

## High utilizers of medical care A crucial subgroup among somatizing patients

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### Abstract

**Objective:** Patients with somatoform disorders (SFD) are likely to overutilize healthcare services. This study investigates (a) whether extraordinarily high medical costs can be predicted from patient characteristics or psychopathology, and (b) whether high-utilizing patients respond differently to cognitive-behavioral treatment. **Methods:** We compared 42 SFD high utilizers with 53 SFD average utilizers and 29 patients suffering from other than SFD mental disorders. High utilization was defined by healthcare expenditures of  $\geq \text{€}2500$  during the past 2 years. Costs were computed from medical and billing records of health insurance companies. Somatization distress, hypochondriasis, depression, dysfunctional cognitions related to bodily symptoms, general psychopathology, personality profiles, and psychosocial disabil-

ities were assessed before treatment. **Results:** High utilizers had higher levels of self- and observer-rated illness behavior, self-perceived bodily weakness, and psychosocial disabilities. Although they did not report more somatization symptoms, their subjective symptom distress was higher. There were no differences between high and average utilizers concerning general psychopathology, DSM-IV comorbidity, and personality profiles. Treatment improvements were similar. **Conclusion:** High- and average-utilizing somatizers represent distinguishable subgroups. The results emphasize the importance of mechanisms specifically related to SFD and may enhance the early detection of patients who are likely to develop overutilization.

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**Keywords:** High utilizers; Healthcare costs; Somatoform disorders; Somatization; Illness behavior

### Introduction

Patients with somatoform disorders (SFD) are bothered by physical complaints for which no sufficient medical explanations can be found. Despite negative medical tests, many of these patients continue to believe that their symptoms are caused by organic dysfunction or disease [1]. They therefore tend to visit additional physicians and specialists, demand further medical investigations, and undergo treatments that are often not clearly indicated. This pattern of behavior has been termed inadequate illness behavior [2] because patients adopt a sick role despite the absence of a medical disease. From a socio-

economical perspective, illness behavior is likely to lead to increased utilization of healthcare services and unnecessary expenditures [3].

A few studies have indeed indicated an association between SFD and healthcare overutilization [4–6]. We have recently demonstrated that adequate treatment may lead to cost reductions [7]. However, high utilization is not an unavoidable characteristic of SFD. It may develop if patients persistently hold false beliefs about the nature of their symptoms and unrealistic expectations about treatment effects. Illness behavior may also develop from inadequate clinical management strategies in primary care [8]. Thus, while only a subgroup of somatizing patients develops a pattern of high utilization behavior, it is not known how well this subgroup can be differentiated from SFD patients with normal healthcare utilization. This question has been addressed by the research presented here. We compared high- and average-utilizing patients and attempted to identify clinical characteristics that are able to differentiate both

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groups. Since this study was conducted in an inpatient treatment unit, we also analyzed whether both groups differed with respect to their treatment improvements.

## Method

We studied 95 patients fulfilling the diagnostic criteria of SFD according to DSM-IV [9]. All patients were investigated at the Roseneck Center for Behavioral Medicine in Prien, Germany, as part of a larger study evaluating the efficacy and cost effectiveness of cognitive-behavioral treatment for SFD. The study period was from 1995 to 2000. The major results and details of the methods were described in a recently published article [7]. Only a short description will be given here.

### *The clinical setting and patient selection*

The Roseneck Center is a research-oriented inpatient unit affiliated with the Medical Faculty of the University of Munich. It provides tertiary care services and is part of the German general mental healthcare system for patients with psychophysiological and mental disorders. The sampling method for the present analysis consisted of four steps: First, 324 patients were consecutively selected before admission if an initial questionnaire screening and information provided by the referring clinicians had revealed evidence of medically unexplained somatic symptoms. Exclusion criteria were primary eating disorder or chronic tinnitus (because of special treatment programs for these groups), as well as schizophrenia and related disorders, primary substance dependence, psychoorganic disorder, or organic disease. Second, 29 patients were withdrawn after admission because they were not able or willing to fill out questionnaires, interrupted the treatment within the first 2 weeks, refused to give informed consent, or turned out to be organically ill. In Steps 3 and 4 (which are described below), we selected only those patients with a positive SFD diagnosis ( $n=172$ ) and for whom cost calculations were obtainable from the health insurance companies ( $n=95$ ).

### *Diagnostic assessment*

During the first days after admission, patients completed a questionnaire package that included measures of psychopathology and other disorder-related characteristics. They were also systematically interviewed by trained clinicians. We evaluated somatoform and other mental disorders according to DSM-IV criteria by administering the Structured Clinical Interview (SCID) and the equivalent International Diagnostic Checklists [10]. Somatic symptoms were coded as somatoform (somatized) only after carefully ruling out organic diseases that could fully account for the complaints. Each somatoform symptom was considered clinically relevant if it was severe enough to cause the person to

take medicine, see a physician, or change their lifestyle. Questionnaires were again completed shortly before discharge and for the 2-year follow-up.

### *Definition of high utilizers*

Utilization of the healthcare system was operationalized through expenditures registered by the health insurance companies for the 2-year period before admission. This method is more objective and reliable than calculations derived merely from the patients' subjective reports of their use of services [11]. All of our patients were insured. In Germany, the health insurance companies usually pay for all health-related costs. In this paper, we will refer to in- and outpatient costs only. Other cost factors such as dental treatment or medications had not been different between SFD patients and patients with other mental disorders [7]. During the collection period, the average 2-year per capita expenditures published by the German public health insurance companies were about € 700 for outpatient medical treatments and about € 1400 for hospital care. Considering these values and the standard deviations of the cost variables, we decided to define high utilizers as those patients with a 2-year cost of  $\geq$  € 2500. These were 42 patients (44.2% of the patients with SFD), while 53 patients (55.8%) were classified as average healthcare utilizers ( $<$  € 2500). We will also separately analyze a subgroup of extreme high utilizers who had a 2-year cost of  $\geq$  € 5000. Table 1 presents the 10 percentiles for the entire SFD sample. The large proportion of high utilizers in our study can be explained by the usually high chronicity and severity of inpatients in the German tertiary care setting. Since the healthcare expenditures were calculated also for the 2-year period after discharge from the hospital, we were able to analyze whether treatment had effects on subsequent utilization.

### *Nonsomatoform control group and comparison of group characteristics*

Both groups will be compared with a non-SFD control group of 29 mental disorder patients who were average utilizers according to their health insurance data. The basic

Table 1  
Percentiles of in-plus outpatient costs in patients with SFD

Percentiles	€
10	447
20	720
30	1109
40	1402
50	2002
60	3003
70	4486
80	7968
90	13667

Based on  $n=95$ ; the range is between 72 (min) and 38006 (max).

sociodemographic characteristics, diagnoses of specific SFD, and comorbidity profiles of all groups are shown in Table 2.

There were no between-group differences except for a tendency of high utilizers to be older and a higher proportion of agoraphobia diagnoses in average-utilizing SFD as well as control patients. The SFD groups had more somatization symptoms but there were no differences concerning the distribution of single SFD diagnoses. About one third fulfilled the criteria of somatization disorder and roughly the same proportion was classified as SSI-8, a subthreshold syndrome of multiple somatization. SSI refers to “Somatic Symptom Index” and was introduced by Escobar et al. [12] to define a broader category of multiple somatization in addition to the rather restrictive criteria of somatization disorder.

#### Variables describing psychopathology and disabilities

The questionnaire package completed by the patients consisted of the following instruments: (i) the Screening for Somatoform Symptoms (SOMS) to assess the number of somatization symptoms and their degree of severity based on all 53 bodily symptoms listed for somatization disorder and somatoform autonomic dysfunction in DSM-IV and

ICD-10 [13]; (ii) the Whiteley Index (WI) and the Illness Attitude Scales (IAS), both internationally widely used instruments to measure hypochondriacal concerns, health anxieties, and illness behaviors [7]; (iii) the Cognitions About Body and Health Questionnaire (CABAH), which was designed to assess dysfunctional cognitions typical for patients with SFD such as catastrophizing interpretation of bodily complaints, misinterpretation of autonomic sensations, self-perception as bodily weak, and intolerance of bodily discomfort [14]; (iv) the Beck Depression Inventory (BDI); (v) the Dysfunctional Analysis Questionnaire (DAQ), a dimensional measure of social, vocational, personal, familial, and cognitive impairments [15]; (vi) the Hopkins Symptom Checklist (SCL-90R) to assess general psychopathology; and (vii) the Freiburg Personality Inventory (FPI-R), a multidimensional scale to assess major personality dimensions [16]. We also obtained objective data from the health insurance companies on disease-related work disability for all employees in part- or full-time jobs (number of sick leave cases and days lost from work).

The patients were also rated by our staff on the Illness Behavior Scale (IBS), which had been constructed for the purpose of this study. All 10 items of this scale have face validity describing observable illness behaviors on

Table 2  
Sociodemographic and diagnostic characteristics

	I. SFD high utilizers (n=42)	II. SFD average utilizers (n=53)	III. Non-SFD average utilizers (n=29)	Significance	
<i>Sociodemographic characteristics</i>					
Female	61.9%	66.0%	58.6%	$\chi^2=0.46$	ns
Age	49.5 years (S.D.=12.1)	44.3 years (S.D.=9.4)	46.0 years (S.D.=11.0)	$F=2.73$	$P=.07$
Married	66.7%	69.8%	79.3%	$\chi^2=1.39$	ns
Divorced	9.5%	3.8%	3.4%	$\chi^2=1.80$	ns
School education 9 years or less	64.3%	56.6%	55.2%	$\chi^2=0.78$	ns
<i>SFD-diagnosis-related characteristics</i>					
No. of somatization symptoms (from the DSM-IV list)	10.6 (S.D.=4.8)	10.5 (S.D.=3.6)	6.3 (S.D.=2.9)	$F=13.3$	$P<.01$
Somatization disorder	31.0%	32.1%	–	$\chi^2=0.01^a$	ns
SSI-8	31.0%	39.6%	–	$\chi^2=0.77^a$	ns
Pain disorder	23.8%	22.6%	–	$\chi^2=0.18^a$	ns
Conversion disorder	4.8%	0%	–	$\chi^2=2.58^a$	ns
Hypochondriacal disorder <sup>b</sup>	9.5%	5.7%	–	$\chi^2=0.51^a$	ns
<i>Comorbidity with other mental disorders</i>					
Major depression (with or without dysthymia)	66.7%	66.0%	65.5%	$\chi^2=0.01$	ns
Dysthymia (without major depression)	7.1%	3.8%	6.9%	$\chi^2=0.61$	ns
Panic disorder (with or without agoraphobia)	28.6%	17.0%	24.1%	$\chi^2=1.85$	ns
Generalized anxiety disorder	11.9%	11.3%	6.9%	$\chi^2=0.53$	ns
Agoraphobia (without panic disorder)	2.4%	17.0%	20.7%	$\chi^2=6.49$	$P<.05$
Social phobia	21.4%	28.3%	31.0%	$\chi^2=0.95$	ns
Specific phobia	14.3%	11.3%	13.8%	$\chi^2=0.21$	ns
Obsessive–compulsive disorder	0%	7.5%	3.4%	$\chi^2=3.48$	ns
Alcohol or drug dependence	14.3%	13.2%	10.3%	$\chi^2=0.24$	ns

SFD=somatoform disorders; the comorbidity profiles refer to lifetime DSM-IV diagnoses; ns=not significant.

<sup>a</sup> Only Groups I and II were contrasted.

<sup>b</sup> Patients with hypochondriacal disorder but without concurrent somatization disorder, SSI-8, pain disorder, or conversion disorder.

five-point Likert scales (e.g., patient shows overt complaint behavior such as groaning, speaking in a lamenting tone, grimacing in pain, expressing sounds of pain; patient demands additional bodily examinations that are not medically necessary or not urgent; patient explains their symptoms mainly in terms of organic factors and shows little insight into psychological aspects). The raters of the IBS did not know the other diagnostic results nor the healthcare consumption data of the patients.

#### The treatment program and posttreatment assessments

All patients were treated according to the principles of cognitive-behavioral therapy and behavioral medicine. Details of the treatment components are described in our previous article [7]. The mean treatment period was 57.5 days (S.D.=18.8) for the SFD patients with no differences between the high and normal utilization groups ( $t=0.18$ ,  $P>.05$ ). Two years after the end of the treatment, we recontacted the health insurance companies to reconstruct the utilization costs for the posttreatment period.

#### Statistical methods

Analysis of variance,  $t$ , and  $\chi^2$  tests were used to compare group means and percent proportions. The  $\alpha$  significance level was conventionally set to .05. We additionally employed a measure of practical significance indicating

the strength of group differences. Group membership was correlated with each of the dependent variables, and the squared correlations from these results were used to express the amount of common variance (i.e., how much variance of the dependent variable was explained by group membership).

## Results

#### Differences between high and average utilizers

We analyzed on which measures high- and average-utilizing SFD patients were different. Table 3 lists those variables for which statistically significant group differences were obtained, ordered according to their strength of group differentiation as indicated by the amount of explained variance. The data displayed in Table 3 were assessed at admission to the hospital. The largest differences were found for utilization-related variables such as costs, hospitalization, and work disability (explained variance  $\geq 20\%$ ), a result that reflects the adequate definition of high and average utilizers. On the clinical measures, high utilizers had higher scores for illness behavior and occupational disability with explained variance  $>10\%$ . They also had more self-perceived bodily weakness (CABAH), more hypochondriasis-related somatic symptoms (WI), and a higher level of disability in different areas of psychosocial

Table 3  
Clinical measures differentiating between high- versus normal-utilizing somatoform patients

Variables	I. SFD high utilizers ( $n=42$ )	II. SFD normal utilizers ( $n=53$ )	III. Non-SFD normal utilizers ( $n=29$ )	Significance ( $t$ values <sup>a</sup> )	Variance explained <sup>b</sup>
<i>Utilization-related variables</i>					
No. hospital visits	1.60 (1.48)	0.04 (0.19)	0.10 (0.31)	7.63***	38
No. hospital days	45.8 (47.4)	0.17 (0.91)	0.55 (1.74)	7.02***	35
Inpatient costs <sup>c</sup>	7194 (7838)	35 (188)	107 (351)	6.66***	32
No. days lost from work <sup>c</sup>	294.5 (197.6)	102.2 (150.7)	67.7 (90.5)	4.14***	23
Outpatient costs <sup>c</sup>	2318 (1667)	1039 (610)	775 (521)	5.17***	22
Medication costs <sup>c</sup>	826 (774)	281 (257)	319 (294)	3.49***	20
<i>Clinical measures</i>					
IAS subscale 2: Illness behavior	17.2 (3.6)	14.0 (4.5)	12.1 (4.4)	3.63***	13
IBS general score	11.6 (7.9)	7.1 (4.4)	7.1 (6.1)	3.56***	12
DAQ subscale 2: Occupational disabilities	69.9 (19.9)	56.0 (19.3)	58.7 (14.4)	3.10***	11
CABAH subscale 3: Bodily weakness	11.0 (4.0)	8.9 (4.2)	8.3 (2.8)	2.43**	6
WI subscale 2: Somatic complaints	2.05 (1.09)	1.48 (1.13)	0.90 (1.05)	2.37**	6
DAQ general score	67.2 (13.6)	60.7 (14.7)	56.8 (12.9)	2.17**	5
DAQ subscale 5: Cognitive disabilities	60.1 (14.8)	54.0 (14.2)	55.4 (13.1)	2.00**	4
DAQ subscale 1: Social disabilities	75.3 (17.4)	67.6 (19.2)	61.7 (21.7)	1.96*	4
SOMS: Somatization severity score	44.8 (26.3)	34.9 (22.7)	22.6 (17.2)	1.96*	4

Means and standard deviations (in brackets) are displayed.

<sup>a</sup> Refers to two-tailed  $t$  tests contrasting Groups I and II.

<sup>b</sup> Indicates the proportion of variance of each of the dependent variables explained by group membership I versus II.

<sup>c</sup> Refers to the 2-year period before admission, values are given in € (European currency).

\*  $P=.053$ .

\*\*  $P<.05$ .

\*\*\*  $P<.01$ .

functioning (DAQ). There was a marginally significant tendency of high utilizers to suffer more severely from somatization symptoms (SOMS).

It must be emphasized that all other clinical measures did not differ between the two somatizing groups. High utilizers were neither more hypochondriacal (on the WI and IAS scales of health anxieties and disease convictions) nor more depressed (BDI) or psychopathological (SCL-90R). Both groups were also comparable regarding their degree of dysfunctional cognitions such as catastrophizing or intolerance of bodily discomfort (CABAH). It is interesting that high utilizers did not report more somatization symptoms (SOMS somatization index), although their subjective distress due to the symptoms was higher (SOMS severity score). As already shown in Table 2, SFD diagnoses or DSM-IV comorbidity was also not associated with high utilization (except for a lower rate of agoraphobia and a tendency of more panic disorder diagnoses among the high utilizers). The personality profiles (FPI-R) of high and average utilizers were comparable.

#### *General associations between costs and clinical measures*

If the costs were analyzed as a continuous variable, highest Pearson correlations were again found with CABAH-3 (.33), DAQ-5 (.31), DAQ-2 (.31), DAQ-1 (.30), the DAQ general score (.30), WI-2 (.31), the SOMS somatization index (.30), and the IBS score (.28; all coefficients  $P < .01$ ). The correlation between costs and the IAS illness behavior scale was .25 ( $P < .05$ ). These values broadly confirm the data given in Table 3 from a slightly different statistical perspective.

#### *Extreme utilizers*

A subgroup of 27 SFD patients had extraordinarily high expenditures of  $\geq \text{€} 5000$  in the pretreatment 2-year period. We first contrasted this subgroup with the average-utilizing SFD patients (Group II) and obtained results nearly identical to those already presented for the clinical measures in Table 3. Extreme utilizers had more pathological scores with variance proportions accounting for by group membership of 12% for the DAQ-2 ( $P < .01$ ), 10% for the IAS-2, CABAH-3, and IBS (all  $P < .01$ ), 9% for the WI-2 ( $P < .01$ ), 6% for the DAQ-1 ( $P < .05$ ), and 5% for both the DAQ general score ( $P = .054$ ) and the SOMS somatization index ( $P = .056$ ). Cognitive disabilities (DAQ-5) did not differentiate significantly between the extreme utilizers and Group II. There were also no differences regarding comorbidity with other DSM-IV disorder except for a higher rate of agoraphobia in normal utilizers (17.0% vs. 0% in the extreme utilizer group;  $\chi^2 = 5.17$ ,  $P < .05$ ).

However, group differences were less clear when the extreme utilizers were compared with the 15 remaining high utilizers. From the clinical measures listed in Table 3, only CABAH-3 differentiated to some substantial extent

with 7% of explained variance (elevated scores in extreme utilizers;  $P = .053$ ). We additionally found a trend that a higher proportion of women belonged to the extreme utilizer group (74% vs. 40% among high utilizers;  $P = .064$ ).

#### *Treatment outcomes*

In a last step, we evaluated whether the treatment responses of somatizing high utilizers differed from those of the comparison groups. The DAQ and BDI were used as outcome measures. In both variables, there were highly significant prepost and pre-follow-up improvements for all groups but no significant Group  $\times$  Treatment interactions (all  $P > .05$ ). However, high utilizers reached strong cost reductions when the 2-year periods before and after treatment were compared (from  $\text{€} 9248$  to  $4735$ ) while the values for somatizing normal utilizers remained in the range of the average German expenditures ( $\text{€} 1080$  prior to treatment and  $\text{€} 1926$  in the follow-up period; difference between both groups  $P < .01$ ).

## **Discussion**

Socioeconomical perspectives play an increasing role in the discussion of how mental and psychophysiological disorders should be treated. It will be important to identify clinical groups who are likely to overuse the medical system. One crucial group is the SFD. Because somatizing patients develop bodily complaints, which are not due to organic pathology, the value of usual medical treatment is limited. If psychosocial factors are not recognized, inadequate utilization of medical services over long periods of time may be a consequence of unsuccessful treatments [8]. SFD are very common especially in the primary care setting [5,6] and may persist for many years or even decades. It is therefore assumed that at least a subgroup of SFD patients represents a burden for the healthcare system.

There are only very few studies on SFD that have calculated costs on the basis of objective data and not merely according to patients' subjective reports [3,4,17, 18]. The present study was conducted as an exceptional cooperation project with health insurance companies who's employees invested much effort in putting together all available medical and billing records for the 2-year periods before and after treatment. Although the data were collected very thoroughly in each phase of the study, we cannot assure that each cost calculation is totally congruent with the patient's real utilization behavior. However, we have no doubt that the available data analyzed here are far more representative and of higher validity than subjective data that are usually limited to the frequencies of doctor and hospital visits.

Our results indicate the existence of clinical characteristics that may be useful to predict high-utilizing behavior.

The strongest differences between high and average utilizers were found on scales measuring illness behavior, self-perception as bodily weak, and psychosocial disabilities. It is interesting that self- as well as staff-rated illness behavior was associated with increased utilization although both ratings refer to different aspects. While the staff ratings describe observable behavior in the hospital, the items of IAS illness behavior scale ask the patient to describe how often they visit healthcare professionals or experiences negative effects of the somatic symptoms. Illness behavior can be seen as a very central part of the specific psychopathology of SFD patients. It makes sense from a scientific and clinical point of view that there is a close relationship between illness behavior and economical complications such as inadequately high medical costs.

Although average and high utilizers reported a similar number of somatization symptoms, the degree of subjective distress due to these symptoms was greater in high utilizers. This finding highlights the importance of perceptual and cognitive processes. On the other hand, neither general psychopathology nor comorbidity with other mental disorders was increased in the high utilizer subgroup. This suggests that variables such as depression or clinical anxiety may be less crucial than often assumed. Mechanisms that are more specifically related to SFD such as a low confidence in one's body functioning, unrealistic expectations about medical treatments, or limited capacity to avoid negative psychosocial consequences seem to be more important to explain utilization behavior. Our study has also shown that high-utilizing somatizers respond well to cognitive-behavioral treatment. Their treatment outcomes were comparable with those of the average utilizers, and their healthcare costs were significantly reduced in the 2 years after treatment. This raises hopes that adequate clinical management and specific treatments may help to normalize utilization behavior and reduce unnecessary costs.

Some limitations, which restrict the generalizability of our results, should be mentioned. We studied inpatients of a tertiary care unit that are more severely disturbed than the average somatizing patient. Our patients had a generally high level of comorbidity with other mental disorders and their disorder was mostly long standing. This probably explains the large proportion of high utilizers in this study. It must be expected that this proportion will be smaller if patients of general practitioners or medical hospitals are investigated. However, there exist no objective criteria to decide whether one clinical setting is more "representative" than another. It is interesting that even in our group of "most severe" patients, more than half had average healthcare costs in the 2 years prior to treatment. This indicates that the severity of the disorder is not an absolute predictor of high utilization but additional factors must be involved. From our clinical observations, we believe that aspects such as the willingness of the patient to accept the absence of organic pathology or openness towards psychophysiological explana-

tions are important. Many of our patients had a normal utilization behavior if they had been treated by a general practitioner who attempted to avoid unnecessary referrals to other specialists.

We are also aware that because of our specifically selected sample, conclusions about the role of general psychopathology and comorbidity for the development of overutilization should be drawn only with caution. It is possible that we failed to find clear associations because of a ceiling effect. Other studies found that psychological distress increased the risk of future frequent attendance among family practice patients [19] or demonstrated a high number of psychiatric diagnoses in persistent somatizers [20]. Another crucial point of our study is that the design was primarily cross-sectional and cost calculations were done retrospectively. It would be interesting to conduct longitudinal studies and evaluate risk factors that are able to predict illness behavior and healthcare overutilization during the long-term course of SFD.

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