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Healthcare Utilization and Poor Reassurance: Potential Predictors of Somatoform Disorders

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Abstract

Objective—Somatoform disorders are common conditions, but the current diagnostic criteria are considered to be unreliable, based largely on medically unexplained symptoms. DSM-5 is considering other possible characteristics of somatizers including high utilization, dissatisfaction with care, and poor response to reassurance. This paper reviews the available literature for evidence to support these criteria, and evaluates if distinctive aspects of these characteristics exist in somatizers.

Methods—The Pubmed database was searched combining terms such as “somatoform disorder” with “reassurance,” “satisfaction,” and “utilization.” Articles were individually inspected.

Results—Many studies report a deficit in long-term response to reassurance in somatizers; there was some evidence that patients respond initially to reassurance, followed by return of anxiety, leading to further reassurance seeking. There was insufficient evidence to support poor satisfaction with care as a characteristic of somatizers. While there is no standard criterion for high utilization, regardless of definition, evidence was found to support over-utilization, particularly in outpatient visits. However, no unique pattern of utilization was found that could identify somatizers within a broader group of high utilizers.

Conclusions—This review revealed evidence of over-utilization in many areas of healthcare, as well as poor long term response to reassurance in somatizers. Dissatisfaction with care, though, was not a consistent finding. It is difficult to study alternative diagnostic criteria for somatoform patients when the current criteria rest on so many problematic assumptions. Future research should attempt to validate criteria empirically in patient groups, with selection not based on medically unexplained symptoms.

Keywords

Somatoform disorder; DSM; utilization; satisfaction; reassurance

Introduction

Somatoform disorders have been one of the most troublesome diagnostic categories in the DSM. Many objections have been raised to the current conceptualization of the spectrum, from its lack of empirical foundation¹ to its heterogeneity and promotion of mind-body dualism². Re-examining the distinctive qualities of somatoform disorders may yield a more validated approach to the spectrum.

Current thinking involves a redrawing of the diagnostic criteria for somatoform disorders. This redrawing, with particular emphasis on Complex Somatic Symptom Disorder,

emphasizes three attributes- somatic symptoms, excess concern with symptoms and illness, and abnormal healthcare utilization³. The reconceptualization of DSM-5 shifts focus away from defining somatoform disorders primarily on the basis of Medically Unexplained Symptoms (MUS). Attempting to diagnose somatization by the presence or absence of MUS, or an absolute number of symptoms is prone to error, as symptom recall is unreliable and there is no clean cut point in terms of number of symptoms. Syndromes based simply on medically unexplained symptoms have been shown to have poor reliability at long-term follow-up, with only 22% of those meeting criteria at baseline still meeting criteria at 5 years⁴. With outpatients with a somatoform disorder using up to twice the medical resources compared to outpatients without a somatoform disorder^{5,6}, there is a tremendous need for well validated diagnostic criteria, and an opportunity to examine psychobehavioral aspects of somatoform disorders.

Clinical experience has suggested that somatoform patients have excessive concern, which does not seem to respond well to traditional interventions such as reassurance. Potentially inherent in this poor response is an underlying dissatisfaction with care received. Dissatisfaction and ongoing concern with symptoms would logically lead to pursuit of alternative care, “doctor shopping,” or other ways of over-utilizing the healthcare system. The prevalence of somatoform disorders has long been thought to be high amongst over-utilizers or frequent attenders⁷. The evidence to support each criterion (over-utilization, poor response to reassurance, and poor satisfaction with care) as a distinctive aspect of somatization, however, should be evaluated critically. While these criteria are supported by clinical observation and are mentioned in earlier versions of the DSM, they have not been included in the current CSSD criteria. This paper is an exploratory evaluation of the literature and evidence to support these three patterns in somatoform patients, to examine if adequate evidence exists to incorporate them into future diagnostic criteria.

METHODS

The PubMed database was queried combining search terms “Somatoform,” “Somatoform disorders,” or “Hypochondriasis” for subject population. These results were then narrowed in subsequent independent searches by adding terms “Utilization,” “Patient Satisfaction,” and “Reassurance,” searched in any field. The term “Somatoform” was used to include underlying relevant research conditions in the search such as multisomatoform disorder, which might be excluded if limited to MeSH term “Somatoform disorders.” Hypochondriasis was added due to the finding in the literature of hypochondriasis as a trait that might be independent of the full disorder and not be found in a search for “Somatoform disorders.” No limitation was made on years of publication in order to maximize locating relevant literature that might antedate current DSM discussions. Other articles were obtained through inspection of bibliographies of relevant articles and authors. Individual abstracts or full articles were inspected to determine relevance to intended inquiry. Exclusion criteria included lack of new empiric data, such as review articles or editorials, or if the study failed to address the clinical question, such as studying clinician satisfaction rather than patient satisfaction. Rating of response to reassurance (positive or negative) was based on the stated positive or negative findings within each paper. Patient satisfaction findings in studies were coded by reviewer as clearly satisfied, clearly dissatisfied, or mixed. Utilization findings were broken down into forms of utilization, and then examined for any findings supportive of higher utilization in patients with somatoform conditions.

RESULTS

Search results are summarized in table 1. A large number of citations were found on each search topic, but when search terms were combined, the resultant number of citations was

markedly smaller. For example, while over 11,000 articles were found on somatoform related topics, when limited to English and combined with the keyword of reassurance, only 56 results were found. Total study results from each search are illustrated in table 1. Papers varied in design, approach, and subjects. We will discuss separately observations on reassurance, dissatisfaction, and utilization. Several promising areas were noted which warrant further study for examination of utilization patterns.

Reassurance

A Pubmed search on somatizers and reassurance identified 59 relevant papers. Limiting results to English reduced it to 56 studies. Thirty-four of these studies were excluded due to lack of relevant or new data. Twenty-two studies remained, the results of which are summarized in table 2.

There was a strong trend in the studies suggesting a trait problem with sustained reassurance in somatoform patients, with 12 of the 22 studies reporting clear findings of poor response to reassurance. Reassurance seeking behavior was also noted in several studies. Four studies reported temporary relief of health anxiety from reassurance, but that anxiety recurs and the temporary relief further drives reassurance seeking behavior. For instance, Figure 1 illustrates a subject's rating of anxiety before reassurance, immediately after with improvement, and subsequent rise in anxiety back to baseline. Few studies showed evidence of long-term benefit from reassurance. One editorial questioned the idea of poor reassurance response in somatizers, pointing out that reassurance has a broad range of quality, and that poor response to reassurance is a product of low quality reassurance from the provider⁸. An older editorial by Sapira discussed a similar approach of "Reassurance Therapy," namely that certain criteria must be met for reassurance to be effective. These include getting a detailed description of the symptom, eliciting the emotional meaning of the symptom, examining the patient, making a diagnosis, and explaining the pathophysiology of the symptom⁹.

A sub-group analysis found a number of studies examining populations with distinct somatoform disorders. It was interesting to note that 3 studies examined conversion disorder patients, and these were the only studies that did demonstrate improvement with reassurance. Of the seven studies found examining patients with hypochondriasis, six had poor response to reassurance, and one had temporary response followed by increased drive to complete a checking behavior. There were no studies found that supported a clear effectiveness from reassurance in reducing health anxiety longitudinally in non-conversion disorder patients. Some data did support decreased utilization after reassurance¹⁰, though there were also conflicting data showing worsening from reassurance¹¹.

Satisfaction

The Pubmed search on somatizers and satisfaction produced 137 papers, which were reduced to 115 papers once limited to English. Abstracts and papers were individually inspected, and 73 papers were excluded which did not appear to examine somatoform disorders, hypochondriasis, or satisfaction with health care. Many excluded articles mentioned the term "satisfaction" superficially or examined life satisfaction rather than patient satisfaction. Results overall were quite mixed on satisfaction in somatizers, with a trend towards finding general satisfaction with care rather than dissatisfaction. The remaining studies are summarized in table 3. Twenty studies were found that had strong findings of satisfaction with medical care, and twelve studies were found with clearly low satisfaction with care.

A majority of studies noted specific patient characteristics or characteristics of their medical care that predicted satisfaction. For instance, one study noted poorer satisfaction in patients or parents of patients with a mixture of somatization and a co-morbid medical condition¹², and another study found that presence of a chronic psychiatric disorder predicted low satisfaction with care¹³. One study found that hypochondriasis was modestly associated with poor satisfaction in primary care patients¹⁴, while another study found no effect on satisfaction of surgery patients¹⁵. Hypochondriacs in another study made equal numbers of positive statements about their doctors as controls, but made more negative statements than controls¹⁶. Overall, no particular type of somatoform disorder patient was more or less likely to be satisfied with their medical care.

Presence of another psychiatric disorder, particularly anxiety or depression, may modify this relationship. One study looking at multisomatoform disorder found that presence of depression or anxiety was associated with more dissatisfaction with care¹⁷, though another study found that once anxiety and depression were controlled for, this effect disappeared¹⁸. This observation is in line with a study that showed hypochondriacs were more depressed, anxious, and dissatisfied with care¹⁹. Some factors associated with dissatisfaction with care were poor communication, perception of uncertainty about condition (not knowing what was wrong), presence of more symptoms, and external perceived locus of control²⁰.

Thus, convergence of findings is not established despite the clinical impression of poor satisfaction in somatizers. A study by Schweickhardt and colleagues²¹ may help explain this discrepancy. Primary care physicians underwent a training course in treating somatizers. They found three groups in the somatizing population: those with high emotional and physical distress; those with high emotional distress, minimal physical distress, and low satisfaction; and those with physical distress, low anxiety, and low satisfaction with physical functioning. In the course of treatment, those with anxiety had decreased anxiety and increased satisfaction with emotional functioning. Those with physical distress and low satisfaction during treatment began to attribute the cause of their problems to emotional rather than physical factors, and had an increase in stress and anxiety. Interestingly their satisfaction with care and self-reported therapeutic success increased, as did their feeling of being understood. In other words the groups with only physical distress (the deniers of psychological distress) became more anxious and aware of emotional distress as they were treated, but also became more satisfied with care. This complex effect may mask true benefits of treatment.

Adding to this complexity, educating somatizers about how psychosocial problems can lead to physical symptoms led to lower satisfaction with care in one study, though they still were very satisfied²². Riaz studied non-epileptiform seizure patients. Following diagnosis, their feelings about care were neutral or negative. At one year follow-up, however, satisfaction was more positive²³.

These diverse studies indicate that a simple relationship between somatization and satisfaction is not supported by the literature, but that a more textured analysis is needed to understand the mixed levels of satisfaction in somatizers.

Utilization

Utilization studies were quite heterogeneous, in terms of measurement of utilization and in subject populations of somatoform and other medical or psychiatric conditions. Two hundred twenty-two papers were found from search criteria described above. Eighty-five studies were excluded for lack of empirical data or lack of utilization measures. Some studies were excluded that measured pathways to referral for psychiatric evaluation as a form of utilization. Analysis found that 96 studies examined somatoform patients.

Outpatient visit frequency was the most consistently elevated form of utilization found, with all studies examining this variable showing high utilization in somatizers. Other studies examined high utilization in non-somatizers, suggesting high utilization may be sensitive but not specific to somatizers. Selection bias was also suspected, however, as many studies intentionally studied high utilizers as their sample population.

Other types of higher utilization were inconsistent in somatizers, possibly indicating subgroups of somatizers. Mental health visits in particular did not appear to be higher for somatizers compared to controls (normals or patients with other psychiatric conditions). Utilization measures and positive findings in somatoform patients are summarized in figure 2. Because there are so many criteria for high utilization, we provide further detail below on the findings based on measures of utilization, to illustrate the complexity of defining abnormal utilization.

Utilization Breakdown—The definition of a frequent attender or high utilizer varies greatly throughout the medical literature. While some studies simply focus on selecting the top utilizers by percent (ranging from 3–15%)^{24,25}, there are over a hundred different definitions of frequent attenders in various studies²⁶. For example, one study examined total health expenditures in a set period (1 or 2 years), where a high utilizer had greater than two standard deviations higher expenditures than that of the average person in that society²⁷. This of course begins the dilemma of delineating what is abnormal, which typically does not take into account variables such as co-morbidities. Defining abnormal utilization must begin with defining how to measure general utilization, and then examining the impact of various definitions of abnormal utilization, particularly in somatoform disorders.

Time—The first step in measuring utilization involves identifying its components. Intuitively, utilization involves use of clinician time and healthcare resources. Clinician time can be difficult to measure, as self-reporting of time spent lacks standardization, and is difficult to track on a larger scale or accurate basis. Other factors are routinely tracked within the medical system. Utilization reviews by healthcare administrators have alternate methods of assessing and predicting severity of illness, such as by classifying patients into Diagnosis-Related Groups (DRG's). Administrators performing utilization review examine specific types of patients by diagnosis in order to predict resource use and utilization, using factors such as principal diagnosis, complications, procedure, age, sex, and discharge status²⁸. This aids administrators to predict utilization in typical illnesses, but has somewhat less utility for somatoform disorders, as they can be heterogeneous in complaints and not fall into a clear DRG. Each criterion used has benefits and drawbacks in being applied to somatoform patients.

Costs—Many studies have indicated significantly higher costs in those who are recognized as somatizing, even if only meeting criteria for a DSM-IV-TR Somatoform NOS diagnosis⁴. In a primary care study, patients with psychiatric conditions had significantly more primary visits than those without, and patients with undifferentiated somatoform disorder had approximately 30% more visits than patients with other psychiatric conditions¹⁰.

Measures of higher overall costs do not identify specific aspects of utilization that are particular for somatizers, however. Individuals with high overall costs may have recently had an organ transplant, but may be utilizing their resources at an appropriate level. Therefore overall costs can be both arbitrary and non-specific. Analyses controlling for co-morbidities and disease severity would be a more fruitful examination of costs. Most studies break down utilization and healthcare costs based on acuity of care, and by location.

Inpatient—Inpatient admissions are commonly measured by number of admissions, number of hospital days annually and days per admission^{29–31}. This may aid in identifying indicators such as short hospital stays, but no studies were found that examined the pattern of inpatient stays in somatizers. Further breakdown of inpatient expenses could include the number and cost of extensive medical tests.

High inpatient utilizers may fit a special subpopulation, such as patients with somatic symptoms manifesting in ways that require invasive procedures or repeated medical evaluation. No data were found on how representative they are of general somatizing high utilizers.

Outpatient—The most studied form of utilization in somatizers was outpatient utilization. There exists some evidence that somatizers may visit multiple outpatient locations (emergency rooms, primary care doctors), with a trend in the literature towards different sites based on gender and culture^{32–34}. Studies of outpatient utilization include number of outpatient visits (over a defined time period ranging from 6 months to 2 years)^{35–37} and total medication costs^{31,33}. Cutoffs for the number of visits per year qualifying as high utilization varies between authors, from 7–12³⁴. Some may argue that this does not account for co-morbidities, but a study examining utilization in the chronically medically ill found that while disease/symptom severity and complications do affect utilization, disease duration and co-morbidities do not³⁸.

Specialist referrals—One area of utilization that may be easier to distinguish, and potentially even more characteristic of somatizers, is the use of referral to specialists or sub-specialists. This is a large area of cost, and one which is believed to have a relatively low yield in terms of treatment changes or formal diagnoses for patients with medically unexplained symptoms (somatizers)³⁹. Their use of specialists has been found to be elevated, even when controlling for medical co-morbidities^{5,40}. Somatizers often have symptoms from multiple organ systems, which likely leads to referrals to a variety of specialists and sub-specialists. No research was found that distinguished a cutoff however on number of referrals or number of sub-specialists seen.

Self-Referrers—An additional subcategory of high utilization is that of self-referral. This has multiple possible forms. It has long been believed that those with somatoform disorders can “doctor-shop,” seeking second and third opinions from other physicians. DSM-III identified this as a characteristic seen in several somatoform disorders, though did not identify this as a diagnostic criterion⁴¹. A further way to potentially distinguish somatizers with over-utilization would be to measure not only total number of visits, but percent of visits initiated by the patient, as opposed to those initiated by another physician⁸. This clearly also relates to use of specialists, when available, via self-referral. In countries with a socialized healthcare model, self-referrers are defined as those who change doctors without a referral, especially during a single illness episode, and is considered a possible indicator of abnormal illness behavior and somatization⁴². Again, a consistent cutoff for an acceptable amount of self-referral was not found.

Emergency—The number of emergency room visits has also been evaluated as a measure of utilization. Studies vary in their definition of high utilization of ED services, ranging from 4–7 or more ED visits in a year⁴³. Cultural issues should not be discounted, as access to care differs greatly across cultures. Many studies were performed in the UK, where primary care is a standardized first point of contact; thus, the population seeking emergency care may differ greatly from that in the U.S.

A gender difference in emergency room utilizers may also exist between cultures. In a UK study looking at users of emergency services, there was a predominance of men, regardless of level of utilization⁴³. The high utilizers had multiple problems, but not more diagnoses of actual somatoform disorders. This somewhat conflicts with the common belief that high-utilizing somatizers are predominantly women. In the U.S., women are more likely to be high utilizers of primary care^{36,44}.

The emergency department can also be distinguished from outpatient care by its high level of acuity. Somatizers and high utilizers may use the emergency department for inappropriate issues on multiple occasions. Objective criteria for emergency room use includes the Canadian Triage and Acuity Scale (CTAS) and the Hospital Urgencies Appropriateness Protocol (PAUH). The CTAS, for example, classifies emergency care in levels, based on acuity (waiting time allowed before being examined by the physician, risk of death, vital signs, pain level, possibility of complications, and origin of the injury)³³. Those with lower scores would be classified into a lower level of acuity, which when combined with frequency of visits may represent a specific type of high utilizer or inappropriate utilizer. Use of emergency services simply because of convenience of location indicates that at least a subpopulation of low acuity high utilizers may just have a low threshold for physician visits, which has been found elsewhere as a factor in higher utilizers seeking treatment⁴⁵. Neither the CTAS nor the PAUH have been studied in somatizers specifically, though both appear to be useful methods of identifying patients with low acuity. It would be helpful if future trials examined these variables in relation to somatizers.

Overall, emergency room utilization does not seem to distinguish somatizers from nonsomatizers, due to a variety of reasons. Other patient groups overuse emergency services, based on factors such as convenience and location, as well as healthcare access. If future studies focused on the number of symptoms for presentation and repeat presentations for identical conditions, then patterns may emerge in somatizers.

Diagnostic Testing—The cost of medical testing (laboratory tests, imaging) is frequently considered a marker of utilization. A commonly noted belief is that somatizers have more medical testing that is not productive of a diagnosis. The studies found were mixed. Many studies mentioned diagnostic testing in their measures. One study noted negative workups, but no difference in costs in hospitalized somatizers versus hospitalized non-somatizers⁴⁶. Reid et al. found that within a group of high utilizers, primary care somatizers had more brain CT's, exercise ECG, endoscopy, and abdominal ultrasounds performed, and that these were often requested by the patients³⁹. This contrasted with results of a study by Thomassen et al., which showed patients with somatoform disorders had less testing than patients with other mental illnesses, and no more than patients with other medical conditions⁴⁷. Furthermore Jyvasjarvi examined somatizing and non-somatizing frequent attenders, and found no difference in the number of labs or tests ordered³⁴. This may be due to specialists ordering a standard workup regardless of complaints. The somatizers may not have warranted the workup but still received an identical one to those with a medical illness. As with many of the studies, the lack of consistent findings is more likely due to the lack of studies rather than actual negative studies. A majority of studies that examined medical workup did not examine how to distinguish somatizers, but instead focused on the benefit of an intervention to reduce utilization in high utilizers.

DISCUSSION

Somatoform disorders are disabling for patients, and challenging and time consuming for medical providers. In the absence of well validated diagnostic criteria, the conditions are not only difficult to diagnose, but difficult to treat. DSM-V may redefine the diagnostic criteria,

moving away from medically unexplained symptoms as the core construct. Our review of the literature suggests that somatizers have poor sustained response to reassurance, and higher utilization patterns, especially in outpatient care. In addition, somatizers appear to have increased numbers of non-productive medical workups. On the other hand, there are less data to suggest that somatizers are consistently more dissatisfied with care than non-somatoform patients, or that more tests/procedures are ordered for them.

Limitations exist within our review. Studies included were only in English. There are repeated suggestions in the literature that cultural influences need to be evaluated; including different medical systems, different acceptability of having physical or mental illness, as well as different gender roles. A formal meta-analysis was not completed because study designs and patient populations were far too heterogeneous. Abnormal illness behavior, while including the criteria explored here, should be recognized to include other psychobehavioral facets that may be worthy of evaluation, such as illness preoccupation.

The issue of co-morbidities also requires further investigation. Presence of medical co-morbidities is generally expected to result in greater utilization of medical resources. However, not all medical conditions increase the need for healthcare use. The distinction could be made between conditions that cause morbidity and those that don't; disease severity, symptom severity, and complications increased utilization, but disease duration and co-morbidities did not. Depression and psychological distress were the strongest predictors of hospitalizations and physician visits, even though chronic psychiatric patients were excluded³⁸. This is an under-explored issue, that becomes important when considering predictive models in patients with somatoform disorders. However, it also suggests another conundrum: does the chronic medical illness worsen the psychological distress, or does the baseline psychiatric illness result in worse preoccupation with their physical symptoms?

Studies are needed that prospectively attempt to identify somatizers using criteria of high utilization or poor response to reassurance. Examination of self-referrers appears to have potential but is an understudied area as well. Furthermore, studying poor responders to reassurance and examining for subcategories of patients could be productive. It would be useful to examine an outpatient population and identify those with high utilization patterns in any of the mentioned aspects of utilization. Subjects identified, as well as normal utilizers, could be tested for health anxiety and response to reassurance immediately and longitudinally, as well as other psychiatric co-morbidities.

One relatively large study based in the UK did attempt to evaluate distinctive styles of utilization and developed an extensive algorithm to predict somatizers, but found only moderate predictive ability⁴⁰. This may be due to cultural and gender differences in utilization, which warrant further investigation. A UK-based study, where there is a nationalized healthcare system, may not generalize to the US, since many in the US do not have access to a primary care provider.

Another attempt to predict somatizers examined medical records using an independent examiner, as the gold standard, to identify somatizing patients. Statistical analysis yielded a model of predicting somatization weighted by various criteria. These criteria included gender (females were far more common), number of visits (cutoff of minimum 6 visits in a year), and percent of visits with "somatization potential" (based on complaints in the musculoskeletal, nervous, GI system, or "ill-defined complaints"). Varying the coefficient weights of different variables in the equation led to different sensitivities and specificities⁴⁴, but these weightings pertain only to the specific study population and may not be generalizable. Similar equations could be created for various populations using other factors such as reassurance seeking.

Increasing use of standardized instruments would advance the field. There are well validated measures such as the Whitely Index (WI), Illness Attitude Scales (IAS), and Somatosensory Amplification Scale (SSAS). Each studies independent but overlapping domains. In comparison, the Reassurance Questionnaire (RQ) is one of the few to specifically examine response to reassurance.

There is a logical difficulty in studying alternative diagnostic criteria for somatoform disorders, since in the current nomenclature MUS is a central construct, but most people find it highly questionable and unreliable. Inclusion of studies in a review such as this one must be based on some criteria, and so many of the articles found inevitably rely on the use of MUS to define their study population. This creates an ongoing dilemma of determining the generalizability and validity of any conclusions drawn from the literature. If new criteria are established for what used to be called somatoform disorders, it is possible that the conclusions from this review may need to be modified.

Conclusions

Redefining somatoform disorders challenges assumptions. While the goal is to escape the use of medically unexplained symptoms as diagnostic criteria, validation of any other criteria inevitably returns to MUS as selection criteria in referring to the current research literature. This tautology is just one of many challenges inherent in critically examining research on somatoform disorders.

Utilization is measured in many domains, and in none of those domains is there an agreed upon cutoff for what qualifies as over-utilization. Furthermore many areas of utilization include significant experimental error ("noise,") (i.e. other over-utilizers who are not somatizers) and this must be controlled for in the analysis. Nonetheless, somatizers do appear to utilize more heavily than nonsomatizers, and this relationship may become more pronounced as the defining criteria for somatoform disorders are revised. Some areas of utilization deserve special attention, including self-referral, both to primary care for an ongoing illness episode, as well as to specialists. If a condition is not deemed necessary by the primary care physician for scheduled follow-up or referral, that itself could be suggestive of somatization when the patient pursues further care. Other possible indices of utilization include emergency room visits for illness episodes that are not deemed of a severity to require emergency care, but on a repeated basis for the same condition.

Finally research could be directed towards evaluating somatizing sub-groups. Somatizers as a whole are likely heterogeneous, and some seek explanation of their symptoms^{11,49}, some alleviation⁵⁰, and others emotional support⁵¹. Their patterns of utilization could vary based on what they seek.

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Figure 1.

Adapted from Salkovkis and Warwick 1986⁵² (permission pending). Displays a case of hypochondriasis and self-rated anxiety before and after reassurance. Anxiety was reduced immediately, with a quick increase in anxiety soon thereafter and a tapering over time.

Figure 2. Number of studies using each type of healthcare utilization. Total studies compared to studies showing higher utilization in somatizers (positive findings).

Table 1

Pubmed Independent Searches

Search Terms	Somatoform Search [Somatoform OR Somatoform Disorders OR Hypochondriasis]	Reassurance	Patient Satisfaction	Utilization [Subheading]
Total Results	11836	2821	62207	108153
Limited to English	8605	2696	56651	98586
Somatoform search AND Reassurance	56			
Somatoform search AND Patient Satisfaction	116			
Somatoform search AND Utilization	240			

Table 2

Summary of studies found examining response to reassurance.

Study	Subjects	Responsive to Reassurance	Other findings
Verschuur et al. 2008	General population after natural disaster, with high health anxiety	Mixed	After a physical exam, subjects were reassured early on, but anxiety recurred by 12 weeks
Abramowitz and Moore 2007	Hypochondriacs performing safety behaviors (like reassurance seeking)	Mixed	Following a safety behavior, pt's had a large spike in desire to complete
Aggarwal et al. 2006	Pt's with syndromes classified as somatizers (IBS, chronic fatigue, etc.)	Mixed	Conditions all had high health anxiety and reassurance seeking behavior.
Salmon et al. 2005	Primary care patients with MUS	Mixed	Pt's wanted more emotional support, but not more explanation or reassurance
Reid et al. 2001	Primary care patients with MUS	Mixed	>80% of GP's feel that GP's should manage MUS pt's, and are using reassurance largely.
Pilowsky 1993	Pain clinic patients, psychiatric inpt's	Mixed	Testing Illness Behavior Questionnaire to test response to reassurance. Useful in these populations.
Salkovkis and Warwick 1986	Hypochondriacal pt's. Case examples to support theory.	Mixed	Presents idea of immediate effective reassurance, followed by return of anxiety, perpetuating pursuit of more reassurance.
Hausteiner et al. 2009	MUS pt's referred for allergy workup	No	Also higher disease conviction
Morgan et al. 2008	General population after a public health scare, with high health anxiety	No	Those with high health anxiety didn't respond well to reassurance
Fontanelle et al. 2006	Body Dysmorphic Disorder pt's	No	Longitudinally had reassurance seeking behaviors, but didn't assess response to reassurance
Wearden et al. 2006	Hypochondriacs	No	Association between hypochondriasis, reassurance seeking, and negative affectivity
Rief et al. 2006	MUS pt's, compared to healthy and depressed controls	No	Heard audio report about a condition rejecting medical explanations, but pt's recalled the report improperly as stating likely the cause was medical
Dowrick et al. 2004	Primary care patients with MUS	No	Reassurance and normalization without explanation was not helpful, even making pt's worse.
Noyes et al. 2003	Hypochondriacal pt's in primary care	No	Hypochondriasis modestly associated with poor physician-pt relationship, poor reassurance and satisfaction
Speckens et al 2000	Primary care patients with MUS	No	Using the Reassurance Questionnaire, showed poor reassurance, but this was not associated to utilization
Gulhati and Minty 1998	Mothers of children with MUS	No	Even mothers of these children responded poorly to reassurance
Barsky et al. 1993 (AJP)	Hypochondriacal pt's in primary care	No	Hypochondriacs believe health involves being absolutely symptom free.
Logsdail et al. 1991	Hypochondriacs with illness phobia of having AIDS. Case series	No	Had either temporary or poor response to reassurance, but would continue to seek it.
Warwick and Marks 1988	Pt's with hypochondriasis or illness phobia. No controls.	No	Subjects had sought reassurance repeatedly from providers, prior to treatment (exposure).
Al-Sharbati et al. 2001	Conversion disorder case study	Yes	Reassurance part of therapy, effective

Study	Subjects	Responsive to Reassurance	Other findings
Hop et al. 1997	Conversion disorder case series	Yes	Reassurance was helpful in a number of cases
Ophir et al. 1990	Other Conversion Disorder	Yes	Responsive to reassurance.

Table 3

Summary of studies found examining satisfaction with care.

Study	Sample population	Satisfied with care	Findings
Muller et al. 2008	Multisomatoform pt's	Mixed	+ Depression or anxiety led to worse satisfaction
Hayden et al. 2005	Hypochondriacal pt's getting a surgery	Mixed	At baseline pt's presumed would be dissatisfied. Got different surgery and had better satisfaction.
Persing et al. 2000	Primary care pt's	Mixed	Hypochondriacal pt's made more negative statements about physicians
Jackson et al. 1999	Military and Civilian Primary Care Pt's	Mixed	Satisfaction in Somatizers not specifically mentioned. Unmet expectations in general decreased satisfaction.
Salmon et al. 1999	Somatizing primary care pt's	Mixed	Pt's satisfied with tangible physical explanations, and explanations that made them feel empowered.
Downes-Grainger 1998	Somatizers in a surgery clinic	Mixed	Pt's feeling more understood and satisfied with the explanation of illness was associated with decreased psychiatric symptoms, but not decreased somatic
Riaz et al. 1998	Pt's with PNES	Mixed	Following diagnosis of their seizures as psychogenic, pt.'s were more dissatisfied with the dx, but still more satisfied than not with treatment
Jones et al. 1989	Internal Medicine inpt's	Mixed	Physicians illness as influenced by psychological factors if illness was less medically severe, and patients less satisfied with care
Johnson et al. 1989	Pt's post-gynecologic surgery, getting PCA	Mixed	Self-perceived external locus of control associated with lower satisfaction with care
Kasteler 1976	Doctor Shoppers	Mixed	Lack of confidence in a specific doctor associated with shopping
Rosendal et al. 2007	Somatizing primary care pt's	No	Only 30% highly satisfied. No data given on how many actively dissatisfied.
Lawoko and Soares 2006	Parents of children with heart disease	No	Somatizing patients had 0.83 odds ratio of being satisfied.
Frostholm et al. 2005	Somatizing primary care pt's	No	Not knowing what was wrong, or having more symptoms predicted dissatisfaction
Hasler et al. 2004	Psychiatric pt's	No	Somatizers had lower satisfaction than other disorders (like affective)
Noyes et al. 2003	Hypochondriacal pt's in primary care	No	Modest correlation with poor satisfaction
Guo et al. 2002	Self-referred pt's	No	Less satisfied with prior providers in particular
Garcia-Campayo and Sanz-Carillo 2000	Pt's seeking alternative medicine	No	Somatoform pt's were less satisfied, but didn't have more hypochondriasis than others
Sumathipala et al. 2000	Pt's with MUS	No	Baseline low satisfaction with care.
Godden 1999	BDD by proxy	No	Mother of pt, viewed her as disfigured, sought further care and a lawsuit over perceived disfigurement.
Butler and Rolnick 1996	Case study of somatizer	No	Presumed problem with communication style.
Sato et a. 1995	Doctor Shoppers	No	Low satisfaction with prior illness explanation, but seeking relief of symptoms.

Study	Sample population	Satisfied with care	Findings
Barsky et al. 1991	Hypochondriacal pt's in primary care	No	Small sample size and response rate. More anxious and depressed than controls.
Van Bokhoven et al. 2009	Somatizing primary care pt's	Yes	Ordering tests did not improve satisfaction
Wieske et al. 2008	Self-referred vs. tertiary referral pt's	Yes	Only 9% of pt's intended to seek a second opinion
Jackson and Kroenke 2008	Multisomatoform pt's	Yes	At 5 years, only 21% still met criteria for diagnosis.
Tignol et al. 2007	Pt's seeking cosmetic surgery	Yes	No difference in surgery in patients with vs. without Body Dysmorphic Disorder
Zojaji et al. 2007	Pt's seeking rhinoplasty	Yes	55.1% satisfaction rate. Lowest satisfaction in those with obsessive and psychasthenic personality traits.
Dirkswager and Verhaak 2007	MUS pt's, controls, other high utilizers	Yes	Somatizers were quite positive about their care, though lower than controls. Only 10% of somatizers actively dissatisfied.
Jackson and Passamonti 2005	MUS pt's followed from onset	Yes	Pt's satisfied with resolution of symptoms. Lack of illness worry good prognostic factor. Most pt's with MUS did not have a mental illness
Eytan et al. 2004	Pt's on a medical/psychiatric unit	Yes	High satisfaction overall. Those with personality disorders had lower but not low satisfaction with care.
Veale et al. 2003	Pt's seeking rhinoplasty	Yes	No difference in satisfaction in BDD vs. non-BDD pt's.
Klapow et al. 2001	Somatizing primary care pt's	Yes	All patients reported satisfaction in the "good" range
Hartz et al. 2000	MUS pt's in primary care	Yes	Satisfaction with care ranged from 54–79% based on aspect of satisfaction.
Lidbeck 1997	Somatizers	Yes	75% were very satisfied with a CBT/Relaxation training program.
Kroenke et al. 1997	Multisomatoform pt's	Yes	Whole primary care sample had 76% highly satisfied. MSD once adjusted for psychiatric comorbidity was not a factor in satisfaction.
Wyshak and Barsky 1995	Hypochondriacal pt's in primary care	Yes	¾'s of patients were very satisfied with care. Over ½ said care just about perfect. Higher depression predictive of worse satisfaction.
Camara 1991	Outpt's in a C/L clinic	Yes	Subjects had high satisfaction. No breakdown of subjects by diagnosis.
Schewickhardt et al. 2005	Somatizing pt's	Yes	3 groups of somatizers. One with high emotional and physical stress, one with high emotional, and one with low both. High stress groups improved with tx, but low stress group worsened in depression after tx, though stayed satisfied.
Morriss et al. 1999	MUS pt's in primary care	Yes	GP's were trained to treat somatizers. Pt's had high satisfaction at baseline, no better after the intervention.
Phillips et al. 1996	OB/Gyn pt's seen on a Psychiatry C/L service	Yes	83% of pt's found the C/L consultation quite helpful or very helpful. No breakdown of satisfaction by diagnosis.
van der Feltz-Cornelis et al. 1996	Primary care somatizers, seen by a C/L psychiatrist	Yes	Over 91% of patients were satisfied with care.
Smith et al. 1986	Primary care pt's with somatization d/o	Yes	Adding psychiatric consultation to primary care reduces costs in somatizers, without reducing satisfaction