



# Selective mutism

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## Purpose of review

Selective mutism is a disorder in which an individual fails to speak in certain social situations though speaks normally in other settings. Most commonly, this disorder initially manifests when children fail to speak in school. Selective mutism results in significant social and academic impairment in those affected by it. This review will summarize the current understanding of selective mutism with regard to diagnosis, epidemiology, cause, prognosis, and treatment.

## Recent findings

Studies over the past 20 years have consistently demonstrated a strong relationship between selective mutism and anxiety, most notably social phobia. These findings have led to the recent reclassification of selective mutism as an anxiety disorder in the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition. In addition to anxiety, several other factors have been implicated in the development of selective mutism, including communication delays and immigration/bilingualism, adding to the complexity of the disorder. In the past few years, several randomized studies have supported the efficacy of psychosocial interventions based on a graduated exposure to situations requiring verbal communication. Less data are available regarding the use of pharmacologic treatment, though there are some studies that suggest a potential benefit.

## Summary

Selective mutism is a disorder that typically emerges in early childhood and is currently conceptualized as an anxiety disorder. The development of selective mutism appears to result from the interplay of a variety of genetic, temperamental, environmental, and developmental factors. Although little has been published about selective mutism in the general pediatric literature, pediatric clinicians are in a position to play an important role in the early diagnosis and treatment of this debilitating condition.

## Keywords

pediatric anxiety disorders, selective mutism, social phobia

## INTRODUCTION

Although many children are at greater ease speaking and interacting in familiar environments, some display severe impairments when taken out of their 'comfort zone.' These children may have selective mutism, a condition that causes significant social and academic impairment in children, often persisting over many years. As children often may be more apprehensive or reserved in a doctor office setting, clinicians may dismiss a child's withholding of speech as shyness, missing an important opportunity for appropriate assessment and early intervention. Selective mutism is a condition of which pediatric clinicians may have limited awareness and understanding. A search of the general pediatric journals with the highest impact factors yielded only two publications regarding selective mutism. The earliest was the publication of two case reports of children with selective mutism in 1999 [1]. The second was a survey conducted with the parents of

33 children with selective mutism regarding their experiences with the condition, including the role of their primary care physician [2]. The study found that 70% of study participants were never diagnosed or referred for further evaluation by the physician, even though none of them ever spoke in the doctor's office. Though selective mutism was initially described over 100 years ago, there has been persistent uncertainty regarding the nature of this disorder and its causes. This paper provides an overview of

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## KEY POINTS

- Selective mutism is characterized by an individual's consistent failure to speak in some social situations despite speaking in others.
- In the DSM-5, selective mutism is now classified as an anxiety disorder.
- Selective mutism is highly comorbid with SOP, and the two disorders share commonalities with regard to etiologic factors and treatment approaches.
- Unique risk factors such as communication deficits and bilingualism have been implicated in the development of selective mutism.
- Pediatric clinicians can play an integral role in the early diagnosis and treatment of selective mutism.

the current understanding of selective mutism, with particular attention to its recent classification as an anxiety disorder in the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5). Although the primary focus of this review is selective mutism, it will also include a discussion of its highly comorbid condition, social phobia (SOP), in an effort to elucidate commonalities and differences regarding these two conditions.

## DIAGNOSIS

Selective mutism is characterized by an individual's consistent failure to speak in social situations in which there is an expectation to speak (e.g., at school), despite speaking in other situations [3]. As per the DSM-5 criteria, to make a diagnosis of selective mutism, the symptoms must be present for at least 1 month (excluding the first month in school) and interfere with the individual's academic, occupational, or social function. The failure to speak cannot be attributable to a lack of comfort or fluency with the given language, and cannot be better accounted for by a communication disorder or other developmental condition (e.g., autism spectrum disorder).

The earliest published account of selective mutism dates back to 1877, when affected children were described as having 'aphasia voluntaria' [4]. The diagnosis of selective mutism initially appeared in the DSM-III, referred to then as 'elective mutism' [5]. The condition was renamed 'selective mutism' in the DSM-IV [6], reflecting the evolving understanding that failure to speak was not primarily a manifestation of oppositional behavior. Another shift in the conceptualization of selective mutism came in 2013 with the publication of the DSM-5.

Whereas selective mutism was previously classified under the chapter entitled 'Disorders usually first diagnosed in infancy, childhood, or adolescence', in the new edition it was included under the umbrella of anxiety disorders [3]. This change was made as a result of a growing body of data showing a strong relationship between selective mutism and anxiety, and, most specifically, SOP. Whereas selective mutism is defined as failure to speak in certain social situations, anxiety in SOP is more broadly characterized. As per the DSM-5, individuals with SOP experience marked fear or anxiety about one or more social situations, in which they are exposed to possible scrutiny by others [3]. Social situations may take the form of day to day social interactions (e.g., meeting new people), being observed by others (e.g., eating), and performing in front of others (e.g., giving a speech). It is specified that to make a diagnosis of SOP in children, anxiety must occur in peer settings (not just in interactions with adults) and anxiety may be expressed by behaviors, including crying, tantrums, freezing, clinging, and failure to speak.

Research conducted over the last 20 years has shaped the current understanding of selective mutism as most closely resembling anxiety disorders, and led to the recent DSM-5 reclassification. The evidence supporting this change is extensively reviewed in a recent study by Muris and Ollendick [7<sup>11</sup>]. In many of these studies, the majority of children with selective mutism also met criteria for a comorbid diagnosis of SOP or another anxiety disorder, and children with selective mutism consistently showed elevated scores on standardized measures of anxiety symptoms [8–11]. In a long-term follow-up study published on children with selective mutism, rates of anxiety disorders later in life were high [12]. Studies examining the family history of children with selective mutism have also supported the link between selective mutism and anxiety [9–11]. Although the evidence for the relationship between selective mutism and social anxiety is strong, there appear to be unique features that distinguish selective mutism from SOP, and may support the continued conceptualization of selective mutism as a distinct entity. For instance, factors such as associated language problems, oppositionality, and immigration/bilingualism have been implicated in the development of selective mutism, and underscore the complexity of this diagnosis [13,14].

## EPIDEMIOLOGY

Prevalence rates of selective mutism have ranged from as low as 0.11% to as high as 2.2%, depending

on the population studied and the diagnostic criteria that were applied [15–17]. A 2002 study examining the prevalence of selective mutism in kindergarten, first, and second-grade students in a school district in Los Angeles, yielded a prevalence rate of 0.71% [18]. A similar rate of 0.76% was found in a school-based study in West Jerusalem [19]. The average age of onset for selective mutism ranges from 2 to 5 years [9,20], though symptoms may not come to attention until children enter school. In contrast to the relatively low prevalence of selective mutism, SOP is common, with US lifetime adult prevalence rates of 12.1% [21], and estimated rates of 9.1% in children and adolescents [22]. SOP typically presents later in childhood, between 8 and 15 years of age [23], and occurs more frequently in girls [24]. Elevated rates in girls have also been found in selective mutism (ranging from 1.5–2.6:1) [20,25], though several studies have pointed to a more even sex ratio [18,19]. The course of selective mutism and SOP are described further below, but in general, while mutism typically improves throughout childhood other mental health disorders often emerge later on. SOP symptoms tend to persist over the lifespan.

## CAUSE

The cause of selective mutism is thought to be influenced by the interplay of genetic, temperamental, environmental, and developmental factors. An overview of select factors is presented here; for a more comprehensive discussion of etiological factors and postulated models of the disorder please see recent reviews on this subject [7<sup>11</sup>,13,26].

## Genetic

Studies examining behavioral traits and psychopathology in relatives of individuals with selective mutism show increased rates of selective mutism, social reticence, and SOP [9,27]. In one study examining 70 children with selective mutism, 37% of parents had a lifetime diagnosis of SOP compared with only 14% of control parents [10]. In a recent treatment study of 24 children with selective mutism, there was a positive history of selective mutism in 10 of the 24 families, and in all but one family, at least one parent reported a history of social anxiety symptoms in childhood [11]. To date, there has been at least one study published regarding a specific genetic variation that may be associated with selective mutism. The rs2710102 polymorphism of the contactin-associated protein-like 2 gene was found to be associated with a higher risk of selective mutism

in children as well as higher symptoms of social anxiety in young adults [28]. Additional genes have been implicated in relation to symptoms of social anxiety (e.g., adrenoceptor beta 1 and catechol-O-methyltransferase genes) [29,30], and further studies of these genes with regard to selective mutism may yield new associations.

## Temperamental

Behavioral inhibition is a temperament style where an individual displays a tendency to show fearfulness and avoidance in unfamiliar situations. It has been well established that young children exhibiting behavioral inhibition have an increased risk of developing anxiety disorders later on in life [31,32]. Consistent with the data linking selective mutism and SOP, studies have also shown associations between selective mutism and behavioral inhibition [33,34<sup>12</sup>], though longitudinal studies exploring this relationship are needed. Related to the discussion of temperament, shyness is a common personality trait where individuals have a tendency to feel awkward, worried, or tense during social encounters, especially with unfamiliar people. Children who present with features of SOP or selective mutism may often be labeled as just being shy, though there are data that underscore that shyness and SOP are not the same entity (no specific studies have been done examining shyness and selective mutism). A number of studies have shown that only a small fraction of individuals who identify as shy meet the criteria for the diagnosis of SOP, and that those with the disorder exhibit significantly higher rates of impairment, as well as the presence of other mental health disorders such as depression and substance abuse [35,36]. For individuals with selective mutism and SOP, obtaining an accurate diagnosis and treatment is critical and dismissing them as just being shy is a potentially harmful misconception.

## Environmental

A finding that has consistently been shown in the literature is higher rates of selective mutism in bilingual children from immigrant families. In the Israeli study cited earlier, selective mutism prevalence was found to be 2.2% among the immigrant children [19]. Similarly, a large case series showed that 28% of Swiss and German children with selective mutism were immigrants [16]. The complex issue of diagnosing selective mutism in bilingual children is addressed in a study by Toppelberg *et al.* [37]. The authors caution that selective mutism must be distinguished from the normal 'silent period' typically seen in children acquiring a second

language. Features that may suggest selective mutism include when the mutism is prolonged or appears to be disproportionate to the degree of second language knowledge and exposure, when mutism is present in both languages, and when associated symptoms of anxiety or inhibited behavior are present.

## Developmental

Children with selective mutism have been found to have higher rates of a variety of developmental conditions. In a sample of 54 children with selective mutism, 68.5% met the criteria for a diagnosis indicating a developmental disorder or delay compared with only 13.0% of the control group [20]. Children with selective mutism had higher rates of elimination disorders, motor delays, and exhibited a lower mean performance intelligence quotient on cognitive testing. Half of the children with selective mutism met the criteria for one or more communication disorders, and many additional studies have provided evidence of underlying speech and language deficits in children with selective mutism [16,38]. In an assessment of 44 children with selective mutism, they were found to score significantly lower across three measures of receptive language when compared with children with anxiety disorders and normal controls [39]. Beyond language disorders, additional neurodevelopmental factors have been suggested to play an etiological role in the development of selective mutism. Muchnik *et al.* [40] have proposed that an aberrant auditory processing function may influence how children with selective mutism perceive their own voices, with 71% of children with selective mutism found to have abnormalities in efferent auditory pathways versus only 16% of controls.

## PROGNOSIS

Children with selective mutism exhibit significant academic and social impairment [18,27,41]. The few long-term follow-up studies that exist show that whereas symptoms of selective mutism typically improve over time, individuals often continue to exhibit communication issues and social anxiety, and are at higher risk for other psychiatric disorders. In one study, 33 young adults were assessed an average of 13 years after they were initially diagnosed with selective mutism [12]. All individuals showed some improvement in symptoms, with 58% demonstrating a complete remission in symptoms. However, rates of psychopathology were high, with 58% of the sample having any psychiatric disorder, and 42% having a phobic disorder (with SOP being

most common). SOP tends to have a relatively chronic course, with individuals exhibiting symptoms throughout their lifetime. SOP in childhood is associated with school refusal and dropping out of school at a young age, as well as future risk of depression and substance abuse [42]. In another follow-up study of 45 individuals with selective mutism, 39% showed complete remission (with an additional 29% reporting remarkable improvement), with an average symptom duration of 9 years [27]. In both studies, symptoms generally improved gradually over time, although a more abrupt cessation of symptoms was reported in some cases.

## TREATMENT

Psychosocial and pharmacological treatments have shown efficacy in the treatment of pediatric anxiety disorders [43]. Given the decreased prevalence of selective mutism compared with SOP and other anxiety disorders, and the typically younger ages of children with selective mutism, data regarding treatment are much more limited. Most of the research to date has involved case studies or trials with very small sample sizes. However, more recently there have been several larger studies conducted, particularly regarding the use of innovative psychosocial interventions.

## Psychosocial

Of all the psychosocial interventions, cognitive-behavioral therapy (CBT) has the strongest evidence base in the treatment of pediatric anxiety disorders [44]. CBT is a structured, short-term treatment aimed at modifying people's thinking patterns and behavior. There have been many studies supporting the efficacy of CBT in children with SOP, incorporating the use of various modalities, such as individual, group, and even web-based treatment [45–47]. Data supporting the use of similar interventions for the treatment of selective mutism is emerging, though features unique to selective mutism (e.g., younger ages, failure to speak to treating therapist) necessitate modifications in the approaches used. An extensive review of the literature between 1990 and 2005 regarding psychosocial interventions for selective mutism was performed by Cohan *et al.* [48], though most of these involved case studies. Consistent with the literature regarding anxiety disorders, the reviewers found the most evidence supporting the use of cognitive-behavioral-based approaches.

In recent years, several randomized controlled trials (RCTs) have been conducted in children with selective mutism, providing further data supporting

the availability of effective treatments. One trial involving 24 children with selective mutism showed that children receiving psychosocial treatment significantly increased speech compared with a waitlist control group [11]. The investigators also noted a greater change in younger children, underscoring the importance of early intervention. A follow-up study conducted 1 year later confirmed that speech improvement was maintained, although many children still had comorbid anxiety disorders [49]. In another study, 21 children with selective mutism were randomized to either 24 weeks of a treatment program, referred to as Integrated Behavior Therapy for Selective Mutism, or 12 weeks in a waitlist control group [50]. Those in the treatment group showed increased speaking behavior across all raters (including blinded clinician assessments), whereas no significant improvement was found in the waitlist group. At the end of the treatment program, 67% of children who received Integrated Behavior Therapy for Selective Mutism no longer met the criteria for selective mutism whereas all in the control group did (at week 12). Improvement was maintained over 3 months of follow-up. Both of these studies incorporated similar approaches, including psychoeducation, strong involvement of parents and teachers, strategies to build rapport between the treating therapist and child, the use of behavioral rewards, and gradually increased exposure to situations requiring verbal communication according to a predetermined hierarchy (e.g., initially speaking to the therapist with parent present, and then to therapist alone).

### Psychopharmacology

Selective serotonin reuptake inhibitors are the most frequently prescribed medication class for individuals with anxiety and SOP and have shown good efficacy in studies [51]. Though very limited information is available regarding their use in selective mutism, there are some data that suggest they may be beneficial. In a 12-week RCT comparing fluoxetine (mean maximum dose of 21.4 mg) to placebo in 15 children, both placebo and treatment groups improved in selective mutism symptoms over the course of the study. Relatively higher improvements were present in the treatment group versus placebo on parent ratings, although no differences were noted on clinician or teacher ratings [52]. In a 9-week open study of fluoxetine among 21 children (mean end dose of 28.1 mg), 76% were rated as improved on the Clinical Global Improvement Scale [53]. Additional case-reports, and nonrandomized studies have also shown some support for the use of selective serotonin reuptake inhibitors [54,55],

though it is clear that larger RCTs are necessary to clarify the role of medication in the treatment of children with selective mutism, particularly given the young ages of many of those affected.

### CONCLUSION

Selective mutism is a condition that emerges early in childhood, and often results in significant social and academic impairment over an extended period of time. Even after the core symptoms of selective mutism resolve, individuals frequently experience persistent difficulties related to social communication and anxiety. An abundance of data has demonstrated close ties between selective mutism and anxiety, and has resulted in the reclassification of selective mutism as an anxiety disorder in the latest edition of the DSM. Evidence is building for the use of psychosocial and pharmacological approaches in the treatment of selective mutism. Although many of these treatments have been adapted from their use in pediatric anxiety disorders, it is important to recognize the unique features that may present in children with selective mutism, such as communication disorders, oppositional behavior, and bilingualism, that may necessitate differentiated treatment approaches.

Given the reported prevalence rates, pediatric primary care providers can expect to see several children with selective mutism in their practices (and even higher numbers of children with SOP). Early diagnosis and initiation of treatment is critical, as the literature suggests that symptoms may become more difficult to treat the longer they persist. When clinicians see a child who does not speak in the office, they should inquire further about the child's use of language in other settings, particularly at home and at school. Requesting that the parent bring in videos of the child, as well as observing the child interact with the parent alone, may help in clarifying the diagnosis. As indicated, additional history should be obtained regarding the child's overall development (with particular attention to speech and language), what languages are spoken in the home, the presence of other anxiety or behavioral symptoms, and whether there is a family history of selective mutism or anxiety. If selective mutism is suspected, referral for further evaluation and treatment should be initiated without delay. The clinician should also assist the family in ensuring that the child's school is involved in the evaluation and treatment process. Though not a substitute for appropriate treatment by an experienced clinician, excellent information regarding strategies for interacting with children who have selective mutism can be found in the resources listed

below. These include avoiding placing pressure on the child to speak and building rapport with the child through fun, nonverbal means.

## Acknowledgements

*Resources – Selective Mutism Group – Childhood Anxiety Network:* <http://www.selectivemutism.org/>. *Selective Mutism Anxiety Research and Treatment Center:* <http://www.selectivemutismcenter.org/home/home>. *Child Mind Institute:* <http://www.childmind.org/en/topics/selective-mutism>. *WorryWiseKids:* <http://www.worrywisekids.org/>. *Anxiety and Depression Association of America:* <http://www.adaa.org/>. *The Selective Mutism Resource Manual, by Maggie Johnson and Alison Wintgens.*

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## Conflicts of interest

There are no conflicts of interest.

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- of outstanding interest

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