal world (including experiences of intrusive memories and hallucinations).

For 'Unreality', the highest loading three items all made reference to experiencing oneself or one's surroundings as 'not real', and the items in 'Numb and Disconnected' make reference to feeling distant from the rest of the world and unable to access it emotionally. The 'Memory Blanks' items all describe experiences of being unable to recall something which has evidently taken place (often evident via the discovery of a forgotten object, or finding oneself at a particular location without remembering the journey). The 'Zoned Out' subscale contains items which describe an absence of any mental activity, which can also be experienced as losing time. Finally, the 'Vivid Internal World' factor describes internal experiences that attract mental attention, or become absorbing. At greater severity, these experiences may be described as flashbacks, intrusions, or hallucinations.

Analyses demonstrate that the measure shows very high internal consistency, correlates well with existing measures of dissociation, and correlates poorly with unrelated variables as expected. Therefore, the DEMO may be described as valid.

4.1. Study strengths

A significant strength of the current study is its incorporation of service user experience at the earliest stages. This is particularly important in a field such as dissociation, where there is a legacy of different definitions, and where the boundaries of the concept are unclear. By using service user experience to develop the item pool, the situation can be avoided where items are selected through 'tradition' rather than relevance. This allows a more comprehensive approach to describing the main themes of dissociation, un-biased by its previous conceptualisations.

The resulting five subscales of the DEMO reflect this. For example, the three subscales of the DES-II (Carlson and Putnam, 1993) are often described as 'amnesia', 'depersonalization / derealization', and 'absorption'. The new scale here retains the importance of depersonalisation and derealisation experiences in the 'unreality' subscale, but expands upon the DES-II's 'absorption' subscale.

The experiences described by the DES-II and older measures as 'absorption' are reflected in the new measure's subscales of 'vivid internal world' and 'zoned out'. 'Vivid internal world' incorporates Carlson and Putnam's (1993) observations that people become engaged in their internal experiences, but having 'zoned out' as a separate subscale gives weight to the distinct experiences described by service users of 'staring off into space, thinking of nothing', which participants in the current study experienced as a more significant dissociative experience than has previously been acknowledged.

Further, where the DES-II (Carlson and Putnam, 1993) (and the DSS; Carlson et al., 2018) somewhat neglects the emotional experience of dissociation, this is included in the DEMO's subscale 'numb and disconnected'. This subscale describes the experience of being emotionally distant from the events in one's life, and is a strength of the new measure, because consulting service users and online first-person accounts stressed the importance of these experiences.

Statistical analyses suggest that the new measure is a valid tool to facilitate further investigation in this field.

4.2. Study limitations

The service user consultation stage used a small and fairly homogenous sample of participants. A larger sample incorporating a wider range of social economic status, ethnicity, and age may have produced more suggestions for new items, and given more representative feedback.

The internet sample was skewed towards the younger end of the age range, and was predominantly female. This may restrict the generalisability of the findings. However, by using an online survey, the research had a wider geographical reach, which may have reduced the heterogeneity of the sample.

There are, nevertheless, limitations inherent in online research that may also impact upon the results of this study (e.g. Wright, 2005). In particular, the phenomenon of self-selection bias (e.g. Stanton, 1998) may be relevant here, as the online survey was primarily advertised to subscribers of Facebook 'pages' relating to dissociation or psychology.

It is also important to note that the majority of items included in the initial item pool were derived from existing measures. This challenges the assumption that the exploratory factor analysis has resulted in a measure unbiased by previous conceptualisations. However, the input from the service user consultants and clinicians; and the inclusion of several different scales as well as material from first-person accounts published online broadened the item pool, and therefore reduced the influence of prior conceptualisations inherent in the scales used.

Finally, the reading age required by the items of the DEMO has not been assessed, and it is therefore unclear how easily understandable the measure is. This is important, since the average reading age of the UK general population is nine years (See A Voice, 2010).

4.3. Clinical implications

Hatfield and Ogles (2004) found that 37% of clinical psychologists routinely use outcome measures to gain information regarding their client's strengths and weaknesses, and progress in treatment. Therefore, good outcome measures are valued by a large number of clinicians to help them build a clearer clinical picture of their patient's difficulties and inform the work they carry out with the client. The new measure described here may also support clinical practice in this way. Indeed, it may be particularly valuable when considering dissociative experiences. In this field, the definition and boundaries of dissociation have long been unclear - or even omitted from the clinical conversation altogether (Spring, 2013). Therefore, clinicians may be uncertain what kinds of experiences to ask their client about. A measure such as the one described here, which has been developed in a data-driven way, may act as a guide to clinicians to support them to ask questions relevant to their clients' experiences.

Having a valid, easy to use measure of dissociation is vital given the previously discussed ubiquitous nature of dissociation, and the growing appreciation of its clinical importance. These properties are also likely to also make the DEMO a valuable tool in clinical research, and therefore treatment development.

4.4. Areas for future development

As well as determining whether the factors found here generalise to other samples, the reliability of the measure must be established. Test-retest reliability is particularly important, if the measure is to be of use in research where there may be multiple time-points for data collection.

A cut-off or other guidance as to what constitutes a 'high' score (for the total score, and for subscale scores) must also be developed if the scale is to be clinically helpful. To establish these, future research should look to investigate the scale using a clinical sample.

Due to a lack of objective measure of dissociation (such as verified diagnoses), it was unfortunately not possible in the current study to analyse whether the DEMO shows greater predictive validity than the DES-II and WDS. It would be helpful for future research to address this.

5. Conclusions

The DEMO is a promising measure of dissociative experiences that reflects recent advances in our understanding of this important and ubiquitous phenomenon.

Using an exploratory method, in an effort to minimise the influence of previous conceptualisations of dissociation, the DEMO highlights five main themes of dissociation. These were: subjective experiences of unreality, of feeling emotionally numb and disconnected, having memory blanks, 'zoning out' (including experiences of losing track of time), and experiencing a vivid internal world (including experiences of intrusive memories and hallucinations).

Further validation of this scale with a clinical sample is required to demonstrate the potential of the DEMO as a reliable and clinically intuitive alternative to existing measures of dissociation.

Acknowledgments

Appendix A. Dissociative Experiences Measure, Oxford, (DEMO)

Please answer the questions below based on how things have been for you in the past **two weeks**. If you are not sure, go with your best guess. Please only answer about experiences you have had while **not** under the influence of alcohol, drugs or 'legal highs'.

Table 6
DEMO items.

		Not At All	Rarely	Sometimes	Often	Most of the time
1	I have the feeling that other people, other things and the world surrounding me are not real	1	2	3	4	5
2	I have the feeling that everything is unreal	1	2	3	4	5
3	I feel as if I don't exist, am not real	1	2	3	4	5
4	I feel like I am in a parallel world	1	2	3	4	5
5	The world around me feels detached or unreal, as if there were an invisible barrier between me and the outside world	1	2	3	4	5
6	I feel like the external world is not real, a joke, a lie	1	2	3	4	5
7	I feel emotionally numb	1	2	3	4	5
8	I just feel numb and empty inside	1	2	3	4	5
9	I feel I can't make a proper connection with anyone around me	1	2	3	4	5
10	I do not seem to feel anything at all	1	2	3	4	5
11	I feel like I'm 'just existing'	1	2	3	4	5
12	I turn inwards, trying to work out why I feel so disconnected	1	2	3	4	5
13	I find myself in situations or places with no memory of how I got there	1	2	3	4	5
14	I suddenly notice that I find myself in a place that is unknown to me without knowing how I got there	1	2	3	4	5
15	I find evidence of something I've done recently (e.g. through finding notes or drawings) but I don't remember doing it	1	2	3	4	5
16	I find new articles among my things without being able to remember ever having purchased them	1	2	3	4	5
17	I find myself somewhere and do not remember how I got there	1	2	3	4	5
18	I have big gaps in my memory for recent things in my life	1	2	3	4	5
19	I stare aimlessly without thinking about anything	1	2	3	4	5
20	I 'zone out' and don't see or hear what's going on around me	1	2	3	4	5
21	I sometimes sit staring off into space, thinking of nothing, and am not aware of the passage of time (or other people tell me that I do this)	1	2	3	4	5
22	I often think about nothing	1	2	3	4	5
23	Sometimes my mind is absolutely blank	1	2	3	4	5
24	My mind just goes empty	1	2	3	4	5
25	I can remember something that happened before so vividly that it's like a video playing in my head	1	2	3	4	5
26	Unwanted images from my past come into my head	1	2	3	4	5
27	I am surprised by or don't expect some of the thoughts or images that happen in my head	1	2	3	4	5
28	I experience past memories as if they are happening here and now	1	2	3	4	5
29	I can get so involved in fantasies or daydreaming that it seems to be really happening and I lose touch with what is happening in the real world at that moment	1	2	3	4	5
30	I hear someone talking when no-one nearby has actually said anything	1	2	3	4	5

ITEMS:

Factor 1:	Items 1–6:	Unreality
Factor 2:	Items 7–12:	Numb and Disconnected
Factor 3:	Items 13–18:	Memory Blanks
Factor 4:	Items 19–24:	'Zoned Out'
Factor 5:	Items 25–30:	Vivid Internal World

References

American Psychiatric Association, 2013. Diagnostic and Statistical Manual of Mental Disorders, Fifth ed. American Psychiatric Publishing, Arlington, VA.

Bernstein, E.M., Putnam, F.W., 1986. Development, reliability, and validity of a dissociation scale. J. Nerv. Mental Dis. 174, 727–735. https://doi.org/10.1097/00005053-198612000-00004.

Briere, J., 2002. Multiscale Dissociation Inventory. Psychological Assessment Resources, Odessa, Florida.

British Psychological Society, 2007. Report of the Working Party on Conducting Research on the Internet: Guidelines for Ethical Practice in Psychological Research Online. British Psychological Society Leicester (REP62/06.2007).

Carlson, E.B., Putnam, F.W., 1993. An update on the dissociative experiences scale. Dissociation 6, 16–27. https://doi.org/10.1177/1073191116645904.

Carlson, E.B., Waelde, L.C., Palmieri, P.A., Macia, K.S., Smith, S.R., McDade-Montez, E., 2018. Development and validation of the dissociative symptoms scale. Assessment 25, 84–98.

Cronbach, L.J., 1951. Coefficient alpha and the internal structure of tests. Psychometrika 16, 297–334.

Dell, P.F., 2006. The Multidimensional inventory of dissociation (MID): a comprehensive measure of pathological dissociation. J. Trauma Dissociation 7, 77–106.

Foote, B., Smolin, Y., Neft, D.I., Lipschitz, D., 2008. Dissociative disorders and suicidality in psychiatric outpatients. J. Nerv. Ment. Dis. 196, 29–36.

Hatfield, D.R., Ogles, B.M., 2004. The use of outcome measures by psychologists in clinical practice. Prof. Psychol. Res. Pract. 35, 485–491. https://doi.org/10.1037/0735-7028.35.5.485.

IBM Corp. Released, 2013. IBM SPSS Statistics for Windows. IBM Corp, Armonk, NY Version 22.0.

Kennedy, F., Clarke, S., Stopa, L., Bell, L., Rouse, H., Ainsworth, C., et al., 2004. Towards a cognitive model and measure of dissociation. J. Behav. Ther. Exp. Psychiatry 35, 25–48. https://doi.org/10.1016/j.jbtep.2004.01.002.

Kennedy, F., Kennerley, H., Pearson, D., 2013. Cognitive Behavioral Approaches to the Understanding and Treatment of Dissociation. Routledge https://doi.org/10.4324/9780203502082.

Leavitt, F., 1999. Dissociative experiences scale taxon and measurement of dissociative pathology: does the taxon add to an understanding of dissociation and its associated pathologies? J. Clin. Psychol. Med. Settings 6, 427–440. https://doi.org/10.1023/A.1026275916184.

Lyssenko, L., Schmahl, C., Bockhacker, L., Vonderlin, R., Bohus, M., Kleindienst, N., 2018. Dissociation in psychiatric disorders: a meta-analysis of studies using the dissociative experiences scale. Am. J. Psychiatry 175, 37–46. https://doi.org/10.1176/appi.ajp.

2017.17010025.

Maaranen, P., Tanskanen, A., Honkalampi, K., Haatainen, K., Hintikka, J., Viinamaki, H., 2005. Factors associated with pathological dissociation in the general population. Aust. N. Z. J. Psychiatry 39, 387–394. https://doi.org/10.1111/j.1440-1614.2005. 01586.x.

Mukaka, M.M., 2012. A guide to appropriate use of correlation coefficient in medical research. Malawi Med. J. 24, 69–71.

Qualtrics, 2017. [Online software]. USA: Provo, Utah. Retrieved from: www.qualtrics. com.

Renard, S.B., Huntjens, R.J., Lysaker, P.H., Moskowitz, A., Aleman, A., Pijnenborg, G.H., 2017. Unique and overlapping symptoms in schizophrenia spectrum and dissociative disorders in relation to models of psychopathology: a systematic review. Schizophr. Bull. 43, 108–121.

Ross, C.A., 1997. Dissociative Identity disorder: Diagnosis, Clinical features, and Treatment of Multiple Personality. John Wiley and Sons Inc.

Sar, V., 2011. Epidemiology of dissociative disorders: an overview. Epidemiol. Res. Int. 2011, 1–8. https://doi.org/10.1155/2011/404538.

See A Voice, 2010. Readability. Retrieved from: http://www.see-a-voice.org/marketing-ad/effective-communication/readability/.

Segui, J., Ma, M., Garcia, L., Canet, J., Salvador-Carulla, L., Ortiz, M., 2000. Depersonalization in panic disorder: a clinical study. Compr. Psychiatry 41, 172–178.

Spring, C. 2013. Ten steps to becoming a dissociation-friendly therapist. Positive outcomes for dissociative survivors. Retrieved from: http://www.pods-online.org.uk/ index.php/information/articles/article-categories/treating-dissociation-menu/90-ten-steps-to-becoming-a-dissociation-friendly-therapist [Accessed: 19th May 2017].

Stanton, J.M., 1998. An empirical assessment of data collection using the internet. Pers. Psychol. 51, 709–725. https://doi.org/10.1111/j.1744-6570.1998.tb00259.x.

Vanderlinden, J., Vandereycken, W., Van Dyck, R., Vertommen, H., 1993. Dissociative experiences and trauma in eating disorders. Int. J. Eat. Disord. 13, 187–193.

Waller, N., Putnam, F.W., Carlson, E.B., 1996. Types of dissociation and dissociative types: a taxometric analysis of dissociative experiences. Psychol. Methods 1, 300–321. https://doi.org/10.1037/1082-989X.1.3.300.

Wolf, E.J., Miller, M.W., Reardon, A.F., Ryabchenko, K.A., Castillo, D., Freund, R., 2012. A latent class analysis of dissociation and posttraumatic stress disorder: evidence for a dissociative subtype. Arch. Gen. Psychiatry 69, 698–705.

Wright, K.B., 2005. Researching internet-based populations: advantages and disadvantages of online survey research, online questionnaire authoring software packages, and web survey services. J. Comput. Mediated Commun. 10https://doi. org/10.1111/j.1083-6101.2005.tb00259.x. 00-00.