# Cognitive Distortions in the Dual Diagnosis of PTSD and Substance Use Disorder

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*This study evaluated cognitive distortions in a dual diagnosis sample (102 women with PTSD and substance use disorder) compared to a single diagnosis sample (27 women with PTSD alone). Three questions are addressed: (1) psychometric properties of a new measure, the Cognitive Distortions Scale (L. M. Najavits, 1993); (2) prevalence and type of cognitive distortions; and (3) specificity of cognitive distortions. Results suggest that the psychometric properties of the new scale appear promising, the dual diagnosis sample reported higher levels of cognitive distortion than the single diagnosis sample, and there appears to be specificity for dual diagnosis distortions.*

**KEY WORDS:** cognitive distortion; substance abuse; PTSD; beliefs; attitudes.

Cognitive distortions are a central focus of cognitive-behavioral therapies (CBT). Many patients and clinicians can identify the now-common distortions of "shoulds," "mind reading, and "all or none thinking" identified in Burns' 1980 best-selling depression self-help book, *Feeling Good* (Burns, 1980). Lists of cognitive distortions can help to identify themes to be addressed in treatment. Many CBT treatment manuals include such lists, which may be general distortions or specific to a disorder. For example, specific distortions have been identified for depression (Burns, 1980), pathological gamblers (e.g., "illusion of control over luck" and "re-framed losses"; Toneatto, 1999), incarcerated teenagers (e.g., "self-serving" and "self-debasing" distortions; Barriga, Landau, Stinson, Liau, & Gibbs, 2000), and posttraumatic stress disorder (e.g., "preoccupied with danger" and "self-blame"; Briere, 2001; Briere et al., 1993).

In contrast to this widespread clinical application, there has been relatively less empirical attention to cognitive distortions. In a literature search using the term "cognitive distortion" for the years 1984 through 2002, selecting only journal papers

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written in English, 195 entries appeared. Only a minority actually assessed cognitive distortions, and even fewer addressed psychometric properties of such scales. We could locate only one study of cognitive distortions in a dual diagnosis sample (Kempton, Van Hasselt, Bukstein, & Null, 1994). This study assessed adolescents with a variety of psychiatric disorders and found, interestingly, that cognitive distortions varied by type of diagnosis, using a measure designed to assess children's distortions. Cognitive distortions may be especially important to identify in dual diagnosis patients, given their higher level of severity and the complexity of their clinical needs.

In this paper, we describe the evaluation of cognitive distortions in a dual diagnosis sample with posttraumatic stress disorder (PTSD) and substance use disorder (SUD), as compared to a single-diagnosis sample with PTSD alone. This dual diagnosis is quite prevalent, with estimates at 12–34% in substance abuse treatment samples and even higher rates among women (30–59%; Brady, Killeen, Saladin, Dansky, & Becker, 1994; Brown, Recupero, & Stout, 1995; Cottler, Compton, Mager, Spitznagel, & Janca, 1992; Dansky, Saladin, Brady, Kilpatrick, & Resnick, 1995; Najavits, Gastfriend, et al., 1998; Najavits, Weiss, & Shaw, 1997). Patients with this dual diagnosis evidence worse clinical presentation and treatment outcome than those with either diagnosis alone (Najavits, Gastfriend, et al., 1998; Ouimette, Brown, & Najavits, 1998; Ouimette, Finney, & Moos, 1999), and they tend to abuse "hard" drugs such as cocaine and opiates (Cottler et al., 1992; Dansky et al., 1995; Grice, Brady, Dustan, Malcolm, & Kilpatrick, 1995; Najavits, et al., 1997). This dual diagnosis is associated with multiple life problems, including homelessness, domestic violence, other Axis I and II disorders, medical problems and difficult treatment engagement and alliance (Brady et al., 1994; Grice et al., 1995; Najavits et al., 1997; Najavits, Gastfriend, et al., 1998).

A list of cognitive distortions specific to the dual diagnosis of PTSD and SUD was developed as part of a larger project to develop a new psychotherapy treatment for this population. The treatment, *Seeking Safety*, is a 25-topic cognitive-behavioral intervention offering integrated treatment of PTSD and SUD; it is described in detail in a treatment manual (Najavits, 2002b), as well as in a recent book chapter (Najavits, 2002a). The list of cognitive distortions was generated by listening closely to patients' language and experience while treating them as part of outcome trials to test *Seeking Safety*. The list became the *Cognitive Distortions Scale* (CDS; Najavits, 1993), which was comprised of 12 distortions and served as the basis of this study. An expanded clinical version of the list was published in the *Seeking Safety* treatment manual as part of the topic "Creating Meaning" (Najavits, 2002b). Given the sizeable prevalence and clinical severity of the PTSD/SUD dual diagnosis, the list of distortions was designed to describe cognitive themes particular to this population. These distortions can then be targeted in therapy and monitored for change.

The current investigation was undertaken to empirically evaluate three basic questions about this new measure of cognitive distortions for this dual diagnosis population. First, what are the basic psychometric characteristics of the CDS? As it is a new measure, we report its internal consistency, intercorrelation of items, and range of endorsement. Second, how does a dual diagnosis (PTSD and SUD) sample

compare to a single-diagnosis sample (PTSD-alone) on the CDS? By including a single-diagnosis comparison group, we can explore whether the presence of the SUD diagnosis is associated with any differential pattern in distortions, over and above what would be expected solely from the presence of a PTSD diagnosis. Third, is there specificity to cognitive distortions, that is, greater relevance of the CDS to the dual diagnosis sample? We address this by comparing our two samples on the specific distortions of the CDS and a list of general cognitive distortions drawn from Burns (1980). The CDS was used as it was developed earlier, and was more amenable to research because it is shorter than the much longer four page clinical-intervention version in the *Seeking Safety* manual.

## METHOD

### Participants

Participants were recruited through newspaper advertisements, posted fliers, and from clinical units at McLean Hospital. A total of 130 women participated, with 103 in the dual diagnosis group and 27 in the single-diagnosis group. Some of the dual diagnosis participants were recruited as part of a larger psychotherapy outcome study ($n = 75$); the other dual diagnosis participants ($n = 28$) were from an earlier cross-sectional study (Najavits, Weiss, & Shaw, 1999). The samples are combined, as the recruitment methods and inclusion criteria were identical, and the data used in this study were obtained at intake for both samples. All dual diagnosis participants met current *DSM-IV* criteria for both PTSD and SUD (American Psychiatric Association, 1994). They also had to report active substance use within the past 30 days, a more stringent criterion than *DSM-IV* to ensure that the samples were actively using substances. All single-diagnosis women met *DSM-IV* criteria for current PTSD, but had no lifetime history of any substance use disorder. Participants were excluded if they: (1) had a history of schizophrenia, bipolar I disorder, or organic mental disorder; (2) were formally mandated to treatment (as mandated patients are known to represent a specific subpopulation who are not representative of the typical substance use disorder sample); or (3) could not complete assessments because of factors such as mental retardation, illiteracy, life threatening or unstable medical illness, or impending incarceration.

### Measures

#### *Sociodemographic Characteristics*

Sociodemographic information was assessed as part of the Addiction Severity Index—5th edition (ASI; McLellan et al., 1992). The ASI is a structured interview designed to assess the severity of drug and alcohol use and five related problem areas (family/social, legal, psychological, employment, and medical). Scores on the ASI include composites (summarizing across the variables in each of the seven major problem areas), severity ratings by the interviewer, and individual items. The measure

was administered by bachelor-level research assistants who were trained to criterion on three training tapes. Psychometric properties of the measure show test–retest reliability of .83, and average reliability of trained technicians of .89 (McLellan, Luborsky, Cacciola, Griffith, & Evans, 1985).

### Trauma History

The Trauma History Questionnaire (THQ; Green, 1996) is a self-report measure that was administered to assess lifetime history of trauma. The THQ is composed of 23 items in three categories: crime-related (e.g., robbery), general disaster and trauma (e.g., car accident), and unwanted physical and sexual experiences (e.g., rape). For each item, patients indicated lifetime occurrence, frequency, age of onset, and type of relationship to the perpetrator. The THQ shows high test–retest reliability of items over a two- to three-month period (correlations on items ranged from .47 to 1.00, with a mean of .70; Green, 1996).

### PTSD and SUD Diagnoses

Participants were assessed on the Structured Clinical Interview for *DSM-IV* (SCID; First, Spitzer, Gibbon, & Williams, 1994) for current PTSD and current substance use disorder (SUD). The single-diagnosis group was also assessed for lifetime SUD, which was one of their exclusionary criteria. The SCID was administered by diagnosticians who were trained and supervised by the first author (LN), including review of audiotaped SCID interviews on a subsample of participants. Psychometric properties of the SCID show interrater reliability for current Axis I diagnoses that range from .48 to .73, depending on the sample (Kranzler, Kadden, Babor, et al., 1996).

### Cognitive Distortions

The Cognitive Distortions Scale (CDS; Najavits, 1993) is a 12-item measure designed to measure key cognitive distortions relevant to patients with the dual diagnosis of PTSD and SUD. All items are scaled 0 (*not at all*) to 100% (*all the time*). Nine of the items are newly identified on the basis of clinical interviews and treatment of patients with this dual diagnosis, and three are drawn from the substance abuse literature (two based on Beck, Wright, Newman, & Liese, 1993, and one based on Earley, 1991, as noted in Table I). For each distortion, its name and definition are provided, as well as several examples (with a mix of substance use and PTSD examples). The list of seven general distortions was drawn from Burns (1980) and was used as a comparison scale to examine the specificity of the CDS. They were shortened and selected from his larger list as ones that might be most relevant to this dual diagnosis population. See Table I for a brief description of the 12 distortions on the CDS and the seven general distortions. It can be noted that a longer clinical version of the CDS is available in the *Seeking Safety* manual (Najavits, 2002b) as the handout for the topic "Creating Meaning." The manual, which was written later than the CDS, provides 9 of the 12 distortions from the CDS; only three were not retained (rose-colored glasses, fooling yourself, and overreacting). Six of the general

**Table I.** Description of Items

Cognitive Distortions Scale[a,b]

| Distortion | Definition |
| --- | --- |
| The escape | You can't tolerate your feelings or solve your problems, so you must find an escape (drugs, self-cutting, sleep, food, etc.). |
| Beating yourself up | In your mind, you yell at yourself and put yourself down. |
| Dangerous permission | You give yourself permission for self-destructive behavior. |
| Time warp | It feels like a negative feeling will go on forever. |
| Short-term thinking | Like a horse with blinders on, you see only what's directly in front of you. You focus only on the short-term (how you'll feel in a few minutes) rather than the long-term (how you'll feel in a few hours, or tomorrow, or later in life). |
| Fooling yourself | You trick yourself into believing something is okay when it's not. |
| Confusing needs and wants | You want something very badly, so you assume that you have to have it. |
| The good old days[c] | You remember only the wonderful highs from something (a drug, an abusive relationship) but ignore all the pain and tragedy associated with it. |
| Overreacting[d] | You make a mountain out of a molehill. Things take on "life or death" proportions in your mind, beyond what is rational. |
| Deprivation reasoning | You have suffered a lot, so you have a right to use substances and self-destructive behaviors. |
| Instant satisfaction[d] | You have a right to immediate satisfaction, without waiting or workings. Life should be easy. |
| Rose colored glasses | Things will work out perfectly from now on. You have no mixed feelings, no ambivalence, no doubts, no worries about the future. |

General Distortions[e]

| Distortion | Definition |
| --- | --- |
| Shoulds | You have a list of how the world should work. When the rules are violated, you feel angry. |
| Focusing on the negative | You magnify all the negatives in a situation, and ignore all the positives. |
| All or none thinking | Things are black or white, good or bad. You have to be perfect or you are a failure. There is no middle ground. |
| Feelings are reality | Because you feel something is true, then it must be true. |
| Fortune-telling | You think you know what the future will bring; you expect disaster and gloom. |
| Mind reading | You know what other people are thinking without having to ask them. |
| Uniqueness fallacy | You believe that you alone have a particular problem; no one else could possibly understand. |

[a]From the Cognitive Distortions Scale (Najavits, 1993). An expanded version can be found in Najavits (2002b) in the chapter "Creating Meaning."
[b]In the CDS, the term "basic belief" was used in this column rather than "distortion" so as not to bias responses.
[c]Based on Earley (1991).
[d]Based on Beck, Wright, Newman, and Liese (1993).
[e]From Burns (1980).

distortions are also provided in that chapter (all except fortune-telling). Because the manual was designed as an intervention, the list of distortions is much lengthier than the CDS, which was designed as a shorter scale that might have research feasibility and utility.

## Data Analysis

Descriptive statistics were conducted on sociodemographic and clinical characteristics of the full sample, and independent samples $t$ tests were used to compare the two groups (dual diagnosis versus single-diagnosis) on these variables. For any variables where the two groups differed, they are reported separately below. Those that were not different are reported for both groups combined. Next, the three main questions of this study were analyzed as follows. First, to address psychometric properties of the CDS, we calculated the intercorrelations of all items, Cronbach's alpha, and conducted a factor analysis using principal components analysis and varimax rotation (with a cutoff for factor loadings of .55 and higher). These psychometric analyses were conducted only on the dual diagnosis sample, as that is the population for whom the measure is intended. Second, the distortions endorsed by the dual diagnosis versus single-diagnosis samples were compared using independent samples $t$ tests for each of the items in the CDS. Third, to evaluate the specificity of cognitive distortions, we compared the two groups using independent samples $t$ tests on each item of the CDS, each item on the list of general distortions, and the mean across items within each. We also conducted a within-group comparison of the means across items using paired-samples $t$ tests. Finally, to evaluate whether items that had substance abuse examples were endorsed differentially than those without such examples, we conducted paired-sample $t$ tests. We did not use Bonferroni corrections in this exploratory study because the risk of Type II error is presumed more important than Type I error in this phase of the research.

## RESULTS

## Participant Characteristics

We compared the dual diagnosis and the single diagnosis groups on 13 participant characteristics described below to determine whether they differed at intake. The dual diagnosis group had less education than the single diagnosis group ($M = 14.06$, $SD = 2.85$ vs. $M = 16.33$, $SD = 3.90$, $t(128) = -3.40$, $p < .01$) and was older when they experienced their first trauma ($M = 6.25$, $SD = 7.62$ vs. $M = 2.96$, $SD = 5.45$, $t(122) = 2.09$). All other sociodemographic variables are reported for the full sample, except SUD diagnoses, which only apply to the dual diagnosis group.

### Sociodemographic Characteristics

On the ASI ($n = 130$), the frequencies for race were as follows: 103 (79.2%) were Caucasian, 15 (11.5%) were African American, 8 (6.2%) were Hispanic, 2 (1.5%) were Native American, 1 (0.8%) was multiethnic, and 1 (0.8%) did not specify. Participants' mean age at intake was 36.77 ($SD = 8.62$). For marital status, 65 (50.0%) were never married, 33 (25.4%) were divorced, 23 (17.7%) were married, 4 (3.1%) were separated, 4 (3.1%) were widowed, and one (0.8%) was missing. For religious preference, 36 (27.7%) reported none, 28 (21.5%) were Catholic, 26 (20.0%) Protestant, 5 (3.8%) Jewish, 8 (6.2%) "other," and 27 (28.5%) were

missing. In addition, 82 participants (63.1%) were employed, and 48 (36.9%) were unemployed.

### *Trauma Exposure/PTSD Diagnosis*

On the THQ ($n = 130$), with multiple types of trauma possible, 119 (91.5%) reported experiencing a general disaster (e.g., car accident, natural disaster), 115 (88.5%) reported sexual abuse, 102 (78.5%) reported physical abuse, and 102 (78.5%) reported crime victimization. The average number of different types of traumas experienced was 10.24 ($SD = 4.81$). On the SCID ($n = 130$) the mean age of onset for PTSD in the sample was 18.28 years ($SD = 10.42$).

### *SUD Diagnosis*

The rates of current substance dependence in the dual diagnosis group $n = 103$) were as follows (with multiple diagnoses possible): 72 with alcohol dependence (69.9%); 48 with cocaine dependence (46.6%); 31 with cannabis dependence (30.1%); 30 with inhalant dependence (29.1%); 20 with opioid dependence (19.4%); 16 with sedative-hypnotic-anxiolytic dependence (15.5%); 14 with amphetamine dependence (13.6%); 4 with polysubstance dependence (3.9%); 3 with hallucinogen dependence (2.9%) and 3 with other substance dependence (2.9%). Patients obtained a mean of 2.46 ($SD = 1.69$) current substance use disorder diagnoses.

### *Psychometric Characteristics of the CDS*

Several basic properties of the CDS were evaluated for the dual diagnosis sample only, as that is the target population of the scale. Because 10 dual diagnosis participants omitted one or more items on the CDS, the sample size for all analyses in this section was 92. Intercorrelations of the 12 CDS items indicated an average correlation among items of .31 (with a range from .03 to .51). This indicates low overlap among items on the scale and suggests that items are nonredundant. Cronbach's alpha for the scale was .89, which represents a high level of internal consistency. Analysis of alphas with each item deleted ranged from .82 to .84, indicating that deletion of any particular item would not notably increase the total scale alpha. Finally, the range of all items on the scale was 0 to 100, indicating that participants used the full range of the scale. The standard deviations for items ranged from 30.17 to 35.72, also indicating large variance.

The correlation of the CDS mean across items with the general distortions mean across items was .73 ($p < .000$), indicating a moderately high correlation, though not so high as to indicate complete overlap of constructs.

A factor analysis of the CDS was conducted using principal component analysis with varimax rotation and a cutoff of .55 for factor loadings (see Table II). A three-factor solution emerged (eigenvalues above 1), which accounted for 59.6% of the variance. The first factor appears to represent "rationalization" (40.6% of variance) in that all of the items are statements such as having a "right to" or "permission to" engage in substance use and self-destructive behavior, and not having any conflict over this. The second factor could be termed "emotional conflict" (9.6% of variance)

**Table II.** Factor Structure of the Cognitive Distortions Scale[a,b]

| | Component | | |
| --- | --- | --- | --- |
| Cognitive distortion | Rationalization | Emotional conflict | Time distortion |
| Instant satisfaction | **.80** | .11 | .14 |
| Rose colored glasses | **.75** | .17 | .13 |
| Dangerous permission | **.56** | .23 | .10 |
| The good old days | .23 | **.79** | |
| Beating yourself up | | **.72** | .42 |
| Fooling yourself | .43 | **.64** | .22 |
| The escape | .23 | **.60** | .36 |
| Confusing needs and wants | .49 | .50 | .13 |
| Time warp | | .19 | **.83** |
| Short-term thinking | .38 | .30 | **.67** |
| Overreacting | .51 | | **.64** |
| Deprivation reasoning | .48 | .30 | .12 |

[a]Principal component analysis using varimax rotation.
*Note.* *F* loadings below .10 are not listed. Factor loadings meeting the criterion of .55 and above are indicated in bold type.

in that these items refer largely to feeling statements that imply conflict about substance use and self-destructive behavior (e.g., "unable to tolerate the feelings" as in "the escape"; "wanting to use" so much that one believes one "needs" to use as in "confusing needs as wants"; and "yelling at oneself" as in "beating yourself up"). The third factor can be labeled "time distortion" (9.4% of variance), as its three items all refer to distress associated with time that is either too long ("the feeling will never stop" as in "time warp") or too short ("can only see right now" as in "short-term thinking," and "overreacting to an event" as in "overreacting").

### Comparison of Dual Diagnosis versus Single-Diagnosis Patients

Table III shows the comparison of dual- versus single-diagnosis patients on each cognitive distortion of the CDS. A clear pattern is evident: the dual diagnosis group endorsed the distortions more than did the single-diagnosis group on each of the seven items that were significant, as well as on the mean across items. Moreover, the number of significant comparisons (eight of 13 conducted) exceeds that which would be expected by chance at the .05 level. Nine of the 12 item means for the dual diagnosis group are above 50 (and none are below 27.82), indicating moderate to strong endorsement, whereas only two are above 50 (and are as low as 8.15) for the single diagnosis group.

The specific CDS items that differentiated the two groups were: the escape, beating yourself up, fooling yourself, confusing needs and wants, the good old days, deprivation reasoning, and instant satisfaction. These seven items convey prominent SUD themes, such as self-medication (e.g., the escape, deprivation reasoning, instant satisfaction), rationalization (e.g., fooling yourself, deprivation reasoning, confusing needs and wants, the good old days), and the harsh self-blame typical of abstinence violation (e.g., beating yourself up). These may be less relevant to PTSD alone. Similarly, the two general distortions that were significantly higher in the dual diagnosis sample assess harsh self-blame (shoulds) and rationalization (feelings are reality).

It is also notable that for the dual diagnosis group, the highest endorsement was for "escape" and "beating yourself up" (both of which reflect intense emotional pain), and the lowest was for "rose colored glasses" (which represents an overly-positive view). For the single-diagnosis group, the highest endorsement was for "beating yourself up" and the lowest for "dangerous permission."

## Specificity of Cognitive Distortions

Table II indicates that seven of the 12 items of the CDS (58.3%) significantly differentiated the dual diagnosis from single-diagnosis samples, and 5 (41.7%) were not significantly different. Of the general items, 2 (28.6 %) significantly differentiated the dual diagnosis from the single-diagnosis samples (with the dual diagnosis sample higher on both), whereas 5 (71.4%) of the general items did not differ significantly. This pattern suggests that indeed, the CDS is more specific to dual diagnosis patients than were general cognitive distortions. Similarly, the dual diagnosis group was significantly higher than the single-diagnosis group on the CDS mean across items, but the two groups did not differ in their endorsement of the general distortions. In addition, we conducted paired-sample $t$ tests on the two subscales to determine whether there were significant differences *within* each of the two groups. For the single-diagnosis group, there was a significant difference ($M = 44.64$ vs. $31.17, t(26) =$

**Table III.** Cognitive Distortions in Dual Diagnosis versus Single-Diagnosis Samples

| | $M$ ($SD$) | | |
| --- | --- | --- | --- |
| Cognitive distortions | Dual diagnosis[a] | Single diagnosis[b] | $t$ |
| Cognitive Distortion Scale | | | |
| The escape | 63.45 (30.50) | 42.33 (38.06) | 2.67* |
| Beating yourself up | 63.01 (31.91) | 58.82 (41.33) | 0.49 |
| Dangerous permission | 62.64 (33.09) | 8.15 (22.18) | 9.84** |
| Time warp | 60.23 (30.58) | 56.59 (34.36) | 0.53 |
| Short-term thinking | 56.09 (32.31) | 45.37 (36.86) | 1.48 |
| Fooling yourself | 55.52 (31.30) | 26.93 (33.94) | 4.14** |
| Confusing needs and wants | 52.85 (34.01) | 30.74 (38.79) | 2.91** |
| The good old days | 52.01 (36.63) | 11.48 (24.68) | 6.77** |
| Overreacting | 51.94 (35.17) | 40.19 (33.50) | 1.56 |
| Deprivation reasoning | 48.78 (35.60) | 13.81 (26.75) | 5.61** |
| Instant satisfaction | 44.11 (35.93) | 21.48 (30.79) | 3.27** |
| Rose colored glasses | 27.82 (33.13) | 18.15 (28.49) | 1.39 |
| Mean across all CDS items | 53.10 (21.21) | 31.17 (19.52) | 4.86* |
| General cognitive distortions | | | |
| Shoulds | 59.92 (33.87) | 43.22 (33.54) | 2.28* |
| Focusing on the negative | 59.80 (31.76) | 52.04 (35.93) | 1.10 |
| All or none thinking | 59.76 (34.70) | 51.41 (43.15) | 0.93 |
| Feelings are reality | 53.62 (35.56) | 38.44 (33.34) | 2.00* |
| Fortune-telling | 52.75 (34.29) | 48.41 (35.06) | 0.58 |
| Mind reading | 50.85 (35.55) | 40.22 (36.90) | 1.37 |
| Uniqueness fallacy | 48.91 (37.65) | 38.70 (40.78) | 1.23 |
| Mean across all general items | 55.37 (24.20) | 44.64 (29.68) | 1.73 |

*Note.* All items are scaled from 0% (*not at all*) to 100% (*all the time*).
[a]Sample size ranged from 97 to 102.
[b]Sample size = 27.
*$p \leq .05$, two-tailed. **$p \leq .01$, two-tailed.

−4.39, $p < .000$) indicating higher endorsement of general than dual diagnosis distortions, whereas the comparison within the dual diagnosis group was not significant. In sum, the evidence suggests specificity of the cognitive distortions assessed on the CDS in the expected direction (greater endorsement of dual diagnosis distortions by the dual diagnosis group and greater endorsement of general distortions by the single-diagnosis group).

Finally, we also analyzed whether the presence of substance abuse examples for some items may have influenced responses. When we compared the eight items from the CDS that use substance abuse examples versus the four items that do not, the single-diagnosis group evidenced significantly lower endorsement of the items with substance abuse examples ($M = 26.02$ vs. $41.46$, $t (26) = −4.32$, $p < .000$); however, the dual diagnosis group did not show a significant difference ($M = 52.76$ vs. $53.96$).

## DISCUSSION

This is the first empirical study of cognitive distortions in a sample of people with the dual diagnosis of PTSD and SUD, using a new measure, the Cognitive Distortions Scale (Najavits, 1993) designed for this dual diagnosis. We compared a sample of 102 participants diagnosed with both current PTSD and SUD (the dual diagnosis group) to a control sample of 27 participants diagnosed with current PTSD but no lifetime history of any SUD (the single-diagnosis group). Our dual diagnosis sample was typical of this treatment population in its clinical severity, age of trauma onset, and multiple traumas (Brady et al., 1994; Brown et al., 1995; Najavits et al., 1997, 1998).

We explored three questions. Our first question addressed the initial psychometric properties of the CDS, with findings indicating a promising scale. It had high internal consistency, a low intercorrelation of items, and high variability indicating full use of the 100-point scale for each item. An initial factor analysis included all CDS and general distortion items, and indicated that most of the general distortions loaded on a single factor, with most the CDS items loading on other factors. A second factor analysis on the CDS items alone suggested three factors, that accounted for 60% of the variance: "cognitive rationalization," "affective conflict," and "time distortion."

Second, how did the dual diagnosis group compare to the single-diagnosis group on the CDS? We found a consistent pattern in that the dual diagnosis group endorsed more frequent cognitive distortions than did the single diagnosis group on a majority of CDS items, as well as on the mean across items. Moreover, the dual diagnosis group rated the majority of CDS items above 50%, indicating a consistently high level of distortion, whereas the single-diagnosis group rated only two above 50%, indicating a milder level of distortion. These findings suggest that women with PTSD and substance use disorder suffer a greater degree of cognitive distortion than women with PTSD alone, although it will be important to also compare this dual diagnosis group to an SUD only group. This is congruent with other literature on this dual diagnosis, which in general indicates a greater level of impairment and psychopathology than single-diagnosis comparison samples (Najavits et al., 1998; Najavits, Weiss, & Shaw,

1999; Ouimette et al., 1998). The particular types of distortions, moreover, speak to the intense negative emotion in this sample, with distortions such as "the escape" and "beating yourself up" as the most endorsed, and a distortion such as "rose-colored glasses" (indicating an overly positive bias) as the least endorsed.

Clinically, the need to attend to cognitive distortions seems evident, including helping patients identify them and using cognitive restructuring techniques to alter them. Given the pervasive, high levels of distortion in our dual diagnosis sample, clinicians might need specialized training in such interventions. It seems especially important to help patients validate how their past—the experience of trauma and the use of substances—may have naturally led to such distortions. Indeed, it has been recommended (Najavits, 2002b), that they not even be called "distortions" but rather be labeled with a more neutral term such as "meanings" or "basic beliefs", which do not imply that the patient is "thinking wrong". In PTSD, for example, it is known that patients' subjective experience of distress needs validation and empathy, rather than minimization or criticism (Back et al., 2001; Brown et al., 1995; Kofoed, Friedman, & Peck, 1993; Najavits, 2002b). In SUD, substances often *did* help to solve patients' problems, albeit only in the short term or at significant cost to their lives. Thus, what we term distortions are really representations of patients' experience of reality that now need to be modified as they (hopefully) create a new reality of healing and recovery.

For the cognitive distortion "beating yourself up", for example, patients can be guided to understand that this is extremely common in both PTSD and SUD, that it may reflect internalization of how others treated them growing up, and that it functions as a defense against painful feelings that need to be brought to the surface and faced openly. It often takes intensive therapeutic work to help patients successfully change this type of distortion, particularly for people who experienced chronic, decades-long PTSD and SUD, as in our sample. Empirically studied treatments specifically designed for this population may be useful (Back et al., 2001; Najavits, 2002b; Triffleman, Carroll, & Kellogg, 1999).

Our third question addressed the specificity of cognitive distortions. We compared the CDS, consisting of 12 distortions that are hypothesized to be specific to this dual diagnosis, to seven more general distortions drawn from from Burns (1980). Several findings evidenced specificity. A majority items on the CDS, as well as its mean across items, distinguished the dual diagnosis from the single-diagnosis groups in the expected direction (with the dual diagnosis more severe). In contrast, only two of the general cognitive distortions significantly differentiated the two groups, and the mean across items on the general distortions list did not distinguish them. Within-group comparison revealed that the single-diagnosis sample was significantly higher on the general distortions than on the specific distortions of CDS. This fits the pattern one would expect in that those with PTSD-alone are more likely to endorse general cognitive distortions than they are to endorse items designed for a dual diagnosis sample. However, the within-group comparison of the dual diagnosis group did not evidence significant differences; they were high on both general and CDS distortions. This underscores the overall high levels of distress and cognitive distortion inherent in dual diagnosis. The general distortions are applicable to all patients, and thus it

makes sense that the dual diagnosis sample would endorse these highly as well, given their known clinical presentation as very symptomatic, with relatively low functioning and a difficult treatment course. What is interesting, therefore, is the finding that over and above such general distortions, there is evidence that distortions specific to the dual diagnosis are also highly endorsed, and in a pattern that indicates specificity as compared with a single-diagnosis sample. An initial factor analysis that loaded most of the general distortions onto a single factor, and most of the dual diagnosis distortions onto other factors also supports specificity.

The issue of specificity is important not solely for the development of an instrument such as the CDS, but also more broadly in the context of current knowledge about dual diagnosis assessment and treatment. One of the as-yet-unanswered questions is whether dual diagnosis patients need targeted services designed for them or whether existing services might suffice. A variety of public health implications follow as well: the need for patients to access to specialized services for particular dual diagnoses, the costs associated with such, and the relative cost of *not* addressing the dual diagnosis adequately and thus potentially having patients repeatedly cycle through treatment systems. The specificity found in this study is a small footnote to this larger debate, adding to some accumulating evidence on the benefits of specialized assessment and treatment (Back et al., 2001; Evans & Sullivan, 1995; Najavits, Weiss, Shaw, & Muenz, 1998; Triffleman et al., 1999; Trotter, 1992) However, an ultimate conclusion is far from clear (e.g., see Randall, Thomas, & Thevos, 2001).

The CDS appears to offer promise as a measure that provides a cohesive set of items that assess distortions relevant to the dual diagnosis of PTSD and SUD. However, this is only a first step in examining the psychometric properties of this new measure. Future work might include testing on larger and more diverse samples, examining test–retest reliability and convergent validity of the CDS, comparing the CDS to other cognitive distortion scales, and administering the CDS to a SUD-alone sample. The relatively high correlation between the CDS items and the general distortions (.73) in this study and the lack of significant difference between these scales within the dual diagnosis group suggest that it might be useful to conduct further comparisons of the CDS and the general distortion scale.

Some limitations of this study include its solely adult female sample; the small size of our PTSD-alone comparison group; the absence of other comparison groups such as SUD-alone and normal (no psychiatric diagnoses); and the use of substance abuse examples for some items, which may have cued participants with the dual diagnosis to endorse those items at a higher rate. Because participants were not assessed comprehensively for other Axis I and II disorders, the impact of co-occurring disorders typical of this population cannot be addressed (e.g., major depression). Such additional disorders might affect ratings of distorted thinking. The two sociodemographic differences between the two groups in this study (years of education and age of first trauma) also would need to be explored further in future research on the CDS.

In future research, it would be very interesting to explore whether particular distortions on the CDS are more relevant for the PTSD diagnosis, the SUD diagnosis, or both; whether the distortions change in any particular order as patients remit from substance use and overcome PTSD symptoms, the extent to which the

CDS represents a clinical intervention as well as a research tool, and how particular treatment interventions differentially impact different distortions. With further psychometric evaluation, the CDS might be useful in clinical trials, as successful treatment of this population may be marked by improvements in cognitive distortions specific to them. The scale could also be used potentially as a screening tool to evaluate patients' need for and interest in cognitive therapy for this dual diagnosis.

## ACKNOWLEDGMENTS

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