# Somatic Symptom and Related Disorders: A Retrospective Review

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Abstract

The evaluation and treatment of pediatric patients with somatic symptoms is not standardized, which may lead to incomplete diagnosis, inadequate or delayed specialist consultation, prolonged hospitalization, and both patient and provider frustration. The purpose of this study was to better characterize patients with symptoms consistent with a somatic symptom disorder (SSD) and to understand the current evaluation and treatment process. A multidisciplinary group identified patients with somatic symptoms admitted to an academic tertiary pediatric medical center between May 2012 and October 2014. Medical providers identified these patients based on DSM IV-TR criteria through clinical evaluation. A retrospective chart review was performed; demographic information, chief complaint, medications, length of stay, consults, and discharge diagnoses were recorded. As a separate step, lean methodology was used to define the current state, resulting in the creation of a value stream map. Sixty-one patients were identified and 36 (ages 8-18 years) were included in the review. The majority of patients were female (61%) and white (78%). Chief complaints were neurologic (50%), pain (22%), gastrointestinal (17%), and cardiopulmonary symptoms (11%). The average length of stay was 5.4±6.3 days; the average number of consults was 2.3±2.0. The mean number of discharge diagnoses documented was 5.8±5.2. Thirty-three percent of patients with an SSD had documentation of receiving the diagnosis of an SSD at discharge. Our results highlight the need for a standardized approach that targets accurate diagnosis and timely specialist consultation. The value stream map may be helpful in developing standardized practice guidelines to address these issues.

*Keywords*: pediatric, somatoform, conversion disorder, pain, somatic symptom disorder

**Somatic Symptom and Related Disorders: A Retrospective Review**

Somatization and functional somatic disorders are a large and neglected problem in pediatric medicine (Noyes, Holt, & Kathol, 1995). Somatic symptom disorders (SSD) are characterized by the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) as "symptoms that are either very distressing or result in significant disruption of functioning, as well as excessive and disproportionate thoughts, feelings, and behaviors regarding those symptoms" (American Psychiatric Association, 2013, p. 311). Pediatric medical providers often encounter patients with functional somatic symptoms, functional impairment, and emotional distress. This can result in significant efforts and resources on what may be an unnecessary medical investigation, specialist consultation, or treatment (Ibeziako & Bujoreanu, 2011). Somatic symptom disorders pose major medical, economic, and social challenges; it is most frequently associated with depressive disorders, as well as anxiety disorders (Lipowski, 1988). Findings that are highly suggestive of a somatic symptom disorder include a history of several somatic complaints, medical visits, and specialty consultations. In addition to these findings is the presence of a relative who has chronic and recurrent somatic symptoms and significant impairment in multiple domains, such as family, peers, and school (Silber & Pao, 2003). Despite the fact that somatic symptom disorders are common, they are constantly under-diagnosed and under-recognized which impedes effective treatment (Murray, Toussaint, Althaus, & Löwe, 2013).

Somatic symptom disorders are associated with increased healthcare costs, high impairment, and both physician and patient frustration (Murray et al., 2013). Barsky, Oray, and Bates (2005) reported that patients with somatic symptom disorders had roughly twice the outpatient and inpatient medical care utilization and twice the annual medical care costs

compared to patients without somatic symptom disorders. If their cost extrapolations are accurate, the costs of somatization may be greater than those of frequently treated medical conditions, such as diabetes mellitus. The results of one study reported that children and adolescents with frequent, difficult to treat painful complaints and a history of seeking medical attention for unexplained symptoms sustained a high risk for increased morbidity during the developmental period (Campo, Jansen-McWilliams, Comer, & Kelleher, 1999). Despite the high prevalence rates, utilization, and cost of somatic symptom disorders in pediatric primary care settings, the diagnosis of such disorders is often delayed, indirect, or not documented at all. This is not due to somatic symptom disorders being rare; on the contrary, they are extremely common (Levenson, 2011).

For many patients and their families, the diagnosis of a somatic symptom disorder can be difficult to understand and accept. This may therefore trigger many negative responses, such as defensiveness, anger, and anxiety (Ibeziako & Bujoreanu, 2011). A primary reason that many patients and their families may respond negatively to a somatic symptom disorder diagnosis is a result of feeling disrespected and not believed. In addition, families are concerned that the diagnosis of a somatic symptom disorder will make the child feel as though he is being accused by the physician of dishonesty or craziness, in which abandonment by the physician will ultimately follow (Barnum, 2014; Silber & Pao, 2003).

Pediatric providers themselves often experience strong negative emotions, including anxiety, anger, and guilt, that make it difficult for them to care for patients with somatic symptom disorders (Noyes, Holt, Kathol, 1995). Pediatric providers may become overwhelmed by the recurrent physical symptoms and the enormous time spent in caring for patients whose symptoms are consistent with a somatic symptom disorder and may therefore appear as though

they are “not really sick” (Allen & Woolfolk, 2010; Dell & Campo, 2011; Silver & Pao 2003). In addition, primary physicians also fear that patients will be upset and insulted by a diagnosis of a somatic symptom disorder since the patients may feel as though the physician is implying “it’s all in your head” and does not truly believe that something is wrong with them. This lack of effectively communicating and explaining to patients what a somatic symptom disorder is may weaken the physician-patient relationship (Levenson, 2011). From the physicians' perspective, the strong negative countertransference can occur where the physicians may believe that the patients are not physically more ill than the average patient or satisfying high users of medical care, are more likely to present with physical symptoms as an expression of psychosocial difficulties, and have more psychosocial challenges. However, from the patients’ perspective, their health status is severe and debilitating (Lin et al., 1991).

There is a significant need for standardization of the early identification, diagnosis, evaluation, and treatment of patients experiencing symptoms consistent with a somatic symptom disorder since medically unexplained physical symptoms are frequent in pediatric medical settings and often associated with impairment and suffering (Campo, 2012). Gaining knowledge and expertise in addressing pediatric somatic symptom disorders can make a considerable difference in patients' lives and in physicians' professional satisfaction (Ibeziako & Bujoreanu, 2011). There is significant agreement that effective treatment approaches involve a multidisciplinary approach for patients and their families. This approach focuses on consolidating care and facilitating communication, helping patients and their families understand the mind-body relationship and accept the bio-psycho-social formulation and treatment, utilizing functional rehabilitation and cognitive behavioral therapy, and lastly, managing guidance for schools (Campo & Fritz, 2001; Houtveen, van Broeckhuysen-Kloth, Lintmeijer, Bühring, &

Geenen, 2015; Ibeziako & Bujoreanu, 2011). There is no standardized protocol for the diagnosis and treatment of patients with somatic symptom disorders. Often times, a psychiatric process is not even considered until after significant delays in care, repeated hospitalizations, and ineffective treatments (Allen & Woolfolk, 2010; Campo, 1999; Sumathipala et al., 2008).

In summary, pediatric somatic symptom disorders are common and the evaluation and treatment of pediatric patients with somatic symptom disorders is complicated and not standardized. In addition, few studies describe the characteristics of children and adolescents diagnosed with somatic symptom disorders who are seen in the inpatient pediatric care setting (Bujoreanu, Randall, Thomson, & Ibeziako, 2014). Instead, most of the studies regarding pediatric somatic symptom disorders have used samples from outpatient settings, such as pediatric primary care centers, tertiary care medical clinics, or educational institutions (Andresen et al., 2011; Dorn et al., 2003; Kelly, Molcho, Doyle, & Gabhainn, 2010; Shannon, Bergren, & Matthews, 2010). This lack of standardization may lead to incomplete diagnosis, inadequate or delayed sub-specialist consultation, prolonged hospitalization, and both patient and provider frustration.

The purpose of our study was to better understand the current evaluation and management process of patients with symptoms consistent with a somatic symptom disorder in the inpatient setting. As a separate step, lean methodology was used to define the current state, resulting in the creation of a value stream map, and ultimately, a streamlined clinical protocol for the evaluation and management of patients with somatic symptom disorders.

## Methods

A multidisciplinary workgroup was created and providers identified medical record numbers for patients they recalled diagnosing with a somatic symptom disorder. A retrospective

chart review was performed on stated inpatients for admissions between May 2012 and October 2014. Inclusion criteria were patients with a known diagnosis of SSD, whose medical records were available in the electronic medical record (EMR), and who were admitted to inpatient for diagnosis and/or treatment. Exclusion criteria were patients identified as having a diagnosis of SSD but were seen in an outpatient setting, discharged from the emergency department (ED), or had relevant data that was missing from their charts. If multiple admissions occurred for any given patient, the most recent admission was selected for review.

After identifying patients who met inclusion criteria, the study group selected specific categories to be analyzed based upon relevant literature. The charts were then reviewed and the corresponding data was collected in a Microsoft Excel file (Table 1).

Lastly, as a separate step, lean methodology was used to define the current state, resulting in the creation of a value stream map.

## Results

Sixty-one patients were initially identified; 36 patients were included in the final analysis. Of the patients excluded, fifteen were discharged from the ED, four had medical records that could not be located, three were discharged from outpatient clinic, and two had no documentation of somatic symptoms in the medical record, and therefore, could not be analyzed. The 36 patients included in the final analysis were 8-17 years old, with a mean age of 13.5 (*SD*=2.6). Twenty-two of the 36 patients (61%) were female, 28/36 (78%) were white, and 35/36 (97%) were non-Hispanic.

The patient charts were analyzed and the chief complaint for each patient was documented. Chief complaints were classified into one of the five SSD categories defined in the DSM IV-TR: neurologic, pain, gastrointestinal, cardiopulmonary, and reproductive organ system

(American Psychiatric Association, 2000). Eighteen of the 36 chief complaints (50%) were neurologic, 8/36 (22%) were pain, 6/36 (17%) were gastrointestinal, and 4/36 (11%) were cardiopulmonary. None of the patients in this analysis were presented with a chief complaint in the reproductive organ system (Figure 1).

Patients included in this analysis were admitted to the following services: General Pediatrics 15/36 (42%), Pediatric Neurology 14/36 (39%), Pediatric Gastroenterology 2/36 (6%), Pediatric Surgery 1/36 (3%), Physical Medicine & Rehabilitation 1/36% (3%), Pediatric Neurosurgery 1/36 (3%), Pediatric Intensive Care Unit 1/36 (3%), and Pediatric Rheumatology 1/36 (3%). No patients were admitted to Pediatric Psychiatry or Pediatric Pulmonology.

Twenty-two of the 36 patients (61%) included in this analysis were admitted from the ED. Eight (22%) were scheduled admits from a University of Michigan outpatient provider, four (11%) from Post-anesthesia Care Unit, and one (3%) direct admit from a University of Michigan subspecialty clinic.

The inpatient length of stay for patients admitted with somatic symptoms ranged from 1-33 days, with a mean stay of 5.4 (*SD*=6.3) days. When analyzing all the patients in the cohort, the mean number of imaging studies obtained per patient was 1.2 (SD=1.4). Fifteen of the 36 patients (42%) had no imaging studies recorded; 43 imaging studies were obtained on 21 patients. The number of imaging studies obtained in each category were as follows: X-ray 12/21 (57%), Electrocardiogram (EKG) 11/21 (52%), Magnetic Resonance Imaging (MRI) 9/21 (43%), Computed Tomography (CT) 5/21 (24%), Ultrasound 5/21 (24%), and Echocardiogram 1/21 (5%).

The mean number of procedures performed per patient was 0.8 (*SD*=1.2). A total of 30 procedures were obtained on 20/36 patients (56%); no procedures were performed on 16/36

(44%) patients. The numbers of procedures in each category were as follows: Long Term Monitoring Electroencephalography (LTM-EEG) 12/20 (60%), Colonoscopy 3/20 (15%), Esophagogastroduodenoscopy (EGD) 3/20 (15%), Upper Gastrointestinal Endoscopy with Small Bowel Follow Through (UGI with SBFT) 3/20 (15%), Pulmonary Function Tests (PFT) 3/20 (15%), Electroencephalogram (EEG) 2/20 (10%), Lumbar Puncture 2/20 (10%), Diagnostic Laparoscopy 1/20 (5%), and Bronchoscopy 1/20 (5%).

Of the 36 patients, a total of 31 (86%) patients received a consult from at least one of 17 subspecialty services. The mean number of consults per patient was 2.3 (*SD*=2.0); five patients (14%) did not receive a subspecialty consult. The number of consults in each category were as follows: Psychology 22/31 (71%), Psychiatry 14/31 (45%), Neurology 10/31 (32%), Social Work 6/31 (19%), Physical Therapy 6/31 (19%), Occupational Therapy 5/31 (16%), Pain Service 3/31 (10%), ENT 3/31 (10%), GI 3/31 (10%), Physical Medicine & Rehabilitation 2/31 (6%), Neurosurgery 2/31 (6%), Ophthalmology 2/31 (6%), Pulmonology 1/31 (3%), Orthopedic Surgery 1/31 (3%), Surgery 1/31 (3%), Adolescent Medicine 1/31 (3%), Rheumatology 1/31 (3%).

Of the 31 charts analyzed with patients who received consults, 23% (7/31) received a consult in the ED or on the first day of hospitalization. Seventy-seven percent (24/31) of patients received a psychiatry and/or psychology consult, with only one (3%) of these consults occurring in the ED or first day of hospitalization.

Patients had a mean number of 5.8 (*SD*=5.2) discharge diagnoses, with 12/36 (33%) having a discharge diagnosis that included a Conversion Disorder, Somatoform Disorder, or Pain Disorder. At the time of hospital discharge, patients in this analysis were prescribed an average of

2.11 (*SD*=2.6) new medications; the total number of discharge medications prescribed was 6.3 (*SD*=4.4).

The mean number of psychiatric comorbidities was 0.9 (*SD*=1.2). Thirty-four psychiatric comorbidities were recorded for 17 patients (47%), and no psychiatric comorbidities were recorded for 19/36 (53%) patients. The numbers of psychiatric comorbidities recorded in each category were as follows: Depression 10/17 (59%), Anxiety 9/17 (53%), Attention Deficit Hyperactivity Disorder (ADHD) 6/17 (35%), Autism Spectrum Disorder (ASD) 3/17 (18%), Post-Traumatic Stress Disorder (PTSD) 2/17 (12%), Oppositional Defiant Disorder (ODD) 1/17 (6%), Bipolar 1/17 (6%), Panic Disorder 1/17 (6%), Personality Disorder 1/17 (6%).

Thirty-two of the 36 (89%) patients in this analysis had follow-up appointments recommended in their discharge summary documentation. The mean number of follow-up appointments recommended per patient was 2.2 (*SD*=1.7). In the analysis, appointments were recommended with 20 different subspecialists, the most common being Primary Care Physician 17/32 (53%). Of the patients who have documentations of recommended follow-up, the subspecialists listed were as follows: Psychology/Therapist 15/32 (47%), Psychiatry 9/32 (28%), Neurology 8/32 (25%), Gastrointestinal 6/32 (19%), Neurosurgery 4/32 (13%), Physical Therapy 4/32 (13%), Allergy and Immunology 3/32 (9%), Physical Medicine & Rehabilitation 2/32 (6%), Occupational Therapy 2/32 (6%), Pain Clinic 1/32 (3%), Hematology/Oncology 1/32 (3%), Sleep 1/32 (3%), Surgery 1/32 (3%), Genetics 1/32 (3%), Endocrinology 1/32 (3%), Neuromuscular Clinic 1/32 (3%), Pulmonology 1/32 (3%), Rheumatology 1/32 (3%), Ophthalmology 1/32 (3%). No follow-up appointments were scheduled for 4/36 (11%) patients. Lastly, 35/36 (97%) patients were discharged to home; one patient (3%) was discharged to inpatient psychiatry.

In addition to the data collected from the retrospective chart review, LEAN analysis of the evaluation and treatment for patients admitted with symptoms consistent with a somatic symptom disorder revealed key problem areas (Figure 2). The four major problems were as follows: admitted to several different services, timing and consistency of core consults, patient and family expectation, discharge planning and follow up. Countermeasures were created for the identified key problem areas, which informed the creation of a pilot process to address and improve these issues.

## Discussion

There is no widely accepted standardization for the evaluation and management of patients admitted to the inpatient setting with symptoms consistent with a somatic symptom disorder. Campo and Fritz (2001) created a management model for pediatric somatic symptom disorders based off of core principles from available adult and pediatric literature. Some of the widely accepted principles included: acknowledging the patient's concerns, reviewing previous assessments and treatments, examining patient and family fears elicited by the somatic symptoms, accepting the possibility of unrecognized physical disease, and avoiding tests and procedures that are unnecessary. At the conclusion of their comprehensive review of the literature, the authors agreed that well-designed studies of intervention are needed in order for clinicians to provide the best care for patients with somatic symptom disorders.

The purpose of this study was to better characterize patients with symptoms consistent with a somatic symptom disorder and to understand the current evaluation and treatment process. The data collected in this study provides a wealth of information regarding the evaluation and treatment of patients with somatic symptoms in the inpatient setting. The following three data

points will be discussed: wide variation in treatment, delay to psychiatric and psychological consultation, and lack of diagnosis.

This study demonstrated the variability in the evaluation and treatment of patients admitted with symptoms consistent with a somatic symptom disorder. There was a large standard deviation in admitting service, length of stay, number of imaging studies obtained, number of procedures performed, number of consultations, number of discharge diagnoses, and number of discharge medications. Bujoreanu et al. (2014) published a clarifying manuscript on the characteristics of medically hospitalized pediatric patients with somatic symptom disorders. They concluded that a standardized approach for the assessment, treatment, and management of hospitalized pediatric patients with somatic symptoms could improve clinical practice in patient outcomes. As with all clinical management models, a standardized approach would expect to decrease the variation in treatment.

Secondly, delay to consultation of subspecialty providers, particularly psychology and psychiatry, may further delay discharge and impact transition to outpatient care. Bujoreanu, White, Gerber, and Ibeziako (2015) concluded in their retrospective review that the referral time to psychiatry consultation liaison services (PCLS) was 10% quicker regardless of physical illness severity. This quicker referral time was also associated with a hospital stay that was 7.9% shorter and a 7.9% reduction in total hospital charges. After reviewing 279 pediatric patient charts, they concluded that educating pediatric medical providers about the significance of early psychiatry consultations regardless of physical illness severity or acuity of psychiatric need would most likely result in lower hospital charges, earlier discharge, and enhance resource management for both patients and hospitals (Bujoreanu et al., 2015). Grover and Kate (2013) also reported the importance of psychiatry in the treatment of these patients, as it is increasingly recognized that

such pediatric patients have larger degrees of psychiatric comorbidities, especially anxiety and depressive disorders. In addition, pediatric patients have disproportionately increased rates of medical care utilization, which includes hospitalizations, outpatient visits, and total healthcare costs (Grover & Kate, 2013). Further supporting this finding, Govender, Oosthuizen and Cloete (2011) reported that 96% of pediatric patients documented with medically unexplained symptoms had psychiatric comorbidities, most frequently anxiety, depression, and adjustment disorders. Identifying psychiatric comorbidities in this patient population is important, as Gupta, Singh, Upadhyay, and Bhatia (2011) explained that early referral to mental health professionals is needed in order to avoid unnecessary investigations and delay in diagnosis of children with somatic symptom disorders. In alignment with the current literature, nearly half of the patients reviewed in our final analysis had psychiatric comorbidities, which supports the benefit of psychiatric consultations for patients admitted with symptoms consistent with a somatic symptom disorder.

Lastly, in our patient population, two-thirds of the patients diagnosed with a somatic symptom disorder did not receive that diagnosis at discharge. This may have significant implications on management within the hospital, disposition planning, treatment success, and transitioning of care to the outpatient setting. Levenson (2011) published an important essay discussing a number of reasons why this may occur. Some of the reasons included confusing diagnostic criteria, lacking comfort in making the diagnosis, and the fact that somatic symptom disorders are understudied. Many nonpsychiatric physicians and psychiatrists are uncomfortable diagnosing patients with somatic symptom disorders since they do not completely know how to diagnose them. Moreover, even if the patients are diagnosed, the medical providers are uncertain how to treat them (Barnum, 2014). In another report, Dohrenwend and Skillings (2009)

encouraged medical care providers to move beyond catch phrases like ‘‘the somatic patient’’ and ‘‘vague complaints of pain.” They suggested that medical care providers should instead use a more accurate differential diagnosis between somatic symptom disorders since it is extremely necessary and important when attempting to provide optimal patient care. Finally, one of the most prevalent issues in psychosomatic medicine is to be more efficient at explaining somatic symptom diagnoses to patients, patients' families, and other pediatric providers (Dimsdale, Sharma, & Sharpe, 2011). Whether or a not a patient's suffering is medically explained, it is still authentic (Kleinman, 1993).

Like any study, this project had limitations. Sixty-one charts were initially selected for review; however, only 36 met the study criteria as explained above in the results. In addition, members of the multidisciplinary team identified all of the patients selected for chart review, possibly introducing some selection bias. For patients with SSD diagnoses and multiple admissions, data was collected from the most recent hospitalization. Although this provides standardization in our data collection process, we may have under-reported the number of consultants, medications, imaging, and procedures obtained. Lastly, this retrospective chart review was completed at a tertiary academic medical center, making it difficult to generalize the results to all medical institutions. However, the data we obtained is consistent with the data published regarding the demographics of this patient population (Bujoreanu et al., 2014).

## Conclusion

The evaluation and treatment of patients with somatic symptoms admitted to the inpatient setting is not a standardized or well-studied process. Within the patients reviewed for this study, very few who were identified as having a somatic symptom disorder received that diagnosis at discharge, which may have implications for treatment success and transition to appropriate

outpatient care. Delay to consultation of subspecialists, particularly psychology and psychiatry, may further delay discharge and impact transition to outpatient care. Our results highlight the need for a standardized approach that targets accurate diagnosis and timely specialist consultation. The value stream map may be helpful in developing standardized practice guidelines to address these issues.

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Table 1

*Somatic Symptom Disorder Retrospective Review Categories*

| Retrospective Review Categories |
|---|
| Age |
| Race |
| Ethnicity |
| Chief Complaint |
| Admit Service |
| Admit From |
| Length of Stay |
| Imaging/Study |
| Procedures |
| Service Consulted/Day Consulted |
| Total Number of Diagnoses |
| Discharge Diagnosis included Conversion, Somatoform, or Pain Disorder |
| Psychiatric Comorbidities |
| Appointment(s) Recommended |
| Number of New Medications Prescribed at Discharge |
| Total Number of Medications at Discharge |
| Disposition |

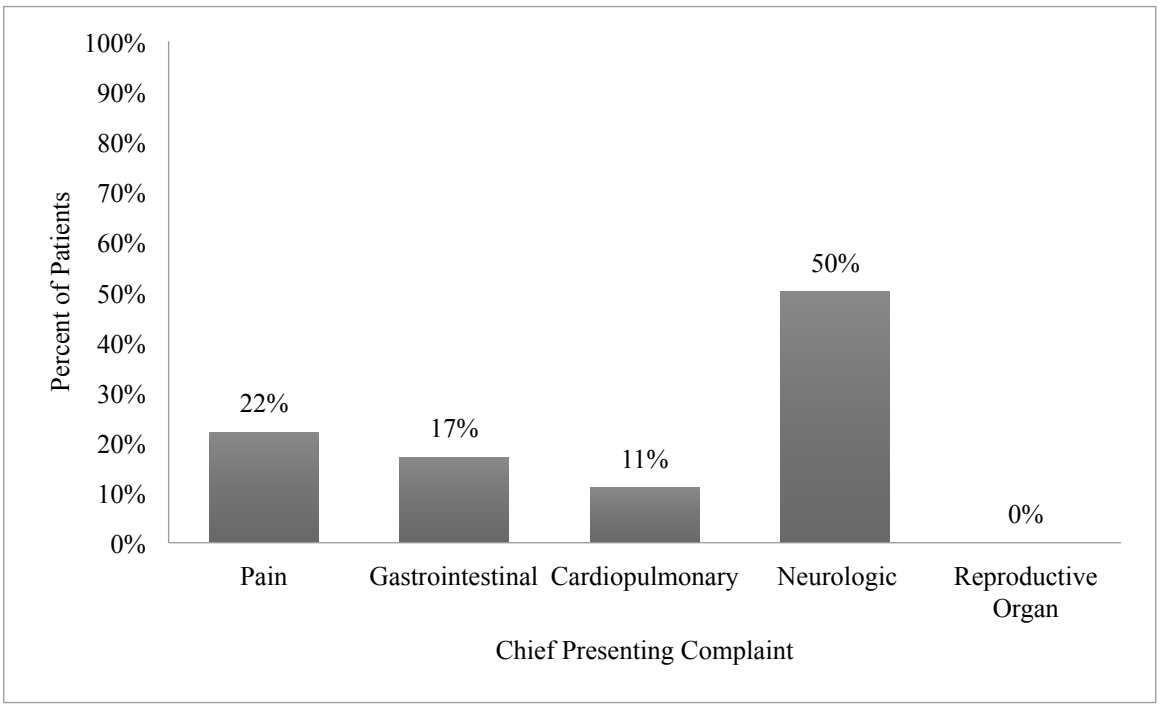


*Figure 1.* Chief Complaint of SSD Patients (*n*=36). This figure illustrates the five recognized categories of chief complaints (DSM-IV-TR) for patients ultimately diagnosed with a somatic symptom disorder, and the percentage of patients who present with those chief complaints, in descending order.

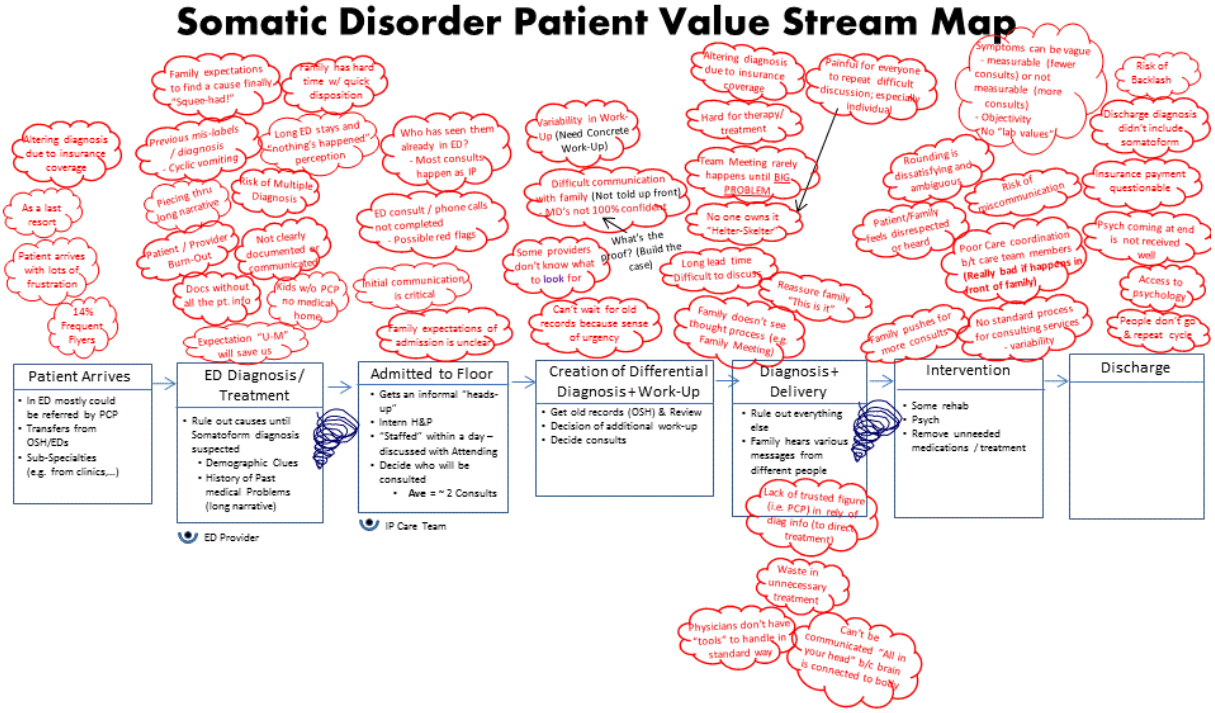


*Figure 2.* Value Stream Map. This figure represents the detailed analysis of the pre-pilot process for the evaluation and treatment of patients identified and admitted with somatic symptom disorders.