Development of a Depersonalization Severity Scale

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Our aim was to develop a clinician-rated scale assessing depersonalization severity for use in clinical trials of Depersonalization Disorder and trauma-related disorders in general. The 6-item Depersonalization Severity Scale (DSS) was administered to 63 participants with DSM-IV *Depersonalization Disorder as diagnosed by the SCID-D, and its psychometric properties were examined. The sensitivity of the DSS and of the Dissociative Experiences Scale (DES) to treatment change was assessed in blinded, controlled settings. Individual items were widely distributed across the severity range. Interrater reliability was excellent and internal consistency was moderate. The DSS had high convergent and discriminant validity and was sensitive to treatment change. The DES was also sensitive to treatment change. We recommend piloting the DSS in future treatment trials of trauma-spectrum disorders.*

KEY WORDS: depersonalization; dissociation; measure; severity; scale.

Depersonalization Disorder (DPD) is a fascinating yet understudied dissociative disorder, which has begun to receive more attention in recent literature and research (Simeon et al., 1997). A link to childhood trauma has been described (Simeon et al., in press). There is no known efficacious treatment for depersonalization, psychotherapeutic or psychopharmacological. Controlled treatment studies have not been conducted, and existent literature is limited to retrospective or small prospective series (Hollander et al., 1990; Simeon et al., 1997; Simeon, Stein, & Hollander, 1998). The paucity of treatment data for DPD generalizes to all other dissociative disorders, which also commonly include depersonalization symptoms.

In sharp contrast to the dissociative disorders, Posttraumatic Stress Disorder (PTSD) has witnessed a blossoming of treatment approaches and studies in recent years. It is unfortunate, in our view, that those typically do not measure change

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in the frequently comorbid dissociative symptoms (Bremner et al., 1992). Prominent dissociative symptoms are also encountered in the newly proposed *DSM-IV* Acute Stress Disorder (ASD), three of whose five dissociative symptoms fall within the general domain of depersonalization ("numbing, detachment," "depersonalization," and "derealization"). In summary then, depersonalization is hypothesized to be prevalent in a wide spectrum of trauma-related conditions, and a depersonalization severity scale developed for use in outcome studies is needed. Such a scale could potentially be used not only in studies of DPD, other dissociative disorders, PTSD, and ASD, but also in severe personality disorders (Ogata et al., 1990).

The most widely used dissociation scale in the literature is the Dissociative Experiences Scale (DES) by Bernstein-Carlson and Putnam (1986), which has been applied in over 100, mostly descriptive, studies to date (van Ijzendoorn & Schuengel, 1996). The DES was initially developed with the intent of measuring long-standing dissociation rather than short-term change. This fact, coupled with the paucity of dissociation treatment trials, has resulted in minimal systematic exploration of its appropriateness in measuring treatment change. It has been speculated that the DES may not be appropriate for outcome research (Dubester & Braun, 1995), yet it has been employed in a limited number of open treatment studies of PTSD (Lubin, Loris, Burt, & Johnson, 1998) and Dissociative Identity Disorder (Ellason & Ross, 1997). Thus, systematic study of the usefulness of the DES in treatment settings is warranted.

Nonetheless, the DES may have limitations in measuring changes in depersonalization specifically, as its focus on it is limited. An initial factor analysis yielded six depersonalization/derealization items (Carlson et al., 1991), some of which (e.g., hearing voices in one's head) may be better applicable to more severe dissociative states. A factor analysis of data from DPD subjects yielded five depersonalization/derealization items that partly differ (Simeon, Guralnik, et al., 1998). Being a self-administered scale, the DES is also subject to some of the limitations and biases of such instruments.

We are aware of the existence of two depersonalization scales in the literature. Dixon's (1963) depersonalization questionnaire is a 10-item self-report questionnaire which quantifies past-year depersonalization experiences on an absolute incidence scale that can be converted to a 10-point frequency scale. It was piloted in a college student sample and was factor-analytically derived from a pool of 43 items. We recently found this questionnaire to highly discriminate patients with depersonalization disorder from healthy comparison subjects, and to moderately correlate ($r = .47$) with the DES (Simeon, Guralnik, et al., 1998). The second depersonalization scale was developed by Jacobs and Bovasso (1992), and it is a 25-item self-report scale that rates a variety of depersonalization experiences over the past year on a 5-point frequency scale. It was piloted in college students and includes five subscales factor-analytically derived from a pool of 32 items. We

recently found this questionnaire to also highly discriminate patients with depersonalization disorder from healthy comparison subjects, and to strongly correlate ($r = .71$) with the DES (Simeon, Guralnik, et al., 1998). However, both questionnaires are self-report rather than clinician-rated and measure 1-year prevalence rather than current severity, mandating the need for an interviewer-administered scale measuring present depersonalization severity which would be valid, reliable, easy to give and score, and sensitive to change. The primary goal of this study was to develop such a scale. The secondary goal of this study was to evaluate the sensitivity of the DES to detecting change following treatment administered under blinded controlled conditions.

Method

Participants

The Depersonalization Severity Scale (DSS) was administered to 63 consecutive individuals (33 women and 30 men; mean age $= 34.4$, $SD = 10.4$) diagnosed with *DSM-IV* DPD by semistructured clinical interview and by the Structured Interview for Dissociative Disorders SCID-D (Steinberg, 1993). DPD is diagnosed when individuals suffer from persistent or recurrent depersonalization resulting in significant distress or impairment, which does not occur exclusively in the context of another psychiatric or medical disorder. Age of onset was 15.67 years ($SD = 7.86$), with mean symptom duration of 18.71 years ($SD = 13.59$). Comorbid diagnoses were systematically assessed by the Structured Clinical Interview for *DSM-IV* Axis I Disorders (First, Spitzer, Gibbon, & Williams, 1995) and the Structured Interview for *DSM-IV* Personality Disorders (Pfohl, Blum, & Zimmerman, 1995). As shown in an earlier study, although there is fairly frequent comorbidity of DPD with a variety of mood, anxiety, and personality disorders, none of these disorders emerges as uniquely related to the onset or the severity of depersonalization (Simeon et al., 1997).

The great majority of participants were recruited through local newspaper advertisements describing depersonalization; a small fraction were referred by clinicians or research programs. The individuals in this report were participating in a variety of depersonalization treatment research protocols, for participation in all of which written informed consent was obtained. For the 27 participants who had completed participation in ongoing medication treatment trials, we present both pretreatment and posttreatment data to determine instruments' sensitivity to change. A total of 9 treatment trials (5 participants) of a clomipramine/desipramine crossover 8-week study (Simeon, Stein, et al., 1988) and 22 treatment trials of a fluoxetine/placebo parallel 10-week treatment study (work in progress) are included in the current analysis.

Instruments

The Depersonalization Severity Scale (DSS) is a 6-item interviewer-administered scale that assesses severity of depersonalization (see Appendix). Our goal in selecting individual items was to comprehensively yet succinctly cover the wide range of symptoms of those who suffer from depersonalization experiences, guided by a methodical clinical approach. Items were derived from three sources: the 13 questions of the depersonalization section of the SCID-D (Steinberg, 1993), the six depersonalization/derealization factor items of the original DES factor analysis (Carlson et al., 1991), and the authors' extensive record of DPD participants' depersonalization experiences (Simeon et al., 1997).

Questions from these sources were reviewed for their usefulness in capturing depersonalization experiences in the first 20 DPD participants evaluated by the research group. Questions that were rarely endorsed and to which participants did not relate were eliminated. Examples were DES Question 27, hearing voices inside one's head, or SCID-D Question 49 about extremities changing in size. We also eliminated questions referring exclusively to derealization. Appropriate questions were subsequently condensed if they inquired about related or overlapping experiences, and rephrased to most broadly describe the experience. For example, in developing the question about bodily detachment, five related questions from the SCID-D and DES Question 13 were encapsulated into the broadened DSS Question 2. Similarly, all questions variously referring to a split between participating and observing self were collapsed into DSS Question 1.

The DSS was read to participants exactly as is. If participants were uncertain regarding response to a question, they were encouraged to elaborate and describe in their own words the experience that they had in mind. Participants were then encouraged to recall the categorization of their experiences over subsequent visits, and administrators made a note of idiosyncratic phrasings for future reference. For every positive response, participants were asked how frequent and how intense the experience had been in the past 2 weeks. The administrator rated each item on a 4-point scale—0 (*none*), 1 (*mild*), 2 (*moderate*), 3 (*severe*)—based on the combination of frequency and intensity (see Appendix). These anchors were chosen based on extensive clinical experience demonstrating that to effectively quantify depersonalization one must inquire about both aspects, a distinction not made by the DES. For example, individuals may describe an experience as always present but subtle, or as very short-lived but of great intensity. Total score is the raw sum of the six item scores.

Interrater reliability was assessed in a subset of 27 participants, interviewed by one of two investigators (DS or OG) in presence of the other, each of whom rated the DSS independently. To assess convergent validity, Pearson correlations were computed between pretreatment DSS score and baseline DES total score and DES-Depersonalization factor score (Simeon, Guralnik, et al., 1998), baseline

scores on the depersonalization scales by Dixon (1963) and Jacobs and Bovasso (1992) (described in the introduction) available for 29 participants, as well as baseline Clinical Global Impressions severity (CGI-Severity) available for 37 participants. The latter is a clinician-rated 7-point scale of illness severity, applied to DPD, ranging from 1 (*normal, not at all ill*) to 7 (*among the most extremely ill*) (Guy, 1976). To assess discriminant validity, Pearson correlations were computed in 37 participants between baseline DSS and ratings of depression, anxiety, and obsessions–compulsions for the same 2-week period, as measured respectively by the 17-item Hamilton Rating Scale for Depression HAM-D (Hamilton, 1960), the Hamilton Rating Scale for Anxiety HAM-A (Hamilton, 1959), and the Yale-Brown Obsessive Compulsive Severity Scale YBOCS (Goodman et al., 1989). All three scales are clinician-rated, well replicated and validated, and very widely used.

For participants entered in treatment studies (total of 31 trials), clinical assessments were repeated every two weeks which included the DSS, the DES and the Clinical Global Impressions change (CGI-Change) applied to DPD. The latter is a 7-point clinician rating of change in illness severity widely employed in clinical trials (Guy, 1976), ranging from 7 (*very much worse*) to 4 (*no change*) to 1 (*very much improved*). For purposes of this report, treatment change was examined with reference to the baseline and endpoint of treatment. To determine sensitivity to change, Pearson correlations were computed between change in DSS, change in DES, and CGI-Change. In addition, a categorical analysis was performed dividing individuals into responders—CGI, 2 (*much improved*) or 1 (*very much improved*)—versus nonresponders—CGI, 3 (*minimally improved*) to 7 (*very much worse*)—and evaluating the magnitude of DSS and DES change in each group using Student's paired *t* tests. All statistics are two-tailed.

Results

At baseline all six DSS items were frequently endorsed and widely distributed spanning the full severity range (Table 1). Total score was 8.41 ($SD = 3.33$, range $=$ 1–16), and individual items were strongly correlated to total score ($r = .47–.67$, $p < .001$). Internal consistency as measured by Cronbach's alpha coefficient was .59 and did not increase with omission of any item.

Intraclass correlation coefficients of interrater reliability were excellent (individual items $= .94–.90$; total score $= .98$). There was strong convergent validity with CGI-Severity ($r[35] = .64$, $p < .001$), DES scores (DES-Total: $r[61] = .59$, $p < .001$; DES-Depersonalization: $r[61] = .63$, $p < .001$), Dixon's depersonalization scale score ($r[27] = .65$, $p < .001$), and Jacob and Bovasso's depersonalization scale score ($r[27] = .60$, $p = .001$). Discriminant validity was excellent, with weak nonsignificant correlations with the HAM-D, HAM-A, and YBOCS ($r[35] = .24, .25,$ and $.08$ respectively).

Table 1. Baseline Item Scores on the Depersonalization Severity Scale ($N = 63$)

Item	M	SD	n (%)			
			Score 0	Score 1	Score 2	Score 3
1	0.73	0.87	33 (52)	15 (24)	14 (22)	1 (2)
2	1.16	1.00	21 (33)	17 (27)	19 (30)	6 (10)
3	2.00	1.02	8 (13)	8 (13)	23 (37)	24 (38)
4	1.06	1.08	25 (40)	18 (29)	11 (17)	9 (14)
5	2.37	0.77	1 (2)	8 (13)	21 (33)	33 (52)
6	1.10	1.04	23 (37)	19 (30)	13 (21)	8 (13)

Note. Each score column indicates the number (n) and percentage (%) of participants, out of a total of 63, who scored 0, 1, 2, or 3 on the particular DSS item.

With regard to treatment change for all trials combined, CGI-Change significantly correlated with change in DSS ($r[29] = -.64$, $p < .001$) and DES (DES-Total: $r[29] = -.47$, $p < .01$; DES-Depersonalization: $r[29] = -.39$, $p < .05$). Correlations between change in DSS and change in DES were also significant ($r[29] = .68$, $p < .001$). Participants were then divided into 12 responders (CGI-Change, $M = 1.67$, $SD = 0.49$) and 19 nonresponders (CGI-Change, $M = 4.00$, $SD = 0.88$). In the responders, average DSS scores decreased from 6.75 ($SD = 2.14$) to 2.00 ($SD = 1.65$) (paired $t[11] = 9.06$, $p < .001$), DES-Total decreased from 12.88 ($SD = 10.38$) to 4.83 ($SD = 6.78$) (paired $t[11] = 5.83$, $p < .001$), and DES-Depersonalization decreased from 21.35 ($SD = 14.99$) to 7.47 ($SD = 9.52$) (paired $t[11] = 4.07$, $p < .01$). In the non-responders, all three scores on average declined slightly and insignificantly (DSS: 8.32 [$SD = 2.83$] to 7.42 [$SD = 3.13$], paired $t[18] = 1.20$; DES-Total: 14.92 [$SD = 6.19$] to 13.52 [$SD = 10.24$], paired $t < 1$; DES-Depersonalization: 36.67 [$SD = 15.66$] to 34.02 [$SD = 24.07$], paired $t < 1$).

Discussion

The DSS is a 6-item, clinician-administered scale designed to measure depersonalization severity. It is brief, simple to give, and was found to have excellent interrater reliability, strong convergent validity, and moderate internal consistency. The latter may be because of the scale's brevity, modest sample size, and the possible heterogeneity of depersonalization experiences. It is of particular interest that, despite suggestions in the literature that depersonalization may be a depressive (Sedman, 1972) phobic-anxiety (Roth, 1959) or obsessional (Torch, 1978) variant, the DSS bore no relationship to such measures, strongly supporting the conceptualization of depersonalization as a discrete entity. Finally, both the DSS and the DES showed strong and statistically significant sensitivity to treatment change in controlled blinded settings.

There are several shortcomings to this study. The sample size was modest and, more importantly, the DPD group was clinically homogeneous, although

severity of depersonalization does vary widely within this population. We do not yet have data in other clinical populations. Despite this limitation, the wide score distribution and the frequent endorsement of the lowest and the highest severity ratings is encouraging.

The internal consistency of the DSS was found to be moderate, because a value of .70 is commonly presumed desirable; however, the meanings and limitations of coefficient alpha are complex (Schmitt, 1996). Alpha is primarily a function of the interrelatedness between test items and of test length. Although not necessarily, a lower alpha can be an indication of underlying construct multidimensionality, and such a possibility is supported by a large spread in interitem correlations. Indeed, we found interitem correlations for the DSS to range widely, from .03 for items 2 and 3 to .50 for items 3 and 5. Although our sample size did not permit a factor analysis, Jacobs and Bovasso (1992) have described five factors in their depersonalization scale, lending credence to the notion that subtypes of depersonalization experiences may exist and merit further study. In addition, the short length of the DSS probably contributes to the modest alpha, but still leaves a concern that the relationship to other variables of interest could be attenuated (Schmitt, 1996). In this regard, the DSS's strong correlations with other dissociation and depersonalization scales are reassuring.

Based on these promising preliminary findings, we recommend piloting the DSS in clinical trials in which measurement of depersonalization could be relevant but is typically not undertaken. Further exploration of its psychometric properties in different clinical groups suffering from a variety of trauma-related or other disorders may be useful.

Appendix: Depersonalization Severity Scale (DSS)

0 (*none*)   1 (*mild*)   2 (*moderate*)   3 (*severe*)

1. Have you felt as if you were standing next to yourself or watched yourself like looking at someone else or as if in a movie?
2. Have you felt as if your whole body or parts of your body were detached or did not belong to you?
3. Have you felt unreal or like a stranger to yourself?
4. Have you looked in the mirror and felt disconnected from your own image?
5. Have you felt like you were in a dream or just going through the motions?
6. Have you felt as if your speech, voice, movements or behaviors were somehow not controlled by you or not connected to you?

Mild: infrequent with low or moderate intensity, or frequent with low intensity
Moderate: infrequent with high intensity, or frequent with moderate intensity, or continuous with low intensity
Severe: frequent with high intensity, or continuous with moderate or high intensity

Acknowledgment

References

Bernstein-Carlson, E. M., & Putnam, F. W. (1986). Development, reliability, and validity of a dissoci-ation scale. *Journal of Nervous and Mental Disease*, *174,* 727–735.

Bremner, J. D., Southwick, S., Brett, E., Fontana, A., Rosenheck, R., & Charney, D. S. (1992). Dis-sociation and posttraumatic stress disorder in Vietnam combat veterans. *American Journal of Psychiatry*, *149,* 328–332.

Carlson, E. B., Putnam, F. W., Ross, C. A., Anderson, G., Clark, Pl., Torem, M., Coons, P., Bowman, E., Chu, J. A., Dill, D., Lowenstein, R. J., & Braun, B. G. (1991). Factor analyses of the Dissociative Experiences Scale: A multicenter study. In B. G. Braun & E. B. Carlson (Eds.), *Proceedings of the Eighth International Conference on Multiple Personality and Dissociative States*. Chicago: Rush.

Dixon, J. C. (1963). Depersonalization phenomena in a sample population of college students. *British Journal of Psychiatry*, *109,* 371–375.

Dubester, K. A., & Braun, B. G. (1995). Psychometric properties of the Dissociative Experiences Scale. *Journal of Nervous and Mental Disease*, *183,* 231–235.

Ellason, J. W., & Ross, C. A. (1997). Two-year follow-up of inpatients with dissociative identity disorder. *American Journal of Psychiatry*, *154,* 832–839.

First, M. B., Spitzer, R. L., Gibbon, M., & Williams, J. B. W. (1995). *Structured Clinical Interview for DSM-IV Axis I Disorders, Patient Version (SCID-P)* (Version 2). New York, NY: New York State Psychiatric Institute, Biometrics Reasearch.

Goodman, W. K., Price, L. H., Rasmussen, S. A., Mazure, C., Fleischman, R. L., Hill, C. L., Heninger, G. R., & Charney, D. S. (1989). The Yale-Brown Obsessive Compulsive Scale I. Development, use and reliability. *Archives of General Psychiatry*, *46,* 1006–1011.

Guy, W. (1976). *Assessment manual for psychopharmacology*. Washington, DC: U.S. Department of HEW Publications.

Hamilton, M. (1959). The assessment of anxiety states by rating. *British Journal of Medical Psychology*, *32,* 50–55.

Hamilton, M. (1960). A rating scale for depression. *Journal of Neurology Neurosurgery and Psychiatry*, *23,* 56–61.

Hollander, E., Liebowitz, M. R., DeCaria, C., Fairbanks, J., Fallon, B., & Klein, D. F. (1990). Treatment of depersonalization with serotonin reuptake blockers. *Journal of Clinical Psychopharmacology*, *10,* 200–203.

Jacobs, J. R., & Bovasso, G. B. (1992). Toward the clarification of the construct of depersonalization and its association with affective and cognitive dysfunctions. *Journal of Personality Assessment*, *59,* 352–365.

Lubin, H., Loris, M., Burt, J., & Johnson, D. R. (1998). Efficacy of psychoeducational group ther-apy in reducing symptoms of posttraumatic stress disorder among multiply traumatized women. *American Journal of Psychiatry*, *155,* 1172–1177.

Ogata, S. N., Silk, K. R., Goodrich, S., Lohr, N. E., Westen, D., & Hill, E. M. (1990). Childhood sexual and physical abuse in adult patients with borderline personality disorder, *American Journal of Psychiatry*, *147,* 1008–1013.

Pfohl, B., Blum, N., & Zimmerman, M. (1995). *Structured interview for DSM-IV personality disorders SIDP-IV*. Iowa: Department of Psychiatry, University of Iowa.

Roth, M. (1959). The phobic-anxiety depersonalization syndrome. *Proceedings of the Royal Academy of Medicine*, *52,* 587–595.

Schmitt, N. (1996). Uses and abuses of coefficient alpha. *Psychological Assesment*, *8,* 350–353.

Sedman, G. (1972). An investigation of certain factors concerned in the aetiology of depersonalization. *Acta Psychiatrica Scandinavica*, *48,* 191–219.

Simeon, D., Gross, S., Guralnik, O., Stein, D. J., Schmeidler, J., & Hollander, E. (1997). Feeling unreal: 30 cases of DSM-III-R depersonalization disorder. *American Journal of Psychiatry*, *154,* 1107–1113.

Simeon, D., Guralnik, O., Gross, S., Stein, D. J., Schmeidler, J., & Hollander, E. (1998). Detection and measurement of depersonalization disorder. *Journal of Nervous and Mental Disease*, *186,* 536–542.

Simeon, D., Stein, D. J., & Hollander, E. (1998). Treatment of depersonalization disorder with clomipramine. *Biological Psychiatry*, *44,* 302–303.

Simeon, D., Guralnik, O., Schmeidler, J., Sirof, B., & Knutelska, M. (in press). Childhood interpersonal trauma in depersonalization disorder. *American Journal of Psychiatry*.

Steinberg, M. (1993). *Interviewer's guide to the Structured Clinical Interview for DSM-IV Dissociative Disorders*. Washington, DC: American Psychiatric Press.

Torch, E. M. (1978). Review of the relationship between obsession and depersonalization. *Acta Psychiatrica Scandinavica*, *58,* 191–198.

van Ijzendoorn, M. H., & Schuengel, C. (1996). The measurement of dissociation in normal and clinical populations: Meta-analytic validation of the Dissociative Experiences Scale (DES). *Clinical Psychology Review*, *5,* 365–382.