Clinical Profile and Precipitating Factors of Somatic Symptom and Related Disorders in Children and Adolescents in a Pediatric Tertiary Care Setting

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Introduction: Somatic symptom and related disorder describes a condition with distressing somatic symptoms, which are excessive for any medical condition that may be present and these patients often over utilize the health care resources. Objectives: To study the clinical profile and precipitating factors among the children and adolescents with somatic symptom and related disorder.

Methodology: In this descriptive study, 137 patients with somatic symptom and related disorder based on DSM-5 criteria were included. Clinical, demographic and psychosocial details were obtained using a detailed evaluation preform and data were statistically analyzed using SPSS. **Results**: Somatic symptom and related disorder was most commonly observed in adolescents (42%). 66.4% of patients were females and 33.6% were males. 39.1% of patients had multiple symptoms. Abdominal pain (20.4%) was the most frequent symptom followed by head ache (18.2%). Among those with conversion disorder, unresponsiveness was the most common symptom. 59.1% of patients had multiple precipitating factors and in 4.4% of patients, precipitating factors could not be identified. 59.8% of patients had family stressors. 48.2% of patients had school stressors. Sensitive temperament (16.8%), magical and religious beliefs (10.9%) were the other common precipitating factors identified. Abdominal pain (24.1%) and headache (22.4%) were the commonest symptom among in children and adolescents respectively.

Conclusion: Somatic symptom and related disorder can present with multiple symptoms and is more common among girls. Family stressors were the most frequent precipitating factor followed by school stressors.

Key Words: Somatic symptom and related disorders; DSM-5 criteria; Conversion disorder; Family stressors; School stressors

INTRODUCTION

Somatic symptom and related disorder (SSRD) is a DSM-5 (Diagnostic and Statistical Manual of Mental Disorders - 5) diagnosis that describes a cluster of patients who have distressing somatic symptoms along with abnormal thoughts, feelings, and behaviors in response to these symptoms [1]. These symptoms are non-intentional and impose a negative impact on the quality of life of children and their families. Moreover, these patients burden the healthcare system by excessive utilization of resources. Studies on somatic symptom and related disorder in pediatric population are sparse and adult studies cannot be extrapolated to pediatric population as the manifestations are entirely different. The observation of high prevalence (12.12%) of somatic symptom and related disorder in the Behavioral Pediatrics Unit of our hospital demands further exploration on this topic [2]. This study was conducted with an aim to identify and to estimate the frequency of diverse symptom profile and precipitating factors among the children with SSRD.

METHODS

This observational study was conducted in a pediatric tertiary care hospital in southern India. Ethical committee clearance was obtained for the study and informed consent was taken from the patient care takers. Children and adolescents diagnosed with Somatic Symptom and Related Disorder as per DSM-5 diagnostic criteria, in the Behavioral Pediatrics Unit OPD (Out Patient Department) by a child psychiatrist from January 2018 to June 2019 were included in the study [1]. Children with organic causes for the presenting symptoms and those denying consent were excluded from the study.

All the outpatient children (preschool age group 3-6 years, middle aged children 6-10 years) and adolescents (≥ 11 year) up to age of 18 years with unexplained physical symptoms were evaluated by a child psychiatrist with special focus on to the identification of possible precipitating factors in the patient`s environment. Study variables collected using predesigned preform included patient socio demographic characteristics, presenting symptoms, medical history, psychiatric history, birth history, developmental history, personal, and family history. Data was obtained from the parent/guardian and patients. Detailed mental status examination, physical examination and relevant investigations were done to arrive at a diagnosis. Socioeconomic status was assigned according to Modified Kuppuswamy scale [3].

Statistical analysis: Data was entered in MS Excel and analyzed using SPSS version 16. Categorical variables were expressed as proportions and frequency. Continuous variables were expressed as mean and standard deviation. Chi square test for categorical variables and Student t test for quantitative variables were used for comparison.

RESULTS

A total of 137 children with a median (Inter Quartile Range) age of 10 (9-12) years were enrolled. Among the study population, 27 (19.7%) were preschoolers (3-6 years), 52 (38%) were in middle childhood (6-10years) and 58 (42.3%) were adolescents (≥ 11 years). 91 (66.4%) were girls and 46 (33.6%) were boys. 1:2 was the Male: Female ratio. 69 (50.4%) children belongs to middle class and 68 (49.6%) belongs to lower socioeconomic class.

Comparison of symptom profile of children and adolescents with SSRD is shown in Table I. 83 (60.9%) had single somatic symptom and 54 (39.1%) had multiple symptoms at presentation. Among the 79 pre-adolescent children, abdominal pain was the most frequent symptom which was observed in 19 (24.1%) subjects. Among the 58 adolescents, head ache was the most frequent symptom which was observed in 13 (22.4%) subjects. Symptoms like hyperventilation 11 (19%), giddiness 10 (17.2%),

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unresponsiveness 9 (15.5%) and chest pain 6 (10.3%) are more frequent in adolescents. Abdominal symptoms like abdominal pain, nausea and vomiting are more frequent in children ≤ 10 years. Nausea (p=0.005) and cough (p=0.02) are more commonly observed in pre- adolescent age group and were statistically significant. Hyperventilation (p=0.023) and giddiness (p= 0.02) were more commonly observed in adolescents and are statistically significant.

Table 1: Comparison of symptom profile of children and adolescents with SSRD (N=137)

Symptoms	Number of children ≤10 years (Child) (N=79)	Number of children ≥11 years (Adolescent) (N=58)	Total Participants (N=137)	χ^2	df	P value
Abdominal pain	19(24.1)	9(15.5)	28(20.4)	1.498	1	0.221
Nausea	13(16.5)	1(1.7)	14(10.2)	7.911	1	0.005
Vomiting	9(11.4)	3(5.2)	12(8.8)	1.619	1	0.203
Joint pain	4(5.1)	5(8.6)	9(6.6)	0.69	1	0.406
Cough	6(7.6)	0	6(4.4)	4.607	1	0.032
Head ache	12(15.2)	13(22.4)	25(18.2)	1.17	1	0.279
Hyper ventilation	5(6.3)	11(19)	16(11.7)	5.177	1	0.023
Slurred speech	3(3.8)	0	3(2.2)	2.252	1	0.133
Giddiness	4(5.1)	10(17.2)	14(10.2)	5.406	1	0.02
Ptosis	2(2.5)	0	2(1.5)	1.49	1	0.222
Body pain	5(6.3)	2(3.4)	7(5.1)	0.572	1	0.449
Unresponsiveness	9(11.4)	9(15.5)	18(13.1)	0.499	1	0.48
Weakness	2(2.5)	1(1.7)	3(2.2)	0.102	1	0.75
Convulsions	5(6.3)	4(6.9)	9(6.6)	0.018	1	0.895
Chest pain	6(7.6)	6(10.3)	12(8.8)	0.316	1	0.574
Involuntary movements	2(2.5)	2(3.4)	4(2.9)	0.099	1	0.753
Involuntary urination	1(1.3)	0	1(0.7)	0.74	1	0.39
Palpitation	2(2.5)	4(6.9)	6(4.4)	1.522	1	0.217
Dysuria	2(2.5)	0	2(1.5)	1.49	1	0.222
Blurred vision	1(1.3)	1(1.7)	2(1.5)	0.049	1	0.825
Numbness	0	1(1.7)	1(0.7)	1.372	1	0.241
Photophobia	0	1(1.7)	1(0.7)	1.372	1	0.241
Insomnia	1(1.3)	0	1(0.7)	0.74	1	0.39
Gait unsteadiness	0	1(1.7)	1(0.7)	1.372	1	0.241
Dysphagia	1(1.3)	0	1(0.7)	0.74	1	0.39
Polyuria	3(3.8)	0	3(2.2)	2.252	1	0.133

The distribution of precipitating factors among the study population is shown in Table II. The various family stressors identified in the study is shown in Table III. The various schools related precipitating factors are listed in Table IV. 81(59.1%) subjects had multiple precipitating factors and 50 (36.4%) subjects had a single precipitating factor and in 6 (4.4%) subjects, precipitating factor could not be identified. Majority of the males (65.2%) had school stressors, while most females (60.4%) had family stressors.

Table 2: Distribution of precipitating factors in patients with SSRD

Precipitating factors	Patients with precipitating factors	Gender	
		Male	Female
Family stressors	82(59.8)	27(32.9)	55(67.1)
School stress	66(48.2)	30(45.5)	36(54.5)
Sensitive temperament	23(16.8)	2(9.5)	21(90.5)
Magical or religious beliefs	15(10.9)	6(40)	9(60)
Emotional trauma	8(5.8)	3(37.5)	5(62.5)
Movies and television serials	7(5.1)	4(57.1)	3(42.9)
Childhood psychiatric illness	6(4.4)	5(83.3)	1(16.7)
Learned behavior	6(4.4)	1(16.7)	5(83.3)
Gadget addiction	3(2.2)	2(66.7)	1(33.3)
Physical illness	3(2.2)	2(66.7)	1(33.3)
Physical trauma	2(1.5)	0	2(100)
Symptom modeling	2(1.5)	0	2(100)
No precipitating factor	6(4.4)	0	6(100)

Table 3: Family stressors in patients with SSRD

Family stressor	Patients with family stressors n = 82	Gender	
		Males n = 27	Females n =55
Intra-familial conflicts	18(22)	5 (27.8)	13(72.2)
Extended bereavement	15(18.2)	7(46.7)	8(53.3)
Alcoholic parents	13(15.9)	5(38.5)	8(61.5)
Overindulgent parents	13(15.9)	4(30.8)	9(69.2)

Broken family	11(13.4)	5(45.5)	6(54.5)
Parental neglect	5(6)	0	5(100)
Sibling rivalry	4(4.8)	0	4(100)
Strict parenting	1(1.2)	0	1(100)
Physical punishment	1(1.2)	0	1(100)
Anticipated punishment	1(1.2)	1(100)	0

Table 4: School stressors in patients with SSRD

School stressors	Patients with school stressors n = 66	Gender	
		Male n =30	Female n =36
Peer relation difficulties	19(28.8)	6(31.6)	13(68.4)
Poor academic interest	16(24.2)	8(50)	8(50)
Poor scholastic performance	11(16.7)	4(36.4)	7(63.6)
Anticipated academic challenge	6(9.)	3(50)	3(50)
Anticipated punishment in school	6(9.1)	5(83.3)	1(16.7)
Change of school	4(6)	3(75)	1(25)
Beginning of school year	1	0	1(100)
Competitive mentality	3(4.5)	1(33.3)	2(66.7)

Data expressed as n (%), SSRD-Somatic symptom and related disorder

Among the 137 patients included in the study, 95 (69.3%) patients had somatic symptom disorder (SSD), 41 (29.9%) patients had conversion disorder and 1(0.7%) patient had psychological factors affecting other medical conditions.

In preschool children 5 (18.5%), the prevalence of conversion disorder is less compared to school age 17(32.7%) and adolescents 19(32.8%). Somatic symptom disorder is the most frequent category observed in all age groups (preschool –22 (81.5%), middle childhood–34(65.4%) adolescents-39 (67.2%))

SSD 61(67%) and conversion 30(33%) disorders are mostly seen in females. In both gender, SSD is the most frequently observed diagnostic category (males–34 (73.9%), females 61(67%)). Among the patients with SSRD, conversion disorder was observed greater proportion of females 30 (33%) compared to males 11(23.9%).

DISCUSSION

In the present study, somatic symptom and related disorder is most frequently observed in adolescent age group (42%) as reported in earlier studies [4,5]. It is not observed among toddlers (1-3 years) and begins to appear in preschool children (19.7%) and the prevalence is observed to be increasing with age (19.7%, 38%, 42.3% respectively in preschool, middle childhood, and adolescent age group) as it is described in the literature [6].

As previously reported, our study observed an increased prevalence of SSRD among females (female: male–2:1) [5-10]. While SSD is the most common diagnosis in both genders, both SSD and conversion disorder were mostly observed in females. As observed in previous studies and described in literature, greater proportion of patients with conversion disorder are females (73.2%) [5,6,8]. In a similar study conducted in Indian tertiary care hospital setting revealed that conversion disorder is more common in girls than in boys [5].

In our study, there is almost equal distribution of patients into middle and lower socioeconomic strata without representation from upper class, which is contradictory to the older studies with predominant representation from less educated, lower socioeconomic strata and from rural areas [11,12]. In an Indian study which looks into the psychiatric morbidity including SSD among school children and adolescents, observed the higher prevalence of illnesses in children belonging to lower socioeconomic status followed by children belonging to upper class [13]. The pattern observed in our study may be a reflection of the population depending on the public health sector in our state.

Somatic symptom disorder (69.3%) was the most frequently observed SSRD followed by conversion disorder (29.9%). According to base on DSM-5, the prevalence of somatic symptom disorders is 78.3% followed by conversion disorder (6.7%) and other diagnostic categories (15%) [14]. The relatively higher proportion of patients with conversion disorder in our study in contrast to a prevalence of 0.3%-10% in literature may be due to the fact that, a greater proportion of the study population were the admitted children referred from the pediatric wards in our hospital to Behavioral Pediatrics OPD [6]. There are no Indian studies based on DSM-5 demonstrating the prevalence of diagnostic categories of somatic symptom and related disorder. In an Indian study based on DSM-IV, conversion disorder (57.3%) was the most frequent diagnosis observed, which is in contrast to our study [5].

Somatic symptom disorder is the most frequent diagnostic category observed in all age groups (preschool–22 (81.5%), middle childhood–34(65.4%) adolescents- 39 (67.2%)) which is consistent with the study by [14]. In preschool children (18.5%), the prevalence of conversion disorder is less than school age (32.7%) and adolescents (32.8%).

Patients with SSRD can present with symptoms related to any systems. In our study, while the 60.1% of children had single symptoms, 39.1% had multiple symptoms. As mentioned in previous studies, patients can present with multiple symptoms at a time or over a period of time [5]. In our study, abdominal pain (20.4%) was the most frequent symptom observed followed by head ache (18.2%). Previous studies also reported abdominal pain, head ache, muscular and joint pains as the most common somatic symptoms among the pediatric and adolescent population [7,8,15]. As observed in a previous Indian study, unresponsiveness was the most frequent symptom observed in conversion disorder in our study, while some other studies reported pseudo seizures as the dominant symptom in conversion disorder [5,7,8,16].

Abdominal pain (24.1%) is the most common symptom observed among preschool and middle aged children and headache (22.4%) is the most common symptom among adolescents. Symptoms like hyperventilation (19%), giddiness (17.2%), chest pain (10.3%), and unresponsiveness (15.5%) are more common in adolescents compared to other age groups. While gastrointestinal symptoms were more frequent in pre-school and middle aged children; symptoms related to other systems (nervous system, cardio vascular system, respiratory system etc.) were more frequently seen in adolescents. This increased prevalence and complexity of presentation of SSRD in our study, with increase in age can be attributed to the influence of developmental factors in the capability of expression of symptoms and the possible impact of the enhanced exposure to precipitating factors from school environment and peer groups.

In our study, precipitating factor for SSRD could be identified in 95.6% and 59.1% of patients had multiple precipitating factors. Family stressors (59.8%) followed by school stressors were the predominant precipitating factors observed in our study, which were also identified as the putative risk factors associated with SSRD in other Indian and western studies [7,8,17,18]. As in a previous Indian study, predominant precipitating factor observed among girls and boys in our study were family stressors (60.4%) and school stressors (65.2%) respectively [16].

As described in literature, psychiatric comorbidities (4.4%) and medical illness (1.5%) were observed in some subject [8]. Magical and religious beliefs (10.9%) were observed among significant number of study population, but these factors were not studied well in Indian setting. However, a Chinese multicenter case control study observed superstitious beliefs as a precipitating factor in 23.6%of study population [19]. And the difference may be accounted to the differing cultural characteristics. Movies and television serials (5.1%) and gadget addiction (2.2%) were the emerging precipitating factors observed in our study and their association with SSRD has not mentioned in literature or not well studied previously.

Acute precipitating factor was observed in 19.7% of study subjects with SSRD including conversion disorder, whereas in another Indian study 18.3% of conversion disorders had identifiable acute stressors [5]. The difference in clinical presentation observed may be due to the difference in methodologies and definitions applied. However, it signifies the need for providing support to the children and adolescents during acute stress periods. Precipitating factors could not be identified in 4.4% of study subjects and they may need to be followed up for the identification of stressors.

Limitations of the study: Data cannot be generalized as the study population does not represent the general population profile as the study is carried out in a pediatric tertiary care hospital in public sector. The causal role of abnormal psychosocial situations in some cases is based on subjective information.

CONCLUSION

Somatic symptom and related disorder can present with multiple symptoms and is mostly seen in girls. Family stressors were the most frequent precipitating factor followed by school stressors. Major precipitating factors in females were family stressors, whereas school stressors were the major precipitating factor in males.

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