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Self-Esteem, Emotional And Behavioral Problems and Psychopathology In Children With Somatic Symptoms And Related Disorders

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ABSTRACT

Objective: There are few studies in the literature on somatic symptoms and related disorders (SSRD) in children. The aim of this study is to investigate emotional and behavioral difficulties, self-esteem, psychopathology, and clinical characteristics in children with somatic symptoms.

Method: This study included 44 children with recurrent and distressing somatic complaint(s) and 49 healthy children. The diagnosis of SSRD was evaluated in detail according to DSM-5 criteria. Self-esteem, emotional and behavioral difficulties, and somatization were assessed using the Rosenberg Self-Esteem Scale (RSES), Strengths and Difficulties Questionnaire (SDQ), and Children's Somatization Inventory (CSI-24), respectively.

Results: Children with somatization had significantly greater rates of having at least one comorbid mental disorder, emotional symptoms scores, and peer relationship problems. On the other hand, these children's prosocial behavior scores (Strengths Score), self-esteem scores, and academic performance were significantly lower than the control group. In addition, children with SSRD had more disadvantaged familial characteristics such as low father education, high family history of psychiatric and medical illness and somatization, high marital problems, and domestic violence.

Conclusions: This study revealed that somatization in children is associated with increased emotional, peer, and academic problems and psychopathology rates, and low self-esteem and prosocial behaviors. In clinical practice, it would be advisable to evaluate thoroughly children with SSRD in terms of familial disadvantages, emotional, peer, and academic problems, and psychopathology, rather than focusing solely on somatic symptoms.

Keywords: Somatic symptom, somatization, self-esteem, emotional problems, psychopathology, child, family.

Somatik Belirti Bozukluğu ve İlişkili Bozuklukları Olan Çocuklarda Benlik Saygısı, Duygusal ve Davranışsal Sorunlar ve Psikopatoloji

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ÖZ

Amaç: Literatürde çocuklarda somatik belirti bozukluğu ve ilişkili bozukluklar (SBBİB) ile ilgili az sayıda çalışma bulunmaktadır. Bu çalışmanın amacı somatik semptomları olan çocuklarda duygusal ve davranışsal güçlükleri, benlik saygısını, psikopatolojiyi ve klinik özellikleri araştırmaktır.

Yöntem: Bu çalışmaya tekrarlayan ve rahatsız edici bedensel yakınmaları olan 44 çocuk ve 49 sağlıklı çocuk dahil edildi. SBBİB tanısı DSM-5 kriterlerine göre ayrıntılı olarak değerlendirildi. Benlik saygısı, duygusal ve davranışsal sorunlar ve somatizasyon sırasıyla Rosenberg Benlik Saygısı Ölçeği (RBSÖ), Güçler ve Güçlük Anketi (GGA) ve Çocuk Somatizasyon Envanteri (ÇSE-24) kullanılarak değerlendirildi.

Bulgular: Somatizasyonu olan çocukların en az bir eşlik eden ruhsal bozukluk, duygusal belirti puanları ve akran ilişkisi sorunları yaşama oranları anlamlı olarak daha yüksekti. Öte yandan, bu çocukların prososyal davranış puanları (Güçlü Yönler Puanı), benlik saygısı puanları ve akademik performansları kontrol grubuna göre anlamlı derecede düşüktü. Ayrıca, SBBİB'li çocuklar düşük baba eğitimi, ailede yüksek psikiyatrik ve tıbbi hastalık ile somatizasyon öyküsü, yüksek evlilik sorunları ve aile içi şiddet gibi daha dezavantajlı ailesel özelliklere sahipti.

Sonuç: Bu çalışma çocuklarda somatizasyonun artmış emosyonel, akademik ve akran sorunları ve psikopatoloji durumu ile ve düşük benlik saygısı ve düşük prosocial davranışlarla bağlantılı olduğunu ortaya koymuştur. Klinik uygulamada sadece somatik semptomlara odaklanmak yerine SBBİB'li çocukların ailesel dezavantajlar, duygusal, akran ve akademik sorunlar ve psikopatoloji açısından etraflıca değerlendirilmesi önerilir.

Anahtar sözcükler: Somatik belirti, somatizasyon, benlik saygısı, duygusal sorunlar, psikopatoloji, çocuk, aile.

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Introduction

Somatization is when a person experiences dramatic physical (somatic) symptoms that are not caused by an organic pathology, and misidentifies these symptoms as a disease, and seeks medical help [1-3]. Somatization is not a diagnostic category, but a symptom, or set of symptoms, that cannot be explained physiologically. When somatization is disproportionate or inconsistent with clinical findings, it is classified as a disorder under the heading of "Somatic symptoms and related disorders" (SSRD) [1]. In somatization, the underlying psychosocial or emotional problems are expressed and manifested by somatic complaints that have no medical explanation. The absence of any organic disease, the presence of somatic symptoms that cannot be explained by a physical cause or laboratory findings, the presence of stressors, and seeking help are the major characteristics of somatization [1-3]. Somatic symptoms can be divided into gastrointestinal, neurological, autonomic, and musculoskeletal, the most common in children and adolescents are headaches, abdominal pain, and low energy state. The other most common somatic symptoms are shortness of breath, nausea, dizziness, weakness, and fatigue [4].

There are few studies in the literature on the prevalence of SSRD in children and adolescents. The prevalence of pediatric somatization is estimated to be between 25-50% in primary care admissions [4]. A study conducted with a school sample has found that 26.8% of children and 52.1% of adolescents have somatic complaints [5]. It has been reported that SSRD increases with age in children, the rate is similar between genders until puberty, and the rate of somatic complaints in girls increases with adolescence [5-8]. Somatization is more common in families with low parental education and socioeconomic status, psychopathology in the family, and poor family functioning [9, 10].

The factors affecting the emergence of somatic complaints can be listed as genetic predisposition, physiological or pathological changes, personality structure, learned responses, cognitive elements, psychiatric comorbidity, intelligence level, childhood abuse, school stress, and sociocultural factors [4, 7, 11-14]. Without a psychiatric disorder, somatic symptoms may also occur in response to stress, as an unusual sensitivity to ordinary bodily sensations, or simply as a cultural expression [11].

Somatization in children and adolescents has been associated with various psychiatric disorders, especially depression and anxiety disorders. Studies have revealed that somatization is also significantly related to self-worth and general perceived competence and that children with SSRD have low self-esteem and experience various emotional problems [15-20]. However, there are limited studies investigating self-esteem, emotional and behavioral problems, and clinical features in children with somatic symptoms. Therefore, the aim of this study is to examine emotional and behavioral difficulties, self-esteem, psychopathology, and clinical characteristics in children with somatic symptoms.

Materials and Methods

Participants

This study included 44 children between the ages of 8 and 16 who were referred to child and adolescent psychiatry from various pediatric clinics due to recurrent and distressing somatic complaint(s) that cannot be explained by a physical disease and 49 children who had not been diagnosed with any psychiatric or medical disease before, matched for age, gender, sociocultural characteristics. Children with intellectual disability, autism spectrum disorder and chronic medical disease, and those with missing pediatric evaluation were excluded from the study. The diagnosis of SSRD was evaluated in detail according to DSM-5 criteria [1]. The purpose and procedure of the study were explained to the child and their parents in detail, and written and verbal informed consent was obtained from all participants and their families. The study was approved by the local ethics committee (2018-12/11).

Data Collection Tools

Sociodemographic Data Form: This form was created by the researchers in order to systematically record sociodemographic and clinical data and the characteristics of the participants' somatic symptoms.

Turkish version of the Schedule for Affective Disorders and Schizophrenia for School-Aged Children- Present and Lifetime Version, DSM-5-K-SADS-PL-DSM-5-T: It is a semi-structured interview technique used to investigate whether children have any past or present psychiatric disorders [21]. Its Turkish adaptation was made by Ünal et al. [22].

Rosenberg Self-Esteem Scale (RSES): This scale, which was developed by Rosenberg [23] to assess self-esteem, was adapted into Turkish by Çuhadaroğlu [24]. In this study, only a subtest consisting of 10 items was used. High scores on the scale indicate positive self-esteem.

Strengths and Difficulties Questionnaire (SDQ): It was developed by Goodman [25], and its validity and reliability study in a Turkish sample was performed by Güvenir et al. [26]. It contains 25 questions questioning positive and negative emotional and behavioral characteristics. These questions are grouped under five sub-headings, each of which contains five questions; Hyperactivity/inattention, Conduct Problems, Emotional Symptoms, Peer Relationship Problems, and Prosocial Behavior. Each sub-title can be evaluated within itself and a separate score can be obtained for each, as well as the "Total Difficulty Score" can be calculated with the sum of the first four titles.

Children's Somatization Inventory (CSI-24) (Child Form): CSI-24 was developed by Walker et al. [19], Turkish version was adapted by Kadıoğlu et al. [8]. It is a five-point Likert-type self-report scale consisting of 24 items. A higher score indicates more intense somatic complaints.

Statistical analysis: Statistical analysis of the data was performed using the IBM SPSS 22.0 package program. Normality was measured using the Kolmogorov-Smirnov test. Numerical and categorical data are presented as mean ± standard deviation (SD), number (n), and percent (%). Chi-square test, Fisher's Exact test, and Mann-Whitney U Test were used to compare statistical data. Spearman correlation coefficient was used in the correlation analysis of the variables. A value of $p<0.05$ was considered significant.

Results

Sociodemographic and familial characteristics of participants

The sociodemographic and familial characteristics of the participants are presented in Tables 1 and 2. In the SSRD group, 65.9% (n=29) of the children were females, 34.1% were boys, the mean age was 12.14±2.74 years, and 61.4% were in the adolescent age group. Again, 40.9% (n=18) of the children in the SSRD group came from rural areas and 43.2% (n=19) came from low-income families. There was no significant difference between the SSRD group and the control group in terms of age, gender, place of residence, family income, and number of siblings (all p-values >0.05). On the other hand, compared to the control group, the academic functioning of the children in the SSRD group was significantly worse (p=0.022) and their peer relationships were more limited (p=0.001) (Table 1).

Table 1. Socio-demographic characteristics of participants. Data were given as mean±standard deviation or number (percent%).

	SSRD group (n=44)	Control Group (n=49)	p-value*
Age (mean-years±SD)	12.14±2.74	12.06±2.56	0.947
Age groups (n,%)			
School-age	17 (38.6)	22 (44.9)	0.541
Adolescence	27 (61.4)	27 (55.1)	
Gender (n,%)			
Male	15 (34.1)	17 (34.7)	0.951
Female	29 (65.9)	32 (65.3)	
Place of residence (n,%)			
Urban	26 (59.1)	29 (59.2)	0.993
Rural	18 (40.9)	20 (40.8)	
Family Income Level (n,%)†			
The minimum wage/less than minimum wage	19 (43.2)	20 (40.8)	0.817
Above the minimum wage	25 (56.8)	29 (59.2)	
Number of siblings (n%)			
0	7 (15.9)	6 (12.2)	
1	22 (50.0)	24 (49.0)	0.809
2	11 (25.0)	16 (32.7)	
3+ (3 and above)	4 (9.1)	3 (6.1)	
Academic performance (n,%)			
Below average	12 (27.3)	3 (6.1)	**0.022**
Average	25 (56.8)	36 (73.5)	
Above average	7 815.9)	10 (20.4)	
Peer relationships (n,%)			
No problem, she/he has enough friends	17 (38.6)	37 (75.5)	
Limited, she/he has few friends	22 (50.0)	9 (18.4)	**0.001**
Problematic or she/he can't keep friendship	5 (11.4)	3 (6.1)	

Notes: *The chi-square test for categorical variables and the Mann–Whitney U test for continuous variables were used to test group differences. **Bold font** indicates statistical significance: $p < 0.05$.

†The level of income was determined by the minimum wage value on the date of the study.

Abbreviations: SD, Standard Deviation; SSRD, Somatic symptoms and related disorders

Regarding family structure, 70.5% (n=31) of the children in the SSRD group and 71.4% (n=35) of the control group had nuclear family structure, and there was no significant difference between the two groups in terms of family structure. There was no single-parent family in either group. The two groups were similar in terms of maternal education level, frequency of paternal psychiatric disorder(s) and sibling conflict (all p-values >0.05). On the other hand, the education level of the fathers of the children in the SSRD group was significantly lower than that of the control group (p=0.010). Again, compared to the control group, the frequency of psychiatric disorders in the mothers, psychiatric disorders in the whole family, medical disease in the whole family, and somatic symptoms in the whole family of children in the SSRD group were significantly higher (p=0.015, p<0.001, p=0.015, and p=0.011, respectively). In addition, the rates of conflict between parents and domestic violence in the SRRD group were significantly higher than in the control group (p=0.002 and p=0.015, respectively) (Table 2).

Table 2. Other familial characteristics of participants. Data were given as number (percent%).

	SSRD group (n=44)	Control Group (n=49)	p-value*
Family structure (n,%)			
Nuclear	31 (70.5)	35 (71.4)	0.918
Large family structure	13 (29.5)	14 (28.6)	
Maternal education level (n,%)			
Primary education or lower	3 (6.8)	3 (6.1)	0.954
High school	32 (72.7)	37 (75.5)	
University and higher	9 (20.5)	9 (18.4)	
Maternal psychiatric disorder(s) (n,%)	12 (27.3)	4 (8.2)	**0.015**
Paternal education level (n,%)			
Primary education or lower	0 (0)	0 (0)	**0.010**
High school	40 (90.9)	34 (69.4)	
University and higher	4 (9.1)	15 (30.6)	
Paternal psychiatric disorder(s) (n,%)	8 (18.2)	3 (6.1)	0.072
Family history of psychiatric disorder(s) (whole family) (n,%)	17 (38.6)	4 (8.2)	**<0.001**
Family history of medical illness(es) (whole family) (n,%)	12 (27.3)	4 (8.2)	**0.015**
Somatic symptom(s) in family (whole family) (n,%)	23 (52.3)	13 (26.5)	**0.011**
Sibling conflict (n,%)	27 (61.4)	30 (61.2)	0.989
Conflict between parents (n,%)	21 (47.7)	9 (18.4)	**0.002**
Domestic violence (n,%)	12 (27.3)	4 (8.2)	**0.015**

Notes: *The chi-square test and Fisher's exact test (as appropriate) for categorical variables were used to test group differences. **Bold font** indicates statistical significance: $p < 0.05$.*Abbreviations:* SSRD, Somatic symptoms and related disorders

Clinical features of somatic symptoms in the SSRD group

The duration of somatic symptoms was 4.95±1.64 months. Before applying to psychiatry, 45.5% (n=20) of the cases had gone to many physicians and clinics for complaints. The frequency of prejudice or resistance to psychiatric referral was 36.4% (n=16) and 45.5% (n=20) of the cases did not attribute their complaints to a psychiatric problem. Stressors that caused and exacerbated somatic complaints were detected in 65.9% (n=29) of the cases, and there was a secondary gain due to the complaints in 75% (n=33) cases. Considering the types of somatic complaints, the most common complaint was fatigue, loss of energy, and heaviness in arms/legs with a frequency of 63.6% (n=28). Considering the types of somatic complaints, the most common complaints were fatigue, loss of energy, heaviness in arms/legs, some cardiac complaints and respiratory difficulties, headaches, dizziness, and fainting spells. In addition, 84.1% of the children in the SSRD group had at least one psychiatric disorder comorbidity. Clinical features of somatic symptoms and comorbid psychiatric conditions are given in Table 3.

Table 3. Clinical features of somatic symptoms in the SSRD group. Data were given as mean±standard deviation or number (percent%).

	Number (%) or mean±SD
Duration of somatic symptoms (mean-months±SD)	4.95±1.64
Multiple clinic/doctor referrals before psychiatry (n,%)	20 (45.5)
Prejudice or resistance to psychiatric referral (n,%)	16 (36.4)
Not considering somatic symptoms as a psychiatric problem (n,%)	20 (45.5)
Presence of precipitating or stressor factor(s) (n,%)	29 (65.9)
Secondary gain (n,%)	33 (75.0)
Types of somatic symptoms	
Fatigue, loss of energy, heaviness in arms/legs (n,%)	28 (63.6)
Some cardiac complaints and respiratory difficulties	22 (50)
Headache (n,%)	21 (47.7)
Dizziness (n,%)	17 (38.6)
Fainting spells (n,%)	16 (36.4)
Stomachache/abdominal pain	13 (29.5)
Numbness and tingling (n,%)	12 (27.3)
Other pains (back, waist, limbs, etc.)	11 (25.0)
Other digestive symptoms (nausea, vomiting, constipation, diarrhea, etc).	9 (20.5)
Comorbid psychiatric disorders (n,%)	
None	7 (15.9)
Major depressive disorder	13 (29.5)
Generalized anxiety disorder + Major depressive disorder	7 (15.9)
Disruptive behavior disorders	5 (11.4)
Separation anxiety disorder	4 (9.1)
Social phobia	3 (6.8)
Obsessive compulsive disorder	3 (6.8)
Obsessive compulsive disorder + Generalized anxiety disorder	2 (4.5)

Abbreviations: SD, Standard Deviation; SSRD, Somatic symptoms and related disorders

Comparison of SSRD group and control group in terms of psychopathology, self-esteem, emotional and behavioral problems, and somatization scores

Children in the SSRD group had significantly higher rates of having at least one comorbid psychiatric disorder compared to the control group (p<0.001). As expected, the children in the SSRD group had higher scores on the Children's Somatization Inventory compared to the control group (p<0.001). Considering other scale scores, the prosocial behavior scores reflecting the "Strengths Score" and the self-esteem scores of the children with SSRD were significantly lower than the control group (p<0.001 and p=0.024, respectively). While hyperactivity/inattention and conduct problems scores were similar between the two groups, emotional symptoms scores and peer relationship problems scores of children with SSRD were significantly higher than those of the control group (both p values <0.001). The results are shown in Table 4.

Table 4. Comparison of SSRD group and control group in terms of psychopathology, self-esteem, emotional and behavioral problems, and somatization scores. Data were given as mean±standard deviation or number (percent%).

	SSRD group (n=44)	Control Group (n=49)	p-value*
Presence of psychiatric comorbidity	37 (84.1)	7 (14.3)	**<0.001**
Children Somatization Inventory Scores (mean±SD)	26.05±6.40	7.66±1.96	**<0.001**
Rosenberg Self-Esteem Scale Scores (mean±SD)	21.34±4.82	25.73±2.92	**<0.001**
SDQ - Hyperactivity/inattention Scores (mean±SD)	5.14±1.91	4.57±1.40	0.159
SDQ - Conduct Problems Scores (mean±SD)	3.07±2.23	2.86±1.57	0.708
SDQ - Emotional Symptoms Scores (mean±SD)	7.40±1.35	3.84±1.12	**<0.001**
SDQ - Peer Relationship Problems Scores (mean±SD)	4.96±2.05	3.18±1.81	**<0.001**
SDQ - Prosocial Behavior Scores (mean±SD)	8.82±1.22	9.37±0.91	**0.024**

Notes: *The chi-square test for categorical variables and the Mann–Whitney U test for continuous variables were used to test group differences. **Bold font** indicates statistical significance: $p < 0.05$.
Abbreviations: SD, Standard Deviation; SDQ, Strengths and Difficulties Questionnaire; SSRD, Somatic symptoms and related disorders

Correlations between somatization scores and self-esteem scores, scores of emotional and behavioral problems, duration of somatic symptoms, and children's age

Spearman's correlation analysis showed that somatization scores were significantly negatively correlated with self-esteem score and prosocial behavior scores (Strengths Score) (both p values <0.001). However, there was a significant positive correlation between somatization scores and emotional symptoms scores, peer relationship problems scores, duration of somatic symptoms, and children's age (all p values<0.05). No significant correlation was found between somatization scores and hyperactivity/inattention scores, and conduct problems scores (both p values >0.05). Table 5 shows the results of the correlation analysis.

Table 5. Correlations between somatization scores and self-esteem scores, scores of emotional and behavioral problems, duration of somatic symptoms, and children's age

	Children Somatization Inventory Scores	
	p*	Rho*
Rosenberg Self-Esteem Scale Scores	**<0.001**	-0.655
SDQ - Hyperactivity/inattention Scores	0.070	0.189
SDQ - Conduct Problems Scores	0.065	0.192
SDQ - Emotional Symptoms Scores	**<0.001**	0.860
SDQ - Peer Relationship Problems Scores	**<0.001**	0.578
SDQ - Prosocial Behavior Scores	**<0.001**	-0.416
Duration of somatic symptoms	**0.009**	0.389
Children's age	**0.007**	0.280

*Spearman's correlation analysis. **Bold font** indicates statistical significance: $p < 0.05$.
Abbreviations: SDQ, Strengths and Difficulties Questionnaire

Discussion

In this study, sociodemographic and clinical features, self-esteem, emotional and behavioral problems, and psychopathology were investigated in children with SSRD. Our main findings are that children with SSRD have higher emotional problems and psychopathology, lower self-esteem and strengths, worse academic functioning, and more limited peer relationships. Furthermore, we revealed that these children come from more disadvantaged families. These disadvantages were low paternal education, high

family history of psychiatric and medical illness and somatization, and a high frequency of marital problems and domestic violence. We also found that the frequency of stressor factors that cause or exacerbate somatic complaints is 65.9%. It has been emphasized that somatic complaints may occur especially in children with a predisposition to stressful situations. Studies have identified risk factors for SSRD as child-related and familial-environmental factors. Child-related factors are genetic and neurobiological characteristics, gender and age, temperament and coping style, cognitive difficulties, physical diseases, and psychiatric disorders. Familial and environmental risk factors are low socioeconomic status and parent education, stressful life difficulties (school problems, peer problems, loss of parents, etc.), traumatic experiences, medical and psychiatric disorders in the family, other familial factors (unhealthy family functionality, negative parental attitudes, family conflict), and cultural characteristics [4, 7, 9, 11-13, 27, 28]. Somatic complaints serve to express distress in such stressful situations. The child may turn to somatization as a cry for aid to cope with these stressful life events [29]. In this respect, our demographic, personal, and familial findings in children with SSRD are consistent with the literature.

Studies regarding the appearance of somatic symptoms in children have reported that there is a considerable relationship between SSRD and family conflicts, domestic violence, and poorer family functionality [9, 10, 30, 31]. In our study, we found low father education, high family history of somatization, psychiatric and medical disease, high rates of marital problems and domestic violence as familial disadvantages, and our results supported that these stressful situations and poorer family functioning may be important risk factors for SSRD. Consistent with our results, it has been reported that somatization in parents, presence of chronic disease and psychopathology in the family, traumatic experiences in the family, and poor family functioning are among familial risk factors for somatization [9, 14, 30-33]. Some theories explain the formation of somatization in children in the context of such familial risk factors. The first is modeling theory, which states that a child's somatization behavior can occur as a result of observing his/her parents [29]. The second is genetic predisposition [34]. Third, in such families, emotion recognition and emotion expression, and verbal expression skills may not be sufficiently developed due to difficulties in communicating and emotionally reacting in the family, and maladaptive approaches, difficulties in emotional response, and failure to respond appropriately to stress can be seen, all of which are factors that increase the risk of somatization by causing the suppression of negative emotions [4, 9, 10, 14]. In a family where emotions are suppressed or words expressing emotion are used less, the child begins to internalize his/her emotions and expresses his/her emotions through somatization [4, 14]. Fourth, in poor family functioning, family members failed to show the necessary attention to each other, the child cannot adequately acquire skills such as problem-solving, interpersonal relations, and communication, and uses ineffective coping strategies, which leads to feelings such as inadequacy, worthlessness, lack of self-confidence, and anxiety in the child, and in this case, the only way out for the child may be somatic complaints [4, 10, 30]. In all these conditions, the child directs the attention and focus of the family to himself/herself from other problems of the family through the emergence of somatic symptoms [29, 32, 35]. In this context, the child tries to obtain the care, attention, and affection that he/she cannot obtain from his/her parents when he/she is healthy, as a patient, or by showing signs of illness. This, in turn, appears as a secondary gain, which is defined as attention and supportive attitude from the environment due to somatic complaints. In this study, the secondary gain frequency was found to be as high as 75%. However, it must be remembered that through somatic symptoms, increasing interest in the child and rewarding the child by avoiding certain responsibilities or conflicts (i.e. secondary gain) cause the child to use somatization as a coping mechanism, resulting in chronic somatization [29, 32, 35].

In this study, females were found to be in the majority in the group with SSRD, and this finding is consistent with studies showing that somatization and SSRD are more common in females [5-8]. It is thought that the higher prevalence of somatization in females is due to the fact that females are under greater intense socio-cultural pressure and, accordingly, they cannot develop their self-esteem and individual self-expression skills sufficiently, as well as females use ruminative coping strategies more frequently [11, 36]. Further, females are prone to internalization disorders such as depression and anxiety, and distress and these are factors for somatization [37].

Studies have shown that the incidence of SSRD increases with age [5, 7]. Similarly, in our study, the adolescent population was dominant in the group with SSRD, and somatization scores increased with age. The increase in somatization with age may be a reflection of the increase in other psychiatric disorders in general during adolescence, and it can also be explained by the rapid structural and functional changes in the brain in adolescence, making the adolescent more sensitive to environmental stresses [38].

Our results indicated that children with somatization have poor academic performance, which is consistent with the findings of other studies showing that children with SSRD are at risk for absenteeism and low academic achievement [10]. It's possible that there's a two-way relationship between poor academic performance and somatization. Academic failure or school phobia or refusal can lead to somatization, while somatic symptoms can also lead to absenteeism and alienation from school. Given that these children have lower family functioning and higher psychopathology, the poor academic performance with SSRD may also be due to the psychopathological conditions in the children and/or the inadequate supervision of the parents for their children's education.

Another important finding of our study was that children with SSRD are more inhibited in peer relationships and have lower self-esteem and prosocial behavior scores, and higher emotional symptoms scores. Moreover, while the somatization score was significantly negatively correlated with self-esteem and prosocial behavior scores, it was significantly positively correlated with emotional symptoms and peer relationship problems scores. This reveals that when children's self-esteem and strengths decrease, as well as their emotional symptoms and peer relationship problems rise somatization rises. The reaction and response of children to daily life events and stress varies according to their temperament, self-esteem and self-confidence, and coping skills, and children with low self-esteem and poor coping skills may tend to use the somatic symptom as a call for help in situations of distress [29]. Similarly, children with somatic symptoms have been demonstrated to employ less efficient coping strategies, prefer passive/avoidant coping patterns, exhibit temperament traits that are more sensitive/reactive or anxious, insecure, and introverted, are more reserved and passive, and have difficulties in expressing their emotions [9, 17, 39]. Regarding peer relationships, limitations in peer relationships or inability to make friends, and peer bullying have been associated with an increased risk of somatization [9, 27, 28]. The higher peer relationship problem scores we obtained from SDQ in children with SSRD also support this. It has been suggested that the inability to establish relationships with peers may lead to somatization by causing the child's isolation, inability to verbally express his/her feelings and emotional conflicts, and an increase in internalization symptoms, and thus somatization may appear as a form of communication, either as a way of expressing emotions or as a defensive response [27].

As for the clinical characteristics of children with SSRD, we discovered that these children applied to multiple physicians/clinics before psychiatry and that prejudice and resistance to psychiatry, as well as a failure to recognize their complaints as psychiatric symptoms, are common. The fact that these rates are high indicates that psychiatric disorders are still stigmatized and not approved in our culture and that the child prefers a physical illness rather than a psychiatric patient. Furthermore, the fact that physical symptoms are taken more seriously by family members and even professionals may explain these high rates. Similar findings were found in previous studies [4, 40].

One of our main findings is that 84.1% of children with SSRD have at least one psychiatric disorder comorbidity and the rate of having a psychiatric disorder is significantly higher than the control group. The most common psychiatric disorders in these children were depression and anxiety disorders. Previous studies have also revealed that SSRD often accompanies other psychiatric disorders and it has been reported that more psychiatric diagnoses, especially anxiety and depression, are seen in children with SSRD than in controls [15-20]. This high rate of psychopathology shows that SSRD is a part of other mental diseases rather than a separate entity. However, it has been emphasized that the increased rate of psychopathology in children with SSRD is not only a result of somatization and that the relationship is bidirectional [4].

This study is one of the few studies addressing with the clinical characteristics, self-esteem, emotional and behavioral characteristics, and psychopathology of children with somatization. However, a number of limitations should be noted. The small sample size, the selection of the sample from a single-center, the fact that the psychiatric and medical conditions of the parents are based only on self-report, and the cross-sectional design of the study are important limitations of the study and these limitations prevent the generalizability of the results. Therefore, future longitudinal studies with large samples including multiple centers are needed.

Conclusion

This study revealed the importance of thoroughly evaluating children and adolescents with somatization in terms of familial characteristics, school functionality, peer relationships, self-esteem and self-confidence feelings, emotional problems, and comorbid psychopathology, rather than focusing solely on somatic symptoms. Consequently, given that somatization is employed as a means of expressing and communicating the unspoken feelings and reactions of children, in order to increase the self-esteem and communication skills of these children, it would be an appropriate step for families and other significant persons in the child's life to have more communication and interaction with the child, spare time for the child, deal with his psychosocial problems, value him/her, and listen to his/her emotional expressions.

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