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Clinical characteristics according to sex and symptom severity in children with selective mutism: a four-center study

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ABSTRACT

Introduction: Clinical information regarding selective mutism (SM), a persistent and debilitating psychiatric disorder, in children is extremely limited. We aimed to examine sociodemographic characteristics and comorbid psychiatric conditions and identify clinical variables associated with sex and SM severity among children with SM.

Methods: We analyzed the medical records of 49 children who received treatment for SM in four different tertiary hospitals in Turkey between 2016 and 2021. Children's charts were reviewed to examine clinical characteristics, comorbidities, and response to treatment.

Results: Thirty-one children were female, and 18 were male (female:male ratio is 1.7:1). Most children (73.5%) with SM displayed onset of SM in 3–6 years. However, most children (57.1%) were diagnosed between the ages of 7–11. The mean time from onset to diagnosis was 1.69 ± 1.37 years. Females displayed a later onset of SM (6.42 ± 2.40 vs. 4.89 ± 0.96; $p = 0.013$) and higher comorbidity rates (71% vs. 38.9%, $p = 0.039$) than males. The vast majority of children received two or more psychiatric diagnoses. Children in the severe group had a longer duration of illness, higher rates of psychiatric comorbidity, speech delay, and treatment resistance.

Conclusion: Our study suggests that SM may have different clinical features according to sex and symptom severity of SM. More information about children with SM is needed to understand the development and maintenance of SM.

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Comorbidity; selective mutism; sex differences; severity

1. Introduction

Selective mutism (SM) is a debilitating childhood disorder in which a child, despite having the ability to speak normally, is unable to speak in specific settings or conditions [1]. As per the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), SM is an anxiety disorder [1]. To establish the diagnosis, this behavior must be evident for at least one month (excluding the first month of school) and lead to impairment in educational, occupational, or social functioning. Moreover, diagnostically, SM cannot be better attributed to a lack of knowledge of, or discomfort with, the primary spoken language or a communication disorder and cannot occur especially among those with a developmental disorder such as autism or psychotic disorders [1].

SM is a relatively rare disorder with an estimated prevalence of 0.11–2.2% [2]. Despite the age of onset of most cases with SM in pre-school years, they are clinically diagnosed during the early elementary school years [3]. However, adolescent-onset SM has been rarely reported [4]. SM is more frequent in females than in males, with a rate of about 1.5:1 to 2.6:1 [2]. However, there are no existing data examining clinical differences between males and females with SM, possibly due to the rare nature of the disorder. However, available data suggest that sex differences in anxiety levels emerge at young ages [5]. Given that anxiety levels are twice as high in females as in males at age 6, sex may play a critical role in clinical differences such as comorbidity or severity [5].

Multiple potential factors play a role in the etiology of SM. Migration, trauma, environmental stressors, temperamental shyness, social withdrawal, speech and language disorders, and genetic predisposition are known to increase the risk of SM [2,6,7]. The heterogeneity of developmental psychopathology has led to divergent psychosocial and pharmacological approaches [8]. In children with SM, cognitive behavioral therapy (CBT) and selective serotonin reuptake inhibitors (SSRIs) are the most common treatments reported [9]. Despite the limited data on SSRIs, results amongst very young children are shown to be promising [10,11]. Also, a case series study involving a combination of psychotherapy and pharmacotherapy showed significant improvements in SM symptoms [12]. A recent review examining the

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aforementioned treatment options concluded that CBT and pharmacotherapy were effective treatment options for SM [9]. Considering CBT stands out on evidence, emerging studies are promising that examine differences in treatment response in children with SM [13].

Children with SM generally have high rates of comorbid psychiatric disorders such as social phobia, specific phobia and separation anxiety disorder, oppositional disorders, attention-deficit/hyperactivity disorder, or elimination disorders [14–16]. In particular, most clinical cases (69%) of SM are diagnosed with social phobia [17]. Further, SM is associated with high rates of developmental delays [14,16]. Comorbidity and symptom overlap have brought along terminological changes in the historical development of SM [18]. Given the impact of high comorbidity rates on symptomatic features, heterogeneous or conflicting clinical descriptions may emerge in the literature.

The substantial discrepancy in etiologic factors and high comorbidity rates contribute to the heterogeneous nature of SM. Thus, associated sociodemographic and clinical characteristics still need to be clarified. We aimed to examine the sociodemographic and clinical factors and sex differences of children with SM in four different tertiary care hospitals. Further, we sought to determine the relationship between SM severity and specific clinical features of SM in these children.

2. Methods

2.1. Study design and population

This study was a retrospective sampling of data from children's clinical and medical file records of four different tertiary hospitals in Turkey. The study consisted of 49 children and adolescents aged 5–13 years who received psychotherapy and/or pharmacotherapy for SM between 2016 and 2021.

To characterize children with a SM diagnosis, the medical file record had to include the ICD-10 codes for SM (F94). Then, the clinical file records of the patients had to contain a DSM-5-based SM diagnosis. Inclusion criteria were: (a) diagnosed SM according to DSM-5, (b) past psychotherapy and/or pharmacotherapy for longer than six months, and (c) age 0–18 years. Exclusion criteria were: (a) intellectual disability (IQ $<$ 70), (b) no prior treatment history, and (c) files with missing data. Missing files represented insufficient data regarding the age of onset, severity of SM symptoms, preferred or applied treatment options, and response to treatment. Five children were excluded since the relevant data were not fully met in the clinical records. After evaluations, 49 cases met DSM-5 criteria for SM.

2.2. Procedures

This study was approved by the local ethics committee (reference number: 2021-02/40).

Sociodemographic factors and clinical (assessment, severity, comorbidity, and treatments) outcomes were obtained from children's clinical file records. Clinical diagnoses of the children were assessed with the Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime Version (K-SADS-PL) by four trained child psychiatrists [19]. The severity of illness and improvement was assessed using the Clinical Global Impression (CGI) scale [20]. DSM-5-based clinical evaluation was used to assess all psychiatric disorders.

The symptom severity at admission and improvement or deterioration after treatment were evaluated with CGI scales. Both Clinical Global Impressions Severity (CGI-S) and Clinical Global Impressions Improvement (CGI-I) scales are rated on a Likert scale ranging from 1 to 7. At the initial assessment, the severity of SM was measured using the CGI-S by an experienced and trained child psychiatrist. The CGI-S scores ranged from 1 to 7 (1 = normal, 7 = extremely sick). Then, children and their parents were offered psychotherapy or pharmacotherapy. Of 10 children, nine received 20 sessions of CBT treatment for SM over 24 weeks. All sessions were held in the outpatient clinic by a CBT-trained child and adolescent psychiatrist. One child received 14 sessions of client-centered play therapy (CCPT) by a CCPT-trained child and adolescent psychiatrist. The remaining 39 children received both pharmacotherapy and semi-structured psychotherapy for SM. Semi-structured psychotherapy sessions included some behavioral techniques (i.e. psychoeducation, self-regulation or self-monitoring techniques, and behavioral exposure exercises), which were held at least twice a month. At the last assessment, treatment responses were measured using the CGI-I. The CGI-I scores ranged from 1 to 7 (1 = very much improved, 7 = very much worse). Cut-off points for the severity of SM were accepted as mild (3), moderate (4), and severe level (5).

Here, the sample was categorized into two groups: severe ($\geq$5) and non-severe ($<$5). The cut-off points for a response to SM treatment were as follows: 1 or 2 points for a positive response, 3 points for a partial response, and 4 or more points for resistance.

2.3. Definitions

The age of onset of SM was defined as the time when symptoms first appeared. The age at diagnosis of SM was accepted as the age at first approval with SM diagnosis by a psychiatrist.

A history of school refusal was considered to be present if at least one of the following three symptoms were met: (a) regular school attendance difficulties, (b) problems staying at school for the whole day, or (c) the typical presence of physical, somatic, or emotional symptoms before the child is to attend school.

For the presence of any anxiety disorder in the mother's history, it was required to be diagnosed by a psychiatrist according to any DSM.

2.4. Statistical analysis

Statistical evaluations were performed with SPSS (Statistical Package for Social Sciences) for Windows 28 (SPSS Inc., Chicago, IL). We used descriptive statistics (mean, standard deviation, interquartile range, and percentages) to

characterize the population. Categorical data were tested with chi-square test. Continuous variables were compared using *t*-test or the Kruskal–Wallis test depending on normality. Two-tailed statistical significance was accepted at $p < 0.05$.

3. Results

This study presents data analyses of 49 children who were treated for SM between 2016 and 2021. The mean age of the sample at the time of admission was 7.55 ± 2.27 years (min–max: 5–13 years), and 63% ($n = 31$) of the children were female. The mean age of onset of non-speaking symptoms was 5.86 ± 2.12. The mean lag time between the first symptom onset and the time of diagnosis was 1.69 ± 1.37 years. None of the children were bi-/multilingual.

The children were divided into three groups according to age at onset and diagnosis: pre-school period (3–6 years), childhood (7–11 years), and adolescence (≥12 years). 73.5% of children displayed onset in 3–6 years. However, most children (57.1%) were diagnosed between the ages of 7–11 years (Table 1). Six children were diagnosed during adolescence, but only two had an onset age of 12 or later. In adolescence, the comorbidity rate was higher than in the two groups (adolescence period: 100%, pre-school period: 26.7%, and childhood period: 64.3%, $p = 0.005$), but the groups did not differ in response to treatment (resistance to treatment in adolescence period: 33.3, pre-school period: 6.7%, and childhood period: 25%, $p = 0.179$).

In total, 14 (28.6%) children had a history of speech and language or motor delay, and two (4.1%) had a history of both. Also, of the 44 children attending school, 20 (44.5%) had a history of school refusal. The sociodemographic characteristics of the children are listed in Table 1.

Familial characteristics of children with SM are presented in Table 2. Children were mostly from nuclear families (73.5%). A total of eight (16.3%) had a family history of SM, and 19 (38.8%) had a history of maternal anxiety.

Most of the people with whom children spoke unaffectedly were family members (44.9%), followed by family members and classmates (26.5%), family members and relatives (24.5%), and family members and teachers (4.1%). Children's preferred communication types and precipitating factors for non-speaking behavior are presented in Table 3.

Of the 49 children with SM, 28 (57%) had at least one DSM-5 psychiatric disorder, 21 (75%) of which were female. Of 28 children, eight (28%) had a separation anxiety disorder, seven (25%) had an oppositional defiant disorder, four (14%) had social phobia, four (14%) had a specific phobia, and three (11%) had attention deficit-hyperactivity disorder. Moreover, two children had two comorbid psychiatric disorders: social phobia and enuresis and oppositional defiant disorder and enuresis (Table 4). While 28 (100%) of children with comorbid psychiatric conditions received psychotherapy and pharmacotherapy together, 10 (47.6%) of children without comorbidity received only psychotherapy.

Clinical differences in children with SM were examined according to sex. While no significant difference was found between females and males regarding symptom severity, developmental delay, duration of SM, and response to treatment, three clinical features were found to be significantly associated with sex: the presence of comorbidity, age at onset, and age at diagnosis. Female children were older at the onset and accordingly, at the diagnosis (6.42 ± 2.40 vs. 4.89 ± 0.96, $p = 0.013$; 8.03 ± 2.37 vs. 6.72 ± 1.87, $p = 0.039$) of SM and had higher rates of psychiatric comorbidity compared to males. Comparisons between males and females are shown in Table 5.

The characteristics of children by SM severity (non-severe/severe) are shown in Table 6. Twenty children (40.8%) were considered as severe according to CGI-S, followed by moderate (30.6) and mild (28.6%). To examine the clinical variables according to SM severity, we divided the group into two subgroups: severe and non-severe (mild-moderate) children with SM. Children in the severe group had a longer duration of illness, higher rates of psychiatric comorbidity, speech delay, and treatment resistance. The severe group also had a higher tendency for school refusal behavior and poor peer relationships (Table 6).

Table 1. Sociodemographic characteristics of the children.

Variable	Total
Sex	
Male	18 (37)[a]
Female	31 (63)[a]
Age groups of onset	
3–6 years	36 (73.5)[a]
7–11 years	11 (22.4)[a]
12+ years	2 (4.1)[a]
Age groups of diagnosis	
3–6 years	15 (30.6)[a]
7–11 years	28 (57.1)[a]
12+ years	6 (12.2)[a]
Age of onset of SM, years	5.86 ± 2.12[b]
Age at diagnosis of SM	7.55 ± 2.27[b]
Duration from symptoms onset to diagnosis, years	1.69 ± 1.37[b]
Duration of SM, years	2.22 ± 1.35[b]
Accompanying medical illness	
No	44 (89.8)[a]
Miscellaneous somatic problems	5 (10.2)[a]
Speech and language delay	
Yes	14 (28.6)[a]
No	35 (71.4)[a]
Motor delay	
Yes	2 (4.1)[a]
No	47 (95.9)[a]
Peer relationships	
Good or average	19 (38.8)[a]
Poor	30 (61.2)[a]
History of shyness, withdrawal or fear of social embarrassment	
Yes	37 (75.5)[a]
No	12 (24.5)[a]
History of school refusal	
Preschool	5 (10.2)[a]
Yes	20 (40.8)[a]
No	24 (49)[a]

SM: selective mutism.
[a]Number (%).
[b]Mean ± SD.

4. Discussion

In this study, we analyzed sociodemographic characteristics and comorbid psychiatric disorders of children with SM by sex and SM symptom severity. Although most children with

Table 2. Familial characteristics of the sample.

	Number (%)
Place of residence	
Urban	31 (63.3)
Rural	18 (36.7)
Family income level[a]	
Minimum wage/less than minimum wage	15 (30.6)
Above the minimum wage	34 (69.4)
Family type	
Nuclear	36 (73.5)
Extended	13 (26.5)
Domestic conflict and/or violence	
Yes	17 (34.7)
No	32 (65.3)
Maternal education level	
Primary education and lower	19 (38.8)
High school level	19 (38.8)
University level	11 (22.4)
Paternal education level	
Primary education and lower	8 (16.3)
High school level	23 (46.9)
University level	18 (36.7)
Family history of shyness	
Yes	36 (73.5)
No	13 (26.5)
Family history of selective mutism	
Yes	8 (16.3)
No	41 (83.7)
Presence of any anxiety disorder in mothers	
Yes	19 (38.8)
No	30 (61.2)

[a]The level of income was established by the minimum wage value on the date of the study.

Table 3. Clinical features of selective mutism.

	Number (%)
Severity of SM	
Mild	14 (28.6)
Moderate	15 (30.6)
Severe	20 (40.8)
People with whom the child speaks	
Only family members	22 (44.9)
Family members and classmates	13 (26.5)
Family members and relatives	12 (24.5)
Family members and teacher(s)	2 (4.1)
Communication by gesturing	
Yes	41 (83.7)
No	8 (16.3)
Communication by nodding their heads	
Yes	42 (85.7)
No	7 (14.3)
Communication by uttering sounds or one-syllable words	
Yes	31 (63.3)
No	18 (36.7)
Communication by whispering	
Yes	26 (53.1)
No	23 (46.9)
Presence of precipitating factor(s)	
Yes	28 (57.1)
No	21 (42.9)
Type of precipitating factor(s)	
Self-awareness of speech impairment	9 (18.8)
Teasing and other negative reactions	10 (20.8)
Separation, loss or trauma	9 (18.8)

SM: selective mutism.

SM (73.5%) displayed the onset of SM within 3–6 years, most children (57.1%) were diagnosed between the ages of 7 and 11. The mean time from onset to diagnosis was 1.69 ± 1.37 years. Male and female children with SM differed significantly in the presence of psychiatric comorbidity, age of onset and age of diagnosis. Females with SM were

Table 4. Comorbid psychiatric disorders, and treatment approaches for selective mutism.

	Number (%)
Presence of psychiatric comorbidity	
Yes	28 (57.1)
No	21 (42.9)
Comorbid psychiatric disorders	
None	21 (42.9)
Anxiety disorders	16 (32.7)
Separation anxiety disorder	8 (16.3)
Specific phobia	4 (8.2)
Social phobia	4 (8.2)
Oppositional defiant disorder	7 (14.3)
Attention-deficit/hyperactivity disorder	3 (6.1)
Social phobia and enuresis	1 (2)
Oppositional defiant disorder and enuresis	1 (2)
Treatment	
Psychotherapy	10 (20.4)
Psychotherapy + pharmacotherapy	39 (79.6)
Pharmacotherapeutic drug preferences	
SSRI only	25 (64.1)
SSRI + antipsychotic	11 (28.2)
SSRI + ADHD medication + antipsychotic	3 (7.6)
Response to treatment	
Resistant to treatment	10 (20.4)
Partial response	12 (24.5)
Positive response	27 (55.1)

ADHD: attention-deficit/hyperactivity disorder; SSRIs: selective serotonin reuptake inhibitors.

significantly older at the onset of SM and were nearly 1.8 times as likely as males to receive at least one DSM-5 psychiatric disorder. Additionally, we found that severe SM patients had a longer illness duration and higher rates of speech delay, psychiatric comorbidity, school refusal behavior, and poor peer relationships than the non-severe group. All severe SM patients received combined therapy, including psychotherapy and pharmacotherapy. The rate of receiving combined therapy in the non-severe group was 65.5% (19/29). The rate of treatment resistance was higher in those with severe SM cases than in those with non-severe SM cases (3.4% vs. 45%).

SM is known to be more common in females [2]. In this study, the majority of the sample (63%) consisted of females, and comorbidity rates were higher in females. So far, no study has focused on comparing the role of sex in SM. In a preliminary study comparing nine males and 21 females with SM, it was reported that there was no difference in age of patients, age of onset, or illness duration [21]. Our study found a later age of onset and age of diagnosis, and a higher comorbidity rate in females than in males. In general, anxiety disorders are more common in females. However, various sex differences have been observed in social–emotional development in pre-school children [22]. Females are more responsive to social and emotional stimuli than males. Accordingly, more active social communication at an early age may have obscured the onset of SM symptoms in females. In childhood, comorbidity of anxiety disorders also differs by sex [23]. Females with anxiety disorders are more likely to receive comorbid psychiatric disorders than males. In our study, the rate of comorbidity of SM was higher in females than in males (38.9% vs. 71%).

In general, SM tends to occur in second to fifth year of life [24]. In addition, one study and a handful of case reports drew attention to the notion of adolescent-onset SM [4,25].

Table 5. Comparisons in terms of sex.

	Male ($n = 18$)	Female ($n = 31$)	t/χ^2	p
Age groups of onset			3.71[a]	0.156
3–6 years	16 (88.9)	20 (64.5)		
7–11 years	2 (11.1)	9 (29)		
12+ years	0	2 (6.5)		
Age groups of diagnosis			3.07[a]	0.215
3–6 years	8 (44.4)	7 (22.6)		
7–11 years	9 (50)	19 (61.3)		
12+ years	1 (5.6)	5 (16.1)		
Speech and language delay			1.48[a]	0.223
Yes	7 (38.9)	7 (22.6)		
No	11 (61.1)	24 (77.4)		
Peer relationships			0.35[a]	0.551
Good or average	6 (33.3)	13 (41.9)		
Poor	12 (66.7)	18 (58.1)		
History of school refusal[c]			4.53[a]	0.103
Yes	6 (33.3)	14 (45.2)		
No	8 (44.4)	16 (51.6)		
People whom the child spoke to			6.44[a]	0.092
Own family, only	10 (55.6)	12 (38.7)		
Family members and relatives	2 (11.1)	10 (32.3)		
Family members and classmates	4 (22.2)	9 (29)		
Family members and own teacher(s)	2 (11.1)	0 (0)		
Presence of psychiatric comorbidity			4.85[a]	**0.038**
Yes	7 (38.9)	22 (71)		
No	11 (61.1)	9 (29)		
Response to treatment			0.94[a]	0.669
Resistant to treatment	4 (22.2)	6 (19.4)		
Partial response	3 (16.7)	9 (29)		
Positive response	11 (61.1)	16 (51.6)		
Age of onset of SM, years	4.89 ± 0.96	6.42 ± 2.40	−2.57[b]	**0.013**
Age at diagnosis of SM, years	6.72 ± 1.87	8.03 ± 2.37	−2.13[b]	**0.039**
Time from symptoms onset to diagnosis, years	1.83 ± 1.65	1.61 ± 1.20	0.53[b]	0.593
Duration of SM, years	2.28 ± 1.63	2.19 ± 1.19	0.21[b]	0.837

Bold values represent $p < 0.05$.
[a]Student's *t*-test.
[b]Chi-square test.
[c]Five cases were not included in the analysis because they were pre-school.

In our sample, most children (73.5%) displayed onset in the pre-school period. Further, 4.1% ($n = 2$) of 49 children appeared to have adolescent-onset SM. In our study, two adolescent-onset SM cases are not surprising, considering the potential factors involved in its etiology, such as trauma, environmental stress, and migration. However, adolescent-onset SM is a noteworthy issue that needs to be addressed in further studies.

We also found an essential lag, 1.69 ± 1.37 years, between the age of onset of SM and age at diagnosis in this study. There is increasing evidence that SM is less likely to be recognized before a child starts primary school [3,14,15]. A study revealed a mean delay of 14 months between symptom onset and diagnosis of SM [14]. A retrospective study revealed that the mean age at diagnosis of children with SM was delayed by approximately four years [26]. One of the factors contributing to this delay is thought to be the absence of non-speaking behavior at home [15]. Behaviors related to SM tend to appear gradually [4]. The tendency to onset by stages may contribute to this delay. In addition, since this behavior is not easily noticed by others in school or social environments, SM may cause to delay in the referral.

Children suffering from SM are known to have some speech and language delays, although there are insufficient data regarding speech and language delays in children with SM. However, studies on SM mostly observed an association between SM and pre-morbid speech and language delays [27]. In a study comparing 54 children with SM and 108 control groups, the rate of developmental delay was found to be higher in children with SM (51.9% in children with SM vs. 11.1% in the control group) [14]. A review subsequent to these studies proposed that a delay in language development is one of the variables that play a role in the etiopathology of SM [28]. In our study, 28.6% of patients displayed speech and language delays. All of these had a speech delay and two had motor delay accompanying speech delay. There was no sex difference related to speech delay. However, comparison of groups according to SM severity revealed that the severe group had a higher rate of pre-morbid speech delay than the non-severe group (55% vs. 10.3%). Thus, our findings suggest that the accompanying pre-morbid speech delays in children with SM may contribute to the SM severity. Further, poor peer relationships and school refusal behaviors were significantly higher in the severe group. Considering the role of communication skills in adapting to the social environment, speech delays may be associated with poor peer relationships and school refusal behaviors.

SM patients have been reported to receive other psychiatric conditions such as speech disorders, anxiety disorders, oppositional defiant disorder, attention-deficit/hyperactivity disorder, and elimination disorders. A meta-analysis of 22 studies of children with SM reported that 80% of children had an additional anxiety disorder [17]. The most common

Table 6. The characteristics of children according to SM severity.

	Non-severe SM ($n = 29$)	Severe SM ($n = 20$)	t/χ^2	p Value
Sex			0.44[a]	1.000
Male	11 (37.9)	7 (35)		
Female	18 (62.1)	13 (65)		
Family income level			1.41[a]	0.236
Minimum wage/less than minimum wage	7 (24.1)	8 (40)		
Above the minimum wage	22 (66.7)	12 (60)		
Place of residence			2.55[a]	0.139
Urban	21 (72.4)	10 (50)		
Rural	8 (27.6)	10 (50)		
Age of onset of SM, years	5.55 ± 2.18	6.30 ± 2.01	−1.22[b]	0.229
Age at diagnosis of SM, years	7.1 ± 2.46	8.20 ± 1.82	−1.78[b]	0.080
Duration from symptoms onset to diagnosis, years	1.55 ± 0.91	1.90 ± 1.86	−0.87[b]	0.388
Duration of SM, years	1.72 ± 0.84	2.95 ± 1.63	−3.43[b]	**0.001**
Speech and language delay			11.56[a]	**0.001**
Yes	3 (10.3)	11 (55)		
No	26 (89.7)	9 (45)		
History of school refusal[c]			12.98[a]	**0.002**
Yes	6 (20.7)	14 (70)		
No	18 (62.1)	6 (30)		
Peer relationship			8.04[a]	**0.007**
Good or average	16 (55.2)	3 (15)		
Poor	13 (44.8)	17 (85)		
Presence of psychiatric comorbidity			14.89[a]	**<0.001**
Yes	10 (34.5)	18 (90)		
No	19 (65.5)	2 (10)		
Family history of selective mutism			0.33[a]	0.563
Yes	4 (13.8)	4 (20)		
No	25 (86.2)	16 (80)		
Treatment			8.66[a]	**0.003**
Psychotherapy	10 (34.5)	0		
Psychotherapy + pharmacotherapy	19 (65.5)	20 (100)		
Response to treatment			12.77[a]	**0.020**
Resistant to treatment	1 (3.4)	9 (45)		
Partial response	8 (27.6)	4 (20)		
Positive response	20 (69)	7 (35)		

Bold values represent $p < 0.05$.
[a]Student's *t*-test.
[b]Chi-square test.
[c]Five cases were not included in the analysis because they were pre-school.

accompanying anxiety disorder is social phobia, with a rate of 94% [29]. Overall, comorbidity rates range from 12% to 100% [24]. Collectively, these findings highlight the high comorbidity rates of SM. In our study, the vast majority (57%) of children with SM received at least one comorbid psychiatric disorder. The most common comorbidity was separation anxiety disorder with a rate of 16.3%, followed by oppositional defiant disorder with a rate of 14.3%. Differences in rates may be due to methodological differences or the heterogeneous nature (different age and sex groups) of the sample included in the study.

5. Conclusion

This study is one of the few studies addressing clinical characteristics by sex and illness severity in SM. Considering the rare nature of SM, prospective and large-sample studies are challenging to conduct. The relatively small sample size, lack of a comparison group, the lack of validated measures for SM assessment, and the retrospective design are the limitations of the study. The strengths of the study are its multicenter design, strict exclusion criteria, and data profile mainly compromised of children who were followed and treated rather than those who applied only once. In the light of this view, we report that SM may have different clinical features according to sex and severity. More information about children with SM is needed to understand the development of SM.

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Ethical approval

This study was approved by the local Ethics Committee of the Medical Faculty of the Cumhuriyet University (reference number: 2021-02/40).

Disclosure statement

The authors have no conflicts of interest to report.

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Data availability statement

The data that support the findings of this study are available from the corresponding author, [HD], upon reasonable request.

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