

Cognitive-Emotional Functioning in Somatic Symptom and Related Disorders: Self-Reports Versus Observer-Rated Findings

Annemiek van Dijke^{1-3*}, Sandra Lenstra¹, Jaco Wineke^{1,4} and Julian D Ford⁵

¹Yulius Academy-COLK-Yulius Mental Health, Greater Rotterdam Area, the Netherlands

²VU University Amsterdam, department of clinical psychology, the Netherlands

³Academic Medical Centre, department of psychiatry, Amsterdam, the Netherlands

⁴PsyQ Zaandam, Parnassia Noord Holland, the Netherlands

⁵University of Connecticut, Farmington, USA

Abstract

Objective: Literature on cognitive-emotional functioning reflects indications that patients with somatic symptom- or related disorder may suffer from diminished affective mentalizing/ psychological mindedness that is impairment in the ability for reflectivity about psychological processes, relationships and meanings. Affective mentalizing/ psychological mindedness seems to play an important role in cognitive-emotional functioning especially in a social context as engaging in group-psychotherapy. The present study investigated psychological mindedness in somatic symptoms- and conversion disorder (SSCD) patients, by examining similarities and differences between self-reports and their psychotherapists' observations of social-cognitive-emotional functioning i.e. dysfunctional self-regulation.

Methods: A cross-sectional design was applied to 43 patients with SSCD and their psychotherapists, who independently rated the patient's (dysfunctional) emotional-, dissociative-, and interpersonal self-regulation.

Results: Compared to the psychotherapists' observations, patients *under* reported their degree of dysfunctional emotional self-regulation i.e. under-regulation of affect, interpersonal self-regulation (fears of abandonment and closeness, lack of interpersonal trust) and dissociative self-regulation (somatoform- and psychoform dissociation). Patients *over* reported problems dysfunctional emotional self-regulation, i.e., insight into their own emotions and problems with verbalizing of emotions. Patients were generally consistent with their psychotherapists regarding difficulties emotional self-regulation, i.e., analyzing of affect and insight into others' emotions. Although patients who disclosed a history of childhood traumatic experiences involving a primary caregiver (TPC) reported higher levels of problems with under-regulation of affect and lack of interpersonal trust than patients denying such childhood trauma, TPC was *not* associated with deficits in psychological mindedness in this sample of somatoform disorder patients.

Conclusion: It seems of clinical relevance to add clinical observations to self-reported dysfunctional self-regulation in somatic symptom- and conversion disorder patients to assess affective mentalizing/ psychological mindedness. It seems that patient- compared to clinician ratings are in agreement on emotional constriction (difficulty in analyzing own- and understanding others' emotions), but *under*-rate problems with dissociative-, interpersonal- and emotional/hyperarousal self-regulation, and *over*-rate their problems with insight and verbalizing emotions.

Keywords: Somatic symptom disorders; Conversion disorder; Psychological mindedness; Self-reports; Observer ratings; Self-regulation; Affect-regulation

Abbreviations: SSRD: Somatic Symptoms and Related Disorders, SSCD: Somatic Symptoms and Conversion Disorder, PM: Psychological Mindedness, TPC: Trauma involving a Parent or other Primary Caregiver

Introduction

Somatic symptoms and related disorders (SSRDs) are a group of mental disorders that are characterized by somatic symptoms or illness anxiety. Somatic symptom and conversion disorder (SSCD) are characterized by the presence and burden of persistent physical symptoms for which there seems no (adequate) medical explanation [1]. SSCD patients have significant degrees of impairment in activities of daily living, social functioning and occupational functioning [2] and tend to report physical symptoms while attributing them to medical disease and denying that psychosocial factors may play a role [3]. Therefore, they frequently seek medical help, resulting in approximately twice the outpatient and inpatient medical care utilization and twice the annual medical care costs in comparison with other psychiatric patients [4].

The conceptualization of these disorders as being 'unexplained'

is being challenged by our increasing understanding of the neurophysiological perspective [5] on functional somatic symptoms. The functional-unawareness neurobiological framework, mediated by right hemisphere-lateralized, large-scale brain network dysfunction, may play a significant role in the neurobiology of conversion disorder [6]. When pain is reported, this reflects dynamic interactions of the CNS with sensations, but also with current context, and prior (adverse) experiences. Pain perception requires neuroplasticity, whereby repeated sensory information on adverse experiences may result in habituation (reduced response), and -in more severe and chronic cases a paradoxical 'lack-of-pain' (anesthesia, analgesia, paralyses) [7], or

***Corresponding author:** Annemiek van Dijke, COLK-Yulius Academy, Wijnkoperstraat 2, 4204 HK Gorinchem, The Netherlands, Tel: 0031 643363686; E-mail: a.vandijke@amc.uva.nl

Received May 06, 2016; **Accepted** June 22, 2016; **Published** June 29, 2016

Citation: Dijke A. van, Lenstra S, Wineke J, Ford JD (2016) Cognitive-Emotional Functioning in Somatic Symptom and Related Disorders: Self-Reports Versus Observer-Rated Findings. J Psychol Psychother 6: 271. doi:10.4172/2161-0487.1000271

Copyright: © 2016 Dijke A. van, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

(hyper) sensitization (increased pain). In the latter, the CNS mediates hypersensitivity to painful stimuli more commonly referred to as ‘central sensitization’ which may result in widespread hyperalgesia in the body. Others refer to this as somatosensory amplification which may, in part, develop through stress-mediated aberrant neuroplastic changes and the neuromodulatory effects of inflammation. Aberrant interactions across neural circuits mediating visceral-somatic perception, emotional processing/awareness, and cognitive control may serve important roles in the neurobiology of somatosensory amplification [8].

For ‘lack-of-pain’ syndrome, i.e., conversion disorder, recent studies also found neural correlates in areas important for motor-planning, motor-selection or autonomic response, as well as in the areas involved in evaluating and processing emotional situations and memories of the past for self-relevance, e.g. emotional trauma [9]. Somatic symptoms disorder patients and conversion disorder patients share differences in premotor and supplementary motor cortices, as well as areas involved in emotional processing, compared to healthy controls. Imaging studies on self-referential processing address different domains of functioning, including but not limited to the emotional-, social-, and agency-and-ownership-of-the-body-and-movements domain, that seem interconnected in healthy controls but disconnected in psychiatric or neurological patients. This disconnection between domains can be observed in patients as having difficulties with ‘insight’, ‘operative thinking’ or cognitive self-referential processes and having difficulties with ‘emotional awareness’, ‘affective processing’, or emotional self-referential processes [10].

These findings are in line with the view that SSCDs involve deficits in psychological mindedness [11]. Hall [12] defined psychological mindedness (PM) as “interest in and ability for reflectivity about psychological processes, relationships, and meanings, and across both affective and intellectual dimensions”. However, in order to reflect about psychological processes, one must possess emotional awareness; the ability to recognize and describe emotion in oneself and others [13]. Lane [13] described five levels of emotional awareness, which reflect variations in the degree of differentiation and integration of the schemata used to process emotional information. At the lower levels of emotional awareness, emotional reactions are experienced as bodily sensations or as action tendencies. At the higher levels emotions are processed explicitly and differentiated yet also integrated in complex blends. The explicit processing of emotions is related to de-somatization [13], that is, to the ability to consciously recognize, verbalize, and have insight into one’s emotions rather than experiencing them primarily as bodily symptoms.

Research has shown that patients with SSCDs, compared to patients with other psychiatric diagnoses, have significantly lower levels of emotional awareness [14,15]. They have a greater tendency to experience emotional distress as bodily symptoms rather than as discrete verbally-mediated emotions. In addition, they tend to not detect emotions and instead misinterpret them as bodily sensations only. SSCD-patients also have been shown to have deficits in Theory of Mind (ToM), or affective mentalizing, describing emotions as bodily experiences largely devoid of psychological or interpersonal meaning [15-17]. Also, patients with SSCD diagnoses also tend to explicitly present themselves as mentally healthy on self-reports [18]. For example, patients diagnosed with SSCDs reported lower levels of inhibitory- or excitatory self-dysregulation than other psychiatric patients in the study of Van Dijke et al. [19]. The tendency to present oneself as mentally healthy has been described as the “illusion of mental health” [20] when clinicians judge the patient to be impaired and distressed. Emotion dysregulation also

is closely associated with problems with intimacy, trust, or conflict resolution and impaired ability to emotionally invest in relationships [21], and those forms of interpersonal dysregulation have been found to be associated with childhood experiences of traumatic experiences in relationships with primary caregivers (attachment trauma) [19].

Deficits in psychological mindedness have important implications for clinical practice. Research has demonstrated that the degree of psychological mindedness at admission is positively associated with the number of therapy sessions attended and inversely with premature termination of treatment [22]. Research also has shown that an increase in psychological mindedness during therapy is associated with better therapy outcomes in terms of decreased severity of psychiatric symptoms including somatization [23]. We hypothesize that SSCD will be associated with reduced psychological mindedness, based on research documenting an association between SSCD and dysfunctional emotional self-regulation [3,19,24,25] and dysfunctional dissociative self-regulation [19,26,27].

As prior research on psychological mindedness has been done using implicit tasks [14,15,17] and projective material [21], this study contributes to the literature by studying deficits in emotional awareness more explicitly in terms of the correspondence between self-reports and psychotherapists’ observations of type and degree of dysfunctional self- and affect regulation in SSCD-patients. We hypothesize that SSCD-patients tend to demonstrate deficits in explicit psychological mindedness by *underestimating* their degree of dysfunctional emotional-, dissociative-, and interpersonal self-regulation compared to psychotherapists’ observations. Additional exploratory analyses will be conducted to determine whether the experience of childhood trauma involving a parent or other primary caregiver (TPC) is associated with the hypothesized deficits in psychological mindedness [28]. TPC has been associated with dysfunctional emotional-, dissociative-, and interpersonal regulation in SSCD-patients [24] and therefore TPC may be a contributing factor to these patients’ deficits in psychological mindedness.

Measures and Methods

Participants and procedure

After careful examination by medical specialists in neurology and/or internal medicine who ruled out a somatic illness, patients were referred to a specialized hospital for inpatient treatment for severe somatoform disorders (Yulius Mental Health Care, the Netherlands). Exclusion criteria were hypochondria, body-dysmorphic disorder, co-morbid serious mental disorder, intellectual disabilities, alcohol-drug abuse, or current use of opiates, benzodiazepines or other test-interfering medical drugs.

Participating patients enrolled between January 2014 and July 2015 in a four-week “Observation and Assessment” (O&A) period. During the O&A period patients received psycho-education about dysfunctional self-regulation, its relationship to their current complaints and life experiences, and how treatment could help them recover [29]. Also, patients took part in an extended psychological assessment with various self-report questionnaires, including but not limited to measures of dysfunctional self-regulation [30]. During this period psychotherapists rated patients’ dysfunctional self-regulation based on observations during group therapy. At the end of the O&A period, the multidisciplinary team formulated consensus scores and the patient evaluate their experiences and findings for the purpose of treatment planning. For this study we used the self-report questionnaires and

observation rating scale that are completed by respectively the patients and observers during the O&A period [30].

Measures

Traumatic experiences: Reports of potentially traumatic events were collected using the Traumatic Experiences Checklist (TEC; Dutch version [31]) a retrospective self-report questionnaire that measures a wide range of adverse experiences and potentially traumatic events. For this study we used the TEC score for the number of attachment related childhood traumatic experiences [32]. The TEC's internal consistency, test-retest reliability and validity were good among a sample of psychiatric outpatients [33].

Dysfunctional self-regulation using self-report questionnaires

Dysfunctional emotional regulation: In order to assess under-regulation of affect, participants completed the Structured Interview for Disorders of Extreme Stress (SIDES) [34]. In this study we used the Dutch self-report version of the SIDES (self-report version [35], Dutch self-report version [36]). To assess under-regulation of affect we looked at the first three items of the questionnaire. These are as follows: (1) "often getting quite upset over daily matters", (2) "being unable to get over the upset for hours or not being able to stop thinking about it", and (3) "having to stop everything to calm down and it took all your energy, or getting drunk, using drugs or harming yourself to cope with emotional distress". The items refer to last month. Total scores were the sum of scores on these three items which can vary from 0 to 9. The subscale of "affect dysregulation" has a good internal consistency (Cronbach's $\alpha=0.75$) in a sample of adults diagnosed with borderline personality disorder and/or somatoform disorder [19].

In order to assess cognitive-emotional functioning and over-regulation of affect subjects completed the Bermond-Vorst Alexithymia Questionnaire (BVAQ) [37]. This instrument measures the cognitive, emotional and social aspects of emotional (dys)function and can differentiate between subtypes of alexithymia. The questionnaire consists of five subscales. In this study we included the following three subscales to assess emotional functioning: Identifying/Differentiating/Insight (insight into own emotions and insight into others' emotions), Verbalizing of emotions, and Analyzing own emotions. Each subscale consists of 8 items that are scored on a 5-point Likert scale. Total scores on each subscale therefore range from 8 to 40. To assess over-regulation of affect we looked at the sum of scores on the following three subscales:

Insight into own emotions, Verbalizing of emotions and Analyzing own emotions. This total score range from 24 to 120. The scale has good convergent validity [37].

Dysfunctional dissociative regulation: Somatoform dissociation was measured with the Somatoform Dissociation Questionnaire (SDQ-20) [38]. This is a 20 item self-report questionnaire, assessing positive and negative symptoms of somatoform dissociation (e.g. "It sometimes happens that my body, or part of it, is insensitive to pain"). Items are scored on a 5-point Likert scale, ranging from 1, "not applicable", to 5 "highly applicable". Total scores are the sum of scores on the 20 items and range from 20 to 100. The scale has high internal consistency (Cronbach's $\alpha=0.96$) and good construct validity [38,39].

Psychoform dissociation was assessed using the Dissociative Experiences Scale (DES) [40] (Dutch version [41]), a 28 item self-report questionnaire (e.g. "Some people have the experience of finding themselves in a place and having no idea how they got there"). Participants indicated on a scale from 0 to 100 how frequently various dissociative symptoms occur in their daily life. Total scores are the mean of all item scores, with scores varying from 0 to 100. The scale has high internal consistency (Cronbach's $\alpha=0.93$), good test-retest reliability (0.78-0.93) and good convergent validity [42].

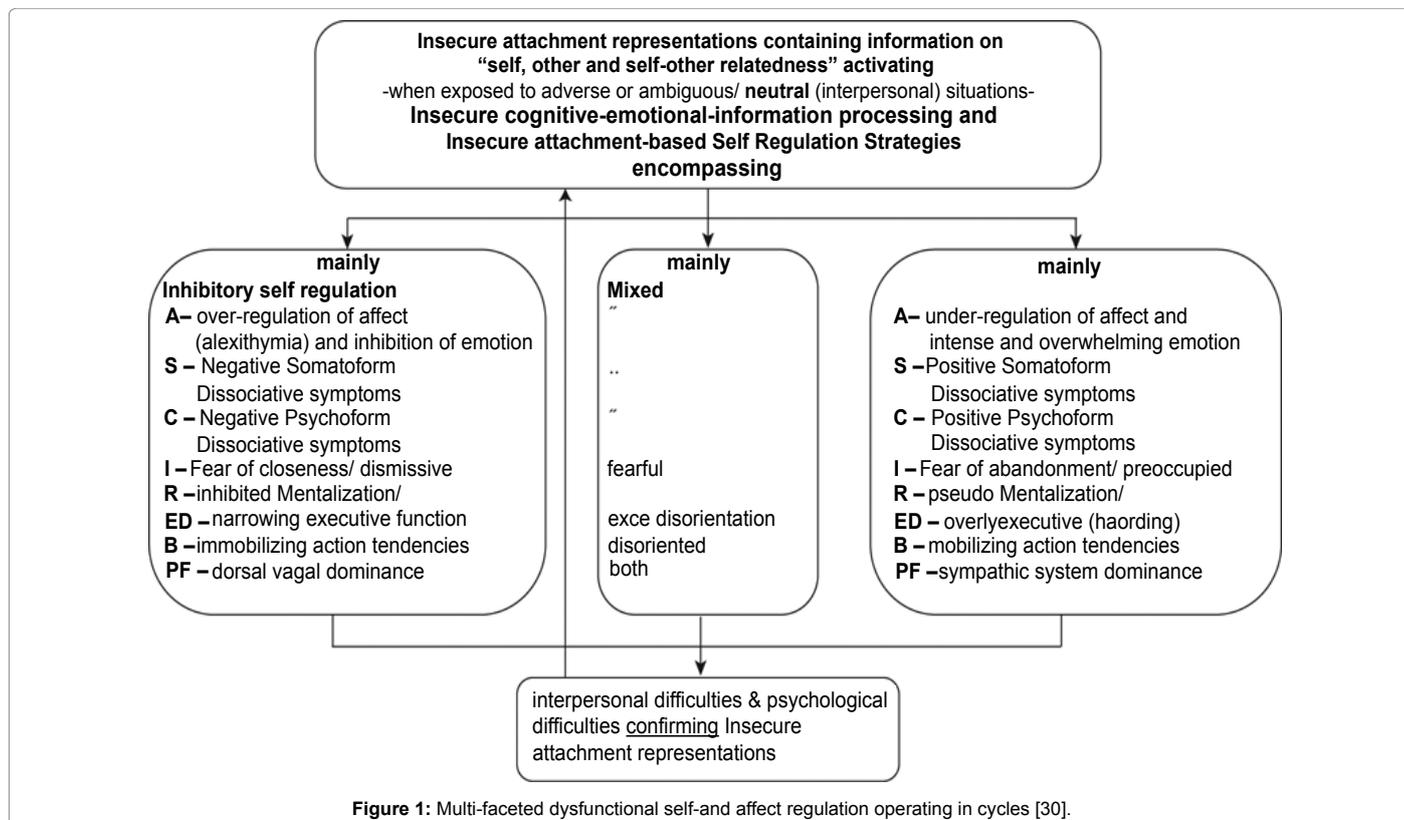
Dysfunctional interpersonal regulation: The interpersonal interaction style of the participants is measured with the Relationship Styles Questionnaire (RSQ) [43] (Dutch version [44]), a 30 item self-report questionnaire. Items are scored on a 5-point Likert scale, with scores varying from strongly disagree (1) to totally agree (5). For this study, we looked at three important dimensions of attachment behaviours, these include: Fear of abandonment, Fear of closeness and Lack of interpersonal trust. The scale has good construct validity and test-retest reliability with adult psychiatric samples [45].

Dysfunctional self-regulation using an observation-based rating scale: The observational rating scale for psychotherapists consisted of 15 items which relate to self- and affect regulation and emotional functioning (e.g. de-activating self-regulation strategies; attachment fears; signs of somatoform dissociation) and measure the same constructs as the self-report questionnaires [30] as presented in Figure 1. The items are scored on a 5-point Likert scale, ranging from 1, "not applicable", to 5 "highly applicable". For this study we used 11 of the 15 items, which are shown verbatim in Table 1. The observation scale is a widely used

	TPC	Under-regulation of affect	Over-regulation of affect	Insight in emotions (self)	Verbalizing emotions	Analyzing emotions (self)	Insight into others' emotions	Somatoform dissociation	Psychoform dissociation symptoms	Fear of abandonment	Fear of closeness	Lack of interpersonal trust
TPC	--	-0.060	-0.048	0.071	0.266	0.411**	0.130	0.183	0.176	0.235	0.132	0.218
Under-regulation of affect	0.276	-0.111	-0.565***	0.036	-0.183	0.083	0.077	-0.044	0.139	-0.258	0.078	0.064
Over-regulation of affect	0.018	0.340*	0.136	0.100	-0.023	0.033	0.084	0.097	0.079	0.076	0.190	-0.069
Insight in emotions (self)	-0.073	0.388*	0.852***	0.022	0.612***	0.690***	0.630***	0.094	0.229	-0.042	-0.150	-0.207
Verbalizing emotions	0.107	0.354*	0.879***	0.627***	-0.089	0.632***	0.605***	0.108	0.039	0.119	-0.142	-0.026
Analyzing emotions (self)	-0.011	0.058	0.745***	0.470**	0.484**	-0.123	0.652***	0.185	0.301	-0.001	0.049	0.068
Insight in emotions (others)	0.034	-0.110	0.223	0.124	0.278	0.133	-0.371*	0.016	0.260	-0.019	-0.049	0.001
Somatoform dissociation	0.235	0.111	0.167	0.278	0.140	-0.033	-0.040	0.204	0.250	0.179	-0.050	0.086
Psychoform dissociation	0.167	0.466**	0.430**	0.502**	0.390**	0.136	0.095	0.600***	0.241	-0.151	-0.016	-0.252
Fear of abandonment	0.160	0.339*	0.045	0.160	0.071	-0.163	-0.455**	0.356*	0.269	0.178	0.273	0.338*
Fear of closeness	0.226	0.467**	0.483**	0.475**	0.576***	0.068	0.051	0.395**	0.646***	0.258	0.057	0.611***
Lack of interpersonal trust	0.443**	0.552***	0.263	0.252	0.376*	-0.042	-0.050	0.429**	0.604***	0.454**	0.710***	0.164

Note: *** $p<0.001$, ** $p<0.01$, * $p<0.05$

Table 1: Correlations between the total number of traumatic experiences in primary childhood relationships (attachment traumas, TPC) and affect- and self dysregulation, as reported by the patients (below the diagonal) and psychotherapists (above the diagonal). Correlations between the self-report measures and the items of the observational rating scale are presented on the diagonal. Below the diagonal correlations between self-report variables are reported. Above the diagonal correlations between the items of the observational rating scale are reported.



instrument for trained raters and has proven clinical feasibility in different patient groups (including patients with somatoform disorders, borderline personality disorder, anxiety disorders, and depression). All raters were clinical psychologists/psychotherapists and were trained and supervised in using the instrument and adherence to the model by AvD. Final scores are consensus-based scores after four weeks of careful observation of the patients and clinical supervision [30].

Statistical analyses

First, correlations for all variables were performed for patients and for psychotherapists separately. Next, paired-samples *t*-tests were conducted on means of self-report scores and means of observation rating scale scores, to examine whether patients underestimate their degree of dysfunctional self-regulation relative to the observers (psychotherapists). Scores on the (sub)scales of the self-report questionnaires were transformed into a scale from 1, "not applicable/strongly disagree", to 5 "highly applicable/totally agree" comparable to the scores on the items of the observation rating scale. Finally, independent-samples *t*-test was performed for TPC+group and TPC-group in order to compare SSCD-patients with and without a history of TPC. For all *t*-tests Cohen's *d*s were calculated as an Effect Size (ES) measure of pairwise differences, ranging from *d*=0.2 (small), *d*=0.5 (medium) and *d*=0.8 (large) [46].

Results

Descriptive and correlational analyses

Participants were 43 adults aged 19 to 63 (*M*=38.6, *SD*=12.0), of whom 31 were women (72.1%). About half of the participants met DSM 5 criteria as assessed by trained psychiatrists or clinical psychologists for conversion disorder (55.8%); all others met criteria for somatic

symptom disorder without (30.2%) or with chronic pain (14.0%). A sub-group met criteria for Axis II personality disorders (18.6%) that were not sufficiently severe to prevent inclusion in the treatment program. Almost half (48.8%) were married or living together, while another large sub-group had no primary partner (41.9%), and the rest were divorced or widowed (9.4%). Most participants have completed low-level secondary education (35.0%) or middle-level secondary education (51.1%), while the rest had completed high-level secondary education (14.0%).

More than half of the participants (53.7%) reported having experienced one or more childhood traumas involving a parent or other primary caregiver (TPC+) (Table 1). The total number of childhood traumas involving a parent or primary caregiver correlated significantly with self-reported lack of interpersonal trust ($r=0.443, p<0.01$).

Correlations between the self-report measures and observational ratings are presented on the diagonal. Self-report and psychotherapist ratings were consistently uncorrelated, with only one statistically significant correlation which reflected an inverse relationship between self-reported and observer rated insight into others' emotions.

Below the diagonal correlations among self-report scores are reported. Over-regulation of affect was strongly ($r \geq 0.75$) correlated with problems with affect verbalization, insight, and analysis. Strong correlations ($r=0.45-0.71$) also were found for fear of closeness with lack of interpersonal trust, psychoform dissociation, problems with verbalizing and insight into emotions, and both under- and over-regulation of affect.

Above the diagonal correlations between the items of the observational rating scale are reported. Strong correlations were found ($r \geq 0.75$) among the affect processing problem variables (i.e.,

insight into, verbalizing, and analysing emotions), and between fear of closeness and lack of interpersonal trust.

Psychological mindedness

Mean scores, standard deviations and effect sizes (Cohen's *d*) of pairwise differences between patient and psychotherapist ratings are presented in Table 2.

Dysfunctional emotional self-regulation:

Under-regulation of affect and over-regulation of affect: On average, patients reported less under-regulation of affect, compared to the psychotherapist's observations, $t(37)=3.35, p=0.002$. Patients scored on average slightly lower than their psychotherapists in terms of their problems with over-regulation of affect/alexithymia, but this difference was not significant, $t(42)=1.67, p=0.103$.

Emotional functioning: In contrast to the hypothesis, patients reported a higher degree of difficulties with insight into their own emotions, compared to psychotherapists' observations, $t(42)=-2.33, p=0.025$. Patients also reported a higher degree of difficulties with the ability to verbalize emotions than their psychotherapists. This difference was also significant, $t(42)=-4.27, p<0.001$. Patients and their

psychotherapists reported comparable levels of difficulties with the ability to analyze their own emotions, $t(42)=-0.98, p=0.333$.

Dysfunctional dissociative self-regulation:

Somatoform and psychoform dissociation: Patients reported significantly fewer symptoms of somatoform dissociation, compared to observers, $t(41)=12.13, p<0.001$. Patients also reported fewer symptoms of psychoform dissociation, than their psychotherapists, $t(41)=12.42, p<0.001$.

Dysfunctional interpersonal self-regulation:

Adult attachment fears: Patients reported less severe fear of abandonment than their psychotherapists, $t(42)=4.47, p<0.001$. Patients also reported significantly less severe fear of closeness than their psychotherapists, $t(42)=6.10, p<0.001$. Finally, patients reported a lesser degree of lack of interpersonal trust than their psychotherapists, $t(42)=6.43, p<0.001$.

Social emotional functioning: Patients and their psychotherapists reported a similar degree of difficulties with insight into others' emotions (emotional reflective function), $t(42)=-0.52, p=0.612$.

Childhood trauma and psychological mindedness

Table 3 shows the analyses testing whether SSCD-patients reporting

		Patients	Observers		
		<i>M (SD)</i>	<i>M (SD)</i>	Sign.	Cohen's <i>d</i>
Emotional self-regulation	Under-regulation of affect	2.73 (0.88)	3.45 (0.90)	**	0.76
	Over-regulation of affect	2.83 (0.76)	3.12 (0.93)		
	Difficulties insight into own emotions	2.70 (0.92)	2.30 (0.64)	*	0.45
	Difficulties verbalize own emotions	3.41 (1.06)	2.53 (0.74)	***	0.92
Dissociative self-regulation	Difficulties analyze own emotions	2.39 (0.75)	2.23 (0.65)		
	Somatoform dissociation	1.68 (0.56)	3.33 (0.82)	***	2.01
Interpersonal self-regulation	Psychoform dissociation	1.66 (0.51)	3.14 (0.72)	***	1.89
	Fear of abandonment	2.64 (0.67)	3.30 (0.83)	***	0.76
	Fear of closeness	2.80 (0.84)	3.72 (0.59)	***	1.10
	Lack of interpersonal trust	2.39 (0.84)	3.37 (0.69)	***	1.12
	Difficulties insight into others' emotions	2.27 (0.72)	2.19 (0.63)		

Note: *** $p<0.001$, ** $p<0.01$, * $p<0.05$

Table 2: Results of paired-samples *t*-tests comparing the self-report questionnaires of the patients with the observational rating scale of the psychotherapists. Mean scores (M), standard deviations (SD), significance levels and Effect Sizes (Cohen's *d*) are reported.

		TPC+			TPC-		
		Patients	Observers	Sign.	Patients	Observers	Sign.
		<i>M (SD)</i>	<i>M (SD)</i>		<i>M (SD)</i>	<i>M (SD)</i>	
Emotional self-regulation	Under-regulation of affect +	3.06 (0.80)	3.53 (1.02)		2.41 (0.87)	3.33 (0.77)	**
	Over-regulation of affect	2.87 (0.71)	3.14 (0.94)		2.78 (0.77)	3.21 (0.92)	
	Difficulties insight into own emotions	2.71 (0.82)	2.32 (0.72)		2.67 (0.97)	2.32 (0.58)	
	Difficulties verbalize own emotions	3.47 (1.01)	2.64 (0.90)	*	3.31 (1.10)	2.47 (0.51)	**
	Difficulties analyze own emotions	2.43 (0.72)	2.41 (0.73)		2.36 (0.81)	2.00 (0.47)	
Dissociative self-regulation	Somatoform dissociation	1.69 (0.64)	3.43 (0.75)	***	1.65 (0.47)	3.11 (0.81)	***
	Psychoform dissociation	1.74 (0.56)	3.19 (0.75)	***	1.57 (0.44)	3.00 (0.67)	***
Interpersonal self-regulation	Fear of abandonment	2.81 (0.64)	3.45 (0.86)	*	2.52 (0.68)	3.21 (0.79)	**
	Fear of closeness	2.90 (0.85)	3.82 (0.50)	***	2.64 (0.84)	3.63 (0.68)	**
	Lack of interpersonal trust ++	2.75 (0.72)	3.50 (0.67)	**	1.99 (0.82)	3.21 (0.71)	***
	Difficulties insight into others' emotions	2.23 (0.70)	2.18 (0.73)		2.26 (0.77)	2.21 (0.54)	

Note: *** $p<0.001$, ** $p<0.01$, * $p<0.05$ (paired-samples *t*-test); ++ $p<0.01$, + $p<0.05$ (independent-samples *t*-test)

Table 3: Results of paired-samples *t*-tests for patients reporting trauma involving primary caregiver (TPC+) and patients not reporting trauma involving primary caregiver (TPC-), separately. Results of independent-samples *t*-test, comparing the self-reports of the TPC+ and TPC- group. Mean scores (M), standard deviations (SD) and significance levels are reported.

trauma involving a primary caregiver (TPC+) had the same or different deficits in psychological mindedness than patients who did not report childhood trauma involving a primary caregiver (TPC-). The only difference in deficits in psychological mindedness was found on under-regulation of affect. Patients reporting trauma involving a primary caregiver reported on average a similar degree of under-regulation of affect compare to their psychotherapists, $t(18)=1.44$, $p=0.166$. Patients who did not report childhood trauma involving a primary caregiver reported lower levels of under-regulation of affect than their psychotherapists, $t(17)=3.21$, $p<0.01$.

Patients of both groups reported lower levels of somatoform- and psychoform dissociation, fears of abandonment and closeness, and lack of interpersonal trust, compared to psychotherapists. Patients of both groups reported a similar degree of over-regulation of affect, difficulties with insight into own emotions, difficulties with the ability to analyze own emotions and difficulties with insight into others' emotions, compared to psychotherapists. Finally, patients of both groups reported a higher level of difficulties with the ability to verbalize emotions, than their psychotherapists.

Table 3 also shows additional analyses comparing the TPC+ and TPC- sub-groups using an independent-samples *t*-test. The TPC+ group reported higher levels of under-regulation of affect, ($t(35)=-2.38$, $p=0.023$) and of lack of interpersonal trust ($t(39)=-3.13$, $p<0.01$) than the TPC- group.

Discussion

This study contributes to the literature of signs and symptoms of dysfunctional self-regulation by assessing cognitive-emotional functioning and psychological mindedness in an explicit manner, i.e., patients' self-reports of dysfunctional self-regulation in contrast to ratings based on clinical observation by their psychotherapists, rather than implicit measures or experimental tasks. Overall, ratings by SSCD patients and their psychotherapists were very weakly correlated, reflecting a distinct discrepancy consistent with the study's principal hypothesis. In addition, patients tended to *under-report* their degree of dysfunctional over-regulation of affect in comparison with their psychotherapists, consistent with the hypothesis that SSCD would be associated with diminished psychological mindedness. SSCD patients also tended to under-report the severity of somatoform and psychoform dissociation, and of their fears of closeness and abandonment, compared to their psychotherapists. As hypothesized, SSCD patients thus appear to have important deficits in psychological mindedness across a range of measures related to a hallmark feature of their disorder, substantially underestimating their problematic tendency to over-regulate (i.e., consciously or unconsciously reduce awareness of) emotions and affective distress. In this sense, SSCD patients show a consistent pattern of distorted self-perception consistent with an 'illusion of mental health.' These results are in line with previous studies that found over-regulation of affect as characteristic of SSCD patients [19,21,29] as well as studies indicating that SSCD patients have difficulties with social cognition [13,15,16]. Treatments addressing affect and experiential awareness [47], in combination with intervention to enhance self-regulation and interpersonal skills as an alternative to affective over-regulation [48-50], therefore warrant further clinical and research investigation with SSCD patients. Study findings demonstrate the clinical relevance of assessing dysfunctional self-regulation not only from the perspective of the patient alone *or* of the therapist alone. Shared decision making on choice of treatment goals seems warranted for this patient group and may facilitate therapeutic alliance. In this study-group *concordance/agreement* was found for patients' self-

reported difficulties analyzing one's own emotions, experiencing over-regulation of affect, and experiencing difficulties with insight into others' emotions. This agreement is important in formulating therapy goals, for choice of treatment techniques and for receiving patients' consent for intensive interpersonally-focused forms of treatment such as group psychotherapy. However, in contrast with study hypotheses but consistent with the proposed role of psychological mindedness in SSCD, patients tended to *over-report* difficulties with verbalizing and insight into one's own emotions compared to their psychotherapists' ratings. This is in line with previous studies by Lane [13] showing diminished emotional awareness and emotional agnosia in SSCD patients compared to healthy controls. However, these results contradict findings from a prior study indicating that SSCD patients have no difficulty with insight in their own emotions but rather experience difficulties cognitive elaborations or fantasizing during therapy compared to other patient groups [24]. The underreporting of fears of closeness and abandonment may seem remarkable in light of the finding that over 50% of the SSCD-patients in this study reported attachment traumas involving primary caregivers (TPC). TPC was associated with problems with under-regulation of affect and trust in relationships, but did not appear to contribute to problems in psychological mindedness in these domains—SSCD patients with histories of TPC actually tended to be in closer agreement with their psychotherapists about problems with under-regulation compared to patients with no history of TPC. The underreported fears of attachment could indicate that (a subgroup of) SSCD-patients have become detached from attachment figures as a defensive compensation to deal with the adverse emotional impact of early life traumatic experiences on the ability to regulate intense emotions and trust close relationships [51]. Overtly, the presentation of attitudes toward close relationships may seem unproblematic, but covertly SSCD patients with histories of TPC might have a tendency to detach from important others as a way of coping with affective distress. This is in line with findings from the current study that SSCD patients over-reported difficulties with verbalizing and insight into their own emotions, as well as with the results of previous studies which demonstrated problems with emotion regulation and detachment in relationships by patients with SSCD [16,18, 21,50].

Therefore, it seems warranted to clinically assess dysfunctional self-regulation with SSCD patients both with and without TPC by both self-report and clinical observation. Problems with over-regulation of affect and psychological mindedness deficits in awareness of these problems appear likely in SSCD patients and may be under-detected unless external observers' perspectives are included. Problems with under-regulation of affect are most likely in this clinical population among those with histories of childhood trauma by primary caregiver(s), and can be identified by self-report as well as by external observers. For both forms of affect dysregulation, psychotherapeutic techniques aimed at increasing the ability of patients with dysfunctional self-regulation to raise emotional awareness, recognize, tolerate, differentiate, label and talk about emotions may be useful to overcome diminished psychological mindedness [30].

The results of the study need to be viewed in the context of the following strengths and limitations. First, the study needs replication. Although the effect sizes are sufficiently satisfying, the number of included subjects in this study is relatively small. Second, all included patients in the present study were patients with severe somatoform symptoms. Future research should investigate whether patients with mild somatoform symptoms also have a diminished psychological mindedness. Third, in the present study, the number of subjects was too small to examine a potential moderating effect of diagnosis on

the results obtained. Fourth, because of the cross-sectional nature of the study there are no causal inferences possible. Future research should investigate the predictive power of psychological mindedness with regard to treatment outcome and drop-out during therapy for somatoform patients with different levels of psychological mindedness, comparable to previous studies [22,23].

Conclusion

Study findings indicate that deficits in psychological mindedness among SSCD patients are not limited to presenting with the illusion of mental health. SSCD patients' difficulties with awareness of problems with self-regulation appear to be multi-faceted. Diminished awareness of problems with over-regulation of affect appears to co-exist with distorted (over-) reporting of problems with verbalizing and insight into one's own emotions. Thus, SSCD may involve generalized deficits in awareness of both emotional expression and attempts to inhibit or distance oneself from distressing emotions, particularly those involved in close relationships. More research is needed on deficits in psychological mindedness and illusionary mental health in SSCD patients. It seems warranted to obtain both self-reported and clinically observed information of dysfunctional self-regulation.

References

1. American Psychiatric Association (2000) Diagnostic and statistical manual of mental disorders. Fourth Revised Edition, International Version, Washington, DC.
2. Harris AM, Orav EJ, Bates DW, Barsky AJ (2009) Somatization increases disability independent of comorbidity. *J Gen Intern Med* 24: 155-161.
3. Waller E, Scheidt CE (2006) Somatoform disorders as disorders of affect regulation: A development perspective. *Int Rev Psychiatry* 18: 13-24.
4. Barsky AJ, Orav EJ, Bates DW (2005) Somatization increases medical utilization and costs independent of psychiatric and medical comorbidity. *Arch Gen Psychiatry* 62: 903-910.
5. Bourke JH, Langford RM, White PD (2015) The common link between functional somatic syndromes may be central sensitisation. *J Psychosom Res* 78: 228-236.
6. Perez DL, Barsky AJ, Daffner K, Silbersweig DA (2012) Motor and somatosensory conversion disorder: A functional unawareness syndrome? *J Neuropsychiatry Clin Neurosci* 24: 141-151.
7. Lanius RA, Vermetten E, Loewenstein RJ, Brand B, Schmahl C, et al. (2010) Emotion modulation in PTSD: Clinical and neurobiological evidence for a dissociative subtype. *Am J Psychiatry* 167: 640-647.
8. Perez DL, Barsky AJ, Vago DR, Baslet G, Silbersweig DA (2015) A neural circuit framework for somatosensory amplification in somatoform disorders. *J Neuropsychiatry Clin Neurosci* 27: e40-50.
9. Boeckle M, Liegl G, Jank R (2016) Neural correlates of conversion disorder: Overview and meta-analysis of neuroimaging studies on motor conversion disorder. *BMC Psychiatry* 16: 195.
10. Northoff G, Heinzl A, de Greck M, Bempohl F, Dobrowolny H, et al. (2006) Self-referential processing in our brain—a meta-analysis of imaging studies on the self. *Neuroimage* 31: 440-457.
11. Garralda ME (2011) Unexplained physical complaints. *Pediatr Clin North Am* 58: 803-813, ix.
12. Hall JA (1992) Psychological-mindedness: A conceptual model. *Am J Psychother* 46: 131-140.
13. Lane RD (2008) Neural substrates of implicit and explicit emotional processes: A unifying framework for psychosomatic medicine. *Psychosom Med* 70: 214-231.
14. Subic-Wrana C, Bruder S, Thomas W, Lane RD, Köhle K (2005) Emotional awareness deficits in inpatients of a psychosomatic ward: A comparison of two different measures of alexithymia. *Psychosom Med* 67: 483-489.
15. Subic-Wrana C, Beutel ME, Knebel A, Lane RD (2010) Theory of mind and emotional awareness deficits in patients with somatoform disorders. *Psychosom Med* 72: 404-411.
16. Luyten P, Van Houdenhove B, Lemma A, Target M, Fonagy P (2013) Vulnerability for functional somatic disorders: A contemporary psychodynamic approach. *J Psychother Integr* 23: 250-262.
17. Stonnington CM, Locke DE, Hsu CH, Ritenbaugh C, Lane RD (2013) Somatization is associated with deficits in affective Theory of Mind. *J Psychosom Res* 74: 479-485.
18. Wineke J, Eurelings-Bontekoe E, Van Dijke A, Moene F, Van Gool A (2015) Do patients with somatoform disorders present with illusory mental health? *J Psychol Psychother* 5: 213.
19. van Dijke A, Ford JD, van der Hart O, van Son M, van der Heijden P, et al. (2010) Affect dysregulation in borderline personality disorder and somatoform disorder: differentiating under- and over-regulation. *J Pers Disord* 24: 296-311.
20. Shedler J, Mayman M, Manis M (1993) The illusion of mental health. *Am Psychol* 48: 1117-1131.
21. Koelen JA, Eurelings-Bontekoe EH, van Broeckhuysen-Kloth SA, Snellen WM, Luyten P (2014) Social cognition and levels of personality organization in patients with Somatic Symptom and Related Disorders: A case-control study. *J Nerv Ment Dis* 202: 217-223.
22. Conte HR, Ratto R, Karasu TB (1996) The psychological mindedness scale: Factor structure and relationship to outcome of psychotherapy. *J Psychother Pract Res* 5: 250-259.
23. Nyklíček I, Majoor D, Schalken PAAM (2010) Psychological mindedness and symptom reduction after psychotherapy in a heterogeneous psychiatric sample. *Compr Psychiatry* 51: 492-496.
24. Van Dijke A, Van der Hart O, Bühring M, Van der Heijden P, Ford JD (2013) Cognitive and affective dimensions of difficulties in emotional functioning in somatoform disorders and borderline personality disorder. *Psychopathology* 46: 153-162.
25. Waller E, Scheidt CE (2004) Somatoform disorders as disorders of affect regulation: A study comparing the TAS-20 with non-self-report measures of alexithymia. *J Psychosom Res* 57: 239-247.
26. Roelofs K, Keijsers GP, Hoogduin KA, Näring GW, Moene FC (2002) Childhood abuse in patients with conversion disorder. *Am J Psychiatry* 159: 1908-1913.
27. van Dijke A, Ford JD (2015) Adult attachment and emotion dysregulation in borderline personality and somatoform disorders. *Borderline Personal Disord Emot Dysregul* 2: 6.
28. Del Rio-Casanova L, González A, Páramo M, Van Dijke A, Brenlla J (2016) Emotion regulation strategies in trauma-related disorders: Pathways linking neurobiology and clinical manifestations. *Reviews in the Neurosciences* 27: 101-110.
29. van Dijke A (2012) Dysfunctional affect regulation in borderline personality disorder and in somatoform disorder. *Eur J Psychotraumatol* 3.
30. Van Dijke A (2008) The clinical assessment and treatment of trauma-related self- and affect dysregulation. In: A Vingerhoets, I Nyklíček, J Denollet (Eds.), *Emotion regulation: Conceptual and clinical issues*. Springer, New York.
31. Nijenhuis ERS, Van der Hart O, Vanderlinden J (1999) The traumatic experiences checklist (TEC). In: ERS Nijenhuis (Ed.), *Somatoform dissociation: Phenomena, measurement and theoretical issues*. Assen, the Netherlands, Van Gorcum.
32. van Dijke A, Ford JD, Frank LE, van der Hart O (2015) Association of childhood complex trauma and dissociation with complex posttraumatic stress disorder symptoms in adulthood. *J Trauma Dissociation* 16: 428-441.
33. Nijenhuis ERS, Van der Hart O, Kruger K (2002) The psychometric characteristics of the traumatic experiences checklist (TEC): First findings among psychiatric outpatients. *Clin Psychol Psychother* 9: 200-210.
34. Pelcovitz D, van der Kolk B, Roth S, Mandel F, Kaplan S, et al. (1997) Development of criteria set and a structured interview for disorders of extreme stress (SIDES). *J Trauma Stress* 10: 3-16.
35. Ford JD, Kidd P (1998) Early childhood trauma and disorders of extreme stress as predictors of treatment outcome with chronic posttraumatic stress disorder. *J Trauma Stress* 11: 743-761.

36. Van Dijke A, Van der Hart O (2002) The Dutch self-report version of the structured interview for disorders of extreme stress (SIDES-r-nl). Unpublished manual Utrecht University, Utrecht.
37. Vorst HCM, Bermond B (2001) Validity and reliability of the Bermond-Vorst Alexithymia Questionnaire. *Pers Individ Dif* 30: 413-434.
38. Nijenhuis ER, Spinhoven P, Van Dyck R, Van der Hart O, Vanderlinden J (1996) The development and psychometric characteristics of the somatoform dissociation questionnaire (SDQ-20). *J Nerv Ment Dis* 184: 688-694.
39. Nijenhuis ERS, Spinhoven P, Van Dyck RMD, Van der Hart O, Vanderlinden J (1998) Psychometric characteristics of the Somatoform dissociation questionnaire: A replication study. *Psychother Psychosom* 67: 17-23.
40. Bernstein EM, Putnam FW (1986) Development, reliability and validity of a dissociation scale. *J Nerv Ment Dis* 174: 727-735.
41. Ensink B, Van Otterloo D (1989) A validation study of the DES in the Netherlands. *Dissociation* 2: 221-223.
42. Van IJzendoorn MH, Schuengel C (1996) The measurement of dissociation in normal and clinical population: Meta-analytic validation of the Dissociative Experiences Scale (DES). *Clin Psychol Rev* 16: 365-382.
43. Griffin DW, Bartholomew K (1994) The metaphysics of measurement: The case of adult attachment. In: K Bartholomew, D Perlman (Eds.), *Advances in personal relationships: Attachment processes in adulthood*. Jessica Kingsley, London.
44. Van Dijke A (2002) Dutch translation of the relationship scales questionnaire (RSQ). Unpublished manual.
45. Guédeney N, Fermanian J, Bifulco A (2010) [Construct validation study of the relationship scales questionnaire (RSQ) on an adult sample]. *Encephale* 36: 69-76.
46. Cohen J (1992) A power primer. *Psychol Bull* 112: 155-159.
47. Fosha D, Paivio S, Gleiser K, Ford JD (2009) Experiential and emotion-focused therapy. In: C. A. Courtois & J. D. Ford (Eds.), *Treating complex traumatic stress disorders: an evidence-based guide*. Guilford Press, New York.
48. Ford JD (2016) Emotion regulation and skills-based interventions. In: J Cook, S Gold & C Dalenberg (Eds.), *Handbook of trauma psychology*. American Psychological Association, Washington, DC.
49. Van Dijke A, Ford JD (2015) Adult attachment and emotion dysregulation in borderline personality and somatoform disorders. *Borderline Personality Disorder and Emotion Dysregulation* 2: 6.
50. Van Dijke A, Van der Hart O, Ford JD, Van Son M, Van der Heijden P, et al. (2010) Affect dysregulation and dissociation in borderline personality disorder and somatoform disorder: Differentiating inhibitory and excitatory experiencing states. *J Trauma Dissociation* 11: 424-443.
51. D'Andrea W, Ford J, Stolbach B, Spinazzola J, van der Kolk BA (2012) Understanding interpersonal trauma in children: Why we need a developmentally appropriate trauma diagnosis. *Am J Orthopsychiatry* 82: 187-200.