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Journal of Psychosomatic Research 54 (2003) 369–380

Journal of Psychosomatic Research

# A controlled treatment study of somatoform disorders including analysis of healthcare utilization and cost-effectiveness

Wolfgang Hiller[a,b,*], Manfred M. Fichter[b,c], Winfried Rief[b,d]

[a]*Department of Clinical Psychology, University of Mainz, Staudingerweg 9, D-55099 Mainz, Germany*
[b]*Roseneck Center of Behavioral Medicine, Prien, Germany*
[c]*Department of Psychiatry, Medical Faculty, University of Munich, Munich, Germany*
[d]*Department of Clinical Psychology, University of Marburg, Marburg, Germany*

Received 01 August 2001; accepted 20 February 2002

**Abstract**

**Objective:** The purpose of this prospective study was to evaluate the effects of cognitive-behavioral treatment (CBT) on mental health status and healthcare utilization in patients with somatoform disorders (SFD) of a specialized tertiary care center. **Methods:** According to DSM-IV interviews, 54 patients had somatization disorder (SD), 51 abridged somatization syndrome (SSI-8) and 67 other defined SFD. A clinical non-SFD comparison group consisted of 123 patients. Treatment effects were controlled against the waiting list. Cost calculations for the 2-year periods before and after treatment were based on medical and billing records from health insurance companies. **Results:** The SFD patients improved significantly with respect to physical symptom distress, health anxieties, dysfunctional beliefs towards body and health, depression and psychosocial functioning. Their outpatient plus inpatient charges during the 2 years prior to treatment were about 2.2-fold higher than for average patients of the health system. At the 2-year follow-up, we found treatment-related cost offset of 382 € (−24.5%) for outpatient and 1098 € (−36.7%) for inpatient care. Indirect socioeconomic costs due to days lost from work decreased by 6702 € (−35.3%). Per patient savings of 32,174 € (−63.9%) were found in a subgroup of somatizing high-utilizers. **Conclusion:** The results encourage including treatment strategies to reduce somatoform illness behavior into clinical practice. 

*Keywords:* Somatoform disorders; Somatization; Cognitive-behavioral treatment; Healthcare utilization; Cost-effectiveness analysis

## Introduction

Clinical researchers develop increasing interest in disorders associated with high utilization of the healthcare system and, as a consequence, inadequately high expenditures for medical services. Patients suffering from medically unexplained somatic symptoms have been identified as a crucial group. According to current diagnostic systems, such patients are diagnosed as somatoform disorders (SFD) whenever their physical symptoms cause personal distress or lead to clinically relevant psychosocial impairments [1–3]. Somatizing patients are frequently treated by general practitioners and internists but rarely by psychiatrists or psychotherapists. Therefore, the costs of this group tend to be high for somatic treatments but low in the field of mental healthcare. Rost et al. [4] found that 91% of the annual healthcare charges of patients with somatization disorder (SD) were due to somatic treatment and only 9% to psychiatric and related services.

Despite the lack of organic pathology, patients with SFD tend to perceive themselves as sick and physically disabled [5,6]. Traditional medical treatments lead to little or no improvement [7]. As a consequence, patients are dissatisfied because they feel not having been helped and physicians are frustrated because they feel being ineffective [8,9]. Inadequately high medical costs result when patients visit physicians frequently, consult numerous specialists, demand costly diagnostic tests, insist on inpatient care and undergo operations without clear medical indication.

Exact cost calculations, however, have rarely been performed. Smith et al. [5] found that average charges of

* Corresponding author. Department of Clinical Psychology, University of Mainz, Staudingerweg 9, D-55099 Mainz, Germany. Tel.: +49-6131-3922344; fax: +49-6131-3924623.
*E-mail address*: hiller@mail.uni-mainz.de (W. Hiller).

0022-3999/03/$ – see front matter 
doi:10.1016/S0022-3999(02)00397-5

patients with SD were 14 times higher for outpatient treatments and over six times higher for hospital care than the average US per capita consumption. In a family practice study by deGruy et al. [10], office visits and monthly charges incurred by somatizing patients were about 50% greater than for matched control patients without somatization syndrome. Labott et al. [11] calculated that costs for somatizing patients of a pulmonary subspecialty clinic were comparable to those of asthmatic patients but 13 times higher than the average costs for patients of a health maintenance organization. Shaw and Creed [12] found a relationship between costs for medical investigations and physicians' awareness of psychosocial factors in patients with somatic symptoms due to psychiatric disorder. Median costs were only £10 when physicians recognized the probable role of psychiatric factors but £460 when the patients' complaints were considered as physical illness only.

Such health economical findings influence expectations about the goals of treatment. According to the *offset hypothesis* [13], it is assumed that broader interventions that take psychosocial factors into account reduce unnecessary costs in other areas of medical care. A few studies have indeed demonstrated that expenditures for somatizing patients were reduced by information letters sent to the physicians, training of general practitioners or brief psychotherapeutic group interventions [4,14–16]. The tendency to overutilize medical services can be explained from cognitive-behavioral models of SFD [17–19]. These suggest that bodily complaints may develop from various non-disease-related reasons, for example, increased attention on bodily processes, benign symptoms of temporary physiological dysfunction, autonomic arousal or correlates of intense emotion. When somatizing patients misinterpret their bodily sensations as signs of a serious disease, they tend to consult physicians but find it difficult to accept that no organic disease explaining their symptoms can be found. As a consequence, illness behavior with frequent medical consultations (''doctor-shopping''), checking behavior, inadequate use of medication and psychosocial impairments may develop.

Although the efficacy of cognitive-behavioral treatment (CBT) was demonstrated in several controlled studies for different populations of somatizing patients [15,20–22], little is known of how well these methods can be implemented into routine healthcare. This paper describes a controlled naturalistic study evaluating a new treatment approach in a German tertiary care facility. We applied CBT techniques that had proven successful in previously published international studies, mainly aiming at defocusing attention from the physical sensations and establishing adequate coping strategies. Objective data on healthcare expenditures were additionally collected as part of a large prospective nationwide cooperation project with various health insurance companies. We expected that not only symptomatology and treatment satisfaction of our patients should improve but also reduced sick role behavior should lead to subsequent savings of healthcare costs. Although the German mental health treatment system is quite different from those available in most other countries because psychosomatic hospitals are more common and inpatient care is offered in addition to usual outpatient services, the present paper will focus on the specific psychopathological and socioeconomic effects of CBT.

The present study was guided by the following *major research questions*: (1) Does the treatment program improve the physical and mental health status of somatizing patients, e.g., symptom distress, hypochondriacal beliefs and anxieties, other psychopathology and psychosocial impairments? (2) Is the treatment superior to a no-treatment condition and are effects maintained over the subsequent 2-year period? (3) To what extent are SFDs associated with inadequately high healthcare costs and can successful treatment reduce such costs? (4) Does comorbidity with other than somatoform mental disorders play a crucial role for the course and outcome of the interventions?

## Method

### *Sampling procedure, study population and design*

Consecutive patients registered for inpatient treatment at the Roseneck Center for Behavioral Medicine were screened for medically unexplained somatic symptoms. These patients are usually referred by their general practitioners, psychiatrists or psychotherapists to receive initial or additional intense treatment, which includes CBT plus indicated psychiatric and other medical interventions. During the study period, we reviewed the letters from the referring clinicians, available medical records and the personal reports of all newly registered patients. Whenever there was any evidence for multiple or unclear physical symptoms, the treatment candidate received a set of screening questionnaires (see below) and was asked to complete and return it within 3 days. During this preselection phase, we excluded patients who were referred because of a primary eating disorder or chronic tinnitus, as specialized wards and treatment programs exist for these particular groups. Other exclusion criteria were schizophrenia and related disorders, primary substance dependence, psychoorganic disorder or clear organic disease.

If the initial screening confirmed the presence of physical symptoms and written informed consent to participate in the study was given, patients were included into our baseline sample. After admission, they received a thorough medical examination and a detailed face-to-face interview to determine the nature of their physical complaints and the presence of mental disorders. Questionnaires assessing psychopathology and associated clinical characteristics were completed at admission, shortly before discharge and once more 2 years later (follow-up).