



Characteristics of oligosymptomatic versus polysymptomatic presentations of somatoform disorders in patients with suspected allergies

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Abstract

Objective: Psychobehavioral characteristics of patients with somatoform disorders (SFDs), are increasingly discussed as possible positive criteria for this diagnostic group. However, little is known about psychobehavioral differences, or similarities, between the different SFD presentations, i.e., polysymptomatic [multisomatoform/somatization disorders (MSD)] versus mono- or oligosymptomatic courses [pain disorder (PD), undifferentiated somatoform disorder (USD)]. **Methods:** This is a cross-sectional study including 268 consecutive allergology inpatients. After an Structured Clinical Interview for *DSM-IV*, patients completed several self-rating questionnaires. Results were compared within the different SFD presentations as well as between patients with versus without SFDs. **Results:** We identified 72 patients with an SFD. There were fewer and smaller psychobehavioral differences within patients with the different SFD presentations (MSD, USDs, PDs) than between patients with undifferentiated versus no SFD. Patients with one of

the three different SFD subdiagnoses scored similarly on many measures referring to psychosocial distress (e.g., psychological distress, mental health-related quality of life, dissatisfaction with care). The number of reported symptoms, somatic symptom severity, a self-concept of bodily weakness, the degree of disease conviction, and physical health-related quality of life discriminated the different SFD presentations not only from patients without SFDs but also from each other. **Conclusions:** Patients diagnosed with one of the different SFD subtypes share many psychobehavioral characteristics, mostly regarding the reporting of psychosocial distress. Perceived somatic symptom severity and physical impairment as indicators of bodily distress could either further define categorical subdivisions of SFD or dimensionally graduate one general SFD category defined by bothering bodily symptoms and disproportionate psychosocial distress.

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Keywords: Classification; Dimensional assessment; Distress; Positive criteria; Psychobehavioral characteristics; Somatoform disorders

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Introduction

The current debate about the classification of somatoform disorders (SFD) in *DSM-V* and *ICD-11* is at a point at which it has become obvious that this disease category has to be

fundamentally changed. General agreement has already become apparent about several important issues:

- SFD have an exceptional position as *interface disorders* between somatic and mental illness [1,2].
- The present classifications are *insufficient* with respect to *criterion and predictive validity* [3].
- A *more inclusive definition of somatization disorder* as the main category of SFD—for example, as “multisomatoform disorder” [4,5]—to unburden the category “undifferentiated somatoform disorder” (USD) is required.
- Instead of focusing on the very questionable core criterion of lacking organic symptom explicability, *positive criteria* for SFD are needed [4,6–8].
- *Bodily and psychosocial distress* play a central role in SFD, suggesting a name change towards “bodily distress disorder” or “complex somatic symptom disorder” [9,10].
- Thus, an SFD could be likewise present in “organically explained” as well as “functional” conditions that are complicated by a disproportional degree of psychosocial affliction [1,10].

Experts disagree, however, on how to deal with the different SFD presentations in the upcoming classifications. Among SFD in a narrower sense (that are—in contrast to hypochondriasis and body dysmorphic disorder—dominated by physical symptoms), it has been suggested to uncouple “pain disorder” (PD) from the SFD category [4], to delete “USD” [4], or, instead, to integrate somatization disorder (or rather its more inclusive re-definition, multisomatoform disorder), USD, and PD in *one* general somatoform category, and only additionally code severity and mono- versus polysymptomatic courses [6].

In accordance with the current approaches of *DSM-IV* and *ICD-10*, new classifications will most likely (and rightfully) maintain a phenomenological approach to diagnoses, and still be based on (physical and psychobehavioral) symptoms rather than etiology or treatment response. Therefore, evidence is needed about phenomenological similarities, or differences, between multisomatoform/somatization disorder (MSD), USD, and PD. In a previous paper we found evidence that there are various *psychobehavioral characteristics* differentiating allergy workup patients with SFD from allergy workup patients without SFD [8]. This former analysis searched for general SFD predictors among workup patients only and did not distinguish between the complex polysymptomatic and the less complex mono- or oligosymptomatic presentations of SFD [8]. Therefore, from that analysis, no conclusions about *general* versus possible *specific* psychobehavioral features of different SFD presentations could be drawn.

Here, we present a descriptive analysis of patient-reported data on psychobehavioral characteristics of the currently defined SFD subcategories (i.e., MSD, PD and USD) from an unselected cohort of allergology inpatients in order to test which characteristics can differentiate between “polysympto-

matic” and “mono- or oligosymptomatic” presentations of somatoform disorders.

Method

Patients, study procedure, and study instruments

Data were collected from a group of 300 consecutive inpatients of a German university allergy department, which is also a GA2LEN (Global Allergy and Asthma European Network) Excellence Centre. The most common reasons for inpatient admission were (a) that symptoms could not be diagnosed with sufficient certainty in an outpatient setting or (b) because provocation testing was considered fraught with risk. The spectrum of (suspected) allergens was broad; the most commonly mentioned triggers were drugs, foods, additives, or hymenoptera venom, but also other contact or volatile, unrelated, or unknown substances. Details about the spectrum of symptoms and suspected allergens as well as the results of the diagnostic procedures will be reported separately. More details about inclusion and exclusion criteria as well as recruitment and participation have been reported elsewhere [8].

The patients underwent an interview of about 45 minutes duration covering the number of spontaneously reported symptoms, health care utilization, past medical history, and Section G (somatoform disorders) of the Structured Clinical Interview for *DSM-IV* (*SCID-I*) [11], extended by the criteria for multisomatoform disorder [12]. Section G of SCID was applied *without* its skipping rules; all listed symptoms, their onset, course, medical workup/explanation, and impairment were recorded. Afterwards, criteria for multisomatoform disorder were assessed. According to the resulting diagnosis, the patients were allocated to four groups: Patients with MSD, patients with PD, patients with an USD, and patients without any somatoform disorder according to SCID or criteria for multisomatoform disorder. All participants filled out a set of self-rating questionnaires on various psychobehavioral features. In detail, the set covered the Illness Perception Questionnaire, revised version (IPQ-R [13]), the Whiteley-Index, short form (WI-7 [14]), the Cognitions About Body And Health Questionnaire (CABAH [15]), the Scale for the Assessment of Illness Behavior (SAIB [16]), the Reassurance Questionnaire (RQ [17]), large parts of the Health Attitude Survey (HAS [18]), the SF-36 Health Survey [19,20], and four modules of the Patient Health Questionnaire (PHQ [21,22]): the PHQ-15 for somatic symptom severity [23], the PHQ-9 for depression [24], the general anxiety disorder (GAD)-7 for general anxiety [25], and the PHQ stress scale for current life stressors (for details, see Ref. [8]).

Statistical analysis

Statistical analyses were carried out with SPSS (version 17.0). All data were analyzed descriptively reporting

absolute numbers and percentages for categorical variables and means and standard deviations for continuous variables.

Comparisons of frequencies regarding data on socio-demographic variables and comorbidity between the four subgroups were performed through χ^2 tests, mean comparisons of continuous variables were performed by Kruskal-Wallis tests.

The number of pair-wise comparisons was limited to five: we compared MSD and PD, MSD and USD, PD and USD, PD and “no somatoform disorder,” and USD and no somatoform disorder, but not the obviously different MSD and no somatoform disorder.

As to uneven and sometimes small sample sizes, effect sizes of relevant pairwise comparisons were calculated according to Cohen $\{d=(\mu_1-\mu_2)/\sqrt{[(\sigma_1^2+\sigma_2^2)/2]}\}$ [26], and interpreted as medium effects when d was between 0.5 and 0.7 and large effects when d was at least 0.8. When mean comparisons showed large or medium effect sizes, we performed binary logistic regression analyses. To correct for age differences in the subgroups, age was included as a covariate in a first step. Depression and anxiety as possible confounders were included as additional covariates in a second step.

For the purpose of a reduction of overall probability of significant results by multiple testing, statistical comparisons were made using Bonferroni-adjusted two-sided 1% levels of significance, according to the number of subgroup pairs.

A post hoc power analysis by given sample sizes for a power requirement of 0.80 and a 1% significance level of the

five pairwise mean comparisons yielded minimum detectable effect sizes of 1.3 for MSD versus PD 0.9 for MSD versus USD, 1.2 for PD versus USD, 1.1 for PD versus NoSFD, and 0.7 for USD versus NoSFD.

Results

Sample description

A total of 268 of 300 consecutive allergology inpatients participated in our study (participation rate 89%). According to SCID or criteria for multisomatoform disorder, 196 patients (73%) had no SFD diagnosis; 32 patients (12%) were diagnosed with an USD; 11 patients (4%) were diagnosed with a PD; and 29 patients (9%) had a multi-somatoform disorder (26 patients) or somatization disorder (three patients).

Sociodemographic data and organic comorbidity as well as symptom duration were comparable between all subgroups apart from a significant difference in age with the highest age in patients with PD and the lowest age in patients with USD (Table 1).

Symptoms, health care utilization, and psychobehavioral characteristics

Results from the interview and all questionnaires are listed in Table 2.

Table 1
Sociodemographic data and organic comorbidity

	MSD, <i>n</i> =29	PD, <i>n</i> =11	USD, <i>n</i> =32	NoSFD, <i>n</i> =196	<i>P</i>
Age in years ^a	45.2 (11.8)	51.3 (11.2)	37.5 (13.5)	43.2 (12.4)	.01
Sex ^b					.14
Female	22 (76%)	8 (73%)	28 (87%)	133 (68%)	
Male	7 (24%)	3 (27%)	4 (13%)	63 (32%)	
Current partnership ^b					.52
Yes	18 (62%)	8 (73%)	23 (72%)	139 (71%)	
No	7 (24%)	2 (18%)	3 (9%)	41 (21%)	
No answer/not applicable	4 (14%)	1 (9%)	6 (19%)	16 (8%)	
Educational level ^b					.85
≤11 school years	12 (41%)	4 (36%)	12 (37%)	70 (36%)	
≥12 school years	14 (48%)	6 (55%)	14 (44%)	108 (55%)	
No answer/not applicable	3 (10%)	1 (9%)	6 (19%)	18 (9%)	
Currently occupied (or in training) ^b					.08
Yes	20 (69%)	8 (73%)	24 (75%)	165 (84%)	
No	6 (21%)	3 (27%)	3 (9%)	17 (9%)	
No answer/not applicable	3 (10%)	0	5 (16%)	14 (7%)	
History of other allergy ^b					.74
Yes	13 (45%)	5 (45%)	18 (56%)	90 (46%)	
No	16 (55%)	6 (55%)	14 (44%)	106 (54%)	
No. of concurrent somatic diagnoses (other than allergy) ^b					.10
0	12 (41%)	2 (18%)	19 (59%)	105 (54%)	
1–2	15 (52%)	8 (73%)	11 (34%)	77 (39%)	
≥3	2 (7%)	1 (9%)	2 (6%)	14 (7%)	
Duration of symptoms (years) ^a	9.4 (10.0)	9.6 (15.5)	4.4 (4.5)	6.0 (8.4)	.49

^a Mean (standard deviation); 4-sample-comparison with Kruskal-Wallis-Test.

^b Number (percentage); 4-sample-comparisons with χ^2 tests.

Table 2

Number of symptoms, health care utilization and psychobehavioral characteristics: raw scores

	MSD, n=29	PD, n=11	USD, n=32	NoSFD, n=196
No. of symptoms	8.3 (6.3)	6.6 (3.3)	4.9 (2.4)	3.5 (2.1)
No. of consulted physicians (last 12 months)	7 (7)	5 (3)	5 (2)	4 (3)
No. of outpatient visits (last 12 months)	31 (31)	29 (24)	12 (9)	11 (11)
PHQ-15 somatic symptom severity	13.9 (4.9)	10.8 (4.5)	9.7 (3.6)	5.6 (3.2)
PHQ-9 depression	9.0 (3.7)	7.3 (3.4)	7.6 (4.8)	3.7 (2.9)
GAD-7 general anxiety	6.0 (3.3)	3.9 (2.6)	5.5 (3.3)	3.4 (2.6)
PHQ stress scale	7.5 (3.6)	5.4 (2.9)	6.2 (3.5)	3.7 (3.1)
IPQ-R timeline (acute/chronic)	18.4 (4.0)	15.2 (4.3)	16.5 (4.0)	14.5 (4.6)
IPQ-R consequences	16.4 (4.7)	14.3 (4.5)	14.4 (4.0)	10.9 (4.1)
IPQ-R personal control	9.6 (3.3)	10.2 (3.9)	9.9 (2.9)	11.5 (4.3)
IPQ-R treatment control	12.0 (3.7)	12.4 (2.4)	12.2 (2.5)	14.7 (3.1)
IPQ-R illness coherence	14.1 (4.7)	15.1 (4.8)	14.1 (6.0)	16.3 (6.2)
IPQ-R timeline cyclical	12.0 (3.1)	10.9 (3.2)	11.4 (4.4)	9.6 (3.8)
IPQ-R emotional representations	14.4 (5.5)	11.8 (4.8)	14.3 (4.4)	11.3 (5.1)
WI-7 disease conviction	10.4 (2.7)	8.6 (2.5)	8.0 (2.6)	5.9 (2.3)
WI-7 illness worrying	7.9 (3.1)	6.4 (2.3)	7.0 (2.7)	5.7 (2.3)
CABAH catastrophizing	12.7 (5.5)	12.1 (3.8)	11.8 (4.2)	11.6 (5.3)
CABAH autonomic sensations	4.5 (2.3)	3.5 (2.0)	3.6 (2.5)	3.1 (2.0)
CABAH bodily weakness	9.2 (2.8)	7.0 (2.4)	6.1 (3.3)	4.5 (3.1)
CABAH intolerance of bodily complaints	3.5 (1.6)	3.6 (1.6)	3.2 (2.1)	3.6 (2.1)
CABAH health Habits	5.2 (1.1)	5.0 (0.8)	4.9 (1.4)	5.3 (1.3)
SAIB verification of diagnosis	15.2 (2.5)	15.8 (2.4)	15.8 (2.5)	16.0 (2.6)
SAIB expression of symptoms	19.1 (2.6)	18.1 (2.2)	19.4 (2.9)	19.0 (2.5)
SAIB medication	13.5 (1.8)	14.2 (2.4)	13.6 (3.3)	14.2 (2.9)
SAIB illness consequences	13.0 (1.5)	13.3 (1.3)	14.1 (3.0)	15.2 (2.3)
SAIB body scanning	11.8 (1.9)	12.1 (1.2)	12.2 (1.9)	11.8 (2.3)
Reassurance Questionnaire sum score	18.0 (4.7)	14.9 (4.8)	17.4 (5.8)	12.9 (5.0)
HAS dissatisfaction with care	16.5 (4.6)	16.0 (3.9)	15.4 (5.2)	9.0 (5.1)
HAS frustration with ill health	11.9 (3.2)	10.0 (3.0)	11.0 (3.6)	7.6 (3.9)
HAS excessive health worry	3.7 (2.3)	3.0 (1.8)	3.8 (2.5)	2.8 (4.5)
HAS psychological distress	7.0 (2.8)	7.5 (2.2)	7.7 (2.7)	5.9 (3.1)
SF-36 Physical Component Summary	37.2 (10.8)	36.0 (10.7)	48.4 (7.3)	51.0 (8.3)
SF-36 Mental Component Summary	42.9 (11.3)	42.2 (9.9)	42.5 (9.8)	49.8 (9.4)

Pairwise comparisons

Effect sizes of pair-wise mean comparisons are shown in Table 3. Between MSD and PD, 13 out of 33 mean comparisons (39%) had large or medium effect sizes. Between MSD and USD, 10 (30%) had large or medium effect sizes. Between PD and USD, 7 (21%) out of 33 mean comparisons had large or medium effect sizes. Between PD and NoSFD, 15 (45%) had large or medium effect sizes. And finally, between USD and NoSFD, 17 (52%) had large or medium effect sizes.

Multisomatoform disorder versus PD

The mean differences of timeline (acute/chronic) (IPQ-R) and a self-concept of bodily weakness (CABAH) had large effect sizes. The mean differences of somatic symptom severity (PHQ-15), depression (PHQ-9), GAD-7, reported stressors (PHQ stress scale), illness consequences (IPQ-R), emotional illness representations (IPQ-R), disease conviction (WI-7), illness worrying (WI-7), autonomic sensations (CABAH), reassurance (RQ), and frustration with ill health (HAS) had medium effect sizes.

After corrections for age as well as age, depression and anxiety, none of the pair-wise mean comparisons of these variables were statistically significant on a 1% level.

Multisomatoform disorder versus USD

Between patients with multisomatoform disorders and patients with undifferentiated disorders, the mean differences of the number of outpatient visits, somatic symptom severity (PHQ-15), disease conviction (WI-7), a self-concept of bodily weakness (CABAH) and the physical component summary (SF-36) had large effect sizes. The mean differences of the number of symptoms, the number of consulted physicians, illness consequences (IPQ-R and SAIB), and timeline (acute/chronic) (IPQ-R) had medium effect sizes.

After correction for age, patients with multisomatoform disorder reported significantly more outpatient visits ($P=.008$), a significantly greater symptom severity (PHQ-15; $P=.005$), a significantly stronger disease conviction (WI-7; $P=.003$), a significantly stronger self-concept of bodily weakness (CABAH; $P=.005$), and significantly lower scores on the physical component summary of the SF-36 ($P=.001$). All other relevant pair-wise comparisons did not reach statistical significance on a 1% level.

Corrected for age, depression, and anxiety, the mean differences concerning disease conviction (WI-7; $P=.007$) and the physical health-related quality of life (SF-36; $P=.003$) were still significant.

Table 3
Number of symptoms, health care utilization and psychobehavioral characteristics: effect sizes (d) of pair-wise mean comparisons

	d MSD (n=29) vs. PD (n=11)	d MSD (n=29) vs. USD (n=32)	d PD (n=11) vs. USD (n=32)	d PD (n=11) vs. NoSFD (n=196)	d USD (n=32) vs. NoSFD (n=196)
No. of symptoms	0.3	0.7	0.6	1.1	0.6
No. of consulted physicians (last 12 months)	0.3	0.5	0.2	0.4	0.3
No. of outpatient visits (last 12 months)	0.1	0.8	0.9	1.1	0.1
PHQ-15 somatic symptom severity	0.7	1.0	0.3	1.3	1.5
PHQ-9 depression	0.5	0.3	0.1	1.1	1.0
GAD-7 general anxiety	0.7	0.2	0.5	0.2	0.7
PHQ stress scale	0.6	0.3	0.3	0.6	0.8
IPQ-R timeline (acute/chronic)	0.8	0.5	0.3	0.2	0.5
IPQ-R consequences	0.5	0.5	<0.1	0.8	0.9
IPQ-R personal control	0.2	0.1	<0.1	0.3	0.4
IPQ-R treatment control	0.1	<0.1	<0.1	0.8	0.9
IPQ-R illness coherence	0.2	<0.1	0.2	0.2	0.4
IPQ-R timeline cyclical	0.4	0.2	0.1	0.4	0.4
IPQ-R emotional representations	0.5	<0.1	0.5	0.1	0.6
WI-7 disease conviction	0.7	0.9	0.2	1.1	0.9
WI-7 illness worrying	0.5	0.3	0.2	0.3	0.5
CABAH catastrophizing	0.1	0.2	<0.1	0.1	<0.1
CABAH autonomic sensations	0.5	0.4	<0.1	0.2	0.2
CABAH bodily weakness	0.8	1.0	0.3	0.9	0.5
CABAH intolerance of bodily complaints	<0.1	0.2	0.2	<0.1	0.2
CABAH health Habits	0.2	0.2	<0.1	0.3	0.3
SAIB verification of diagnosis	0.2	0.1	<0.1	<0.1	>0.1
SAIB expression of symptoms	0.4	0.1	0.5	0.4	0.2
SAIB medication	0.3	<0.1	0.2	<0.1	0.2
SAIB illness consequences	0.2	0.5	0.4	1.0	0.4
SAIB body scanning	0.2	0.1	<0.1	0.2	0.2
Reassurance Questionnaire sum score	0.7	0.1	0.5	0.4	0.8
HAS dissatisfaction with care	0.1	0.2	0.1	1.5	1.2
HAS frustration with ill health	0.6	0.3	0.3	0.7	0.9
HAS excessive health worry	0.3	<0.1	0.4	<0.1	0.3
HAS psychological distress	0.2	0.3	<0.1	0.6	0.6
SF-36 Physical Component Summary	0.1	1.2	1.4	1.6	0.3
SF-36 Mental Component Summary	<0.1	<0.1	<0.1	0.8	0.8

Pain disorder versus USD

Between patients with PDs and USDs, the mean differences of the number of outpatient visits and the physical component summary (SF-36) had large effect sizes. The mean differences of the number of symptoms, general anxiety (GAD-7), emotional illness representations (IPQ-R), expression of symptoms (SAIB), and reassurance (RQ) had medium effect sizes.

After correction for age, only the comparison of the physical component summaries (SF-36) of both subgroups was statistically significant ($P=.008$) on a 1% level, with patients with PD reaching lower scores.

After correction for age, depression and anxiety, none of the pair-wise mean comparisons were significant.

Pain disorder versus no somatoform diagnosis

Several of the mean differences between patients with PDs and patients without a somatoform diagnosis showed large effect sizes: The number of symptoms, the number of outpatient visits, somatic symptom severity (PHQ-15), depression (PHQ-9), illness consequences (IPQ-R and SAIB), treatment control (IPQ-R), disease conviction (WI-7), a self-concept of bodily weakness (CABAH), dissatisfaction with care (CABAH), and the physical as well as mental component summaries of the SF-36. Medium effect sizes had the mean differences regarding reported stressors (PHQ), frustration with ill health (HAS), and psychological distress (HAS).

After correction for age, several of the pairwise comparisons were statistically significant on a 1%-level: patients with PD reported more symptoms ($P<.001$), more outpatient visits ($P=.002$), more somatic symptom severity according to the PHQ-15 ($P<.001$), more depression according to the PHQ-9 ($P=.001$), more illness consequences according to the SAIB ($P=.01$), more disease conviction according to the WI-7 ($P=.004$), more dissatisfaction with care according to the HAS ($P<.001$), and a lower physical component summary of the SF-36 ($P<.001$) than NoSFD patients.

When these variables were corrected for age, depression and anxiety, the number of symptoms ($P=.002$), the number of outpatient visits ($P=.009$), the PHQ-15 score ($P=.002$), the PHQ-9 score ($P<.001$), the GAD-7 score ($P=.01$), dissatisfaction with care (HAS; $P=.006$), the mental ($P=.01$) and the physical ($P=.009$) component summaries of the SF-36 were significantly different.

Undifferentiated somatoform disorder versus no somatoform diagnosis

Several of the mean differences between patients with PDs and patients without a somatoform diagnosis had large effect sizes: Somatic symptom severity (PHQ-15), depression (PHQ-9), stress (PHQ stress scale), illness consequences (IPQ-R), treatment control (IPQ-R), disease conviction (WI-7), reassurance (RQ), dissatisfaction with care (CABAH), frustration with ill health (CABAH) and the mental component summary of the SF-36. Medium effect

sizes had the mean differences regarding the number of symptoms, general anxiety (GAD-7), illness timeline (acute/chronic) and emotional illness representations (IPQ-R), illness worrying (WI-7), a self-concept of bodily weakness (CABAH), and psychological distress (HAS).

After correction for age, most of the pair-wise comparisons were statistically significant: patients with USD reported more symptoms ($P=.003$), a higher somatic symptom severity (PHQ-15; $P<.001$), more depression (PHQ-9; $P<.001$), more general anxiety (GAD-7; $P=.001$), more stressors (PHQ stress scale; $P<.001$), more illness consequences (IPQ-R; $P<.001$), less treatment control (IPQ-R; $P<.001$), more emotional illness representations (IPQ-R; $P=.004$), more disease conviction (WI-7; $P<.001$), more illness worrying (WI-7; $P=.009$), a stronger self-concept of physical weakness (CABAH; $P=.005$), less reassurance (RQ; $P<.001$), more dissatisfaction with care (HAS; $P<.001$), more frustration with ill health (HAS; $P<.001$), more psychological distress (HAS; $P=.01$), and a lower mental health related quality of life (SF-36; $P=.005$) than NoSFD patients.

When these variables were corrected for age, depression and anxiety, the number of symptoms ($P=.01$), the PHQ-15 score ($P<.001$), the PHQ-9 score ($P=.001$), treatment control (IPQ-R; $P=.003$), disease conviction ($P=.001$), and dissatisfaction with care (HAS; $P=.001$) still remained significantly different.

Discussion

To our knowledge, this is the first study that investigates a broad range of self-reported psychobehavioral characteristics in SFD patients with respect to different SFD presentations. Based on their subjective ratings of symptom-related and general cognitions, affects, and behaviors, patients with MSD, PD, and USD showed more similarities than differences, and were clearly distinguishable from patients without a somatoform diagnosis. Despite several methodological limitations, our data show that mainly characteristics referring to bodily distress can differentiate between “polysomatoform” and “mono- or oligosomatoform” presentations of somatoform disorders, whereas psychosocial distress appears to be much less different in the various SFD subtypes.

Differences between SFD subtypes

For many features, there was a notable gradient from patients with multisomatoform/ somatization disorder to patients without an SFD, with patients with PD and USD occupying the medium space. This finding supports the increasingly acknowledged view of somatization as a continuous process associated with a cluster of cognitions, emotions, and behaviors [6,10]. But only few of these differences reached large effect sizes, and very few reached

statistical significance, when age, depression/anxiety and multiple testing were taken into account. The most robust and consistent differentiators between poly- and oligosymptomatic SFD presentations were related to the reporting of *bodily distress*: The degree of disease conviction and a self-concept of bodily weakness, a plain symptom count, somatic symptom severity, and physical health-related quality of life varied depending on the SFD subtype. Further, all of these dimensions of bodily distress also distinguished the different SFD presentations from patients without a somatoform diagnosis.

Similarities between SFD subtypes

Features that were clearly less different (and often almost equally present) in poly- as well as oligosymptomatic presentations of SFDs were several indicators of *psychosocial distress* (psychological distress, frustration with ill health, illness worrying, dissatisfaction with care, the number of reported stressors, low mental health related quality of life), as well as a low symptom control and a cyclical symptom timeline. Notably, even depression, which is known to increase with somatization (and thus illustrating the dimensional nature of SFDs) was not markedly different between the three different SFD presentations [27]. The consistent reporting of dissatisfaction with care (indicating problematic doctor-patient-relationships) by SFD patients regardless of a poly- or oligosymptomatic presentation refers to an aspect that has been addressed in SFD research but only recently suggested as a diagnostic criterion: a specific attachment or interaction style in SFD patients [6,28–30].

In contrast, the vast majority of self-descriptors clearly differentiated SFD patients from patients without a somatoform diagnosis, even when only the least severe form, USD, was compared to “no somatoform disorder.” Depression and anxiety as especially potent markers of psychosocial distress accounted for many, but not all of these differences.

Several of these psychobehavioral characteristics of SFD patients have already been described by other authors [6,14–18]; some are already included in SFD criteria [11]. Among allergy workup patients with yet unknown organic symptom explicability, there is evidence from our earlier study that dissatisfaction with care, strong disease conviction, and low symptom controllability are especially potent psychobehavioral predictors of SFDs [8]. In contrast to earlier studies, dysfunctional health care utilization could not consistently differentiate patients with oligosymptomatic SFD from patients without a somatoform diagnosis in our sample [5,31].

Limitations

Our study has several relevant limitations.

A sample of allergology inpatients is a suitable, but heterogeneous and not necessarily representative clinical

study group. Generalizability of our findings still has to be proven in other clinical samples.

The directionality between variables can be questioned, since the study design was cross-sectional: The psychobehavioral characteristics of SFD may be the causes, consequences, or both, but in any case they deserve the clinician’s attention.

Since the *SCID* diagnosis and also the criteria for multisomatoform disorder are based on symptom explicability and impairment, several parameters measuring illness consequences are somewhat tautological, but still valuable as they indicate the patient’s perspective (which not necessarily matches the interviewer’s estimate).

Multiple testing, uneven and small sample sizes and the post-hoc completion of several hypotheses clearly are statistical limitations of this study: Especially with only 11 patients in the PD subgroup, the study was clearly underpowered for most of the pair-wise comparisons, possibly resulting in an underestimation of minor differences. The conducted Bonferroni adjustments (to reduce overall probability of significant results by multiple testing) might as well blur minor differences. By providing effect sizes which are independent of sample sizes and by employing conservative interpretations of our results, we tried to counteract these limitations.

Conclusions

In accordance with current criteria for the SFD presentations, patients with somatization/multisomatoform disorder, PD, and USD clearly varied in *perceived symptom severity* and *physical impairment*.

This finding suggests that *bodily distress* is an important differentiator of SFD subtypes. It could either legitimate the perpetuation of current SFD subcategories—or rather support a *dimensional* differentiation of SFDs based on the degree of bodily distress, as it has been postulated repeatedly [6,10,32,33]. It still has to be explored, though, whether other dimensions (such as symptom type or illness course) may also differentiate valid SFD subcategories, for instance in view of treatment options or treatment response.

In the presented sample of patients with suspected allergies, however, patients with *different* SFD presentations *shared* a distinctive set of psychobehavioral characteristics, mostly referring to the reporting of psychological as well as interactional distress. Thus, many dimensions of psychosocial distress appear to be important *common features* of the currently defined SFD subdiagnoses. Even if our results should be interpreted with caution due to several methodological limitations of the study, this finding could be an argument for the aggregation of current SFD subdiagnoses in *one* general SFD category in *DSM-V*. In view of our very limited knowledge about the pathogenesis of SFDs, such a step would promote future research about

specific psychobehavioral as well as physical symptom patterns of possible SFD subtypes better than premature or outdated subdivisions [34].

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