ELSEVIER

Journal of Affective Disorders 63 (2001) 249–256

JOURNAL OF AFFECTIVE DISORDERS

www.elsevier.com/locate/jad

Preliminary communication

Primary and secondary depersonalisation disorder: a psychometric study

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Received 17 July 1999; received in revised form 6 February 2000; accepted 28 February 2000

Abstract

Introduction: Depersonalisation may be part of a symptom-complex, a primary or a secondary disorder. Optimal methods of measurement and diagnosis have not been established. *Methods*: We assessed 42 patients with primary or secondary depersonalisation, plus psychiatric and non-psychiatric controls using a variety of self-report questionnaire scales including the Beck depression and anxiety Inventories, and one developed by the authors (the Fewtrell Depersonalisation Scale (FDS)). The correlations between the scales and measures of anxiety and depression were calculated, as were sensitivity and specificity against an operational case definition. *Results*: All the scales were highly correlated. All could distinguish depersonalisation cases from the rest but none could distinguish between primary and secondary depersonalisation disorder. Anxiety and especially depression were correlated with depersonalisation symptoms. The FDS had high sensitivity (85.7%) and specificity (92.3%) which compared favourably with other instruments. Patients with both derealisation and depersonalisation scored the highest on the FDS. *Discussion*: Depersonalisation disorder comprises a measurable cluster of symptoms which may be quantified with the help of self-report scales. Primary and secondary forms overlap, with depressed mood a frequent feature.

Keywords: Depersonalisation; Dissociation; Anxiety; Depression

1. Introduction

Despite the term ''depersonalisation'' having been used a century ago (Dugas, 1898, translated 1996), and clearly defined in the 1940s and 1950s (Shorvon, 1946; Ackner, 1954), the phenomenon is still both misunderstood and probably misdiagnosed. *Depersonalisation* is a subjective experience of unreality

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0165-0327/01/$ – see front matter
PII: S0165-0327(00)00197-X

and detachment from the self (Sims, 1988; Simeon and Hollander, 1993; Steinberg, 1995; Cardeña, 1997). It is often accompanied by *derealisation,* viewed by some as a distinct disorder (Coons, 1996) or a subset of depersonalisation (Jacobs and Bovasso, 1992), the sensation that the external world and other people appear strange or unreal. Depersonalisation and derealisation are considered to consist of altered perceptions of the self and the environment and hence classified under *dissociative* disorders in the *Diagnostic and Statistical Manual of Mental Disorders*, 4th Edition (DSM-IV) (American Psychiatric Association, 1994; see also Steinberg, 1995). However, in the ICD-10, reflecting a European phenomenological tradition, depersonalisation–derealisation syndrome is classified as a separate neurotic disorder (WHO, 1992). The two sets of criteria are very similar. Both note the same core symptoms, intact ''reality testing'' or ''insight'', and insist on a lack of a direct relationship to factors such as drugs, toxic states and epilepsy. As stated above, the ICD-10 includes derealisation. However it is classified separately as a variant of 'dissociative disorder not otherwise specified' in DSM-IV (APA, 1994). A DSM-IV diagnosis of depersonalisation cannot be made if the experience occurs ''exclusively during the course of another mental disorder'', i.e. ''secondary depersonalisation''. Another source of confusion and debate is the classification of severity both in terms of frequency of ''episodes'' and duration of symptoms (Steinberg, 1995).

Depersonalisation disorder classically begins during adolescence (Cardeña, 1997), and may be either of acute or gradual onset (Simeon et al., 1997). The course is characteristically chronic, and is accompanied by distress and a marked reduction in well-being.

1.1. Depersonalisation as a secondary phenomenon

Transient depersonalisation would appear to be common, and has been found to be the third most frequently reported psychiatric symptom after anxiety and depression (Cattell and Cattell, 1974) and has been documented in 39–46% of college students (Roberts, 1960; Dixon, 1963). It is reported in ''normal'' people following severe stress (Noyes et al., 1977) and may become chronic following prolonged trauma, for example, child physical or sexual abuse (Simeon et al., 1997; Santonastaso et al., 1997). Depersonalisation has also been described following alcohol abuse (Wenzel et al., 1996) cannabis (Melges et al., 1970; Mathew et al., 1993), LSD (Waltzer, 1972) and ''Ecstasy'' (McGuire et al., 1994; Cohen and Cocores, 1997) and may persist for years, even following abstinence (Wenzel et al., 1996; Cohen and Cocores, 1997).

Depersonalisation Disorder was found in 2.4% of a nonclinical population of 454 Canadians (Ross, 1991). It is commonly described accompanying psychiatric disorders, such as depression (Sedman, 1972; Simeon et al., 1997), occurring in up to 80% of psychiatric in-patients in one survey (Brauer et al., 1970), but may be found in association with eating disorders (Meyer and Waller, 1998), obsessional compulsive disorder (Torch, 1978), anxiety and panic disorder (Trueman, 1984; Cassano et al., 1989). Depersonalisation has also been reported in temporal lobe epilepsy (Kenna and Sedman, 1965; Toni et al., 1996), migraine (Ogunyemi, 1995), and following head injury (Grigsby and Kaye, 1993).

1.2. Diagnosis

Symptoms of depersonalisation may be masked by other psychiatric disorders and diagnosis may be further complicated by patients under-reporting symptoms or phenomena characterised by *absence* of sensation or affect (Fewtrell, 1986). Patients classically use the phrase ''as if'' to describe the experience (Ackner, 1954; Fewtrell, 1986; Sims, 1988). Various diagnostic procedures have been developed, ranging from questionnaires to structured interviews (Steinberg, 1995). Although several self-report questionnaires have been developed (Dixon, 1963; Riley, 1988; Jacobs and Bovasso, 1992), most measure *dissociation*, e.g., the *Dissociative Experiences Scale* (DES) (Bernstein and Putnam, 1986), revised as DES II (Carlson and Putnam, 1993). Hence, a questionnaire assessing all aspects of depersonalisation was developed, the Fewtrell Depersonalisation Scale (FDS) (Fewtrell, 2000).

The current study sought to determine:

1. the utility of the scales for measuring primary and secondary depersonalisation against a case defini-

tion derived from the Present State Examination (PSE-9: Wing et al., 1974);
2. the relationship between symptoms of depersonalisation and anxiety and depression.

1.3. Method

Patients with a primary diagnosis of depersonalisation were recruited from referrals to the Depersonalisation Research Unit at the Institute of Psychiatry, London, UK. In addition, an appeal was made in the *Times* and via a web-site, inviting sufferers to contact the Unit. Patient controls, suffering from a range of psychiatric and neuropsychiatric conditions were recruited from the in- and out-patients of the Bethlem and Maudsley NHS Trust, London. A non-clinical control sample was obtained mainly from volunteers living locally.

1.4. Assessment

Demographic details on all subjects were obtained as well as their medical and psychiatric history. Patients also underwent a thorough, standard clinical interview based on the Present State Examination (Wing et al., 1974). A detailed history of depersonalisation and associated psychopathology was obtained and the symptoms of depersonalisation and derealisation were rated according to the following PSE criteria (Wing et al., 1974) to ensure that a standardised case definition was reached:

Derealisation: Have you ever had the feeling recently that things around you were unreal? *Depersonalisation*: Have you yourself felt unreal, that you were not a person, not living in the real world? If the subject answered yes to either of these probes, the examiner went on to rate severity:

1 = moderately intense form of the symptom, definitely occurring during the past month and persisted for hours at a time;

2 = intense form . . . . . persisted for hours.

Case definition for depersonalisation disorder was a score of one or above, along with insight that the experiences are subjective, not imposed by outside influences. The syndrome was classified as ''primary'' if no underlying medical or psychiatric disorder was present, and secondary if the symptoms occurred in the presence of an Axis 1 psychiatric condition (ICD-10).

The following were completed by the subjects:

(1) Fewtrell Depersonalisation Scale (FDS) ((Fewtrell, 2000) details available on request): a 35-item self-report questionnaire, covering the four main sub-types: *derealisation*, *depersonalisation*, and two related concepts, *desomatization* and *de-affectualization*. Subjects are asked to indicate on a five-point scale the degree that an item was true, during the preceding month. The items are scored 0–4, resulting in a maximum score (for the most severe depersonalisation) of 140; they include both negatively and positively biased items, e.g.:

When I talk about myself, I feel as if I am talking about someone else

When I feel pleased about something, the pleasure doesn't feel mine

I feel wooden, as if my actions are controlled like a puppet

When I say something personal, it really means something to me

(2) Dissociative Experiences Scale (DES, Bernstein and Putnam, 1986; DES II, Carlson and Putnam, 1993). A 28-item questionnaire with a cut-off score of 30 for severe dissociative disorders (Carlson and Putnam, 1993). Factor analysis of the DES has enabled three subscales to be derived: amnesia, absorption/imaginative involvement and depersonalisation/derealisation (DES–DPS) (Carlson et al., 1991). A taxometric analysis of the DES (Waller et al., 1996) determined eight items (overlapping with the above) which could be used to screen for ''pathological dissociation''. Simeon et al. (1998a) found that a DES-taxon cut off score of 13, would yield a sensitivity of 80% with a specificity of 100% for the detection of depersonalisation.

In addition the following 21-item self-report questionnaires were administered: Beck Depression Inventory-BDI (Beck et al., 1988b): and Beck Anxiety Inventory-BAI (Beck et al., 1988a). The subject endorses items on a four-point severity scale, over the previous week. Scores <11 may be regarded as normal.

1.5. Analysis

Participant demographics were compared by Chi squared tests and one way ANOVA with Scheffé post hoc comparisons. Pair-wise comparisons carried out on the psychometric scores used Student's *t*-tests.

Pearson's correlation coefficient was used to investigate relationships between tests.

2. Results

Demographic details of the subjects are shown in Table 1 and the clinical diagnoses of the patients in Table 2. Thirty-five patients with primary depersonalisation (PD) were compared with seven with secondary depersonalisation (SD), 13 non-depersonalised patient controls (PC) and 28 subjects with no psychiatric diagnosis (NC). There were no statistical differences between the groups in terms of gender or age, except the NC group was significantly younger ($P < 0.05$) than the other groups.

Patients with a diagnosis of PD had experienced symptoms for an average of 15.0 years (range 1–46). All had tried several medications, including antidepressants, neuroleptics and anxiolytics, or herbal remedies. Most (23/35) of the patients with PD (65.7%) were taking medication, predominantly antidepressants, as were most with SD (6/7) and PC (10/13). The previously studied questionnaires (DES, DES-taxon, DES–DPS), and the FDS did not differentiate between PD and SD, nor between patient and normal controls. The DES-subscales and FDS did differentiate between patients with depersonalisation (PD or SD) and patient controls ($P <$ 0.003 or better) and normal controls ($P < 0.001$) (Table 3).

Table 2
Frequency of primary diagnosis occurring in both the secondary depersonalisation and the patient control groups

Diagnosis	Secondary depersonalisation	Non-depersonalisation
Depression	5	1
GAD[a]	0	1
OCD[b]	2	7
Schizophrenia	0	2
NEAD[c]	0	2

[a] GAD = Generalised anxiety disorder.
[b] OCD = Obsessional compulsive disorder.
[c] NEAD = Non epileptic attack disorder.

2.1. Sensitivity and specificity

Of the 55 patients with DES ratings, 42 met our PSE criteria for depersonalisation disorder, while 33 scored above the DES-taxon cut-off of 13. Using the PSE as the ''gold standard'', 30 patients were correctly identified by the DES-taxon, a sensitivity of 71.4%. Since three scored above the cut-off but did not meet PSE criteria (i.e., false positives) the specificity of the taxon is 90.9%.

A cut-off on the FDS-35 has previously been validated against a large normative sample and patients with PD (Fewtrell, 2000). Using the PSE to diagnose cases, 19 of the 42 scored above the cut-off

Table 1
Mean scores on depersonalisation rating scales and demographics for the subject groups

GROUP	*N*	AGE (range)	Sex M/F	DES mean (std err)	DES-taxon Mean (std err)	DES–DPS mean (std err)	FDS-item mean (std err)	FDS-total mean (std err)	BDI mean (std err)	BAI mean (std err)
Primary Depersonalisation (PD)	35	36.9 (19–73)	18/17	24.8 (3.0)	26.5 (3.2)	38.9 (3.7)	2.3 (0.14)	65.5 (4.0)	22.2 (2.1)	18.1 (2.0)
Secondary Depersonalisation (SD)	7	42.1 (29–51)	4/3	19.9 (3.9)	20.4 (6.6)	28.3 (10.0)	1.8 (0.26)	52.9 (7.4)	20.5 (5.5)	20.3 (4.4)
Depersonalisation (PD + SD)	42	38.1 (19–73)	22/20	23.8 (2.6)	25.5 (2.9)	37.2 (3.6)	2.2 (0.13)	63.4 (3.6)	22.1 (2.0)	18.3 (1.9)
Patient controls[a]	13	41.6 (24–88)	8/5	15.8 (5.2)	8.6 (3.2)	6.5 (3.3)	0.93 (0.16)	26.8 (4.6)	12.3 (6.1)	14.0 (6.2)
Normal controls	28	28.5 (15–57)	9/19	11.5 (1.4)	4.7 (1.1)	2.6 (0.8)	0.7 (0.01)	21.9 (2.0)	–	–

[a] Please see Table 2 for a description of the patient diagnosis in these groups.

Table 3
Comparison of primary and secondary depersonalisation patients with normal and psychiatric controls

Scale	PD vs. SD[a]		D (PD and SD) vs. PC[a]		D (PD and SD) vs. NC		PC v NC	
	t	*P* value[a]	*t*	*P* value[a]	*t*	*P* value	*t*	*P* value
DES	0.72	0.50 (ns)	1.45	0.15 (ns)	3.64	0.001*	1.06	0.29 (ns)
DES-taxon	0.79	0.43 (ns)	3.07	0.003*	5.69	< 0.001*	1.46	0.15 (ns)
DES–DPS	0.93	0.30 (ns)	4.62	< 0.001*	6.94	< 0.001*	1.28	0.21 (ns)
FDS (item)	1.36	0.18 (ns)	5.04	< 0.001*	8.67	< 0.001*	1.37	0.18 (ns)
FDS (total)	1.31	0.19 (ns)	5.12	< 0.001*	8.82	< 0.001*	1.37	0.18 (ns)

[a] D = depersonalisation, PD = Primary depersonalisation, SD = Secondary depersonalisation; ns = non significant; * = significant.

of 62, a sensitivity of 45.2%. There were no false positives (i.e., specificity was 100%). On the basis of the current sample the optimal cut-off was 37/38 which yielded a sensitivity of 85.7% and a specificity of 92.3%, i.e., 37 cases were correctly identified with three false positives. Receiver operating characteristics (ROC) analysis yielded an area under the curve of 0.864, 95% confidence intervals (CI) 0.755–0.973. The statistics for the DES-taxon were 0.835 (95% CI, 0.698–0.972); the difference is non significant ($P = 0.37$).

The DES and subscales and the FDS correlated positively with PSE scores (Table 4) ($P < 0.01$ for all scales). Forty-three subjects completed both the BDI and BAI. Severity of depersonalisation (assessed using the PSE) correlated with level of depression ($r = 0.35$, $P = 0.02$) but not anxiety ($r = 0.15$, $P = 0.33$). However, both the BDI and the BAI did correlate with total DES and subscales along with the FDS ($P < 0.01$ in all cases) but again, BDI correlated more strongly than BAI.

Twenty-seven out of 34 (79.4%) of the patients with PD experienced mild or greater depressive symptomatology, and 25/34 (73.5%) experienced mild or greater anxiety, assessed using the BDI and BAI respectively.

2.2. Derealisation

We found four cases who could be described as suffering from ''pure derealisation'' on the basis of the relevant PSE items. We explored this further by comparing these cases with those who scored only on the depersonalisation ($n = 9$), and who scored on both PSE items ($n = 29$). The ''pure derealisation'' group scored more highly on the FDS than the ''pure depersonalisation'' cases, although the mixed group scored the highest (see Table 5). The DES scales gave very similar scores for the two pure groups but again, the mixed group scored most highly.

3. Discussion

The DES–DPS subscale has been used to screen for depersonalisation in many studies (Smyser and Baron, 1993; Dubester and Braun, 1995; Wenzel et

Table 4
Correlation coefficients for self-report depersonalisation, mood questionnaires and PSE ratings

Scale	DES	DES-taxon	DES–DPS	FDS (total)	FDS (item mean)	PSE
PSE	0.38**	0.58**	0.60**	0.70**	0.71**	1
FDS (item mean)	0.72**	0.77**	0.77**	N/A	1	–
FDS (total)	0.71**	0.76**	0.77**	1	N/A	–
BDI[a]	0.71**	0.65**	0.58**	0.73**	0.72**	0.34*
BAI[a]	0.50**	0.41**	0.36*	0.55**	0.53**	0.17 (ns)

[a] BDI = Beck Depression Inventory; BAI = Beck Anxiety Inventory; PD = Primary depersonalisation; SD = Secondary depersonalisation.
** Correlation significant at 0.01 level, * 0.05 level (2-tailed).

Table 5
Comparison of ''pure'' and mixed depersonalisation and derealisation patients on rating scales[a]

Scale	Pure depersonalisation $n = 9$ mean score	Pure derealisation $n = 4$ mean score	Depersonalisation plus derealisation $n = 29$ mean score	Statistics	
				F	P value
DES	14.9	21.8	27.1	1.97	0.15
DES-taxon	16.4	15.3	29.7	1.48	0.24
DES–DPS	19.6	23.3	33.5	2.64	0.08
FDS (item)	1.56	2.10	2.43	4.40	0.02*
FDS (total)	44.9	61.0	69.5	4.44	0.02*

[a] Post-hoc contrast with Scheffé's test: difference between ''pure depersonalisation'' and depersonalisation plus derealisation groups on ($P < 0.02$).

al., 1996; Ball et al., 1997; Meyer and Waller, 1998). Patients with depersonalisation scored significantly higher on the DES–DPS, DES-taxon and the FDS than patient controls. None of the scales differentiated primary from secondary depersonalisation, hence the validity of this distinction based on psychopathology ratings alone remains questionable. However this may be explained by the small sample size ($n = 7$) with SD.

The DES has been shown to have limited use for assessing changes in level of depersonalisation over time, as the questionnaire records lifetime frequency of experiences rather than over a finite time period. The FDS enquires about the previous month and therefore may be used to monitor change. Clinical semi-structured interviews are the nearest to a ''gold standard'' with which to make a psychiatric diagnosis. The most commonly used interview to diagnose depersonalisation disorder according to DSM-IV criteria is the *Structured Clinical Interview for Dissociative Disorders* (SCID-D), which may take up to 3 h (Steinberg et al., 1993). Thus, it has limited use for screening large populations and in studies requiring frequent repeat measures. The sensitivity and specificity of the PSE case definition against the DES is fair in this study, if inferior to that found by Simeon et al. (1998a), while that of the FDS is good.

In this study, most of the patients with depersonalisation experienced significant depressive (79%) and anxiety (73.5%) symptoms. Simeon et al. (1997) reported that 76.7% of their patients with PD met standard criteria for mood or anxiety disorders. Likewise the levels of depersonalisation are remarkably similar to Simeon et al's group (Simeon, 1998a): mean DES-taxon scores, current study: PD = 26.5; SD = 20.4 versus 24.2. However, our controls scored more highly.

The relationship between anxiety and depersonalisation remains controversial. Moderate levels of both were found in our primary *and* secondary cases. Trueman (1984) found that students who had experienced episodes of depersonalisation and derealisation reported significantly higher levels of anxiety. This is in accord with the early studies of the phobic-anxiety depersonalisation syndrome (Roth, 1959; Toni et al., 1996). Depersonalisation has been suggested as a defence mechanism to protect against the adverse effects of prolonged, severe stress (Nuller, 1997). Furthermore the reports of a response to anxiety management (Ballard et al., 1992) and benzodiazepines (Stein and Uhde, 1989) supports the association. The most successful treatments to date have been SSRIs (Hollander et al., 1990; Ratliff and Kerski, 1995; Simeon et al., 1998a) or tricyclic antidepressants (Simeon et al., 1998b), reflecting the relationship between mood disorders and depersonalisation and pointing to a possible role for serotonin in the pathogenesis. Ball et al. (1997) found that over two-thirds of their patients with panic disorder experienced symptoms of depersonalisation and derealisation *during* panic attacks. However, none scored above the DES cut off of 20, between attacks. In the present study BDI but not BAI scores correlated significantly with PSE ratings of depersonalisation although there was a positive correlation between both inventories and self-rating

assessments of depersonalisation. In general, depersonalisation seems bound up with both depression and anxiety.

Cases of ''pure'' derealisation were rare. They tended to have higher FDS scores than those with pure depersonalisation. However, those with mixed symptoms tended to score higher still supporting an additive rather than a hierarchical view, in line with the ICD-10 criteria.

Limitations of the study include small sample sizes especially for SD and the use of the PSE as a case definition rather than the more comprehensive SCID-D, although the former was used in the context of a clinical interview based on the PSE. Furthermore, depersonalised patients were often self-referred so may not be representative and we can make no comment on incidence. However, the design enabled us to gather a large group of such patients who appeared to be typical of those described in the literature (see Simeon et al., 1997). The possible selection bias should not have a great effect on our ability to compare measures within a group and to explore the association between depersonalisation and depression and anxiety.

This study has demonstrated the FDS to be acceptable to a range of patients and easy to use. It also covers a wider range of phenomena than other scales, especially derealisation, important for the ICD-10 diagnostic criteria. It is strongly correlated with the widely used DES and subscales and the assessment of severity correlated with that determined using PSE criteria. Not only has it been shown to be a highly sensitive and specific means of screening a heterogeneous clinical sample for depersonalisation, it can also be frequently repeated to assess improvement with treatment.

Acknowledgements

We are grateful for support from the Pilkington Family Trusts.

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