

# Beyond the Unexplainable Pain

## Relational World of Patients With Somatization Syndromes

Alla Landa, PhD,\* Anthony P. Bossis, PhD,† Laura S. Boylan, MD,‡§ and Philip S. Wong, PhD||

**Abstract:** Somatization syndromes are highly prevalent disorders with unknown etiology and are challenging to treat. Integrating previous findings on alexithymia, attachment, and trauma, we hypothesized that somatization syndromes are associated with a specific internal representation of relationships—the unmet need for closeness with others (desire for interpersonal closeness combined with the fear of being rejected, hurt, or abandoned). Twenty patients with *DSM-IV* somatization syndromes and 20 well-matched healthy controls completed the Relationship Anecdotes Paradigm/Core Conflictual Relationship Themes interview and measures of interpersonal relatedness, alexithymia, and history of trauma. The results showed that the unmet need for closeness with others was the main internal representation of relationships in 90% of the patients and in only 10% of controls; it was also the strongest predictor of somatization syndrome diagnosis. This suggests that somatization syndromes are strongly associated with the interpersonal representation of the unmet need for closeness with others, which has direct implications for their treatment and future research on their etiology.

**Key Words:** Somatoform disorders, somatization disorder, interpersonal relationships, alexithymia, affect regulation.

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Somatization syndromes (SS) are highly prevalent and debilitating conditions. The nosological subtypes (*e.g.*, Somatization, Pain, or Undifferentiated Somatoform Disorders in *DSM-IV* or Complex Somatic Symptom Disorder in the *DSM-5* proposal) are all characterized by experience of medically unexplained somatic symptoms, with psychosocial factors playing an important role in symptom formation. Prevalence rates of SS reach up to 16% of the general population (depending on the number of somatic medically unexplained symptoms used as a criterion), and SS account for nearly 25% of all visits to primary care clinics (Escobar et al., 1998; Kellner, 1990; Kirmayer and Robbins, 1991; Kroenke, 2003; Kroenke et al., 1997; Rief et al., 2001; Smith et al., 2005; Toft et al., 2005). SS have been described by both mental health and medical professionals as one of the most challenging disorders to treat: pharmacological treatments have not yet been successful, and there is still a debate as to what kind of psychosocial interventions are most helpful. This problem leads to ineffective use of health care, costing an estimated \$256 billion annually to the United States (compared with the \$132 billion annual cost of diabetes in 2002; Barsky et al., 2005; Fink, 1992). However, the etiology of this disorder is still unknown. There is an acute need for research on the underlying causes of SS, which can lead to the development of targeted effective treatments.

Impaired affect regulation is thought to be one of the important etiological factors in the development of SS symptoms (Aron and Anderson, 1998; Bucci, 1997; Taylor et al., 1997). This theory is based on reports of high incidence of alexithymia—or difficulty expressing emotions verbally—among SS patients and on the hypothesis that alexithymia may lead to these patients experiencing emotional distress as somatic symptoms. Numerous studies confirm that alexithymia and deficits in emotional awareness are much more prevalent among SS patients (33% to 55%) compared with both healthy controls (8% to 10%) and psychiatric patients without somatic symptoms (Bach and Bach, 1995; Cox et al., 1994; De Gucht and Heiser, 2003; Subic-Wrana et al., 2010). Alexithymia is also associated with somatic distress in the general population (De Gucht and Heiser, 2003; Mattila et al., 2008). However, the etiology of alexithymia among SS patients is unknown. In addition, at least half of these patients are not alexithymic.

In this study, we explored whether another factor—the internal representations of others—may be underlying both somatic symptoms and alexithymia in patients with somatization disorders. Specifically, we propose that the internal representations of others as hurting, not trustworthy, or unavailable (which may stem from a nonoptimal early interpersonal environment and/or interpersonal traumas) may hinder the development of mature affect expression and regulation capacities, which, in turn, may result in a tendency to express distress somatically. This hypothesis is based on the following integration of previous research.

### Emotional Expression and Interpersonal Representations

The expression of emotion involves the following phases: (A) an experience of emotion (*e.g.*, reaction to an emotional stimulus), (B) appraisal/awareness of that experience (*e.g.*, was it positive or negative, etc.), and (C) expression/communication of that experience to others. An experience of emotion (A) may be communicated in various ways and at different levels of maturity (*e.g.*, facial expressions, words, actions, somatic complaints, etc.). Interpersonal context plays a crucial formative role in the expression of emotions and distress. In fact, emotion regulation theory suggests that one of the major purposes of emotional expression is the communication of affect to other people for the purpose of interpersonal affect regulation (*e.g.*, to elicit empathy, support, etc.). Therefore, an emotion is expressed at all and how it is expressed (C) may depend not only on the person's ability to communicate that emotion but also on the interpersonal context. This interpersonal context includes both the actual characteristics of the interpersonal environment (*e.g.*, whether others are empathic and responsive to a person's expression of emotions) and the person's perception of that environment—that is, whether a person perceives others as able to adequately receive his or her communication of an emotion and respond in a desired way (*e.g.*, whether others are perceived as empathic enough for him/her to express emotions openly). Therefore, a person's internal representations of others are the important determinants of the person's emotional expressiveness.

Alexithymic phenomenology may be a result of a disruption at any of the emotional expression phases (A, B, or C). Moreover, different alexithymic patients may have different etiology of their

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alexithymia. Which stages of emotional processing are likely to be disrupted among alexithymic SS patients? Previous research has demonstrated that most alexithymic patients experience measurable emotional reactions (phase A); for instance, their physiological reactions to emotional stimuli are the same as or greater than those among nonalexithymic subjects (Stone and Nielson, 2001), and they are responsive to the emotionality of the stimuli during the Emotional Stroop test (Pandey, 1995; Parker et al., 1993). Therefore, phase A may not be impaired in most alexithymic SS patients. Therefore, phases B (appraisal/awareness) and/or C (expression/communication to others) are likely disrupted among these patients. Interpersonal representation of others as hurting, not trustworthy, or unavailable may hinder a person's expression of emotion to others (phase C). In addition, the perceived lack of an interpersonal emotional outlet may motivate a person to keep the experienced emotion out of awareness (disruption of phase B) because the awareness of a painful emotion may be too overwhelming for a person who feels that he or she can rely only on himself or herself for emotional regulation.

The influence of the internal representations of others as hurting, not trustworthy, or unavailable on affect expression may manifest not only in alexithymic but also in nonalexithymic patients. Nonalexithymic patients who perceive others as nonresponsive/nonempathic may restrict their expression of emotions not profoundly (as alexithymic patients) but selectively (*e.g.*, only their most painful affects). To address these hypotheses, the internal representations of others among both alexithymic and nonalexithymic patients with somatization syndromes need to be examined. What is already known about SS patients' perceptions of others and about their interpersonal relationships from previous research?

### Interpersonal World of Patients With Somatization Syndromes

Somatization syndromes are associated with marked interpersonal problems, interpersonal mistrust, and insecure/fearful attachment (Ciechanowski et al., 2002; Hagekull and Bohlin, 2004; Kirmayer et al., 1994; Maunder and Hunter, 2001; Solano et al., 2000; Stuart and Noyes, 1999; Taylor et al., 2000; Waldinger et al., 2006; Waller et al., 2004) and with personality disorders (Bornstein and Gold, 2008). A review of human and animal studies suggests that insecure attachment likely contributes to maladaptive stress and affect regulation that, in turn, leads to somatic distress (Maunder and Hunter, 2001). Moreover, weekly ratings of somatic distress were highly correlated with the exacerbations of relational problems in SS patients (Blaustein and Tuber, 1998). In another study, patients with medically unexplained chronic fatigue had a tendency to expect others to disrespect or reject them (Vandenbergen et al., 2009).

Interestingly, alexithymia is also associated with insecure attachment and interpersonal difficulties (Lemche et al., 2004; Spitzer et al., 2005; Wearden et al., 2005). It was also positively correlated with the Discomfort with Closeness, Relationships as Secondary, and Need for Approval dimensions of an interpersonal relatedness scale and was negatively correlated with the Confidence in Others scale (Montebarocci et al., 2004). These results suggest that alexithymic individuals may have problems trusting others while wanting approval from others.

SS patients' interpersonal difficulties and anxious attachment style may stem from early experiences with caregivers (Stuart and Noyes, 1999). Early childhood caregivers of these patients were reported to be unavailable or providing less maternal care (Craig et al., 1993), to have long-term disability (Bass and Murphy, 1995), and to be punitive and rejecting (Violon, 1985). SS patients reported more interpersonal stress factors and more frequently reported the death or disease of a parent, a caretaker, or a close relative (de Leon et al., 1987; Mallouh et al., 1995). The history of psychological trauma is very common among SS patients (Krystal and Krystal, 1988). It was

also shown that somatic distress is associated particularly with interpersonal traumas (*e.g.*, being attacked or losing a parent). For example, posttraumatic stress disorder patients who survived interpersonal traumas had significantly more somatic symptoms than did the victims of natural disasters (van der Kolk et al., 1996).

### Internal Representations of Relationships Among Patients With Somatization Syndromes

The integration of these previous research findings suggests that SS patients' relational world is often characterized by marked interpersonal problems and representations of others that may hinder the expression of affect. However, the specific internal representations of these patients have not yet been explored. Identification of the specific internal representations of relationships among SS patients may shed light on one of the symptom formation mechanisms in SS, may lead to generating specific hypotheses about potential mechanisms of change in treatment, and may contribute to the development of new targeted treatments for these patients.

Insecure attachment and early interpersonal traumatic experiences may lead to the perception of others as hurting, rejecting, abandoning, untrustworthy, or unavailable. If such perceptions of others start from early experiences with caregivers, they are likely to persist from infancy throughout childhood—a time when the capacities for affect symbolization, verbal expression, and affect regulation are developing (Bucci, 1997). Thus, a profound interpersonal insecurity may hinder the development of mature affect expression and interpersonal affect regulation capacities. This, in turn, may lead to a tendency to express distress somatically, which is characteristic of the earlier stages of development. The inability to regulate affect in an effective way may also lead to an overwhelming emotional responding (including endocrine, immune, and central nervous system changes, etc.) affecting the body and may increase the body's sensitivity to environment, leading to more somatic distress. Even if a person develops the adequate capacities to express emotions to others (*i.e.*, does not have alexithymia) yet perceives others as hurting, rejecting, or unavailable to respond to his or her emotional expression, he/she may still experience distress as somatic symptoms at the most stressful times (this would explain somatic symptoms among nonalexithymic SS patients). Therefore, whether SS patients tend to perceive others as hurting, rejecting, or unavailable needs to be tested empirically.

To address this question, our study examined the specific internal representations of relationships prevalent among SS patients using a multimethod approach, including both interview and self-report measures. To achieve this goal, we chose the Core Conflictual Relationship Themes (CCRT)/Relationship Anecdotes Paradigm (RAP) method (Luborsky and Crits-Christoph, 1998) because it provides an excellent way to assess the specific relational representations, expanding our understanding of relational dynamics in SS beyond the global assessments of interpersonal functioning (*e.g.*, attachment classification). We hypothesized that a) SS patients would present with higher levels of the Unmet Need for Closeness with Others (UNCO)—a desire for interpersonal closeness combined with the fear of others being rejecting, hurting, or unavailable, b) this would be characteristic of both alexithymic and nonalexithymic SS patients, c) SS patients would have a more severe history of interpersonal traumas than healthy controls, and d) the UNCO would be the strongest predictor of somatization disorder diagnosis, mediating the influences of the history of interpersonal trauma and alexithymia on the likelihood of a somatization diagnosis.

## METHODS

### Participants

Twenty SS patients diagnosed with somatization, pain, or undifferentiated somatoform disorder according to the *DSM-IV*

(1994) were referred to the study by their treating physicians in the Pain, Neurology, Primary Care, or Psychiatry clinics of several New York City hospitals. Twenty healthy controls were recruited from the community and matched to SS patients by age, sex, ethnicity, and level of education. Only native English speakers were enrolled in the study to control for possible variations in emotional verbal expressiveness in a second language (Marcos, 1976). Participants with current diagnoses of major depressive and generalized anxiety disorders, substance abuse or dependence within the last 3 months, or a history of psychosis, bipolar disorder, head trauma, or neurological disorder were excluded.

## Measures

### Diagnosis and Symptoms

Structured Clinical Interview for *DSM-IV* (SCID) was used to confirm inclusion/exclusion criteria. Brief Symptom Inventory (BSI), a 53-item self-report Likert-type scale, was used to assess a range of psychiatric symptoms during the past week. BSI yields the Global Severity Index and several subscales, including the somatization subscale.

### Internal Representations of Relationships and Interpersonal Functioning

Relationship Anecdotes Paradigm (RAP) is a semistructured interview designed to identify the main interpersonal representations and themes of a person according to the CCRT method (Luborsky and Crits-Christoph, 1998). CCRT has been widely used by researchers worldwide for more than 20 years, and its validity and reliability were demonstrated in multiple studies (Luborsky and Crits-Christoph, 1998). In the RAP, a participant is asked to tell 10 relationship episodes (3 to 5 minutes each) involving any other person that took place anytime during the participant's life. Each of the 10 episodes is then coded for a) Wish, Need, or Intention (W) of the participant; b) Response from Other (RO)—participant's perception of the other person; and c) Response of Self (RS)—participant's reaction to the interpersonal interaction. The coding method provides a list of 30 to 35 standard categories for Ws, ROs, and RSs, which are then further clustered, producing lists of eight categories for each dimension. Based on the combination of the most frequent W, RO, and RS, a person's main interpersonal schema (or the CCRT) is formulated. RO and RS components are also scored as either positive or negative on a Likert-type scale from  $-2$  to  $+2$ : positive score is given if RO or RS is in agreement with the W (e.g., W is "to be helpful" and RS is "I am helpful"); a negative score is given if RO or RS is not in agreement with the W (e.g., W is "to be close" and RO is "other is rejecting").

The data in this study were then analyzed in the following ways: a) the most frequent W, RO, and RS of a participant; b) the average positivity/negativity of ROs and RSs for a participant; c) the presence of the UNCO in the main CCRT of a subject (coded if CCRT contained W "to be close and accepting" or "to be loved and understood by others" and RO was "rejecting, hurting, bad, not trustworthy, or unavailable"; d) the pervasiveness of the UNCO, calculated as the proportion of 10 episodes in which the UNCO was present; e) the pervasiveness of a theme of mistrust, calculated as the proportion of 10 episodes in which it was present.

To establish interrater reliability, an independent CCRT-trained coder (blind to the participants' diagnoses) rated a randomly selected 20% of the RAP interviews (the main coder was not blind to participants' diagnoses). The weighted kappa statistic was used to compute interrater reliability according to a widely used method (Fleiss and Cohen, 1973; Luborsky and Crits-Christoph, 1998). The interrater reliability was good for the W component ( $\kappa_w = 0.77$ ), excellent for RO ( $\kappa_w = 0.83$ ), and excellent for RS ( $\kappa_w = 0.98$ ).

Self-report measures included the Bell Object Relations Inventory (BORI) and Trust versus Mistrust (T vs M) subscale of the Measures of Psychosocial Development (MPD). BORI is a self-report scale that consists of 45 true-or-false statements about interpersonal relationships, such as "It is hard for me to get close to anyone." The T vs M subscale of MPD was used as a self-report measure of trust and mistrust. MPD is a self-report instrument designed to assess a participant's degree of resolution of Erickson's eight developmental stages. The T vs M subscale consists of 14 self-descriptive statements, which participants rate on a 5-point scale from "very much like me" to "not at all like me," and yields Trust, Mistrust, and T vs M Resolution scores.

### History of Trauma

Life History Questionnaire contains a list of various types of traumatic events (e.g., fire, death of someone close). Participants indicate whether they ever lived through these traumatic events. In this study, these events were then classified as interpersonal (e.g., sexual assault, divorce, or separation) or noninterpersonal (e.g., earthquake) by the research team.

### Alexithymia

The Toronto Alexithymia Scale (TAS; Bagby et al., 1994) is a 20-item self-report Likert-type scale designed to measure alexithymia defined as a personality trait composed of the following features: a) difficulty identifying feelings, b) difficulty describing feelings to other people, and c) externally oriented thinking. The scale was shown to have good validity and reliability (Taylor et al., 1997).

### Procedure

SS patients were referred by their treating physicians based on their clinical SS diagnosis. Healthy control participants were recruited from the community. After telephone screening, the participants came to the medical center for a research interview. SS diagnosis and inclusion/exclusion criteria were confirmed by the SCID interview. All interviews were videotaped. The participants were paid \$20 for their time. A short debriefing was conducted at the end of each session to help the participants process any psychological reactions to the interview. During this debriefing, several SS participants reported that the interview made them more aware of their emotional distress and history of interpersonal trauma and that talking about it was helpful. About 30% of patients expressed interest in trying psychotherapy. The research team then worked with these patients' physicians to find the appropriate referrals.

### Statistical Analyses

A nonparametric Mann-Whitney *U*-test was used to analyze the variables with skewed distributions. Chi-square analysis was applied to categorical data. Alexithymia scores were analyzed using a *t*-test. Cohen *d* or Cramer *V* was used for power analysis for parametric and nonparametric tests, respectively.

## RESULTS

### Participants

The participants were of variable age (20 to 65 years; mean [SD], 47 [12.6]), sex (55% male), ethnicity, and education. Healthy controls did not significantly differ from patients on these demographic characteristics (Table 1). On average, the global severity BSI scores of SS patients reported significantly higher (mean [SD], 1.04 [0.94]; median, 0.78) than the global severity BSI scores of healthy controls (mean [SD], 0.23 [0.20]; median, 0.17;  $U = 42.5$ ,  $p = 0.0001$ ). On the somatization subscale of the BSI, SS patients, on average, reported being distressed by somatic symptoms significantly more (mean [SD], 1.64 [1.05]; median, 1.29) than healthy controls (mean [SD], 0.17 [0.25]; median, 0.07;  $U = 20$ ,  $p < 0.001$ ).

**TABLE 1.** Demographic Characteristics of Study Participants

Demographic Characteristics	SS Patients		Healthy Controls		<i>t</i>	<i>p</i>
	%	<i>n</i>	%	<i>n</i>		
Sex						
Male	55	11	55	11		
Female	45	9	45	9		
Ethnicity						
African-American	25	5	40	8		
Asian	0	0	0	0		
White	35	7	45	9		
Hispanic	30	6	15	3		
Other	10	2	0	0		
	<b>Mean</b>	<b>SD</b>	<b>Mean</b>	<b>SD</b>		
Age, yrs	49	10.9	46	13.7	0.86	0.40
Education, yrs	13.63	3.31	15.33	3.24	-1.7	0.09

SS indicates somatization syndromes.

SS patients reported significantly more alexithymia on the TAS (mean [SD], 53.1 [13.9]) than healthy controls (mean [SD], 39.9 [10.1];  $t(40) = 3.4$ ;  $d = 1.09$ ,  $p < 0.002$ , two-tailed). Based on TAS score categorization (>61, “alexithymic”; <51, “nonalexithymic”), eight (40%) SS patients were alexithymic, which was significantly different from one (5%) healthy control subject ( $\chi^2[2, n = 40] = 13.9$ , Cramer  $V = 0.6$ ,  $p < 0.001$ ). The TAS was significantly positively correlated with the Global Severity Index of BSI ( $r = 0.53$ ,  $p < 0.001$ ) as well as with all subscales of BSI, including somatization ( $r = 0.49$ ,  $p < 0.002$ ).

## Interpersonal Functioning

### Internal Representations of Relationships on Interview Measure

#### RAP-CCRT components

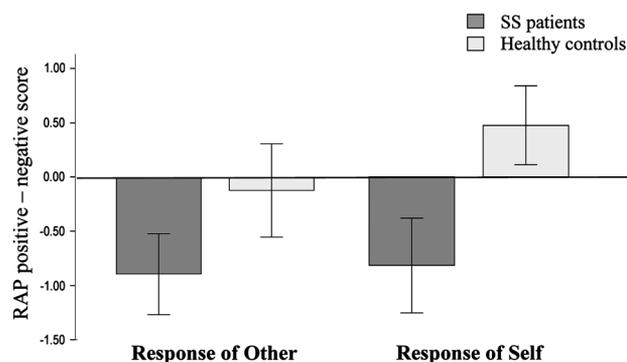
SS patients' most frequent W in RAP relationship episodes was either “to be loved and understood” (70% of patients) or “to be close and accepting” (30% of patients), whereas the controls' Ws were distributed among all eight possible categories ( $\chi^2[5, n = 40] = 15.3$ , Cramer  $V = 0.6$ ,  $p < 0.01$ ).

SS patients' most frequent RO was the perception that the other was “rejecting or opposing” (80% of patients) or “bad” (10% of patients), whereas the controls' most frequent RO was “rejecting or opposing” (30% of controls), with other ROs distributed among all eight possible categories ( $\chi^2[5, n = 40] = 12.4$ , Cramer  $V = 0.6$ ,  $p = 0.055$ ). SS patients' ROs were significantly more negative (that is, not meeting the need expressed in the W): mean [SD], -0.96 [0.86]; median, -1.05, as opposed to mean [SD], -0.13 [0.99]; median, -0.60 among healthy controls ( $U = 105.6$ ,  $p < 0.01$ ; Fig. 1).

Somatizing patients' most frequent RS was “disappointed and depressed” (85% of patients) or “felt bad” (10% of patients), whereas controls' most frequent RSs distribution was “disappointed and depressed” (35% of controls), “self-controlled and self-confident” (25% of controls), and “helpful” (20% of controls;  $\chi^2[5, n = 40] = 15.4$ , Cramer  $V = 0.6$ ,  $p < 0.01$ ). SS patients' RSs were significantly more negative that is, not meeting the need expressed in the W (mean [SD], -0.82 [0.93]; median, -0.91, as opposed to mean [SD], 0.48 [0.77]; median, 0.10, among healthy controls,  $U = 54$ ;  $p < 0.001$ ; Fig. 1).

#### Unmet need for closeness with others

UNCO was the main interpersonal pattern for 90% of SS patients, compared with only 10% of controls ( $\chi^2[19, n = 40] = 23.7$ , Cramer  $V = 0.8$ ,  $p < 0.000$ ). SS patients presented with significantly



**FIGURE 1.** Positive-negative scores of Response of Other and Response of Self in the main CCRT on RAP interview among SS patients and healthy controls. RAP indicates Relationship Anecdotes Paradigm; CCRT, Core Conflictual Relationship Theme; SS, somatization syndromes.

higher levels of pervasiveness of the UNCO (mean [SD], 6.4 [2.3]; median, 7.0) than did healthy controls (mean [SD], 2.3 [1.2]; median, 2.0;  $U = 19$ ,  $p < 0.005$ ; Fig. 2).

#### Theme of mistrust

SS patients presented with significantly higher levels of pervasiveness of the theme of mistrust (mean [SD], 4.4 [2.8]; median, 4.5) than did healthy controls (mean [SD], 1.7 [1.3]; median, 1.5;  $U = 86$ ,  $p < 0.002$ ).

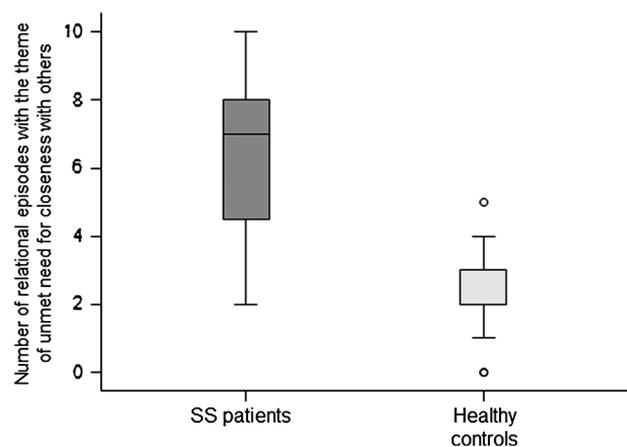
### Self-Report Measures of Interpersonal Functioning

#### BORI and T versus M

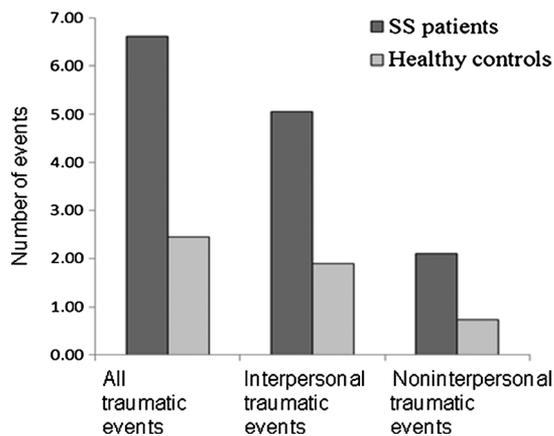
Mann-Whitney  $U$ -test did not reveal any statistically significant differences between the SS patients and healthy controls on BORI or T vs M. The interesting discrepancy between the interpersonal difficulties measured by an interview-based instrument (RAP) and self-report instruments (BORI and T vs M) is addressed in the additional analysis of alexithymic versus nonalexithymic subgroups below.

### History of Interpersonal Trauma

As hypothesized, SS patients reported significantly more traumatic life experiences (mean [SD], 7 [3]; median, 7.0) than did healthy



**FIGURE 2.** Pervasiveness of the Unmet Need for Closeness with Others in RAP interviews among SS patients and healthy controls, as measured by the number of the relationship episodes with the theme of the Unmet Need for Closeness with Others. SS indicates somatization syndromes.



**FIGURE 3.** Mean number of interpersonal and noninterpersonal traumatic events reported by SS patients and healthy controls. SS indicates somatization syndromes.

controls (mean [SD], 2 [3]; median, 2.0;  $U = 54.5, p < 0.0001$ ). On average, 76% of traumatic experiences reported by SS patients were interpersonal in nature. SS patients reported significantly more interpersonal traumatic experiences (mean [SD], 5 [3]; median, 5.0) than did healthy controls (mean [SD], 2 [3]; median, 2.0;  $U = 64.5, p < 0.001$ ; Fig. 3).

**Contribution of the UNCO, Alexithymia, and Interpersonal Trauma to SS Diagnosis**

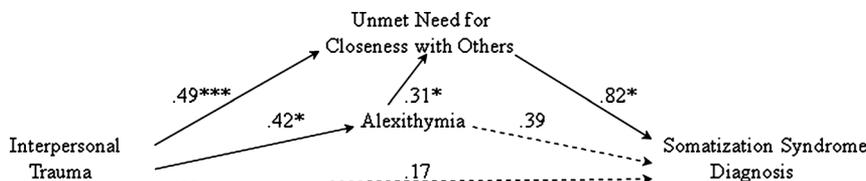
We conducted regression analysis to estimate the contribution of the pervasiveness of the UNCO, alexithymia, as measured by TAS, and the number of reported interpersonal traumatic life events to the SS diagnosis (Fig. 4). For the paths with a dichotomous outcome variable (somatization diagnosis), we used the binary logistic regression; for other paths, we used the linear regression. The regression coefficients were then standardized according to the procedures suggested by MacKinnon and Dwyer (1993). The resulting path coefficients and the associated levels of statistical significance are presented in Figure 4.

**Exploratory Analysis: Alexithymic SS Patients vs. Nonalexithymic SS Patients vs. Healthy Controls**

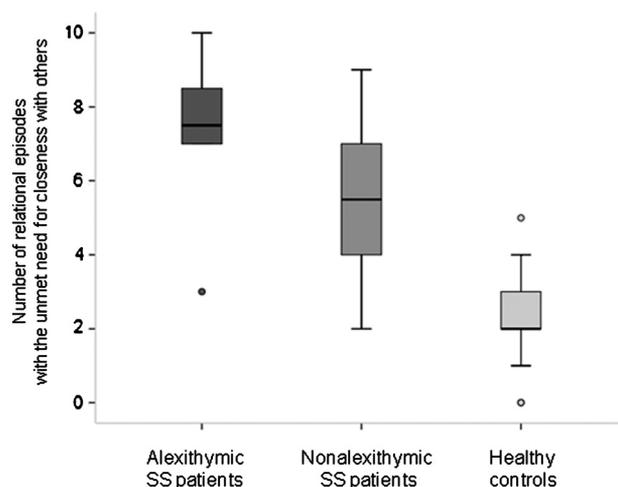
To explore the discrepancy between the interview and self-report measure results and to characterize further a rarely studied separately nonalexithymic SS patient subgroup, we conducted additional analyses with the subgroups of alexithymic and nonalexithymic SS patients. Because of the small size of the subgroups, these analyses should be considered exploratory.

**Somatization and Psychiatric Symptoms**

Alexithymic and nonalexithymic patients did not differ significantly on any demographic variables (sex, age, ethnicity, and years



**FIGURE 4.** Path analysis including the effects of Unmet Need for Closeness with Others, Alexithymia, and reported number of Interpersonal Traumatic Events on having current SS diagnosis. Values of standardized regression coefficients are presented. Solid lines represent significant paths; dashed lines, nonsignificant paths. The significance level of each path is denoted as follows: \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p = 0.001$ .



**FIGURE 5.** Pervasiveness of the Unmet Need for Closeness with Others in RAP interviews among alexithymic SS patients, nonalexithymic SS patients, and healthy controls, as measured by the number of the relationship episodes with the theme of the Unmet Need for Closeness with Others. Circles represent outliers. RAP indicates Relationship Anecdotes Paradigm; SS, somatization syndromes.

of education). Alexithymic SS patients scored significantly higher than did healthy controls on all BSI subscales ( $p < 0.000$  to  $p < 0.01$ ). Nonalexithymic SS patients ( $n = 8$ ) scored significantly higher than did healthy controls on the somatization ( $p < 0.01$ ), interpersonal sensitivity ( $p < 0.05$ ), and hostility ( $p < 0.05$ ) subscales and scored between alexithymic patients and controls on all other BSI subscales.

**Internal Representations of Relationships on Interview Measure**

**Unmet Need for Closeness with Others**

Both alexithymic and nonalexithymic SS patients presented with a significantly more pervasive pattern of UNCO than did healthy controls. On average, this theme was present in 7.4 of 10 RAP episodes told by alexithymic patients (SD, 2.1; median, 7.5) and in 5.5 of 10 episodes told by nonalexithymic patients (SD, 2.3; median, 5.5), which was significantly more than an average of 2.4 of 10 episodes (SD, 1.9; median, 2.0) told by healthy controls ( $U = 5.5, p < 0.001$  and  $U = 16.5, p < 0.001$ , respectively; Fig. 5, Table 2). Alexithymic and nonalexithymic patients did not differ significantly on the pervasiveness of the UNCO on RAP (Table 2).

**Theme of mistrust**

The theme of mistrust was present, on average, in 5.4 of 10 relationship episodes (SD, 2.9; median, 6.0) among alexithymic SS patients, which was significantly more than 1.3 of 10 episodes (SD,

**TABLE 2. Interpersonal Functioning Scales Among Alexithymic and Nonalexithymic SS Patients and Healthy Controls**

Variables by Type of Instrument	Subgroups						Subgroups Comparisons					
	Alexithymic SS Patients (n = 8)		Nonalexithymic SS Patients (n = 8)		Healthy Controls (n = 20)		Alexithymic SS Patients vs. Healthy Controls		Alexithymic SS Patients vs. Nonalexithymic SS Patients		Nonalexithymic SS Patients vs. Healthy Controls	
	Mean	SD	Mean	SD	Mean	SD	U	P	U	P	U	P
Interview												
RAP												
UNCO	7.4	2.1	5.5	2.3	2.4	1.9	5.5	0.001**	16.5	0.10	16.5	0.001**
Mistrust	5.3	2.9	3.1	2	1.3	1.5	24	0.003**	18	0.16	43.5	0.057
Self-report												
MPD												
Trust	17	5	23	4	22	4	29.5	0.02*	10.5	0.04*	63	0.4
Mistrust	12	4	7	6	9	6	52.5	0.34	4.5	0.004**	59	0.3
T versus M resolution	5	6	16	9	13	9	36.5	0.06	5.5	0.006**	57	0.3
BORI												
Alienation	19.0	6.4	6.3	3.2	10.1	10.7	6.0	0.009**	25.5	0.011*	71.5	0.7
Insecure attachment	10.4	4.5	5.3	3.9	6.1	6.3	16.0	0.189	32.0	0.036*	70	0.6
Egocentricity	10.0	5.7	3.1	2.5	3.7	5.3	9.5	0.029*	25.0	0.011*	63.5	0.4
Social incompetence	6.9	3.9	1.4	3.0	2.6	4.6	6.5	0.009**	24.5	0.009**	75	0.8

\**p* < 0.05.

\*\**p* < 0.01.

RAP indicates Relationship Anecdotes Paradigm; MPD, Measures of Psychosocial Development; UNCO, Unmet Need for Closeness with Others; BORI, Bell Object Relations Inventory; T, trust; M, mistrust; SS, somatization syndromes.

0.5; median, 1.5) among healthy controls ( $U = 24, p < 0.005$ ). Nonalexithymic somatizing patients scored only slightly lower than did alexithymic patients on this measure (mean [SD], 3.1 [2]; median, 4.0). Alexithymic and nonalexithymic patients' mistrust pervasiveness scores on RAP did not differ significantly. The difference between nonalexithymic patients and controls was not significant ( $U = 43.5, p = 0.057$ ; Table 2).

## Self-Report Scales

### Bell Object Relations Inventory

Alexithymic SS patients endorsed significantly more problems on all the subscales of BORI compared with healthy controls and on the Alienation, Egocentricity, and Social Incompetence subscales compared with nonalexithymic SS patients. Nonalexithymic SS patients scored similarly or even endorsed slightly fewer problems than healthy controls (Table 2).

### Trust versus Mistrust subscale of MPD

Alexithymic SS patients reported less trust than controls (mean [SD], 17 [5]; median, 16 vs. mean [SD], 22 [4]; median, 22,  $U = 29.5, p < 0.05$ ). There was also a trend for these patients to report less T vs M Resolution than healthy controls (mean [SD], 5 [6]; median, 4 vs. mean [SD], 13 [9]; median, 19.5,  $U = 36.5, p < 0.06$ ). The healthy controls group had 1 alexithymic subject of 20. When this subject was excluded from the analysis, alexithymic patients ( $n = 8$ ) scored significantly lower on Trust ( $U = 25, p < 0.05$ ) and on Trust-Mistrust Resolution ( $U = 30.5, p < 0.05$ ) compared with nonalexithymic healthy controls ( $n = 19$ ). Alexithymic SS patients presented with significantly lower Trust (mean [SD], 17 [5]; median, 16 vs. mean [SD], 23 [4]; median, 25,  $U = 10.5, p < 0.05$ ), higher Mistrust (mean [SD], 12.43 [4]; median, 13 vs. mean [SD], 6.63 [3.6]; median, 6.5,  $U = 4.5, p < 0.01$ ), and lower T vs M Resolution scores (mean [SD], 5 [6]; median, 4.0 vs. mean [SD], 16 [9], median, 19.5;  $U = 5.5, p < 0.006$ ) than nonalexithymic patients. Nonalexithymic SS patients did not score significantly differently on the self-report measures of trust than healthy controls (Table 2).

### History of Trauma

Alexithymic SS patients reported, on average, experiencing six interpersonal traumatic events (SD, 2.8; median, 7), and nonalexithymic SS patients reported experiencing four such events (SD, 3.4; median, 2.5;  $U = 16.5$ , not significant). The difference in the number of reported interpersonal traumatic events between alexithymic SS patients (mean [SD], 6 [2.8]; median, 7) and healthy controls (mean [SD], 1.9 [2.2]; median, 2) was statistically significant ( $U = 13.5, p < 0.002$ ). The difference in the number of reported interpersonal traumatic events between nonalexithymic SS patients (mean [SD], 4 [3.4]; median, 2.5) and healthy controls (mean [SD], 1.9 [2.2]; median, 2) was not significant ( $U = 43, p = 0.07$ ). Nonalexithymic SS patients reported that they lived through significantly more total traumatic events (mean [SD], 5.8 [3.9]; median, 5.5) than healthy controls (mean [SD], 2.5 [2.6]; Median = 2;  $U = 36, p = 0.03$ ).

### Summary of Results

Of the SS patients, 90% presented with the UNCO as their main internal representation of relationships compared with 10% of healthy controls. The UNCO was the strongest and significant predictor of somatization diagnosis when compared with alexithymia and interpersonal trauma variables (Fig. 4). Interpersonal trauma and alexithymia variables contributed to somatization diagnosis not directly, but as the predictors of the UNCO.

SS patients presented with significantly more themes of UNCO and mistrust on the RAP interview than did healthy controls. At the same time, SS patients, as a group, did not seem to differ from healthy controls on the self-report measures of interpersonal problems and

mistrust. However, when the patients were divided into alexithymic and nonalexithymic subgroups, an interesting pattern emerged: alexithymic SS patients consistently endorsed significantly more relational problems and interpersonal mistrust than did healthy controls on both interview and self-report measures, whereas nonalexithymic SS patients' measures diverged. On the interview measures, nonalexithymic patients presented with the UNCO, mistrust, and levels of interpersonal trauma similar to those of alexithymic patients; however, on the self-report measures of interpersonal relatedness and mistrust, they endorsed fewer problems and were similar to healthy control participants.

## DISCUSSION

The purpose of this research was to study the specific internalized representations of relationships among SS patients. The results suggest that the wish for close, supportive relationships combined with the fear of interpersonal closeness, mistrust, and expectation that one would be rejected, hurt, deceived, or abandoned by others is the most common relational representation among patients with SS. A well-validated measure of the internalized representations of relationships (CCRT/RAP) showed that 90% of SS patients presented with the UNCO as their main interpersonal pattern compared with only 10% of controls. Whether patients shared stories about the years of physical abuse, abandonment, and betrayal, mistreatment by a nurse or a doctor, or seemingly less intense recent quarrels with coworkers, most of their narratives contained a theme of other people being nontrustworthy or hurtful and of patients feeling angry, depressed, and hurt after interpersonal interactions. SS patients in our study also tended to perceive other people as not fulfilling their wishes of interpersonal closeness. These findings are consistent with the results of the previous studies of SS, reporting high rates of insecure attachment and dependent personality traits (Waller et al., 2004) and relational patterns characterized by the expectation of rejection in response to seeking interpersonal closeness (Solano et al., 2000). In a CCRT study of interviews about medical history among patients with medically unexplained chronic fatigue, self-reported fatigue positively correlated with the wish to be respected by others and the perception of others as not respectful, not open, not helpful, or disliking them, and leaving patients feeling disrespected and angry (Vandenberg et al., 2009). This profound interpersonal mistrust may make it difficult for SS patients to express their emotions to others, which could make it even more difficult for them to establish close interpersonal relationships and to benefit from the interpersonal affect regulation. This, in turn, may perpetuate the distress, leading to even stronger tendencies to express distress on a somatic level.

Longing for interpersonal connection but fearing it and perceiving others as rejecting, hurting, or not trustworthy may stem from the early interpersonal environment and interpersonal trauma. Consistent with previous research findings, SS patients in this study reported histories of more traumas than did healthy controls. It is noteworthy that it was specifically the interpersonal trauma (e.g., abuse or loss of a parent vs. a natural disaster or a fire) that was highly prevalent in SS patients.

SS patients, as a group, were significantly more alexithymic than were healthy controls, which is consistent with the previous research findings (De Gucht and Heiser, 2003). This supports the theory that affect regulation is a significant problem in SS. However, the SS group included both alexithymic (40%) and nonalexithymic (40%) patients. As hypothesized, the UNCO, the theme of interpersonal mistrust, and history of interpersonal trauma pervaded the RAP narratives of both alexithymic and nonalexithymic patients. However, when alexithymia, interpersonal trauma history, and the UNCO were entered together in the regression analysis, the UNCO was the only significant predictor of somatization diagnosis. History of interpersonal trauma and alexithymia variables contributed to

somatization diagnosis not directly but rather as statistically significant predictors of the UNCO (Fig. 4). This finding suggests that interpersonal difficulties—specifically, the UNCO and lack of interpersonal trust—may be, in fact, a more essential factor underlying SS symptoms, whether alexithymia complicates the clinical picture or not. This would be consistent with the studies suggesting the relative independence of somatization and alexithymia (Bach et al., 1996; Cohen et al., 1994) and the possible contribution of alexithymia to a more persistent course of somatization (Bach and Bach, 1995).

This study also allowed for an exploratory analysis of non-alexithymic SS patients, which is a subgroup of patients rarely studied separately. Whereas alexithymic SS patients reported being bothered by a wide range of psychiatric symptoms and had higher total BSI scores than did nonalexithymic patients, suggesting that they may be more severely distressed, nonalexithymic patients scored higher than did healthy controls specifically on the subscales of BSI that suggest lack of interpersonal trust and interpersonal problems. Specifically, Interpersonal Sensitivity was the second highest score after Somatization among nonalexithymic patients. Nonalexithymic patients also presented with an interesting pattern of discrepancy between the interview and self-report measures. Similar to alexithymic patients, they presented with more UNCO and interpersonal mistrust on the RAP interview, as well as reported significantly higher numbers of interpersonal traumatic events than did healthy controls. However, on the self-report scales, when asked to rate general statements about their ability to relate to others and to trust them, these patients presented themselves as not having problems, scoring similarly to healthy control participants. One possible explanation for this pattern of results could be that the nonalexithymic SS subgroup may include people who, although having a generally intact ability to express emotions to others, tend to avoid their most painful affects. This selective avoidance of affect may also contribute to somatization. However, these patients might not think of themselves as not valuing emotional life and, therefore, would not score in the alexithymic range on a self-report scale. This hypothesis, however, needs to be tested empirically in future studies. The discrepancy between the results on clinician-rated and self-report measures may also be caused by nonalexithymic patients' relative unawareness of their relational problems, to a defensive style, or to an impression management bias. The methodology of measuring alexithymia with a self-report scale might have also contributed to the low frequency of self-reported problems among nonalexithymic patients. The nonalexithymic SS subgroup might have included alexithymic participants who, unaware of their alexithymia, did not report it on a self-report scale (TAS). These patients might conceivably be disproportionately concentrated among SS patients.

### Methodology Strengths and Limitations

Although the study had a modest number of subjects ( $n = 40$ ), the fact that comparisons of even small subgroups of patients and the use of conservative nonparametric statistical tests produced statistically significant results suggests that the data are indicative of truly significant differences. Another study limitation was that the main CCRT coder was not blind to participants' diagnosis. However, the inter-rater reliability with an independent coder who was blind to participants' diagnoses was good or excellent. The strength of the study is in the use of a multimethod approach, which included a well-validated interview measure CCRT/RAP that allowed assessment of relational dynamics, largely bypassing the impact of biases that usually affect self-report measures.

### Clinical Implications

#### Assessment

The results suggest that assessment of interpersonal functioning and history of interpersonal trauma are important in the comprehensive biopsychosocial assessment of SS patients.

### Psychotherapy

The findings of this study suggest that many SS patients may have a history of relational traumas and experience interpersonal problems, which are likely to exacerbate their somatic symptoms and psychological distress. Therefore, a targeted psychotherapy treatment addressing these issues is highly warranted. The mechanism of change in such treatment would be as follows: addressing the UNCO (which likely stems from an experience of relational traumas) could pave the way to alleviating the affect regulation problems, which could, in turn, lead to the alleviation of somatic symptoms (Aron and Anderson, 1998; Finell, 1997). In fact, a recent review of psychotherapy, which focuses on treating the effects of relational trauma, interpersonal dynamics, and affect regulation difficulties, suggested its efficacy for SS (Abbass et al., 2009).

### Engagement in Treatment

SS patients are known for their reluctance to receive psychological or psychiatric treatments (Schneider et al., 1990). They often interpret ideas about the psychological factors playing a role in the etiology of their somatic symptoms as a dismissal of their problems and feel rejected and misunderstood. In this study, patients were asked to "talk about their life experiences" during the RAP interview. After disclosing the betrayals, emotional abuse, or abandonment to the interviewer, several patients reported that they "had never told [that] to anyone," "just realized how traumatic [their] life had been," or that they were "all alone and had nobody to talk to." Talking about those painful experiences with the interviewer seemed to provide emotional relief; several patients who were in pain during the interview reported alleviation of physical pain at the end of the interview and started to consider psychotherapy. Engaging SS patients in talking about their life experiences without implying that those experiences are causal of their somatic distress may, therefore, be beneficial for facilitating treatment. The efficacy of this approach needs to be tested in future studies.

### Interactions With Clinicians

Both mental health and medical providers often experience frustration, hopelessness, and guilt when working with SS patients whom they perceive as clinging yet continuously disappointed with care. If clinicians are aware that SS patients expect others to be rejecting and unavailable, they may be able to stop the vicious cycle of interpersonal sensitivity and somatization by being particularly attuned to SS patients' safety needs. This awareness could also diminish clinicians' burnout.

### Future Research Directions

In addition to the replication of the study with a larger sample size, a longitudinal study of somatizing children and adolescents would help in understanding the contribution of relational dynamics and affect regulation to the development of SS. Taking into account the findings of shared neurocircuitry of pain perception and interpersonal distress (Eisenberger and Lieberman, 2004), exploring the augmented functioning of this shared system among SS patients in relation to early interpersonal trauma and affect regulation might shed more light on the etiology of SS.

In addition, the discrepancy between interview and self-report results in the nonalexithymic SS subgroup may be better understood by measuring the defensive processes of denial, idealization, and avoidance of affect among alexithymic and nonalexithymic patients. Measuring alexithymia directly from patients' narratives in addition to self-report may also help interpret these findings. Future research would also benefit from studying alexithymia as a multidimensional construct and as both "trait" and "state" phenomena.

## Summary and Conclusions

The results of this study suggest a strong association of interpersonal difficulties with SS. Specifically, the UNCO was the most characteristic internal representation of relationships among SS patients in this study. Although many SS patients present with difficulty expressing emotions verbally, problems with interpersonal dynamics are more direct predictors of SS diagnosis than alexithymia and history of interpersonal trauma. Alexithymia and a history of interpersonal trauma are, in turn, significant contributors to the UNCO. The results of this study suggest that psychotherapy focusing on the internal representations of others, interpersonal regulation of affect, and overcoming consequences of interpersonal traumas might be particularly helpful for SS patients. Future research is needed to address the developmental and neurobiological mechanisms underlying the role of interpersonal factors in the pathogenesis of SS.

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## DISCLOSURE

The authors declare no conflict of interest.

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