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Personality traits, defense mechanisms and hostility features associated with somatic symptom severity in both health and disease

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ABSTRACT

Objective: Somatic symptoms are widespread in clinical practice. The association of somatic symptom severity with impaired health status holds both when symptoms are medically unexplained and when they are medically explained. The role of personality dimensions in the formation of somatic symptoms in patients with established, chronic diseases when compared to healthy participants had not been investigated prior to this study.
Methods: In samples of 411 healthy subjects and 810 participants with any of 9 established, chronic medical conditions, we measured psychological distress (SCL-90-R), personality traits (Zuckerman–Kuhlman Personality Questionnaire), defensive profiles (Defense Style Questionnaire), individual defenses (Life Style Index) and hostility features (Hostility and Direction of Hostility Questionnaire). Hierarchical multivariate models were used to assess the independent associations between personality dimensions and somatic symptom severity in both samples. The SCL-90-R somatization scale served as the outcome variable.
Results: In both samples, older age, less education, higher neuroticism, adoption of the displacement defense and depressive symptoms were independently and positively associated with somatic symptom severity. Higher somatic symptom severity was also associated with more "introverted" features (i.e., the self-sacrificing defensive style and self-criticism) among participants with established, chronic medical conditions.
Conclusions: These data suggest that similar personality traits and defense mechanisms are associated with somatic symptom severity in health and disease, indicating that somatic symptoms are not simply consequences of having a medical condition. The specific associations of the self-sacrificing defensive profile and self-criticism with somatic symptom severity in the patient sample may have important clinical implications.

Introduction

Somatic symptoms constitute the leading cause of outpatient medical visits across a wide range of settings [1,2]. Patients seeking treatment for multiple somatic symptoms tend to be challenging for clinicians due to the difficulties involved in conceptualizing and validating this clinical presentation [3,4]. Although somatic symptom severity is associated with the diagnosis of a somatoform disorder, this diagnosis has been challenged because it requires the presence of multiple "medically unexplained" bodily symptoms [5]. This restrictive and dualistic view also raises questions about undetected somatic diseases [3,6]. Furthermore, evidence suggests that a high total somatic symptom load impairs health-related outcomes when all symptoms are measured—i.e., both the medically explained and unexplained [7–9], indicating that this relationship is not limited to patients with medically unexplained symptoms. Consequently, field researchers have argued that it is necessary to consider "bodily symptoms in their own right" [10,11] and not merely as manifestations of either bodily pathology or psychopathology [3].

Pursuant to this evidence, it has been suggested that the interaction of physiological, psychological and social factors should be taken into account to understand the presentation of somatic symptoms [4,12]. This approach was recently adopted by the DSM-V workgroup through the proposed "somatic symptom disorder", which identifies patients' difficulties in tolerating physical discomfort and coping adaptively with bodily symptoms as the hallmarks of this disorder [2].

In addition to the known associations of anxiety and depression with physical discomfort [4,13], dimensions of personality and defensive operation are strongly related to tolerance for psychological and physical discomfort, thereby influencing adaptive coping [14–16]. Neuroticism, the tendency to experience negative emotions [17], increases the risk for somatic morbidity and has been associated with somatic symptoms independent of psychological distress [18,19]. The expression of anger may also play a significant role, as the suppression of anger has been associated with somatic symptoms in people with somatoform disorders [20]. Also, a large body of evidence links repressive coping to poor physical health [21] and adoption of mature defenses predicts better physical and mental health in the long term [14].

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These findings suggest that several psychological factors may be associated with the severity of somatic symptoms, but our knowledge about their psychological roots remains limited [22]. It is unclear, for example, to what degree somatic symptoms observed in community-based studies are related to somatic illness, because objective information regarding physical health is lacking [19]. Consequently, it is not known whether these associations hold also for medically explained or unexplained bodily symptoms. If so, it is likely that the large number of bodily symptoms is a feature of the individual rather than of the underlying physical illness. This could partially explain why even symptoms with a known underlying biomedical pathology may not be fully explainable by the medical condition in question [19,23,24]. To the best of our knowledge, no study has systematically investigated the contribution of personality dimensions to the presentation of bothersome somatic symptoms separately in participants with and without established physical illnesses. Prompted by this fact, the present investigation aimed: 1) to compare the potential associations of personality traits, hostility features and defense mechanisms with somatic symptom severity separately for individuals receiving care from hospital specialty clinics and for those without any primary medical condition; and 2) to test for consistencies of the emergent patterns of these associations between the two groups.

Methods

Participants

This cross-sectional survey enrolled 1221 participants: 411 adults without a diagnosed physical illness and 810 patients with at least one established, long-term medical condition. The healthy sample was recruited among healthcare personnel from all departments and clinical units of the hospital and from inpatients' relatives. Exclusion criteria were known medical illness, and history of psychotic illness or dementia. Out of 198 invited inpatients' relatives, 172 were eligible, and 141 agreed to participate (response rate: 82%); 511 hospital and administrative personnel were approached, of whom 330 were eligible. A final sample of 223 hospital staff and 47 administrative staff agreed to participate and completed the survey after informed consent was obtained (response rate: 81.8%).

The medical patient sample comprised consecutive patients with confirmed [25–29] primary diagnoses of glaucoma, rheumatoid arthritis (RA), systemic lupus erythematosus (SLE), systemic sclerosis (SSc), primary Sjogren's syndrome (SS), inflammatory bowel disease (IBD), end-stage renal disease (ESRD), diabetes mellitus (DM) and multiple sclerosis (MS) attending the respective outpatient clinics [25–29]. Exclusion criteria were inability to read and write Greek and a history of psychotic illness or dementia. Of the 136 invited glaucoma patients, 128 were eligible, and 100 agreed to participate (response rate: 78.1%; mean [±SD] time since diagnosis [TSD]: 2.6 ± 0.9 years). Of 524 invited patients with rheumatologic diseases, 425 were eligible, and 316 agreed to participate (response rate: 74.4%); 166 had RA (TSD = 13.9 ± 8.6 years), 56 SLE (TSD = 12.1 ± 8.1 years), 56 SSc (TSD = 15.5 ± 12.2 years) and 38 SS (TSD = 9.2 ± 5.7 years). Of 264 invited IBD patients, 236 were eligible, and 185 agreed to participate (response rate: 78.4%; TSD = 9.1 ± 7.2 years). Of 92 invited ESRD patients, 58 were eligible, and 56 agreed to participate (response rate: 96.6%; TSD = 6.0 ± 5.0 years). Of 86 invited DM patients, 78 were eligible, and 72 agreed to participate (response rate: 92.3%; TSD = 12.4 ± 9.4 years). Finally, of 114 invited MS patients, 108 were eligible, and 79 agreed to participate (response rate: 73.1%; TSD = 5.0 ± 5.7 years).

Among eligible patients, no statistically significant differences in age were found between participants and non-participants. The participants' demographic profile is presented in Table 1. After receiving comprehensive explanations of the study, signed informed consent was obtained from all participants. All procedures were in accordance with the ethical standards of the Helsinki Declaration and were approved by the hospital's ethics committee.

Table 1
The socio-demographic characteristics and psychological variables studied in the healthy participant (N = 411) and patient (N = 810) samples

	Healthy participants	Patient sample	p-Values
Gender: female (N, %)	274 (66.7%)	504 (62.2%)	0.039[a]
Age (mean ± SD)	34.4 ± 11.4	53.1 ± 15.4	<0.001[b]
Marital status (N, %)			<0.001[a]
Married/cohabitating	182 (44.3%)	644 (79.5%)	
Divorced/separated	14 (3.4%)	25 (3.1%)	
Widowed	18 (4.4%)	23 (2.8%)	
Education (N, %)			
Elementary	24 (5.8%)	431 (53.2%)	<0.001[a]
High School	123 (29.9%)	240 (29.6%)	
College/university	261 (63.5%)	138 (17.1%)	
Psychological distress (SCL-90-R)[c]			
Somatization	0.53 ± 0.52	1.07 ± 0.80	<0.001[b]
Anxiety	0.43 ± 0.50	0.73 ± 0.74	<0.001[b]
Depression	0.67 ± 0.54	0.99 ± 0.69	<0.001[b]
Personality traits (ZKPQ)[c]			
Impulsive sensation seeking	7.81 ± 4.02	6.59 ± 3.59	<0.001[b]
Neuroticism–Anxiety	7.71 ± 4.67	8.76 ± 4.82	0.001[b]
Aggression–Hostility	6.15 ± 3.17	5.78 ± 3.51	0.097[b]
Activity	7.83 ± 3.67	8.53 ± 3.42	0.002[b]
Sociability	8.29 ± 2.91	7.36 ± 3.09	<0.001[b]
Defense styles (DSQ)[c]			
Maladaptive action	122.6 ± 33.6	132.9 ± 44.1	<0.001[b]
Image distorting	49.4 ± 17.4	59.2 ± 20.3	<0.001[b]
Self-sacrificing	35.8 ± 10.0	40.8 ± 11.6	<0.001[b]
Adaptive	37.6 ± 8.40	35.4 ± 10.3	<0.001[b]
Individual defenses (LSI)[c]			
Denial	46.9 ± 18.8	50.3 ± 18.8	0.010[b]
Repression	30.9 ± 17.4	33.7 ± 18.8	0.026[b]
Regression	27.5 ± 17.4	30.6 ± 20.1	0.020[b]
Compensation	40.1 ± 21.4	41.0 ± 19.9	0.503[b]
Projection	67.0 ± 22.0	73.7 ± 19.8	<0.001[b]
Displacement	19.8 ± 15.7	21.2 ± 18.9	0.236[b]
Intellectualization	48.3 ± 16.9	54.0 ± 16.7	<0.001[b]
Reaction formation	33.4 ± 24.6	49.5 ± 25.9	<0.001[b]
Hostility features (HDHQ)[c]			
Acting out	3.74 ± 1.69	4.11 ± 1.79	<0.001[b]
Criticism of others	5.05 ± 2.31	5.82 ± 2.28	<0.001[b]
Projected hostility	1.51 ± 1.54	2.82 ± 1.92	<0.001[b]
Self-criticism	3.39 ± 2.05	4.02 ± 2.21	<0.001[b]
Delusional guilt	1.73 ± 1.38	2.54 ± 1.64	<0.001[b]

[a] Chi-square test.
[b] Two-tailed *t*-test.
[c] Mean ± SD.

Measures

Socio-demographic data from all participants were collected and patients' medical records were reviewed to extract data on TSD and clinical parameters.

Psychological distress was assessed using the Greek standardized version of the Symptom Distress Checklist (SCL-90-R) [30], a 90-item self-report symptom inventory designed to measure a wide range of psychopathological dimensions. The SCL-90-R *somatization* subscale was our main outcome variable which is considered one of the most suitable scales for assessing common somatic symptoms in large-scale studies [31]. It measures how much the individual has been bothered over the past 7 days by 12 widely ranging bodily symptoms in a 5-point Likert-type scale. Higher scores indicate more severe symptoms.

Personality traits were assessed using the standardized Greek version of the Zuckerman–Kuhlman Personality Questionnaire (ZKPQ) [32], a 99-item self-report questionnaire measuring five basic dimensions of personality: *Impulsive Sensation Seeking* assesses *impulsivity* and *sensation seeking* (i.e., the general needs for thrills and excitement and for change and novelty); *Neuroticism–Anxiety* describes tension, worry, fearfulness, lack of self-confidence, and sensitivity to criticism;