

Manual for the Dissociative Experiences Scale

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~~Copies of this manual may be purchased for \$1 from Eve B. Carlson, Ph.D., Department of Psychology, Beloit College, 700 College Street, Beloit, WI 53511.~~ A current list of references of published studies using the DES will be sent with each manual. A copy of the DES or DES-II (which can be photocopied for clinical or research use) may also be purchased for \$1.

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Introduction

Our understanding of the role of dissociative symptoms in psychological disorders has changed significantly over the last decade. Previously, dissociative disorders were thought to be rare and the role of dissociation in other mental disorders was not given much consideration. But recent studies have found incidence rates for multiple personality disorder (the most severe of the dissociative disorders) that range from 2.4 to 11.3 percent of inpatient psychiatric samples (Bliss & Jepps, 1985; Graves, 1989; Ross, 1991; Ross, Anderson, Fleisher, & Norton, 1991). Furthermore, high rates of dissociative symptoms have been found in samples of subjects with posttraumatic stress disorder (Branscomb, 1991; Bremner, Southwick, Brett, Fontana, Rosenheck, & Charney, 1992; Carlson & Rosser-Hogan, 1991; Kulka, Schlenger, & Fairbank, 1988; Waid, 1988) and in subjects with histories of childhood abuse (Anderson, Yasenik, & Ross, in press; Chu & Dill, 1990; Coons, Bowman, Pellow, & Schneider, 1989; Coons, Cole, Pellow, & Milstein, 1990; Goodwin, Cheeves, & Connell, 1990; Herman, Perry, & van der Kolk, 1989; Ross, Anderson, Heber, & Norton, 1990a; Sanders & Giolas, 1991; Sanders, McRoberts, & Tollefson, 1989; van der Kolk, Perry, & Herman, 1991). These and other findings reviewed below indicate that dissociation may be an important process for a large number of psychiatric patients.

The Dissociative Experiences scale was developed to serve as a clinical tool to help identify patients with dissociative psychopathology and as a research tool to provide a means of quantifying dissociative experiences. Though its development and initial validation have been described elsewhere (Bernstein & Putnam, 1986), considerable new research has provided extensive norms for the scale and new information on the scale's reliability and validity. We present here information that should be pertinent to a wide variety of contexts in which the scale is used.

Description and Appropriate Use of the Scale

The Dissociative Experiences Scale (DES) is a brief, self-report measure of the frequency of dissociative experiences. The scale was conceptualized as a trait measure (as opposed to a state measure) and it inquires about the frequency of dissociative experiences in the daily lives of subjects. The scale was developed to provide a reliable, valid, and convenient way to quantify dissociative experiences. It was designed to be useful in determining the contribution of dissociation to various psychiatric disorders and as a screening instrument for dissociative disorders (or disorders with a significant dissociative component such as posttraumatic stress disorder). A response scale that allowed subjects to quantify their experiences for each item was used so that scores could

reflect a wider range of dissociative symptomatology than possible using a dichotomous (yes/no) format.

Though the scale has been used to measure dissociation in non-clinical (normal) populations, this was not its intended purpose and users should be aware of this. Since non-clinical subjects typically score in a fairly narrow range at the low end of the scale on the DES, small differences among these subjects may not be meaningful.

Similarly, since the DES was developed for use with adults (persons 18 or older): the language used and the experiences described are appropriate for adults, but may not be appropriate for younger persons. Though the scale has been used in research on persons between 12 and 17 from both the general population and from a psychiatric sample (Ross, Ryan, Anderson, Ross, & Hardy, 1989; Sanders et al., 1989), the validity of scores for persons under 18 has not yet been investigated. The scores may have a different meaning for younger persons because they may interpret the questions differently. We are now in the process of developing a DES suitable for use with adolescents.

Finally, the DES was not intended as a diagnostic instrument. High DES scores should not be construed as an indicator of a dissociative disorder diagnosis. The section on the use of cutoff scores provides information about the use of the DES in detecting patients with dissociative disorders. Researchers or clinicians who want a diagnostic instrument should consider using a diagnostic interview for dissociative disorders (see Clinical Use section, below).

Development of the Scale

The items for the DES were developed from interviews with persons with DSM-III diagnoses for dissociative disorders and in consultation with experts in the diagnosis and treatment of dissociative disorders. Items were developed that included experiences of disturbance in memory, identity, awareness, and cognition. These included experiences usually labelled amnesia, depersonalization, derealization, absorption, imaginative involvement. Experiences of the dissociation of moods or impulses were excluded from the scale so that the items would not overlap with alterations in mood and impulses associated with affective disorders. In other words, it was thought desirable to avoid having a dissociation scale on which some subjects might have high scores resulting only from frequent experiences of alterations in mood or impulses. Items were worded to be comprehensible to the widest possible range of individuals and to avoid implications of any social undesirability of the experiences.

A discussion of the response scale used on the original version of the scale is provided in Bernstein & Putnam (1986). [A second version of the scale was recently developed to provide a scale which is easier to

score, but still provides some precision in quantification (see section on DES II below).]

Pilot testing of the scale was completed on two preliminary forms of the scale using normal and schizophrenics subjects. These samples were chosen so that we could insure that questions were understood by a wide range of subjects, including those with severe psychiatric disorders. Comments were also solicited from clinicians treating patients with dissociative disorders.

Administration and Scoring of the Scale

The scale is a self-report measure, so it is self-administered. Through directions on the cover sheet of the scale, subjects are instructed to only consider those experiences not occurring under the influence of drugs or alcohol when marking answers. In cases when the subject is illiterate or has difficulty reading, the instructions and questions can be read aloud and repeated and the subject can be assisted in marking the appropriate question. If a subject does not understand the response scale line, he or she can be told that the 0% end means "this never happens to you" and the 100% end means that "this is always happening to you."

The scale is scored by measuring the mark made by the subject to the nearest 5 millimeters for each item. Thus, scores on each item can range from 0 to 100 and can be any multiple of five (0, 5, 10, 15, 20, etc.). A total score for the entire scale is determined by calculating the average score for all items (add all item scores and divide by 28).

Subscale scores for amnesic dissociation, depersonalization and derealization, and absorption and imaginative involvement can also be calculated (see Factor Analysis and Subscales section below). An alternative form of the scale is available that is easier to score as it has a response scale that involves circling an answer (see section on DES II below).

It is important to obtain a copy of the original DES rather than to copy the appendix of the Journal of Nervous and Mental Disease article. Because the article is reduced in size, the response line is not 100 mm in the appendix. In addition, item 25 was left out of the scale when it was printed in the article appendix.

Norms

Numerous studies have collected DES data on a wide range of clinical and non-clinical populations. The means and standard deviations (or medians) and the number of subjects (in parentheses) for a selection of samples from various studies are shown in Table 1. The table is arranged with low-scoring groups toward the top and high-scoring groups toward the bottom. Studies are arranged for ease of comparison

across groups, not in chronological order. Though there is some variation in scoring across samples, the mean scores and the ranking of group scores within studies are extremely consistent across studies.

It should be noted that scores do not necessarily reflect level of psychopathology since many DES items ask about non-pathological forms of dissociation (such as day-dreaming). Consequently, DES scores may have different meanings across clinical and non-clinical samples. For example, late adolescents scores relatively high on the DES (at a level similar to eating disorder subjects), but they tend to endorse mild to moderate experiences of dissociation. The section on factor analysis below addresses the issue of what the DES measures in different populations.

Reliability

As described above, the DES was designed as a trait measure of dissociation. We have discussed elsewhere how the DES might be conceptualized as measuring dissociativity (Carlson & Putnam, 1989). We expect, then, stable scores over shorter periods of time and consistency in scores across items.

Results of studies of the reliability of the DES are shown in Table 2 (Bernstein & Putnam, 1986; Frischholz, Braun, Sachs, Hopkins, Shaeffer, Lewis, et al., 1990; Pitblado & Sanders, 1991). These results show that the DES has good test-retest reliability and internal reliability (split-half and Kuder Richardson). According to Rosenthal and Rosnow (Rosenthal & Rosnow, 1991), "For purposes of clinical testing, reliability coefficients of approximately .85 or higher may be considered as indicative of dependable psychological tests" (p.50). The lower reliability coefficient reported by Pitblado and Sanders (1991) no doubt reflects the homogeneity of their college student sample as a restriction of range in scores will result in a reduced correlation coefficient. In addition, interrater reliability for the scoring of the DES was studied by Frischholz et al. (1990) who found a coefficient of relative agreement of .99 across scorers (n=20).

Validity

The validity of the DES has been established by studies which collected data relevant to the construct validity and the criterion validity of the scale.

Construct Validity

Construct validity refers to an instrument's ability to accurately measure a construct, in this case dissociation. According to Anastasi (1988), all information about the validity and reliability of a test contributes to its construct validity.

The most obvious evidence of the construct validity of the DES is the fact that those who are expected to score high on the test do score high and those who are expected to score low do score low. Table 1 shows that those with PTSD, DDNOS, and MPD score very high on the scale. It is appropriate that the highest scores on the DES would be earned by subjects with dissociative disorders. The high scores of PTSD subjects are consistent with previous descriptions in the literature of high dissociative symptomatology in this population (Blank, 1985; Kolb, 1985). General population adults earn very low scores, as expected. The moderately high scores earned by subjects who were late adolescents is consistent with prior research showing high levels of dissociation in college students (e.g. Dixon, 1963; Myers & Grant, 1970). High scores in subjects with eating disorders is consistent with a wide range of findings in that area (see Emrick, Putnam, Brewerton, Brandt, & Gold, 1990).

Two specific methods of assessing construct validity include convergent validity and discriminant validity. To establish convergent validity, one shows that the new instrument correlates well with other measures of the same construct. While there are no measures of dissociation available with established reliability and validity with which to compare the DES, convergent validity can be studied by comparing the scale to not-yet validated dissociation scales and to measures of related constructs. Frischholz et al. (Frischholz, Braun, Sachs, Schwartz, Lewis, Schaeffer, et al., 1991) reported a Pearson correlation of .52 between the DES and the Perceptual Alteration Scale (a not-yet validated dissociation scale) and Nadon et al. (Nadon, Hoyt, Register, & Kihlstrom, 1991) reported a Pearson correlation of .82 between the two measures. Both of these validity coefficients compare favorably to the average validity coefficient of .46 reported for the MMPI in a meta-analytic study of its validity (Rosenthal & Rosnow, 1991).

Frischholz et al. (Frischholz et al., in press) also correlated DES scores with scores on measures of constructs related to dissociation including the Tellegen Absorption Scale (TAS) and the Ambiguity Intolerance Scale (AIS). They found correlations of .39 and .24 between the total DES scores and the TAS and AIS (respectively) in a sample of 311 college students. While the coefficients may be diminished by the narrow range of scores in this homogenous sample, there do appear to be moderate sized relationships between the DES and measures of related constructs. Frischholz et al. conclude that these levels of convergent validity support the premise that the DES is a valid measure of dissociation. A different study found small correlations between DES scores and measures of hypnotizability [Frischholz, in press #65]. Those interested in a more in-depth discussion of the relationship between dissociation and hypnotizability should see (Carlson, in press; Carlson & Putnam, 1989; Frischholz et al., in press).

Discriminant validity is established by showing that scores on the new instrument do not correlate highly with variables thought to be unrelated to the construct of interest. Bernstein and Putnam (1986) found no significant relationship between DES scores and socioeconomic status or DES scores and sex. These results were replicated by Ross, Joshi, and Currie (Ross, Joshi, & Currie, 1990) who found no differences in DES scores across sex, income level, employment status, education, or religious affiliation in a general population sample of 1055 adults. In a sample of 35 PTSD Vietnam combat veteran subjects, Branscomb (1991) found no difference in DES scores when comparing across race (Caucasian and African American). Both the Bernstein and Putnam (1986) and the Ross et al. (1990) study found low, negative correlations between DES scores and age. There are several possible reasons why younger people score higher on the DES. It may be because they have more dissociative experiences, because they are more willing or prone to report the experiences, or because they are more likely to interpret their experiences as matching those described in the DES items. All three of these possibilities seem likely.

In summary, studies of DES scores for different diagnostic groups and studies of the convergent and discriminant validity of the DES all provide evidence for the construct validity of the scale. Additional evidence for the construct validity of the DES is provided by factor analyses of the scale (see section on Factor Analyses and Subscales below).

Criterion Validity

Evidence for the criterion validity of the DES is provided by several studies. Criterion validity is an index of how well a measure agrees with some criterion related to the construct being measured. In the case of the DES, criterion validity would be established by providing evidence that DES scores agree with the criteria of DSM dissociative disorder diagnoses. The first evidence for criterion validity are the high scores obtained across studies by subjects with dissociative disorders as shown in Table 1. Clearly, subjects with DSM-III diagnoses of dissociative disorders obtain higher scores than subjects in any other group.

The concurrent validity (or predictive capacity) of the DES was studied to further establish its criterion validity. Concurrent validity compares the results of the measure to some other criterion measured at the same time. In a large multicenter study (N=1051), a cutoff score was used to classify subjects from a psychiatric sample as MPD or not-MPD. The criterion used in this study was DSM-III or DSM-III-R diagnosis of MPD. Since psychiatric diagnosis in general is not very reliable, some error was introduced into the results because of inconsistency in diagnosis. It is quite likely, that many subjects with MPD were misdiagnosed as not having MPD. Despite these sources of error, the

analysis yielded a sensitivity rate for the scale (proportion of MPD subjects correctly identified) of 74% and a specificity rate (proportion of not-MPD subjects correctly identified) of 80% (Carlson et al., in press). Two other studies of the predictive capacity of the DES have produced similar results (Frischholz et al., 1990; Steinberg, Rounsaville, & Cicchetti, 1991). These findings indicate that the scale has good concurrent and criterion-related validity.

Factor Analyses and Subscales

Factor analytic studies of the DES have provided some information about the nature of the underlying constructs being measured by the scale. A factor analysis was completed on DES scores from a wide range of psychiatric and non-clinical subjects (N=1574) (Carlson, Putnam, Ross, Anderson, Clark, Torem, et al., 1991). Three main factors emerged from the analysis and accounted for a total of 49% of the variance among item scores. The first factor was thought to reflect amnesic dissociation and included items 3, 4, 5, 6, 8, 10, 25, and 26. A second factor seemed to represent absorption and imaginative involvement and included items 2, 14, 15, 16, 17, 18, 20, 22, 23. The third factor was comprised of experiences of depersonalization and derealization and included items 7, 11, 12, 13, 27, 28. The factors seem to represent cohesive and relatively independent constructs. This basic factor structure was replicated in a confirmatory factor analysis study by Schwartz (Schwartz & Frischholz, 1991).

A factor analysis performed on data from non-clinical subjects only yielded a somewhat different pattern of factors. In this analysis, three factors emerged, accounting for 40% of the variance in scores. For non-clinical subjects, the most variance in scores was attributable to items loading on an absorption and changability factor (Carlson et al., 1991). This factor accounted for 18% of the variance in scores and included items 12, 14, 15, 16, 17, 18, 20, 22, 23, and 24. A second factor comprised of derealization and depersonalization items (3, 4, 7, 11, 12, 13, and 28) accounted for 13% of the variance in scores. A third factor comprised of amnesic experiences contained only 3 items (5, 6, and 8) and accounted for 9% of the variance in scores. A separate factor analysis study of data from a non-clinical population yielded similar results (Ross, Joshi, & Currie, 1991). Three factors accounted for 47% of the variance in scores, with eight of the ten items listed above loading onto the first factor.

The different results for factor analyses performed on different populations indicate that DES scores may have different meanings for subjects from different populations. The factor analysis of scores from non-clinical subjects indicates that DES scores for these subjects depend

more on experiences of absorption and changability than on other types of dissociative experiences. In contrast, DES scores across a wide spectrum of psychiatric disorders depend more on experiences of amnesic dissociation. Researchers and clinicians can use the findings above to make subscales for measuring amnesic dissociation, depersonalization and derealization, absorption and imaginative involvement, and absorption and changability. Calculating the average item score subscales is the most efficient way to obtain subscale scores and should provide as good a measure of the subscale construct as would weighted item scores (see Cohen, 1990) for discussion of this method). DES users should keep in mind, however, that the items on the subscale will vary somewhat according to which factor analysis the subscales were derived from. Some information on correlations of subscale scores with other measures is provided in Frischholz et al. (1991) and Frischholz et al. (in press).

Use of Cutoff Scores with the DES

The use of a cutoff score to identify those who might have a dissociative disorder or a disorder with a considerable dissociative component is discussed in detail in Carlson et al. (Carlson et al., in press). As described above, using a total score of 30 or above to identify those who may be severely dissociative will result (on the average) in the correct identification of 74% of those who are MPD and correct identification of 80% of those who are not MPD (Carlson et al., in press). In this analysis, 61% of those who scored 30 or above who were not MPD had posttraumatic stress disorder or a dissociative disorder other than MPD. This means that a very high proportion of those who score 30 or over will probably have a disorder other than MPD that has a considerable dissociative component. A receiver operating characteristics analysis described in Carlson et al. (in press) indicated that 30 was the optimal cutoff score in terms of maximizing the accuracy of predictions.

By applying Bayes's theorem to the cutoff analysis, we can see what effect the low base rates for MPD have on the accuracy of predictions made from DES scores. The application of Bayes's theorem to the general psychiatric population shows that the probability of a person with MPD scoring under 30 is quite low: if the analysis is representative, only 1% of those scoring under 30 will be MPD. But it is quite probable that those scoring 30 or over are not actually MPD. This is because the frequency of MPD is quite low, even in a psychiatric population (see Introduction for estimates of prevalence). In fact, projections from one analysis indicate that only 17% of those in a given sample who score 30 or over on the DES will actually be MPD. The other 83% of the "high scorers" will be people who do not have MPD, though many of these will have PTSD or a dissociative disorder other than MPD. Clinical users of the DES need to keep these findings in mind and remember that the DES

is not a definitive tool for diagnosing patients with MPD, but is a screening tool to identify those who may have high levels of dissociation. Reliable and valid structured clinical interviews for dissociative disorders are available to aid clinicians in making diagnoses (see Clinical Use section, below).

Clinical Use of the DES

Many clinicians have used the DES as a screening device to identify high dissociators, but are unsure how to proceed when someone obtains a high score on the scale. Most times that a client scores over 20 or 30 on the DES, the clinician will want to know more about the dissociative experiences that contributed to the high score. One approach at further investigation would be to use the completed scale to interview the client. For each item with a score of 20 or more, the clinician could ask the client for an example of the dissociative experience. (E.g. Can you give me an example of a time when you found something among your possessions that you didn't remember buying?") With this method, it is possible to find out if a client has understood a question differently than it was intended. For example, a client might answer the above question with "Sometimes my wife buys me new shirts and I find them in my closet." Clearly, this experience is not an example of dissociation and the high score is misleading.

Another approach would be to use one of two available structured clinical interviews for dissociative disorders. The Dissociative Disorders Interview Schedule developed by Ross (Ross et al., 1989) and the Structured Clinical Interview for DSM-III-R Dissociative Disorders (Steinberg et al., 1990) developed by Steinberg can both be used to make or rule out a dissociative disorder diagnosis.

Use of the DES in Translation

The DES has been translated for use in several other languages and is available from the authors in French, Spanish, Italian, Dutch, Hindi, Cambodian, Hebrew, Japanese and Czech. Translations are currently in progress for versions of the DES in Swedish and Inuktitut. Translations of the DES have allowed comparison of Dutch, French, and American dissociative subjects (Ensink & van Otterloo, 1989; Malarewitz, 1990). In the Ensink and van Otterloo study, subjects with MPD obtained scores quite similar to those found in the Bernstein and Putnam (1986) study. The DES has also been translated into Cambodian to measure levels of dissociation in Cambodian refugees living in the U.S. (Carlson & Rosser-Hogan, 1991).

There are several important issues to be aware of when translating psychological measures across languages and cultures. Some of the most important guidelines for translation of research instruments are described

by Brislin (Brislin, 1986). First, scale items should be translated conceptually, not literally. This is to insure that colloquial expressions are not translated literally and that terms and concepts unfamiliar in another culture do not appear in the translated items. Second, it is sometimes wise to eliminate items that do not make sense conceptually in another culture or population. For example, in translating a measure of posttraumatic stress disorder symptoms for use with refugees, it would have been meaningless to ask refugees if they had lost interest in their usual activities after a traumatic experience. Since the subjects were unable to engage in any of their previous activities in Cambodia, it was considered wise to eliminate this item (Carlson & Rosser-Hogan, 1991). Third, it is important to include new items that represent experiences that do occur in the second culture, but were not part of the cultural experience of those for whom the measure was originally developed (A. Kleinman, personal communication, October, 1991). Fourth, it is crucial to perform a blind backtranslation of the translated measure so that the backtranslation can be compared and reconciled with the original version. This process provides a necessary check on the accuracy of the translation.

When interpreting DES scores from a translated version of the DES, it is important to remember that the DES will not necessarily have the same level of reliability or validity when it is used in another language or culture. The reliability and validity of the scale in any new culture must be established independently. Similarly, DES scores do not necessarily have the same meaning across cultures. For example, a score of 30 on the DES may have a different meaning outside of the U.S. This means the cutting score suggested here for screening for dissociative pathology is not necessarily an appropriate cutting score when the scale is given to people from another culture.

The DES II

A second version of the DES has been developed that is easier to score than the original version. The response scale has been changed from a visual analog scale to a format of numbers from 0 to 100 (by 10s). The subject is instructed to circle a number for each item that best describes the percentage of time they have the experience. A copy of this measure can be found in Appendix A and researchers and clinicians are welcome to reproduce the scale for their use without specific permission. The DES II was tested and found to produce scores very similar to those on the original DES. We collected data with the DES II on 40 MPD subjects, 36 late adolescents, and 42 general population adults. We compared total scores for the groups on the new DES to total scores on the old DES (using data from a large multicenter study) and found no

significant difference between group means for any group. More research should be done to further establish the equivalence of this new form of the DES, but we consider the change in the scale to be so minor that we feel confident that the new version will yield results comparable to those of the old version.

Statistical Analysis of DES Scores

In the years since the DES was first published, some issues related to the statistical analysis of DES scores have come up. First, though we initially suggested that only non-parametric statistics be used to analyze DES data, we now advocate use of parametric statistics for moderate sized samples ($N > 30$). We have come to this conclusion after observing that for moderate sized samples, mean scores are generally equivalent to median scores. Furthermore, since sampling distributions of means for DES scores are generally normally distributed, there is less concern about violating the assumptions of parametric statistics.

A second issue is that too many researchers report only mean DES scores to describe dissociation levels of research samples. This kind of report is usually not an adequate characterization of the dissociation tendencies of subjects in a sample. In addition to calculating group means, researchers should plot score distributions to find out how many subjects show different levels of dissociation. As an alternative, researchers can calculate the percentage of subjects who score 30 or higher on the DES. As described in the section of cutoff scores, a score of 30 provides an empirically derived breakpoint for dividing a sample into high and low dissociators. In addition, it is often useful to examine item and subscale scores of groups when expected group differences in means are not found. In other words, researchers need to examine their data for more subtle patterns than group mean differences.

Current research with DES

The DES has been used in a wide variety of research studies. We will briefly describe a few research approaches that we believe are particularly useful. First, the scale has been used to determine the level of dissociation in samples of patients with various psychiatric diagnoses. For example, the DES has been used to measure the level of dissociation in samples of posttraumatic stress disorder patients (Branscomb, 1991; Bremner et al., 1992), eating disorder patients (Demitrack et al., 1990; Goldner et al., 1991), and borderline personality disorder patients (Herman et al., 1989). The scale has also been used to measure dissociation levels in non-clinical populations such as the general population (Ross et al., 1990), college students (Sanders & Giolas, 1991), and adolescents (Ross et al., 1989).

Another fruitful use of the DES has been to screen for dissociative patients or subgroups within a non-dissociative diagnostic group. In this type of study, the DES is used to identify high dissociators in a particular non-dissociative sample. The high dissociators are then studied more closely, often by means of a structured interview for dissociative disorders. In this way, a particular subgroup can be identified that is distinctive in regard to its level of dissociation. The distinctive level of dissociation may be important in diagnosing, understanding, and treating this subgroup of patients. An example of this type of use includes Ross's study of high and low dissociators in a college student sample (Ross, Ryan, Voigt, & Eide, 1991).

The DES has also been used to study the relationship of dissociation to specific clinical features in general population, psychiatric, and medical samples (see Carlson [in press], for a review of this research). Clinical features that have been studied to date in relation to dissociation include suicidality, self-mutilation, somatization, chronic pelvic pain, premenstrual syndrome, epilepsy, aggression, and paranormal experiences (Devinsky, Putnam, Grafman, Bromfield, & Theodore, 1989; Jensvold, Putnam, Schmidt, Muller, & Rubinow, 1989; Loewenstein & Putnam, 1988; Quimby, 1991; Richards, 1991; Ross, Fast, Anderson, Auty, & Todd, 1990b; Ross & Joshi, (in press); van der Kolk et al., 1991; Walker, Katon, Neraas, Jemelka, & Massoth, 1992). Similarly, the scale has been used to study the relationship of dissociation to childhood experiences such as sexual and physical abuse (Anderson et al., in press; Chu & Dill, 1990; Strick & Wilcoxon, 1991).

A third area of research that looks promising is the study of the relationship between dissociation levels and biological processes. One such study has found a significant positive correlation between DES scores and cerebrospinal fluid homovanillic acid and a significant negative correlation between DES scores and cerebrospinal fluid levels of β -endorphin in a sample of eating disorder patients (Demitrack, Putnam, Rubinow, Pigott, Altemus, Krahn, et al., unpublished manuscript). A study using a less direct measure of biological processes has found a relationship between DES scores and pain tolerance (Giolas & Sanders, 1991). Giolas and Sanders (1991) also found that those with higher DES scores reported suffering less even when they perceived a similar level of pain.

Future Directions

There are several areas of research that, as far as we know, have not yet been explored, but seem to have great potential. First, the use of the DES to identify a subgroup of subjects in a particular population seems particularly well-suited to the study of some populations not yet investigated in this way. Two populations that would be particularly interesting to study would be criminals and sex offenders. Many have

speculated that males who have histories of physical and/or sexual abuse and who have frequent dissociative symptoms may end up in the criminal justice system rather than the mental health system. One could study this question by identifying subgroups of criminals and sex offenders who are highly dissociative and investigating whether the rates of childhood abuse are higher for the high dissociators than the low dissociators in the population.

Another population that has not yet been studied for dissociative subgroups is that of substance abusers. It is commonly hypothesized that some people abuse substances in an effort to escape from unpleasant feelings (such as anxiety). There may be a subgroup of this population who abuse substances to escape from unpleasant feelings such as depersonalization or derealization or from anxiety caused by amnesia for periods of time. To study this question, one could attempt to identify a subgroup of high dissociators and investigate their motivations for substance abuse.

Another quite obvious use of the DES, which no published study has yet described, is the use of the scale in a treatment outcome study. Treatment of dissociative disorders should surely result in the reduction of the frequency and intensity of dissociative experiences. Simple pre and posttest measures of dissociation with the DES could establish whether a particular treatment is effective at reducing dissociative symptomatology.

Further research on dissociation scale development might include studies to establish the equivalence of the DES and the DES II. Studies of the reliability and validity of the DES II would also be useful to confirm that the scale performs as well as the original DES. Also, it is likely that others will try to develop dissociation scales that will perform even better than the DES. New dissociation instruments should be based on a clearly defined construct of dissociation and should perform at least as well as the DES in terms of reliability and validity. High levels of internal as well as test-retest reliability should be demonstrated. Validity should be established by a wide range of methods, including criterion-related validity, convergent validity, and discriminant validity. In addition, there are several ways in which a new measure could improve upon the DES. It would be very valuable if a new measure could distinguish among subjects with various diagnostic groups who show high levels of dissociation such as MPD, dissociative disorder not otherwise specified, psychogenic amnesia, psychogenic fugue, and posttraumatic stress disorder. In addition, items for a new scale could be developed in a more systematic way than were those of the DES. The number of items in each content area (e.g. amnesic dissociation, depersonalization, derealization, absorption) could be balanced to represent the proportions theoretically expected or could simply be made equal. Some items could be made more specific or more clearly focused

to represent a particular content area. Amnesia items could be designed to separately measure retrieval failures for explicit (context dependent) and implicit (context independent) memories. These are just a few examples of ways in which a new scale could measure dissociation in a way that the DES does not.

Conclusion

In conclusion, the DES has proved a valuable aid to those interested in measuring and studying dissociation. It is being used quite widely to study rates of dissociation in various groups, to screen for persons who are highly dissociative, and to study relationships between dissociation and other variables. Because dozens of studies that use the DES to measure dissociation are in the planning stages or are now in progress, those interested in dissociation can look forward to many new developments in the area in the coming years.

REFERENCES

- Anastasi, A. (1988). *Psychological testing*. New York: Macmillan.
- Anderson, G., Yassenik, L., & Ross, C. A. (in press). Dissociative experiences and disorders among women who identify themselves as sexual abuse survivors. *Child Abuse and Neglect*.
- Bernstein, E. M., & Putnam, F. W. (1986). Development, reliability, and validity of a dissociation scale. *Journal of Nervous and Mental Disease*, *174*, 727-735.
- Blank, A. S. (1985). The unconscious flashback to the war in Vietnam veterans: Clinical mystery, legal defense, and community problem. In S. M. Sonnenberg, A. S. Blank, & J. A. Talbott (Eds.), *The trauma of war: Stress and recovery in Vietnam veterans* (pp. 239-308). Washington, DC: American Psychiatric Press.
- Bliss, E. L., & Jeppsen, E. A. (1985). Prevalence of multiple personality among inpatients and outpatients. *American Journal of Psychiatry*, *142*, 250-251.
- Branscomb, L. (1991). Dissociation in combat-related post-traumatic stress disorder. *Dissociation*, *4*(1), 13-20.
- Bremner, J. D., Southwick, S., Brett, E., Fontana, A., Rosenheck, R., & Charney, D. S. (1992). Dissociation and posttraumatic stress disorder in Vietnam combat veterans. *American Journal of Psychiatry*, *149*, 328-333.
- Brislin, R. (1986). The wording and translation of research instruments. In W. J. Lonner & J. W. Berry (Eds.), *Field Methods in Cross-Cultural Research* (pp. 137-164). Beverly Hills, CA: Sage.

- Carlson, E. B. (in press). Studying the Interaction between physical and psychological states with the Dissociative Experiences Scale. In D. A. Spiegel (Ed.), Dissociation: Mind and body. Washington, DC: American Psychiatric Press.
- Carlson, E. B., & Putnam, F. W. (1989). Integrating research in dissociation and hypnotic susceptibility. Are there two pathways to hypnotizability? Dissociation, 2(1), 32-38.
- Carlson, E. B., Putnam, F. W., Ross, C. A., Anderson, G., Clark, P., Torem, M., Coons, P., Bowman, E., Chu, J. A., Dill, D., Loewenstein, R. J., & Braun, B. G. (1991). Factor analysis 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 Presbyterian.
- Carlson, E. B., Putnam, F. W., Ross, C. A., Torem, M., Coons, P., Dill, D., Loewenstein, R. J., & Braun, B. G. (in press). Validity of the Dissociative Experiences Scale: A multicenter study. American Journal of Psychiatry.
- Carlson, E. B., & Rosser-Hogan, R. (1991). Trauma experiences, posttraumatic stress, dissociation, and depression in Cambodian refugees. American Journal of Psychiatry, 148, 1548-1551.
- Chu, J. A., & Dill, D. L. (1990). Dissociation in relation to childhood physical and sexual abuse. American Journal of Psychiatry, 147, 887-892.
- Cohen, J. (1990). Things I have learned (so far). American Psychologist, 45, 1304-1312.
- Coons, P. M., Bowman, E., Pellow, T. A., & Schneider, P. (1989). Post-traumatic aspects of the treatment of victims of sexual abuse and incest. Psychiatric Clinics of North America, 12, 325-335.
- Coons, P. M., Cole, C., Pellow, T. A., & Milstein, V. (1990). Symptoms of posttraumatic stress and dissociation in women victims of abuse. In R. P. Kluff (Eds.), Incest-related syndromes of adult psychopathology (pp. 205-225). Washington, DC: American Psychiatric Press.
- Demitrack, M. A., Putnam, F. W., Brewerton, T. D., Brandt, H. A., & Gold, P. W. (1990). Relation of clinical variables to dissociative phenomena in eating disorders. American Journal of Psychiatry, 147, 1184-1188.
- Demitrack, M. A., Putnam, F. W., Rubinow, D. R., Pigott, T. A., Altemus, M., Krahn, D. D., & Gold, P. W. (unpublished manuscript). Relation of dissociative phenomena to levels of cerebrospinal fluid metabolites and β -endorphin in patients with eating disorders.
- Devinsky, O., Putnam, F. W., Grafman, J., Bromfield, E., & Theodore, W. H. (1989). Dissociative states and epilepsy. Neurology, 39, 835-840.
- Dixon, J. C. (1963). Depersonalization phenomena in a sample population of college students. British Journal of Psychiatry, 109, 371-375.
- Ensink, B. J., & van Otterloo, D. (1989). A validation of the Dissociative Experiences Scale in the Netherlands. Dissociation, 2(4), 221-223.
- Frischholz, E. J., Braun, B. G., Sachs, R. G., Hopkins, L., Shaeffer, D. M., Lewis, J., Leavitt, F., Pasquotto, M. A., & Schwartz, D. R. (1990). The Dissociative Experiences Scale: Further replication and validation. Dissociation, 3(3), 151-153.
- Frischholz, E. J., Braun, B. G., Sachs, R. G., Schwartz, D. R., Lewis, J., Schaeffer, D., Westergaard, C., & Pasquotto, J. (in press). Construct validity of the Dissociative Experiences Scale: The relation between the DES and hypnotizability. American Journal of Clinical Hypnosis.
- Giolas, M. H., & Sanders, B. (1991). Sensory pain and suffering in high and low dissociating college students. In B. G. Braun & E. B. Carlson (Eds.), Proceedings of the Eighth International Conference on Multiple Personality and Dissociative States. Chicago: Rush Presbyterian.
- Goldner, E. M., Cockhill, L. A., Bakan, R., & Birmingham, C. L. (1991). Dissociation experiences and eating disorders. American Journal of Psychiatry, 148, 1274-1275.
- Goodwin, J. M., Cheeves, K., & Connell, V. (1990). Borderline and other severe symptoms in adult survivors of incestuous abuse. Psychiatric Annals, 20, 22-32.
- Graves, S. M. (1989). Dissociative disorders and dissociative symptoms at a community health center. Dissociation, 2, 119-127.
- Herman, J. L., Perry, J. C., & van der Kolk, B. A. (1989). Childhood trauma in borderline personality disorder. American Journal of Psychiatry, 146, 562-574.
- Jensvold, M., Putnam, F. W., Schmidt, P., Muller, K., & Rubinow, D. (1989). Abuse, dissociation, and posttraumatic stress disorder in premenstrual syndrome patients and controls. In B. G. Braun & E. B. Carlson (Eds.), Proceedings of the Sixth International Conference on Multiple Personality and Dissociative States. (pp. 154). Chicago: Rush Presbyterian.
- Kolb, L. C. (1985). The place of narcosynthesis in the treatment of chronic and delayed stress reactions of war. In S. M. Sonnenberg, A. S. Blank, & J. A. Talbot (Eds.), The trauma of war: Stress and recovery in Vietnam veterans (pp. 211-226). Washington, DC: American Psychiatric Press.
- Kulka, R., Schlenger, W., & Fairbank, J. (1988). Assessment of the military and civilian trauma in a community epidemiological study: The National Vietnam Readjustment Study. In Proceedings of the annual meeting of the American Psychological Association. Atlanta, GA:

- Loewenstein, R. J., & Putnam, F. W. (1988). A comparison study of dissociative symptoms in patients with complex partial seizures, multiple personality disorder, and posttraumatic stress disorder. *Dissociation*, 1(4), 17-23.
- Malarewitz, J. A. (1990). Multiple personality disorder in French-speaking countries. In B. G. Braun & E. B. Carlson (Eds.), *Proceedings of the Seventh International Conference on Multiple Personality and Dissociative States*. (pp. 32). Chicago: Rush Presbyterian.
- Myers, D., & Grant, G. (1970). A study of depersonalization in students. *British Journal of Psychiatry*, 121, 59-65.
- Nadon, R., Hoyt, I. P., Register, P. A., & Kihlstrom, J. F. (1991). Absorption and Hypnotizability: Context effects reexamined. *Journal of Personality and Social Psychology*, 60, 144-153.
- Pitblado, C. B., & Sanders, B. (1991). Reliability and short-term stability of scores on the Dissociative Experiences Scale. In B. G. Braun & E. B. Carlson (Eds.), *Proceedings of the Eighth International Conference on Multiple Personality and Dissociative States*. Chicago: Rush Presbyterian.
- Quimby, L. C. (1991). Dissociative symptoms and aggression in a state mental hospital. *Dissociation*, 4(1), 21-24.
- Richards, D. (1991). A study of the correlations between subjective psychic experiences and dissociative experiences. *Dissociation*, 4(1), 83-91.
- Rosenthal, R., & Rosnow, R. L. (1991). *Essentials of behavioral research: Methods and data analysis*. New York: McGraw-Hill.
- Ross, C. A. (1991). Epidemiology of multiple personality and dissociation. *Psychiatric Clinics of North America*, 14, 503-517.
- Ross, C. A., Anderson, G., Fleisher, W. P., & Norton, G. R. (1991). The frequency of multiple personality among psychiatric inpatients. *American Journal of Psychiatry*, 148, 1717-1720.
- Ross, C. A., Anderson, G., Heber, S., & Norton, G. R. (1990a). Dissociation and abuse in multiple personality patients, prostitutes, and exotic dancers. *Hospital and Community Psychiatry*, 41, 328-330.
- Ross, C. A., Fast, E., Anderson, G., Auty, A., & Todd, J. (1990b). Somatic symptoms in multiple sclerosis and MPD. *Dissociation*, 3(2), 102-106.
- Ross, C. A., Heber, S., Norton, G. R., Anderson, D., Anderson, G., & Barchet, P. (1989). The Dissociative Disorders Interview Schedule: A structured interview. *Dissociation*, 2(3), 169-189.
- Ross, C. A., & Joshi, S. (in press). Paranormal experiences in the general population. *Journal of Nervous and Mental Disease*.
- Ross, C. A., Joshi, S., & Currie, R. (1990). Dissociative experiences in the general population. *American Journal of Psychiatry*, 147, 1547-1552.
- Ross, C. A., Joshi, S., & Currie, R. (1991). Dissociative experiences in the general population: Identification of three factors. *Hospital and Community Psychiatry*, 42, 297-301.
- Ross, C. A., Norton, G. R., & Anderson, G. (1988). The Dissociative Experiences Scale: A replication study. *Dissociation*, 1(3), 21-22.
- Ross, C. A., Ryan, L., Anderson, G., Ross, D., & Hardy, L. (1989). Dissociative experiences in adolescents and college students. *Dissociation*, 2(4), 240-242.
- Ross, C. A., Ryan, L., Voigt, H., & Eide, L. (1991). High and low dissociators in a college student population. *Dissociation*, 4(3), 147-151.
- Sanders, B., & Giolas, M. H. (1991). Dissociation and childhood trauma in psychologically disturbed adolescents. *American Journal of Psychiatry*, 148, 50-54.
- Sanders, B., McRoberts, G., & Tollefson, C. (1989). Childhood stress and dissociation in a college population. *Dissociation*, 2(1), 17-23.
- Schwartz, D., & Frischholz, E. J. (1991). Confirmatory factor analysis of the Dissociative Experiences Scale. In B. G. Braun & E. B. Carlson (Eds.), *Proceedings of the Eighth International Conference on Multiple Personality and Dissociative States*. Chicago: Rush Presbyterian.
- Steinberg, M., Rounsaville, B., & Cicchetti, D. (1990). The Structured Clinical Interview for DSM-III-R Dissociative Disorders: Preliminary report on a new diagnostic instrument. *American Journal of Psychiatry*, 147, 76-82.
- Steinberg, M., Rounsaville, B., & Cicchetti, D. (1991). Detection of dissociative disorders in psychiatric patients by a screening instrument and a structured diagnostic interview. *American Journal of Psychiatry*, 148, 1050-1054.
- Strick, F., & Wilcoxon, S. A. (1991). A comparison of dissociative experiences in adult female outpatients with and without histories of early incestuous abuse. *Dissociation*, 4(4), 193-199.
- van der Kolk, B. A., Perry, J. C., & Herman, J. L. (1991). Childhood origins of self-destructive behavior. *American Journal of Psychiatry*, 148, 1665-1671.
- Waid, R. (1988). Dissociation in combat-related PTSD. Paper presented at the annual meeting of the American Psychological Association. Atlanta, GA.
- Walker, E. A., Katon, W. J., Neraas, K., Jemelka, R. P., & Massoth, D. (1992). Dissociation in women with chronic pelvic pain. *American Journal of Psychiatry*, 149, 534-537.

Table 1. Mean or median DES scores across populations for various studies.

Population Sampled	Study Number									
	1*	2*	3	4	5	6	7	8*	9*	10
gen. population. (adults)	4.4 (34)	4.9 (28)		7.8 (415)					6.4 (30)	3.7 (25)
anxiety disorders	6.7 (53)	3.9 (13)		10.4 (97)						
affective disorders				12.7 (102)	6.0 (14)					
eating disorders				16.1 (120)	12.7 (30)				16.7 (30)	17.8 (25)
late adolescents	14.1 (31)		23.8 (259)	11.8 (108)						
schizophrenia	20.6 (20)	12.6 (20)		17.7 (61)	10.5 (15)					
borderline pers. dis.				20.1 (19)	18.2 (13)					
inpatient / childhood abuse									19.9 (62)	
PTSD	31.3 (10)			30.0 (116)	26.1 (26)	41.1 (35)	27 (53)			
DDNOS			40.8 (29)	29.8 (99)	38.3 (6)					
MPD	57.1 (20)	40.7 (17)	55 (33)	42.8 (228)	45.2 (20)					

* denotes median scores shown; Studies numbered as follows: 1 = Bernstein & Putnam, 1986; 2 = Ross, Norton, & Anderson, 1988; 3 = Frischholz et al., 1990; 4 = Nelson et al., unpublished data; 5 = Coons et al., 1989; 6 = Branscomb, 1991; 7 = Bremner, Southwick, Brett, Fontana, Rosenheck, & Charney, 1992; 8 = Chu & Dill, 1990; 9 = Demitrack et al., 1990; 10 = Goldner et al., 1991.

Table 2. Reliability of the DES

TEST-RETEST RELIABILITY

	N	r	p
Bernstein & Putnam (1986)	26	.84	<.0001
Frischholz et al. (1990)	30	.96	<.0001
Pitblado & Sanders (1991)	46	.79	<.0001

INTERNAL RELIABILITY

SPLIT-HALF

	N	r	p
Bernstein & Putnam (1986)	73	.83	<.0001
Pitblado & Sanders (1991)	46	.93	<.0001

CRONBACH'S ALPHA

Frischholz et al. (1990)	321	.95	<.0001
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DES Taxon for Pathological Dissociation

These items form a “sub-scale” called a taxon that measures pathological dissociation:

Items 3, 5, 7, 8, 12, 13, 22, 27.

Reference: N. Waller, F.W. Putnam, E.B. Carlson (1997). Types of dissociation and dissociative types: a taxometric analysis of dissociative experiences. *Psychological Methods* 1996;1(3):300-321.