



Self-compassion in somatoform disorder

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ABSTRACT

'Third wave' cognitive-behavioral therapies have given a boost to the study of resilience factors, such as self-compassion. To get an indication of the potential clinical relevance of self-compassion for somatoform disorder, this study examined whether self-compassion in patients with somatoform disorder is lower than in the general population, and whether self-compassion is associated with number of symptoms and health-related quality of life. Two-hundred-and-thirty-six participants with somatoform disorder and 236 subjects from the general population, matched on sex and age, filled out questionnaires regarding self-compassion (SCS), number of symptoms (PSC) and health-related quality of life (EQ-5D). The difference in self-compassion between the patient group (Mean 3.53, SD .96) and the general population (Mean 4.16, SD .98) was significant with a medium effect size ($d = -.65$). Multiple regression analyses showed that having a somatoform disorder and low self-compassion were independently associated with number of symptoms and reduced health-related quality of life. The lower level of self-compassion in somatoform disorder and its association with more physical symptoms and lower health-related quality of life, indicate that self-compassion is a potential clinically relevant factor that may influence therapy outcome and that can be a therapeutic target in patients with somatoform disorder.

1. Introduction

The positive psychology movement and 'third wave' cognitive-behavioral therapies (CBT) have given a boost to the study of resilience factors in people, such as acceptance and mindfulness, but also self-compassion (Hayes et al., 2011; Bolier et al., 2013). Three interrelated components of self-compassion are thought to help a person during times of pain and failure (Neff, 2003a): (a) self-kindness: being kind and understanding toward oneself rather than being harshly self-critical, (b) common humanity: perceiving one's experiences as part of the larger human experience rather than seeing them as separating and isolating, and (c) mindfulness: holding one's painful thoughts and feelings in balanced awareness rather than over-identifying with them. If low self-compassion is a frequent phenomenon in somatoform disorder, this would suggest that self-compassion might be relevant for this group and could, for instance, be studied as a determinant of therapy outcome. Moreover, this might indicate that it could be useful to offer self-compassion training to patients with somatoform disorder and low self-compassion.

Somatoform disorder, the precursor diagnostic classification of somatic symptom disorder, is characterized by persistent physical

symptoms that suggest the presence of a medical condition, but are not explained fully by this condition or by the direct effects of a substance or another mental disorder (American Psychiatric Association, 2000). The prevalence of somatoform disorder in the general population is about 6% (Wittchen et al., 2011). Psychological or multidisciplinary treatment has been proposed as the preferred treatment option for somatoform disorder, given the medically untreatable nature of the physical symptoms, and the disturbed behavioral, cognitive and emotional processes (Bass and Murphy, 1995; Kroenke, 2007). Meta-analyses have indicated that psychological treatment is beneficial for patients with somatoform disorder but that there is ample room for improvement of effects (Kroenke, 2007; Abbas et al., 2009; Kleinstäuber et al., 2011; Koelen et al., 2014).

Theoretical considerations and empirical research suggest that attention to and misinterpretation of symptoms, rumination, deficits in mentalizing abilities and emotional awareness, and insecure attachment styles are factors that contribute to the development and persistence of somatoform disorder (Barsky, 1992; Stuart and Noyes, 1999; Kolk et al., 2003; Brown, 2004; Rief and Sharpe, 2004; Waller and Hartmann, 2004; Rief and Barsky, 2005; Bailer et al., 2006; Deary et al., 2007; Rief and Broadbent, 2007; Subic-Wrana et al., 2010; Witthöft and

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Hiller, 2010; Landa et al., 2012a, 2012b; Ravesteijn et al., 2014; Luyten et al., 2017). Attention to and misinterpretation of symptoms and rumination are difficult to stop unless symptoms improve (Brown, 2004); simply telling people to suppress these processes may have the paradoxical effect of increasing them (Wegner et al., 1987). Instead, the mindfulness component of self-compassion, can be considered the antipole of attention to and misinterpretation of symptoms and rumination, because it involves being aware of one's present moment experience in a clear and balanced way and being open to one's suffering instead of avoiding or disconnecting from it (Neff, 2003a). This awareness and openness may perhaps help to increase emotional awareness that has been indicated to be decreased in somatoform disorder (Subic-Wrana et al., 2010) and to reduce rumination, which is a repetitive form of thinking about possible causes, meanings and implications of one's mood, behavior or illness that includes being self-critical (Raes, 2010). Thus, the mindfulness component of self-compassion may be an antidote against several core aspects of somatoform disorder.

Also self-kindness and common humanity may be resilience factors in somatoform disorder. Instead of being harshly critical or judgmental toward oneself, self-kindness involves the tendency to be mild, understanding and caring with oneself (Neff, 2009). A negative correlation between scores on the Self-Compassion Scale (SCS) and rumination has indeed been observed (Raes, 2010). Furthermore, insecure attachment that goes with fear of interpersonal relationships and mistrust towards others has been indicated to play a role in somatoform disorder (Koelen et al., 2015). The self-compassion component common humanity is the opposite of poor interpersonal relations and mistrust because it involves feeling connected to others and recognizing that all humans are imperfect, and experience suffering and failure. It entails seeing one's own shortcomings and difficulties in the greater perspective of the common human condition. (Neff, 2003a; Neff, 2009; Neff and Vonk, 2009). Therefore, compassion training involving self-kindness, mindfulness and common humanity might counterbalance processes that play a role in somatoform disorder by helping patients being aware of one's present moment in a balanced, understanding and caring way, feeling connected to others and seeing one's own suffering in the greater perspective of the common human condition (Neff, 2003a; Neff, 2009; Neff and Vonk, 2009; Raes, 2010) To get an indication of the potential usefulness of this approach, a first step is to determine whether low self-compassion is prevalent and related to symptoms, well-being and functioning in somatoform disorder.

The study of self-compassion in somatoform disorder is supported by a growing body of evidence that self-compassion may be a buffer against mental disorders (MacBeth and Gumley, 2012; Muris and Petrocchi, 2017) and the consideration that patients with this disorder may have a persisting focus on avoiding physical and emotional harm, instead of a mindful, friendly and accepting stance towards their own suffering (Lind et al., 2014; Huang et al., 2016). The aim of the current study was to gain insight into the relevance of self-compassion in somatoform disorder. To that aim, levels of self-compassion were compared between a patient group diagnosed with somatoform disorder (DSM-IV-TR; American Psychiatric Association, 2000) and the general population. We also examined whether there was a correlation between the degree of self-compassion and physical symptoms and health-related quality of life, both in the patient group and the general population. It was expected that the somatoform disorder group would have a lower level of self-compassion than the general population and that lower levels of self-compassion would be associated with more physical symptoms and lower health-related quality of life.

2. Methods

2.1. Participants

The two samples of this study consisted of 236 patients with

somatoform disorder and 236 people from the general population matched on gender, age and education level.

2.1.1. Patient group

The participants from the patient group were recruited at Altrecht Psychosomatic Medicine, Zeist, The Netherlands, a specialized treatment center for patients diagnosed with somatoform disorder according to DSM-IV-TR criteria (American Psychological Association, 2000). Patients admitted to this institution on average have medically unexplained symptoms for 10 years, received about 5 previous treatments for somatoform disorder in primary or secondary care, and have comorbid mood, anxiety, or personality disorder in about half of the cases (Van der Boom and Houtveen, 2014). Patients with hypochondria, body dysmorphic disorder, addiction, psychosis, and patients in a crisis situation are not treated in the center, and were therefore not included in the current study. Also excluded were patients who did not complete the Self-Compassion Scale (SCS). This resulted in a final sample of 236 participants (64 men and 172 women). The mean age of the sample was 40.8 ($SD = 11.7$).

2.1.2. General population

Participants from the general population were recruited by sending e-mails and posting messages on Facebook pages. A heterogeneous sample in terms of age, gender, regional area and social background was contacted by sharing calls to participate at Facebook pages of the target audience. Several disorders were excluded because of overlap with somatoform disorder: fibromyalgia, irritable bowel syndrome, chronic fatigue syndrome and chronic pain disorders. These disorders were measured by asking the participants to specify for which disorders they are being treated by a medical doctor. The total number of respondents from the general population was $N = 399$ of which $N = 47$ were excluded because of an overlapping disorder and $N = 116$ were excluded in the matching procedure. The final sample consisted of 236 participants (64 men and 172 women). The mean age was 40.6 ($SD = 12.4$).

2.2. Procedure

2.2.1. Ethical permission

The study protocol was approved by the Faculty Ethics Committee (FETC) of the faculty of Social and Behavioral Sciences at Utrecht University (November 2015, FETC 15-072). Informed consent regarding the completion of the questionnaire and its purposes was required for inclusion in this study. In the descriptive, correlational study, the following questionnaires were administered: The Self-Compassion Scale (SCS), the Physical Symptom Checklist (PSC; Van Hemert, 2003), and the EuroQol 5-Dimensional (EQ-5D; The EuroQol Group, 1990). Table 1 shows an overview of the available questionnaires per group.

2.2.2. Patient group

The PSC and EQ-5D are part of Routine Outcome Monitoring (ROM) during the intake procedure at Altrecht Psychosomatic Medicine. The SCS was administered for the purpose of this study. Not all patients completed the PSC and the EQ-5D on the same day as the SCS. In that

Table 1
Overview of the available questionnaires for the patient group and the general population.

	Patients	General population
SCS	236	236
PSC	225	236
EQ-5D	181	236

Note: SCS = Self-Compassion Scale; PSC = Physical Symptom Checklist; EQ-5D = EuroQol 5-Dimensional.

case the questionnaires administered closest in time to the SCS were used in the analyses. The number of days between filling out the SCS and the PSC and EQ-5D was entered in the analyses as a control variable.

2.2.3. General population

Short recruitment texts with a link to the online questionnaire on www.qualtrics.com were distributed on the Internet by sending e-mails and posting messages on Facebook. After being informed, signing for informed consent was the only way to open the questionnaire. Respondents provided demographics (age, gender, education, marital status, and zip code), were asked to specify for which disease they were being treated by a medical doctor, and filled out the PSC, EQ-5D and SCS. Responses were stored online anonymously.

2.2.4. Matching procedure

After excluding participants in the general population with medically unexplained symptoms, random numbers generated by SPSS were allocated to the participants that were eligible for the general population sample ($N = 352$). Everyone in the patient group was matched to one participant of the general population on the basis of gender, age and education level. Gender necessarily had to be the same. Age preferably also had to be equal, but if this wasn't possible, someone closest in age was chosen. Whenever possible the same level of education was chosen, or otherwise the level that was closest. In case of multiple possible matches, the lowest random number was chosen.

2.3. Materials

2.3.1. SCS

The Dutch translation of the SCS (Neff, 2003b; Neff and Vonk, 2009) is a 24 item questionnaire consisting of six scales that assess the positive and negative poles of the three components of self-compassion: Self-kindness (e.g. 'When I am going through a very hard time, I give myself the caring and tenderness I need'), Self-Judgement (e.g. 'I am disapproving and judgmental about my own flaws and inadequacies'), Common Humanity (e.g. 'I try to see my feelings as part of the human condition'), Isolation (e.g. 'When I fail at something that is important to me, I tend to feel alone in my failure'), Mindfulness (e.g. 'When something upsets me I try to keep my emotions in balance') and Over-Identification (e.g. 'When I am feeling down I tend to obsess and fixate on everything that is wrong') (Neff, 2003b). Items are rated on a seven-point Likert scale, ranging from 1 (almost never) to 7 (almost always). The SCS has a good internal consistency, construct validity, test-retest reliability and discriminant validity (Neff, 2003b). In the current study, Cronbach's α of the total SCS score was .92. Cronbach's α of the subscales varied from .75 (common humanity) to .87 (self-kindness). This suggests an acceptable to good internal consistency.

2.3.2. PSC

The PSC (Van Hemert, 2003) is a checklist comprising 51 items of physical symptoms (e.g. palpitations, insomnia, myalgia, nausea, abdominal pains, and headaches) that are all included in the DSM-IV-TR (American Psychological Association, 2000; De Waal et al., 2009). Each symptom is rated on a four-point Likert scale reflecting the frequency of the symptoms during the previous week: never (0), sometimes (1), regularly (2) and often (3). The lowest answering categories (0 and 1) are scored as 0 and the highest categories (2 and 3) are scored as 1. Cronbach's alpha at the PSC is in the current study was .95 which is a very good internal consistency.

2.3.3. EQ-5D

The EQ-5D (The EuroQol Group, 1990) measures health-related quality of life using verbal descriptions and the EQ visual analogue scale (EQ VAS). The descriptive system comprises the following 5 dimensions: mobility, self-care, usual activities, pain/discomfort and

anxiety/depression. Each dimension has 3 levels: no problems, some problems, extreme problems. The combination of the five scores defines 243 health states that are weighted and contribute to an index score between $-.33$ (worst possible health state) and 1.00 (best possible health state). The EQ VAS records the respondent's self-rated health on a scale ranging from 0 (= best imaginable health state) to 100 (= worst imaginable health state). Validity research in a population with somatoform disorder shows a good convergent validity of the EQ-5D and discrimination between patients with somatoform disorder and the general population (Brettschneider et al., 2013). In the current study, Cronbach's α at the EQ-5D was .80 which reflects a good internal consistency.

2.4. Data analysis

Statistical analyses were performed using IBM SPSS statistics version 23.0. All tests were two-tailed and statistical significance was considered for $p < .05$. An independent samples t -test was used for examining differences in self-compassion (total score and subscales) between the patient group and the general population. In case of multiple tests, also Bonferroni corrected p -values are reported. Effect sizes (Cohen's d) were computed using the means and standard deviations of the general population as reference values. Values of .2, .5 and .8 represent small, medium and large deviations, respectively. We also did this for women and men separately, because a meta-analysis showed that men have slightly higher levels of self-compassion than females (Yarnell et al., 2015).

To test the associations between self-compassion and number of symptoms, and self-compassion and physical impairment, multiple regression analyses were performed. Group (patient vs. control), self-compassion (total score SCS), and the interaction self-compassion \times group were entered as predictors for number of symptoms (PSC) or physical impairment (EQ-5D). Gender, age and the number of days between measurements were added as covariates.

2.4.1. Ad hoc analyses

Since the descriptive analyses showed significant differences in education level between the groups, with more highly educated individuals in the general population, analyses were conducted again for two samples of 124 participants that were perfectly matched on education level. In these analyses, the total samples were again used to match the samples perfectly on gender and education level.

3. Results

3.1. Description of the samples

Table 2 shows the characteristics of both groups. Age was not perfectly matched but the mean age did not differ between both groups. The education level of only 127 people in the patient group was known because this was not included in the electronic patient file by default. Education level of the groups differed significantly, with more people with high education being included in the general population sample.

3.2. Levels of self-compassion

Table 3 shows the levels of self-compassion for the samples. An independent samples t -test showed significant differences in total scores on the SCS between the patient group and the general population, $t(458) = -6.96, p < .001$. The groups differed significantly from each other on every subscale: self-kindness ($t(464) = -6.99, p < .001$), self-judgment ($t(469) = 6.17, p < .001$), common humanity ($t(468) = -6.37, p < .001$), isolation ($t(466) = 3.55, p < .001$), mindfulness ($t(466) = -4.68, p < .001$), over identification ($t(469) = 3.12, p < .01$); the group differences with a p -value $< .001$ remained significant after Bonferroni correction. The magnitude of differences

Table 2
Descriptive variables of the patient group and the general population.

Variable		Patient Group	General Population
Gender	Men	64	64
	Women	172	172
Age	Range	18–67	18–68
	Mean	40.8	40.6
	Standard deviation	11.74	12.4
Educational Level	Low	16	9
	Medium	60	87
	High	51	140
	Unknown	109	0
Total		236	236

Note. Education level: low: primary school or lower vocational secondary education; middle: intermediate general secondary education or intermediate vocational education; high: higher general secondary education, higher vocational education, or university education.

The mean age did not differ between groups: $t(470) = -.13, p = .90$; the education level differed significantly: $\chi^2(2) = 17.21, p < .001$.

Table 3

Means (M), standard deviations (SD) and Cohen's *d* effect sizes of the differences between the patient group (n = 236) and the general population (n = 236) on the total score and subscales of the Self-Compassion Scale (SCS) for the total group (N = 472) and for women (n = 344) and men (n = 128) separately.

	Patients M (SD)	General Population M (SD)	Cohen's <i>d</i>	Effect	<i>p</i> -value
Total sample					
Total score SCS	3.53 (.96)	4.16 (.98)	-.65	Medium	< .001
Self-Kindness	3.17 (1.26)	3.96 (1.17)	-.66	Medium	< .001
Self-Judgment	4.81 (1.41)	4.00 (1.45)	.57	Medium	< .001
Common	3.38 (1.15)	4.06 (1.15)	-.59	Medium	< .001
Humanity					
Isolation	4.15 (1.41)	3.68 (1.47)	.33	Small	< .001
Mindfulness	3.82 (1.26)	4.35 (1.16)	-.44	Small	< .001
Over	4.14 (1.31)	3.75 (1.38)	.29	Small	.002
Identification					
Women					
Total score SCS	3.43 (.88)	4.04 (.99)	-.62	Medium	< .001
Self-Kindness	3.06 (1.21)	3.92 (1.18)	-.73	Medium	< .001
Self-Judgment	4.94 (1.37)	4.14 (1.48)	.54	Medium	< .001
Common	3.36 (1.15)	4.05 (1.11)	-.62	Medium	< .001
Humanity					
Isolation	4.26 (1.31)	3.86 (1.48)	.27	Small	.01
Mindfulness	3.69 (1.20)	4.25 (1.15)	-.49	Small	< .001
Over	4.21 (1.24)	3.95 (1.35)	.19	Small	.06
Identification					
Men					
Total score SCS	3.79 (1.1)	4.46 (.9)	-.74	Medium	< .001
Self-Kindness	3.46 (1.36)	4.07 (1.14)	-.54	Medium	.007
Self-Judgment	4.46 (1.45)	3.61 (1.32)	.64	Medium	.001
Common	3.45 (1.13)	4.09 (1.27)	-.5	Medium	.003
Humanity					
Isolation	3.86 (1.61)	3.17 (1.32)	.52	Medium	.009
Mindfulness	4.17 (1.34)	4.6 (1.16)	-.37	Small	.052
Over	3.93 (1.48)	3.21 (1.33)	.54	Medium	.005
Identification					

between the groups using Cohen's *d* effect size was small to medium. Fig. 1 shows that levels of self-compassion in patients ranged from very low to very high, but that relatively many patients had a low to very low self-compassion as compared to the general population. The results with respect to the effect size and significance of self-compassion differences between the groups for men and women separately were largely the same with two exceptions: the group difference for women on the subscale over-identification and the group difference for men on the subscale mindfulness were no longer significant: $t(341) = 1.8, p = .06$; $t(126) = -1.96, p = .052$.

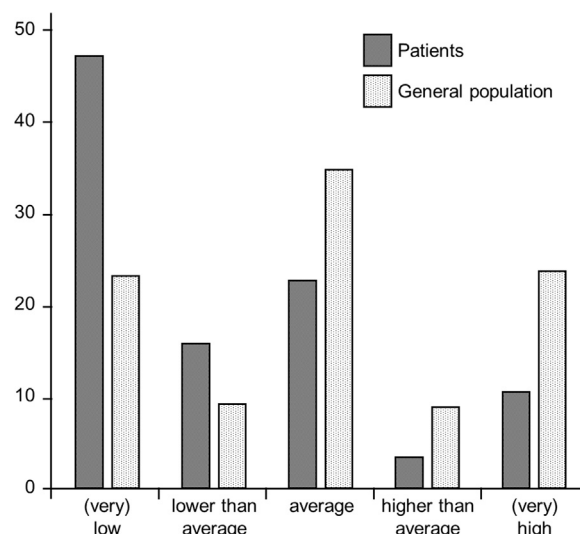


Fig. 1. Percentages of participants with (very) low to (very) high self-compassion (total score on the SCS) scores by group, based on individual effect sizes (Cohen's *d*). Meaning of the labels: (very) low: $d \leq -.8$, lower than average: $-.8 < d \leq -.5$, average: $-.5 < d < .5$, higher than average: $.5 < d < 0.8$, (very) high: $d \geq .8$.

3.3. Levels of self-compassion associated with physical symptoms and health-related quality of life

The mean score on the PSC was 17.00 ($SD = 8.29$) for the patient group and 7.78 ($SD = 8.56$) for the control group. The mean score on the EQ-5D was .38 ($SD = .33$) for the patient group and .75 ($SD = .28$) for the control group. These differences between groups were highly significant ($p < .001$).

The results of multiple regression analyses examining the association of self-compassion with number of symptoms and health-related quality of life are shown in Table 4. Female gender was associated with more physical symptoms ($p < .001$) and a lower health-related quality of life ($p = .001$). Also a higher age was associated with more physical symptoms ($p = .01$) and a lower health-related quality of life ($p = .01$). The time interval between measurement of the SCS and PSC or EQ-5D was neither significantly associated with physical symptoms ($p = .88$), nor with health-related quality of life ($p = .51$), suggesting that

Table 4

Regression analyses predicting number of physical symptoms (PSC) and health related quality of life (EQ-5D) from gender, age, group (patients: PSC N = 225, EQ-5D N = 181 versus general population: N = 236), self-compassion (total score SCS), and the group x self-compassion interaction.

Variable	Number of symptoms (PSC)			Health-related quality of life (EQ-5D)		
	<i>b</i> (s.e.)	β	<i>t</i>	<i>b</i> (s.e.)	β	<i>t</i>
Gender	4.33 (.85)	.20	5.08***	-.11 (.03)	-.14	-3.39**
Age	.09 (.03)	.11	2.74**	-.00 (.00)	-.10	-2.54*
Group	-7.69 (3.04)	-.40	-2.53*	.28 (.12)	.39	2.39*
Self-compassion (SCS)	-1.85 (.56)	-.20	-3.29**	.06 (.02)	.18	2.70**
Group x self-compassion	-.04 (.77)	-.01	-.05	.01 (.03)	.07	.38

Note.

SCS = Self-Compassion Scale; PSC = Physical Symptom Checklist; EQ-5D = EuroQol 5-Dimensional.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

differences in the time of measurement did not influence the results of the regression analyses. Both having a somatoform disorder and low self-compassion were independently associated with more physical symptoms ($p = .01, p = .001$) and a lower health-related quality of life ($p = .02, p = .007$). The interaction group \times self-compassion was not significantly associated with physical symptoms ($p = .96$) or health-related quality of life ($p = .71$) indicating that the associations between self-compassion and the outcome variables were not different for the two groups.

The regression analyses were repeated for men and women separately. This analysis showed that in women but not in men, lower levels of self-compassion were significantly associated with more physical symptoms (women: $t = -3.041, p = .003$; men: $t = 1.915, p = .06$) and a lower quality life (women: $t = 2.390, p = .02$; men: $t = 1.522, p = .13$).

3.4. Ad hoc analyses

In order to examine whether the observed differences, could be explained by differences in education level between the groups, analyses were repeated for smaller samples drawn from the large population of 124 participants with somatoform disorder and 124 participants from the general population. These smaller samples were perfectly matched on gender and education level, and age did not differ significantly between the groups. The results with respect to differences in self-compassion remained the same with one exception: the group difference for the subscale over-identification was no longer significant: $t(246) = 1.66, p = .10$. Another difference was that was not a significant predictor of number of symptoms anymore ($t = 1.61, p = .11$) and health-related quality of life ($t = -.17, p = .87$).

4. Discussion

This study examined the prevalence of self-compassion in somatoform disorder and its association with physical symptoms. As expected, patients with somatoform disorder had lower levels of self-compassion than the general population. Moreover, lower self-compassion was associated with more physical symptoms and lower quality of life, both in the patient group and the matched control group.

In agreement with most previous studies showing that self-compassion is associated with psychopathology (MacBeth and Gumley, 2012; Krieger et al., 2013; Dossing et al., 2015; Ehret et al., 2015; Seligowski et al., 2015), our study indicates that self-compassion also plays a role in somatoform disorder.

The effect sizes of differences in self-compassion between the patient group and the general population in the current study were small to medium, compared to medium to large effect-sizes in depression (Ehret et al., 2015; Seligowski et al., 2015), general anxiety disorder (MacBeth and Gumley, 2012) and bipolar disorder (Dossing et al., 2015). Other studies on self-compassion and psychopathology (Eicher et al., 2013; Ferreira et al., 2014; Kelly et al., 2014; Hiraoka et al., 2015; Seligowski et al., 2015) did not use control groups. The difference in effect-sizes might be explained by our choice to use a comparison group from the general population as reference group, while the patients with depression and general anxiety disorder were compared to never depressed and non-clinical controls, and the patients with bipolar disorder were compared to healthy controls. These control groups may score higher on self-compassion than our control group from the general population in which only people with fibromyalgia, irritable bowel syndrome, chronic fatigue syndrome and chronic pain disorders were excluded, but not other people with somatic or mental disorders. Nevertheless, we observed that a substantial subgroup of patients with somatoform disorder had lower than average or (very) low levels of self-compassion, suggesting the potential clinical significance of low self-compassion in a considerable subgroup of patients with somatoform disorder.

The results of our study showed that low self-compassion is associated with more physical symptoms and lower health-related quality of life. These relations were similar in the groups with and without a diagnosis of somatoform disorder. Nonetheless, it is a clinically relevant finding because it suggests that lower self-compassion is associated with a higher dysfunctional level of health status over and above an already high dysfunctional level. Mean self-compassion scores of women and men were largely similar, in agreement with previous studies (Yarnell et al., 2015). Analyses in men and women separately indicated that the association between health-related quality of life and self-compassion is stronger in women than men, which suggests that it is relevant to examine gender as a moderator and covariate in observational studies and evaluations of compassion interventions. Previous studies in the context of pain and medical conditions such as cancer suggested that self-compassion affects the way people deal with pain and physical symptoms and is associated with lower negative affect, avoidance, catastrophizing, stress, and rumination (Costa and Pinto-Gouveia, 2011, 2013; Wren et al., 2012; Hayter and Dorstyn, 2014; Pinto-Gouveia et al., 2014; Purdie and Morley, 2015). Self-compassion is indicated to be a general resilience factor that acts as a buffer against stressful conditions (Neff et al., 2007a, 2007b; Neff and McGehee, 2010; Terry and Leary, 2011; Costa and Pinto-Gouveia, 2011, 2013; Hall et al., 2013; Pinto-Gouveia et al., 2014). This suggests the relevance of nurturing a caring and kind relation with oneself in the face of medical conditions and it implies that enhancing self-compassion might lead to better management of physical symptoms and improved quality of life.

This study was a first step in demonstrating the potential significance of self-compassion in somatoform disorder. Strengths of the study were the large sample size and the matching of the comparison sample on the basis of sex and age. With respect to external validity, the included population was diagnosed with DSM-IV-TR criteria for somatoform disorder. Although there is obvious overlap, it is not known how the findings generalize to patients diagnosed with somatic symptom disorder according to DSM-V criteria. A main limitation is that due to the cross-sectional design, no conclusions can be drawn about the direction of the association of self-compassion with number of symptoms and health-related quality of life. It is possible that somatoform disorder is a trigger for declining self-compassion. Moreover, the association of self-compassion with symptoms and health-related quality of life that was observed in this study may not (only) reflect direct influence but instead may be (partly) due to spurious variables not measured in this study such as other psychopathology, childhood neglect or abuse, and trauma that may have differed between the two groups. Moreover, the match of our clinical sample and the sample of the general population was imperfect with respect to education, in the patient group several scores at the PSC and EQ-5D were missing, and education level of almost half of the patients was unknown.

With respect to future research, a clinical experimental study should be conducted to examine the effects of compassion-training, while experimental research could examine the effects of manipulating components of self-compassion on symptoms and functioning; e.g., by systematically varying the components of self-compassion and comparing the effects on pain of electrical stimuli or pressure algometers on functioning in response to cognitive or physical tasks. A third line of research is to examine the predictive value of self-compassion for the course of the disorder or treatment outcome. A final line of research of interest in people with somatoform disorder with very low self-compassion is to examine features or experiences in their lives that caused and maintain low self-compassion.

In conclusion, the present study shows that patients with somatoform disorder have a lower mean level of self-compassion than people from the general population, and that low levels of self-compassion are associated with more physical symptoms and lower health-related quality of life. These findings indicate that self-compassion is a potential clinically relevant factor that may influence therapy outcome and that may be a therapeutic target in a subgroup of patients with

somatoform disorder and a low level of self-compassion.

Conflicts of interest

None.

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