

Characteristics of Medically Hospitalized Pediatric Patients With Somatoform Diagnoses

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KEY WORDS

pediatric, somatoform disorders, inpatient

ABBREVIATIONS

DSM-IV-TR: *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision*
PCS: Psychiatry Consultation Service

Drs Bujoreanu, Randall, and Ibeziako made substantial contributions to the conception and design of this study. Drs Bujoreanu, Randall, and Thomson made substantial contributions to the acquisition of data. Drs Bujoreanu and Randall made substantial contributions to the analysis and interpretation of data. All authors participated in drafting the article and revising it critically for important intellectual content, and gave final approval of the version to be submitted and any revised version.

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abstract

OBJECTIVES: To describe demographic, diagnostic, and psychosocial characteristics of medically admitted patients diagnosed with somatoform disorders.

METHODS: Retrospective chart reviews were performed for pediatric patients (ages 3–18 years) seen by the Psychiatry Consultation Service in 2010 and 2011 on inpatient medical/surgical units and diagnosed with somatoform disorders. Data included demographic information; patient medical history, physical symptom characteristics, and service utilization; psychiatric diagnoses, history, and comorbidities, patient temperament, and coping style; family characteristics; and academic and social characteristics.

RESULTS: Mean age for the 161 identified patients was 14.4 years. The majority of patients were female (75%) and white (73%). Chief physical symptoms were pain (58%) and neurologic symptoms (40%); 73% of patients had medical diagnoses, and 66% had a history of prior psychiatric treatment. The most common somatoform diagnoses, using the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision*, were pain (50%) and conversion disorders (28%). Psychiatric comorbidities were predominantly mood and anxiety disorders (42% and 29%, respectively). Mean hospitalization length was 4.9 days, with 14% of patients readmitted with psychiatric reinvolvement during the study period. Patients had sensitive temperaments (80%) and internalizing coping styles (76%) and were described as “good children” (72%). School absences (55%), academic pressures (51%), and learning difficulties (36%) were reported.

CONCLUSIONS: Clarifying the prevalence and nature of such characteristics can help pediatric providers improve patient care and minimize unnecessary medical interventions with early detection of risk for somatoform processes, provision of psychoeducation for patients and families, and early referral to mental health clinicians.

More than one-third of patients in outpatient pediatric care report medically unexplained physical symptoms associated with functional and emotional impairments.^{1–3} Patients with such symptoms place a significant burden on the health care delivery system; typically, it is only after repeated hospitalizations, consultations, investigations, and treatments, which are often ineffective and iatrogenic, that a psychiatric process is considered.^{3–5} Primary care is the first contact and most accessible resource for these families,^{6–8} and pediatricians are essential in coordinating initial assessment and management and follow-up care once patients diagnosed with somatoform disorders are discharged from inpatient

medical settings.^{5,9} Pediatric providers may become overwhelmed by the recurrent physical complaints and the amount of time invested in caring for such patients, who may be perceived as “not really sick.”^{5,10,11}

The process of identifying, diagnosing, and treating pediatric somatoform disorders is complex and spans the medical and mental health fields.⁶ Modern medicine involves ruling out procedures to determine whether a particular disease process explains a patient’s symptoms.^{6,9} Because somatoform disorders can result from both organic and psychogenic processes, a “ruling in” process should guide psychiatric diagnosis, whereby positive indicators of predisposing and precipitating characteristics for psychosomatic illness should be considered along with criteria for somatoform (and differential) disorders.^{6,11} Thus, it is necessary for medical professionals to be alerted to the demographic, diagnostic, and psychosocial characteristics of these patients.⁸ A biopsychosocial approach to the assessment allows a comprehensive understanding of pediatric patients’ symptoms and ability to adapt and cope in the context of their life and illness.¹² This multidimensional perspective and a multidisciplinary approach, in turn, help medical and mental health providers identify specific areas for interventions and highlight areas of resilience.¹³

Current understandings of the psychological etiologies of somatoform disorders highlight patients’ tendency to express emotional distress through physical symptoms¹⁴ due to internalizing coping styles, avoidance of negative affect,¹⁵ temperamental traits of anxiety and pessimistic worry, and lower tolerance for stress (both

positive and negative).¹⁴ Such individuals also have a predisposition for experiencing >1 type of somatic symptoms, tend to be hypervigilant toward their body signals, and are overall preoccupied with their health.^{14,16,17} Recent reviews of the literature outlined several characteristics that predispose and precipitate psychosomatic illness and somatoform disorders in pediatric patients, including physical illness, developmental transitions, school stressors, high-achieving families, dysfunctional family patterns, internalizing coping mechanisms, psychiatric comorbidities, and a history of trauma.^{6,12,15} Data depict a consistent profile of pediatric patients with somatoform disorders across samples from outpatient tertiary care medical clinics,¹⁸ pediatric primary care centers,² and schools.^{1,19} In contrast, our study focused on the prevalence and nature of characteristics associated with a variety of somatoform disorders in a pediatric sample admitted to an acute medical setting for functional impairments associated with physical complaints. Therefore, this chart review sought to determine how prevalent those characteristics were in this sample and to clarify whether there are unique factors present in this population above and beyond those seen in the less acute outpatient community samples. The final objective is to help guide early detection of risk for somatoform processes so that pediatric hospital providers can improve patient care and minimize unnecessary medical interventions.

METHODS

Retrospective data were obtained from electronic medical records of children and adolescents medically admitted to a tertiary pediatric hospital in New

England and referred to the Psychiatry Consultation Service (PCS) by various admitting medical teams because of somatic concerns. The PCS is available to all inpatient medical and surgical services in the hospital and receives >1000 referrals per year for children, adolescents, and young adults. Consultation requests are received from >20 different programs, with the general pediatrics (hospitalist) service being the highest source of referrals. This study was approved by the hospital’s institutional review board. Deidentified information collected from clinical notes entered between January 1, 2010 and December 31, 2011 included demographics (age, race, ethnicity, gender) and service utilization (admitting service, length of stay, psychiatric disposition recommendations, and number of readmissions with PCS involvement); patient medical characteristics (history, current illness, and physical symptoms); patient psychiatric characteristics (history, diagnoses, comorbidities, treatment, and functional impairment), temperament, and coping styles; family characteristics; and patient academic and social characteristics.

The study included 161 individual pediatric patients 3 to 18 years of age and diagnosed by the PCS with a somatoform disorder during the medical admission. Given the time frame of the study (2010–2011), diagnoses were made according to the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision* (DSM-IV-TR).²⁰ For repeat admissions with PCS reinvolvement during the 2-year period, only information from the final admission was included to avoid data replication. Data analysis was performed with SPSS version 21 (IBM

SPSS Statistics, IBM Corporation) (univariate analyses) and SAS version 9.3 (SAS Institute, Inc, Cary, NC) (logistical regression).

RESULTS

Table 1 provides a summary of sample characteristics. During the 2-year period, the 161 individual pediatric patients diagnosed with somatoform disorders represented 13% of the total 1214 individual pediatric patients seen by the PCS.

Demographics

Mean age for the sample was 14.4 years and female patients outnumbered male (3:1). Patients were mostly white (73%). The median household income for the patients' communities, as determined by 2010–2011 US Census data,²¹ was \$79 797. The majority of patients (84%) had a median annual household income greater than the national average (~\$50 000).²²

Physical and Medical Characteristics

General pediatrics (hospitalist) was the most frequent referring service (37%), followed by neurology (28%). The average length of hospitalization was 4.9 days, and 14% of the patients had ≥1 medical admissions with PCS reinvolvement for somatic symptoms during the study period (Table 1). At the time of admission, 53% of patients endorsed ≥2 presenting physical symptoms. Patients reported primarily pain complaints (58%) such as musculoskeletal pain, abdominal pain, and headaches; neurologic symptoms (40%) such as pseudo-seizures, gait or movement disturbance, dizziness, and sensory abnormalities; and gastrointestinal complaints (23%) such as vomiting and nausea.

Logistical regression indicated that adolescents (≥13 years) were less

TABLE 1 Demographic and Hospitalization Characteristics (N = 161)

Characteristics	Value
Age in years, mean (median) (SD = 2.6; range = 3–18 y)	14.4 (14.7)
Adolescents (13–18 y), n (%)	117 (73)
Gender, n (%)	
Female	120 (75)
Male	41 (25)
Race or ethnicity, n (%)	
White, not Hispanic or Latino	117 (73)
Black	20 (12)
Hispanic or Latino	15 (9)
Asian	1 (1)
Other	8 (5)
Length of stay in days, mean (median) (SD = 4.9 d; range = 1–30 d)	4.9 (3)
Up to 1 wk admission, n (%)	134 (83)
Median annual household income ^a	\$79 797
Minimum median income	\$19 321
Maximum median income	\$204 435
Number of readmissions with PCS reinvolvement, n (%)	32 (17)
Number of individual patients with readmissions	22 (14)
Admitting service, n (%)	
General pediatrics (hospitalist)	60 (37)
Neurology	45 (28)
Gastroenterology	21 (13)
Pain	15 (9)
Orthopedics	7 (4)
Adolescent medicine	5 (3)
Other service	8 (5)

^a Values compiled via census tract²¹ data based on patient address and recorded for the year patient was evaluated by PCS.

likely to report abdominal pain as the primary physical symptom as compared with preadolescents (odds ratio = 0.39, *P* = .041; 95% confidence interval, 0.16–0.96). No additional age effects with regard to physical symptom presentations were detected.

The majority of patients (73%) had ≥1 current or past medical diagnosis, with 25% of patients carrying a medical diagnosis predominantly functional in nature (eg, cyclic vomiting, chronic pain, migraine, complex regional pain syndrome, fibromyalgia). Forty-eight percent of patients had comorbid medical conditions (eg, Crohn's disease, asthma, diabetes), and 83% of these patients had features overlapping with the presenting physical symptom (eg, amplified abdominal pain along with a

preexisting diagnosis of ovarian cyst, nonepileptic seizures in the context of a comorbid seizure disorder). Thirty percent of patients had acute physical illness that immediately preceded the onset of their symptoms, with 18% reporting an injury (eg, sport accident, fall) and 12% an infection or virus (eg, flu). All patients received medical assessments during their admission, and referrals were made to the PCS by the admitting service because of concerns about psychological factors contributing to the physical presentation.

Psychiatric Characteristics, Temperament, and Coping Style

The most common somatoform diagnoses at discharge were pain (50%) and conversion disorders (28%) according to the DSM-IV-TR.²⁰ In addition

to the somatoform disorder diagnosis, comorbid nonsomatoform psychiatric conditions were diagnosed by PCS clinicians in 60% of the patients, with anxiety and mood disorders (42% and 29%, respectively) being most prevalent. Seventy percent of patients endorsed a psychiatric history, including previous psychiatric or psychological treatment (66%) or preexisting psychiatric diagnoses (55%) (Table 2). Thirty-one percent reported current pharmacological interventions (ie, psychotropic medications).

A history of trauma was reported by 30% of the sample, with many patients

reporting >1 type of trauma. Trauma histories included interpersonal trauma (17%; eg, exposure to domestic violence, significant attachment disruptions such as traumatic or multiple temporary home placements), sexual and physical abuse (7% and 10%, respectively), medical trauma (2%), and other traumas (9%; eg, witnessing a traumatic accident, being in a traumatic accident, significant community violence). However, only 11% of the patients in the sample met criteria for current posttraumatic stress disorder according to the DSM-IV-TR.²⁰

The PCS assessment included review of the patient’s temperament and

copied style from a history obtained from multiple sources including parents, primary care or other providers, and in some cases school personnel. Most patients were described as temperamentally anxious or sensitive (80%), and 72% were also described as “good,” based on Kozłowska’s¹⁵ conceptualization (ie, perfectionistic, compliant, or high-achieving children who are well behaved and do not give any trouble). Internalizing (76%) and avoidant (41%) coping styles were common. All patients received psychiatric treatment recommendations at discharge, most commonly for outpatient individual psychotherapy; however, 15% needed treatment in a psychiatric partial or day program and 11% in inpatient medical-psychiatric units (Table 2).

TABLE 2 Patient Psychiatric Characteristics (N = 161)

Psychiatric Characteristics	n (%)
Current DSM-IV-TR psychiatric somatoform diagnoses	
Pain disorder	80 (50)
Conversion disorder	45 (28)
Somatoform disorder not otherwise specified	24 (15)
Undifferentiated somatoform disorder	8 (5)
Somatization disorder	4 (2)
Current psychiatric comorbidity ^a	96 (60)
Anxiety disorders	67 (42)
Mood disorders	45 (29)
Disruptive disorders	14 (9)
Learning disorders	13 (8)
Pervasive and other developmental disorders	9 (6)
Eating disorders	9 (6)
Adjustment disorders	4 (2)
Other	8 (5)
Past DSM-IV-TR psychiatric diagnoses ^b	
Anxiety disorders	63 (39)
Mood disorders	34 (21)
Disruptive disorders	16 (10)
Pain disorder	14 (9)
Conversion disorder	11 (7)
Somatoform disorder not otherwise specified	6 (4)
Pervasive and other developmental disorders	6 (4)
Eating disorders	5 (3)
Adjustment disorders	3 (2)
Other	15 (10)
Type of current treatment recommendations ^c	
Outpatient individual therapy	131 (82)
Outpatient psychopharmacology	29 (18)
Partial hospitalization program	24 (15)
Inpatient psychiatric hospitalization or residential placement	18 (11)
Outpatient family therapy	15 (9)

^a Psychiatric comorbidities were diagnosed by PCS. Total percentage exceeds 100% because several patients had >1 comorbid diagnosis.

^b Past psychiatric diagnoses were confirmed by PCS after being reported by patient or parent during admission. Total percentage exceeds 100% because several patients had >1 past diagnosis.

^c Total percentage exceeds 100% because several patients received >1 psychiatric referral.

Family Characteristics

Family history of mental illness was common in biological parents (50%) and extended family members (58%). Biological parents most often endorsed mood and anxiety disorders (32% and 25%, respectively) and substance abuse (16%). Medical illness was present among family members living with the patient (30% of parents and 31% of other adults or siblings living in the home). Additional family characteristics were reported, such as parental or guardian divorce or separation (48%), conflict between patient and family members (42%), loss of loved one or pet (41%), high-conflict household (37%), moving homes (33%), financial stress (30%), and changes in family structure (eg, parental employment status, 24%, and new stepparent, 15%).

Academic and Social Characteristics

Many patients and families reported the presence of factors associated

with the school context (50% of patients were enrolled in public schools). The most common characteristics included high academic demands imposed by self or family and school (51% and 45%, respectively), recent school transitions (45%), and learning difficulties with formal academic and environmental accommodations (36%). Academic functional impairments caused by physical symptoms were reported, such as school absences (55%), with 35% of patients having missed ≥2 weeks of school, and dropping grades (24%) or additional informal accommodations (15%; eg, being excused from homework or tests in certain classes). Patients frequently endorsed engagement in extracurricular activities such as membership in a club or team (45%) and involvement in performances or competitions (33%). Some patients also endorsed being bullied (22%) or experiencing conflict with peers (8%).

DISCUSSION

Although medically unexplained physical symptoms are common among youth⁶ and are associated with the overuse of health care services,^{2,5} there is a need for additional research on pediatric somatoform disorders with regard to diagnostic criteria and psychosocial characteristics of these children and adolescents.²³ Few studies exist that describe the characteristics of youth diagnosed with somatoform disorders seen in the acute setting of inpatient medical hospitals. Instead, the majority of studies of pediatric somatization or functional somatic symptoms have used samples from outpatient settings, such as tertiary care medical clinics,¹⁸ pediatric primary care centers,² or schools.^{1,19}

Therefore, this chart review is the first of its kind to describe common characteristics seen in an understudied population of pediatric patients whose somatic complaints and functional disability were severe enough to warrant a medical inpatient admission, necessitate consultation with a psychiatric consultation service, and result in a somatoform disorder diagnosis. The cross-sectional design of this study precludes determination of causality; however, results highlighted a constellation of characteristics that, when combined, may result in a perfect storm and contribute to the development or maintenance of pediatric somatoform disorders (Table 3).

The selection of characteristics investigated in the chart review was guided by existing literature, and many of

TABLE 3 The Perfect Storm: Predominant Characteristics in the Sample of Pediatric Somatoform Disorders

Primary Characteristics (≥50% of Sample)
Demographic
13–18 y (mean age = 14.4)
Female
White
Middle- to upper-middle-class community
Physical and medical
Pain symptoms
≥1 comorbid medical diagnoses
≥2 symptoms, often overlapping with medical diagnosis
Psychiatric, temperamental, coping
Pain disorder
Comorbid nonsomatoform psychiatric diagnoses
Preexisting psychiatric diagnoses
Previous psychiatric or psychological care
Referred to outpatient psychotherapy
Anxious or sensitive temperament
Internalizing or avoidant coping
“Good” child
Family
Family history of mental illness
Family conflict
Academic and social
High academic demands (self, parents, school imposed)
School absences

the findings corroborated results from previous outpatient studies on pediatric somatization and functional somatic symptoms. Thirteen percent of youth seen by the PCS during the 2-year period were diagnosed with a somatoform disorder, which is consistent with rates reported in outpatient community samples.⁶

Also supported by previous literature, the patient most commonly diagnosed with a somatoform disorder was an adolescent girl²⁴ presenting with multiple physical complaints,⁷ primarily pain and neurologic symptoms,⁶ and who was described as a “good” child¹⁵ with an internalizing coping style and a comorbid anxiety or mood disorder (Table 3).^{6,12,24,25} Kozłowska¹⁵ describes the process by which good, compliant, perfectionistic children obtain relief from pressures to succeed by assuming the sick role. By maintaining the sick role, such children are released from their exemplary functioning without the expression of open rebellion and can also avoid experiencing anxiety about facing failure.

Younger children in our sample tended to complain of abdominal symptoms more frequently than adolescents, again supporting findings from previous studies.^{7,26} It is important to note that the presence of a physical illness does not exclude the possibility of somatization playing an important role in the child’s presentation.²⁷ The current study highlights that medical conditions and psychosomatic symptoms or diagnoses are not mutually exclusive: approximately two-thirds of patients were identified as having a medical condition, and the majority of these youth reported unexplained symptoms that overlapped with their medical diagnosis (Table 3).

Findings from the current study also add to the existing literature. Previous research points to somatization processes as most common among low-income, disadvantaged adults and youth.^{28,29} In contrast the average median household income of our sample was \$80 000, which is ~\$30 000 greater than the national average.²² In fact, 24% of the patients lived in communities where the median household income was >\$100 000. This finding is notable in the context of recent research highlighting youth from high socioeconomic status communities as an at-risk group.³⁰ Furthermore, although previous research has identified trauma as strongly correlated with or a cause of somatization processes,³¹ less than one-third of the youth in the current study reported traumatic experiences, and only 1 in 10 received a posttraumatic stress disorder diagnosis. A recent study using the same sample demonstrated that, although rates of trauma in a sample of medically admitted pediatric and young adult patients with somatoform diagnoses matched national norms,³² patients with trauma histories had unique psychiatric and psychosocial profiles compared with those without trauma histories.³³ Our sample is also unique with regard to patients' psychiatric profile predating the medical admission for somatic symptoms, with high numbers of preexisting psychiatric diagnoses, history of psychiatric treatment, and ongoing psychotropic medication treatment.

This study highlights the pitfalls of looking for a single psychological factor to explain the emergence and maintenance of medically unexplained symptoms. Instead, our findings demonstrate that multiple contributing

aspects are common, and medical providers should consider a combination of several salient psychosocial and medical characteristics.⁹ For example, family and academic contexts were highlighted in our investigation as associated with pediatric somatoform disorders.^{23,34} Approximately 50% of patients had parents or siblings with mental or medical illnesses and reported family losses and conflict. A large proportion of the sample also endorsed self- and parent-imposed pressures or expectations for success and high academic demands. Significant impairment in school functioning was demonstrated by school absences in half of the patients and dropping grades for a quarter of the sample. These characteristics, coupled with the fact that the great majority of the sample was described as having an anxious temperament³⁵ and tendency to internalize feelings and use avoidant and passive coping styles, may point to an underlying mechanism by which pediatric somatoform disorders emerge and are maintained.

Although the majority of the sample was referred to outpatient therapy, 26% of the sample needed a higher level of psychiatric care, including partial or day treatment programming or inpatient hospitalizations on specialized medical-psychiatric units. Although it was beyond the scope of our study to assess for follow-up outcomes, the current study demonstrated that despite the psychiatric treatment recommendations given at discharge, in 14% of the cases PCS was reconsulted during subsequent medical admissions within the 2-year study period. Future studies should assess post-discharge patient outcomes including how many patients adhere to mental

health treatment recommendations and how many patients benefit from psychiatric treatment, given the rate of readmissions seen in our sample for persistent somatic complaints.

Our findings suggest that pediatric patients with somatoform disorders are diagnostically and psychosocially complex, posing significant challenges for medical and behavioral health care providers to manage in isolation. A multidisciplinary approach in which both the medical and psychological needs of these youth are conceptualized and treated is most appropriate.^{9,13} Thus, alerting medical providers in pediatric hospitals and primary care to the characteristics seen among these youth (Table 3) may help prevent or reduce medical service utilization and emotional and functional costs of pediatric somatoform disorders. Additional studies are needed to assess potential paths for these patients from initial presentation in primary care offices to specialty clinics, medical hospitalizations, and, potentially, medical-psychiatric treatment units. The movement toward integrated care in which behavioral health services are colocated in primary care offices, for example, may create the context for a comprehensive collaborative multidisciplinary approach³⁶ and for evidence-based models for managing pediatric somatoform disorders.

This study has several limitations. Given the nature of retrospective chart review, data were not collected prospectively or in a standardized fashion with validated measures. Second, this study lacks a comparison sample and includes only youth referred to a tertiary urban medical hospital in New England, thus potentially limiting the generalizability of findings. An additional limitation

is the small sample size; although it allowed a more comprehensive and thorough investigation of the patients included in the study, it might have been a limitation in detecting potential associations between the variables of interest. Although the use of DSM-IV-TR diagnostic criteria for somatoform disorders in this study allowed comparison with the current literature, the recent publication of the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition*³⁷ has prompted notable changes in diagnostic terminology and categorization of the diagnoses within the Somatic Symptom and Related Disorders,³⁸ rendering a potential limitation of this study. Furthermore, the sample represents only patients referred to the PCS for psychiatric assessment; it is possible that there were other medically hospitalized pediatric patients who may have met criteria for somatoform disorder but were not referred. Finally, important information about outcomes for patients after discharge was not assessed; this includes the possibility that patients sought care at different institutions and received alternative diagnoses or treatment recommendations.

CONCLUSIONS

This is one of the first studies to describe the characteristics of medically hospitalized pediatric patients with somatoform disorders from a mental health perspective. Increased awareness among pediatric providers of both medical and psychosocial characteristics of children and adolescents with somatic presentations may help in early detection of somatoform disorders, reduce the risk of excessive medical interventions, facilitate parent education, and prompt referrals for evidence-based treatments such as cognitive behavioral

therapy to prevent long-term psychopathology and physical disability. Future studies on the development of standardized approaches for the assessment and management of hospitalized pediatric patients with psychosomatic presentations will improve clinical practice and patient outcomes.

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**Characteristics of Medically Hospitalized Pediatric Patients With Somatoform
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