Psychiatric Assessment of Social Impairment Across the Lifespan

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**ABSTRACT:** Although autism spectrum disorder (ASD) is the prototypical psychiatric disorder of social impairment, several if not most psychiatric disorders are characterized by prominent impairments in social functioning. A challenge in clinically assessing and describing social impairment is that it has been variably defined and can be difficult to measure. In this article we consider the psychiatric differential diagnosis of social impairment within the DSM-5 framework. We describe the features of social impairment in 13 DSM-5 disorders from a developmental perspective and highlight diagnostic factors that differentiate among the disorders, including the main features of social impairment, verbal communication, nonverbal communication, course of social impairment, social cognition, and key features of accompanying neuropsychiatric symptoms. We conclude by describing an approach for assessing social impairment across the lifespan.

**Keywords:** autism spectrum disorder, differential diagnosis, psychiatric disorders, social cognition, social impairment

Social functioning is a multidimensional construct that is a central component of many psychiatric disorders. In the *Diagnostic and Statistical Manual of Mental Disorders*, fifth edition (DSM-5), most disorders require that the presence of symptoms cause “clinically significant distress or impairment in social, occupational, or other important areas of functioning.” Impairment in social functioning has been associated with greater psychiatric symptom severity across multiple psychiatric disorders, while social isolation and loneliness are associated with increased morbidity. A challenge in clinically assessing and furthering research on social impairment is that it has been variably defined and can be difficult to measure. There is no standardized, widely accepted definition of social functioning. Adequate social functioning draws upon a large number of different brain structures, connectivity circuits, and neurochemical systems, making this area of functioning vulnerable to insult while also having the potential for compensation or recovery. Importantly, typical development of social behavior and social skills seems to occur during time-sensitive periods of neurodevelopment in a generally predictable sequence and may depend upon a process of neural specialization. Deficits in social cognition, the psychological processes that underlie social behavior, encompass one of many potential aberrations underlying social impairment. DSM-5 has included social cognition as one of the six core neurocognitive domains. Deficits in social cognition can present as impaired theory of mind (ToM); inability to understand the mental states of others; reduced emotional empathy (inability to share others’ feelings), poor social perception (problems recognizing and responding to social cues), and abnormal behaviors such as lack of manners or interpersonal boundary infringements.

Autism spectrum disorder (ASD) is a neurodevelopmental disorder with social impairment as a core diagnostic symptom. Several if not most psychiatric disorders, however, are characterized by prominent impairments in social functioning. While ASD is the prototypical social impairment disorder, many other DSM-5 disorders include aberrant social functioning, albeit with differing presentations and an impact that may not be as emphasized or fully addressed by clinicians. Importantly, social impairment associated with psychiatric disorders can have profound effects on social, academic, and occupational functioning. A comprehensive assessment of social functioning is an important component of the psychiatric diagnostic assessment. Equally, ongoing assessment and monitoring of social functioning is required to monitor treatment response and recovery. The goals of this article are to present the psychiatric differential diagnosis of social impairment within the DSM-5 framework and to describe an approach for assessing social impairment across the lifespan.

**DSM-5 DIFFERENTIAL DIAGNOSIS OF SOCIAL IMPAIRMENT**

We will now discuss DSM-5 disorders associated with social impairment from a developmental perspective. Disorders are

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grouped based upon age of onset, and we highlight aspects of social impairment that may be of value to consider diagnostically. The key features for the differential diagnosis of social impairment in each disorder appear in an offset paragraph at the end of each section.

Prior to Preschool-Aged Onset (~3 to 4 Years Old)

Autism spectrum disorder ASD is a heterogeneous neurodevelopmental disorder characterized by persistent deficits in social communication and social interaction as well as by restricted, repetitive patterns of behavior, interests, or activities. Although the clinical presentation of ASD is heterogeneous, the presence of persistent social impairment across multiple settings is ubiquitous and is considered a core symptom of this disorder. DSM-5 criteria for deficits in social communication and social impairment include the following: challenges in social-emotional reciprocity (such as lack of initiation, abnormal approach, failure in back-and-forth exchange, and limited interest in sharing emotional and affective responses); deficits in nonverbal communicative behaviors (such as poorly integrated verbal and nonverbal communication, abnormal eye contact, and lack of gestures or facial expression); and deficits in developing, maintaining, and understanding relationships. Among the core symptoms of ASD, deficits in social impairment are more stable over time than deficits in language and repetitive behaviors, which often improve with age.10

Social impairment in ASD typically begins early in life and can persist into adulthood, but the nature of social impairment can change over the course of development and have varying impacts at different developmental stages.11 Individuals with ASD demonstrate deficits in social cognition across the lifespan. As early as 12 months of age, infants who are later diagnosed with ASD can demonstrate deficits in social behaviors compared to typically developing peers, including atypical eye contact and visual tracking, decreased social interest and imitation, and less social smiling.12 Additional communication deficits that signal early red flags for ASD during the first few years of life include decreased shared gaze, directed pointing, and vocalizing to gain attention; decreased interest in other children or adults; and limited pretend or imaginary play.13 Social difficulties that become apparent in preschool-aged children with ASD include decreased joint attention and engagement.14 Notably, children with ASD often demonstrate normal, healthy attachment relationships with their primary caregivers and familiar adults.15 Elementary school-aged children with ASD have difficulties recognizing subtle social cues and emotional states in others, as well as difficulty taking into account another’s perspective, which can lead to egocentric responses to social situations.16 Children with ASD often have more social difficulty with peers than with adults.15 Adolescents with ASD have fewer friends and less contact with friends outside of school, and are less able to get along with others, compared to adolescents without ASD.11 One multidecade longitudinal study of individuals with ASD demonstrated that most individuals had poor social outcomes in adulthood.16 In this study, 56% of individuals reported that they had no friends or acquaintances as adults.

The ability to acquire language—the use of symbols to communicate through words—is highly variable among individuals with ASD. Language abnormalities seen in verbal children with ASD include use of language that is restricted, stereotyped, ritualized, or perseverative.13 Additionally, echolalia (immediate repetition of exactly what is said by another person), palilalia (delayed repetition of words or phrases), abnormalities in prosody, and excessive or repetitive questioning can be observed.

Importantly, social communication and social-interaction deficits must be accompanied by restricted, repetitive patterns of behavior, interests, or activities in order to qualify for a diagnosis of ASD.1 These include the following: stereotyped or repetitive motor movements; insistence on sameness, inflexible adherence to routines; highly restricted, fixated interests that are abnormal in intensity or focus; and hyper-or hypo-reactivity to sensory input or unusual interest in sensory aspects of the environment. At least two of these four behaviors must occur. These restricted, repetitive patterns of behavior are unique to ASD and are rarely, if ever, seen in other disorders associated with social impairment.

- The key features for the differential diagnosis of social impairment in ASD are global social deficits that begin early in development, that persist throughout life and across multiple settings, and that are accompanied by restricted, repetitive patterns of behavior and interests.

Trauma and Stressor-Related Disorders of Early Childhood

Extreme social deprivation and neglect during early childhood has long been associated with two patterns of aberrant social behavior.17 One is characterized by social indiscrimination and disinhibition, while the other is characterized by social withdrawal and unresponsiveness. These are classified as two distinct trauma- and stressor-related disorders in DSM-5: disinhibited social engagement disorder (DSED) and reactive attachment disorder (RAD). Social impairment is a core symptom of each of these disorders.1

Both DSED and RAD are characterized by pervasive social impairment that begins prior to five years of age and originates from depriving and pathogenic care conditions.18 Because little is known about the validity of establishing these diagnoses after the age of five, they are considered disorders of early childhood.17 DSED is characterized by a pattern of behavior in which the child approaches and interacts with unfamiliar adults in a disinhibited manner. These children may be willing to leave their caregivers and go off with unfamiliar adults. Their social approach tends to be overly familiar and lacking in age-appropriate physical and verbal boundaries.1 Their “friendliness” can be perceived as superficial and uncomfortable by adults.17 By contrast, RAD is characterized by a consistent pattern of inhibited, emotionally withdrawn behavior toward adult caregivers. These children either do not initiate or show little interest in interacting with
caregivers, have little social reciprocity, have limited positive affect, and do not seek or respond to comfort when distressed. They may also have episodes of unexplained irritability, sadness, or fear during nonthreatening interactions with adult caregivers. While grouped under trauma- and stressor-related disorders in DSM-5, DSED and RAD may functionally be viewed as social impairment syndromes because of the resultant degree of social dysfunction. Social impairment in DSED and RAD is not specific to a single relationship and generalizes across settings, as children with DSED or RAD have deficits in social understanding and interpretation of social cues. In terms of deficits in social cognition, RAD can be conceptualized as a distortion or misattribution of social cognition, with an avoidant communication style, whereas DSED is characterized by an impairment in theory of mind and ability to mentalize, where the goal of the intrusive behavior is attention seeking.

The majority of DSED and RAD research has focused on early childhood. Little is known about the continuity of these disorders and the social outcomes later in life. Based upon the Bucharest Early Intervention Project, which randomized Romanian orphans to either ongoing care in institutions or foster care, RAD appears to be more reversible than DSED. Among orphans who were fostered at a mean age of 22 months, levels of RAD were comparable to never-institutionalized children by 30 months of age. Those who remained institutionalized had stable RAD signs through eight years of age. By contrast, children with DSED had a more variable response to foster care placement, with much less dramatic overall reduction in signs of DSED.

The limited data that exist in school-aged children suggest ongoing social impairment. One study compared pragmatic language ability (the social use of language) in 126 children (ages 5–8 years) with RAD or ASD versus typically developing children using the Children’s Communication Checklist. The checklist includes seven subscales related to speech, including one subscale assessing non-language aspects of peer relationships, and one subscale assessing specific interests. In Sadiq and colleagues’ study, the RAD group demonstrated marked social impairments, with a profile that was distinct from ASD. Children with RAD demonstrated more severe difficulties in the use of social context, in developing rapport, and in social relationships than the ASD group did, highlighting the degree of impairment in social communication during middle childhood. It has also been observed that the indiscriminate behavior observed in DSED is associated with difficulties initiating and adequately responding to peer relationships during adolescence. These adolescents may have an overly broad concept of friendship, demonstrating shallow and frequently shifting friendships.

The key feature for the differential diagnosis of social impairment in DSED and RAD, respectively, is the contextual history of a pattern of extremely insufficient care that severely limits opportunities to form selective attachments, which is accompanied by either pervasive social disinhibition or inhibited, withdrawn behavior in a young child.

Intellectual disability Intellectual disability (ID) is a disorder with onset during early childhood; it includes global deficits in intellectual and adaptive functioning. Social impairment is a common associated symptom of ID. The nature and severity of social impairment among individuals with ID is highly variable because of the heterogeneity of the clinical presentation and biologic etiologies. Certain subtypes of ID with known genetic causes are associated with distinct patterns of social functioning. For example, decreased eye contact, social anxiety, and social withdrawal are common findings among individuals with fragile X syndrome. By contrast, individuals with Williams syndrome have increased social interest and a highly prosocial personality that has been described as very friendly and endearing. Many individuals with ID can be quite sociable, albeit at times inappropriately or excessively so. An additional complicating factor is the bidirectional overlap between ID and ASD. Recent surveys have found that 31% of children with ASD have comorbid ID. Conversely, phenotypic characteristics of ASD have been observed in several genetic disorders associated with ID, including fragile X syndrome, Down syndrome, Rett syndrome, and tuberous sclerosis complex. In summary, the full range of social impairment, from social withdrawal to excessive, inappropriate social interactions, can occur in ID.

Several factors may contribute to social impairment in ID, including maladaptive behaviors, communication deficits, lack of knowledge of social norms, and environmental factors. Maladaptive behaviors such as self-injury and aggression can impede the development and display of appropriate social skills. A study of 276 individuals with severe or profound ID showed that individuals who demonstrated self-injury or aggression had poorer social skills. Interestingly, a separate study demonstrated that aggressive behavior in adults with ID typically serves a social function such as attention, tangible reward, or escape. It has been hypothesized that the severity of ID may be correlated with social impairment.

The key features for the differential diagnosis of social impairment in ID are the presence of adaptive-functioning deficits that result in failure to meet developmental norms across numerous areas of development or that, without ongoing support, limit functioning in multiple activities of daily life.

School-Aged Onset (5 to 11 Years Old) Attention-deficit/hyperactivity disorder Attention-deficit/hyperactivity disorder (ADHD) is among the most common neurobehavioral disorders, with onset of symptoms prior to the age of 12 years, occurring in 6%–9% of children and 5% of adults in the United States. According to DSM-5, ADHD is characterized by a persistent pattern of inattention or hyperactivity and impulsivity that interferes with functioning or development.
Impaired social functioning has been extensively documented among individuals with ADHD and is increasingly recognized as an associated symptom of this disorder. Children with ADHD are rated as lower on social preference, higher on social impact, less well-liked, and more often rejected by their peers. Additionally, they are disliked by children of a higher status within their peer groups, suggesting exclusion by more popular peers. Fifty percent to 80% of primary school children with ADHD are peer rejected, compared to 10%–15% of typically developing peers. Children with ADHD are also more likely to suffer from peer victimization. A study that assessed friendship patterns among girls (ages 6–12 years) attending summer camps found that girls with ADHD were more likely to have no friends at camp. Another study assessing children ages 6–13 years found that those with ADHD had significantly lower peer-rated social preference scores than those without ADHD. The severity of social impairment is similar between girls and boys with ADHD. Peer difficulties among children with ADHD are immediately apparent in new social groups and occur in multiple settings. Social impairment associated with ADHD likely persists into adulthood. Adults with ADHD who are taking a medication for ADHD symptoms report greater challenges focusing during conversations, arriving on time to social events, making friends, and maintaining friendships than adults without ADHD. Generally, individuals with ADHD have social interest but have difficulty attuning their behavior to other people—which may be related to difficulty restricting behavior or resisting the temptation of immediate reward.

Some of the behaviors contributing to social impairment are likely the direct consequence of hyperactivity and inattention, the two core symptoms of ADHD. Hyperactivity leads to restless and intrusive behaviors such as yelling, running, talking at inappropriate times, and interrupting other children’s play, which can be aversive to other children. Inattention can diminish observational learning of social skills and result in decreased attention to social cues. It can also contribute to difficulty listening, becoming distracted during conversation, and trouble switching roles. Children with ADHD–combined subtype are more likely to be actively rejected by peers, whereas children with ADHD–inattentive subtype are more likely to be socially isolated and rated by their peers as shy. In a standardized, computer-simulated chat room, children with ADHD–combined subtype made more hostile comments, whereas children with ADHD–inattentive subtype made fewer comments and had more difficulty remembering the conversation.

Increasing evidence suggests that the social impairment associated with ADHD cannot be fully accounted for by hyperactivity and inattention. First, not all children with ADHD demonstrate social impairment. Second, while stimulant medications are effective in treating hyperactivity and inattention, they have minimal effect on social deficits. Medications for ADHD have been shown to reduce negative peer interactions but do not increase positive interactions. Social-cognition factors that may contribute to social impairment include neuropsychological deficits, positive illusionary bias, and social-cue deficits. Findings have been mixed with regard to whether neuropsychological deficits such as behavioral inhibition and impaired executive functioning contribute to social impairment. Positive illusionary social bias, defined as the discrepancy between adult ratings of a child’s social acceptance and the child’s own ratings, is common among children with ADHD. It is unclear whether this bias persists into adulthood. The major proposed hypothesis for this bias has been that it functions akin to a psychological coping mechanism, protecting the self-esteem of children with ADHD. Finally, social-cue deficits may play a role in social impairment. Children with ADHD have deficits in recognizing social cues and in generating hypothetical responses to videotaped social interactions. Adults with ADHD demonstrate impaired recognition of the emotional states of others. The tendency to misattribute social cues among individuals with ADHD is random rather than hostile.

- The key features for the differential diagnosis of social impairment in ADHD are inattention, hyperactivity, and impulsivity, which are present prior to age 12 years and are present in two or more settings.

SELECTIVE MUTISM Selective mutism (SM) is characterized by severe impairments with speaking during certain situations despite normal speech in other situations. The diagnostic criteria include a consistent failure to speak in specific social situations that interferes with educational or occupational achievement or social communication and that occurs for at least one month (but is not limited to the first month of school). SM is considered a disorder of young children; the onset of symptoms typically occurs between 2.7 and 4.1 years of age and rarely occurs after 10 years of age. There is often a substantial delay between onset of symptoms and time of clinical assessment, likely because symptoms rarely occur at home and become markedly apparent only when a child begins school. Despite failure to speak in more demanding situations, nonverbal communications tend to be age-appropriate across settings, and children with SM typically demonstrate prosocial nonverbal communicative behaviors such as nodding, smiling, or giggling.

While it is reasonable to assume that SM would affect the ability to develop and sustain peer relationships and to participate appropriately in academics, and would also increase risk of peer victimization, empirical data are scarce. One study assessed the social competence of school-aged children (mean age = 8.2 years) as rated by primary caregivers and teachers. This study found that children with SM had lower self-control, self-assertion, and total social skills than children with mixed anxiety symptoms and typically developing controls. Future research on the effect of SM on peer acceptance and peer relationships during childhood and adolescence is needed.

While prospective, long-term studies on the outcome of SM are rare, the existing evidence suggests that symptoms
often improve with age but that some social and communication deficits may persist into adulthood. In an 8.5-year follow-up study of 33 individuals with SM diagnosed during childhood, more than 80% of the patients demonstrated either marked or total improvement of SM symptoms. Another study followed 45 children with SM (mean age = 8.7 years) and determined that 39% of patients achieved complete remission over 12 years of follow-up. The mean duration of SM symptoms was 8 years. At follow-up, the adults with SM self-rated themselves as less independent, less motivated, less self-confident, and less mature than an age-, sex-, and socioeconomic status–matched control group.

The etiology of SM has not been conclusively elucidated and likely has a complex, multi-determined pathophysiology. Some possible etiologies include the following: language deficits, anxiety-based avoidance of speech, and aberrant auditory monitoring. Multiple studies have demonstrated a range of preexisting speech or language disorders among children with SM. Notably, children with SM demonstrate age-appropriate nonverbal communication. It has been postulated that deficits in verbal communication may create a cycle wherein imperfect speech leads to embarrassment, limiting future speech. Avoidance of speech reinforces the cycle by limiting the development of language skills. One study found that 28% of children with SM had an expressive language disorder, while 20% had a speech articulation disorder. Another retrospective study of 97 Swedish children with SM demonstrated that 27% had delayed or abnormal speech development.

A third study comparing narrative skills in children with SM and children with social phobia demonstrated that the SM group produced shorter, less linguistically complex narratives than children with social phobia, both in the home and clinic settings. There is a strong relationship between SM and anxiety, both within an individual and in family members of individuals with SM. In terms of aberrant auditory monitoring, initial studies have demonstrated aberrant functioning of the middle-ear acoustic reflex and the medial olivocochlear bundle, which are both involved in monitoring and regulating vocalization, among children with SM. It has been hypothesized that children with SM may adapt to this aberrant auditory feedback system by whispering, restricting speech, or avoiding speech.

- The key features for the differential diagnosis of social impairment in SM are failure to speak in certain situations despite normal speech in familiar situations and prosocial nonverbal communications across settings in an anxious child.

**Adolescent Onset (10 to 18 Years Old)**

**Social anxiety disorder** Social anxiety disorder (SAD) is characterized by an intense fear of social situations in which the person is exposed to unfamiliar people or may be scrutinized by others. The fear centers around negative evaluation such as being rejected, offending others, or being judged as anxious, weak, or unlikeable. There is a persistent worry that the person will say or do something that will result in embarrassment or humiliation. An individual with social anxiety disorder may appear shy when meeting new people, be quiet in groups, and withdrawn in unfamiliar social settings. Accompanying physical symptoms of discomfort such as blushing, sweating, or reduced eye contact may occur. Invariably, the individual will experience emotional discomfort such as fear, anxiety, and difficulty concentrating. Anxiety is thought to mediate the observable deficits in social competency and skillfulness. Socially avoidant behaviors tend to predominate in unfamiliar settings and improve as the social situation becomes more familiar. Cognitive distortions that are central to this disorder include the assumption that others are inherently critical, overvaluing positive appraisal by others, and an underestimation of one’s own performance, which tends to be limited to social tasks. These cognitive distortions can lead to avoidance of social situations or activities and also to feelings of fear or embarrassment. This cycle of social avoidance contributes to difficulty developing friendships and experiencing positive interactions.

SAD typically emerges in childhood or adolescence (mean age of onset is 13 years) and has a chronic course. A systematic literature review determined that among secondary and tertiary clinically referred patients, the remission rate was 50% within 6–8 years with treatment. An epidemiologic study conducted in Ontario, Canada, demonstrated that individuals with SAD were more likely to report dysfunction in their main daily activities (odds ratio (OR) = 7.94; 95% confidence interval (CI), 4.70–13.42), dissatisfaction with family life (OR = 2.76; 95% CI, 1.71–4.46), and difficulty with friendships (OR = 5.95; 95% CI, 2.50–14.15). Similarly, a separate cohort study of adults in Zurich with SAD demonstrated that 60% reported occupational impairment and 44% reported social impairment. Relational patterns among adults with SAD include low assertion, high conflict avoidance, avoidance of emotional expression, and greater interpersonal dependency. Compared to controls, adults with SAD report reduced quality of romantic relationships, characterized by decreased self-disclosure and low emotional expression.

While SAD typically manifests during early adolescence, according to the DSM-5 Anxiety Sub-workgroup, this disorder can be reliably diagnosed in children as young as six years of age. Furthermore, temperament factors during early childhood can increase the risk for SAD. Behavioral inhibition is the tendency to display fear and withdrawal in unfamiliar situations. It is a stable temperament trait that is detectable early in life. Behaviorally inhibited children are shy with strangers and timid in unfamiliar situations. Important studies of early temperament between the ages of two and six years have found that a temperament of “behavioral inhibition to the unfamiliar” has been linked to SAD and with higher rates of separation anxiety and agoraphobia.
Subtle deficits in social cognition, including behavior mimicry, affect recognition, and gaze avoidance, have been observed in SAD. Behavioral mimicry is a prosocial, automatic social behavior that involves altering one’s behavior to match that of another person. It communicates affiliation, liking, and rapport. Socially anxious women demonstrate aberrant social evaluation of mimicry. Whereas non-socially anxious individuals report increased liking of an interaction partner who engages in social mimicking, socially anxious females reported similar liking between mimicking and non-mimicking persons. Furthermore, females with high social anxiety demonstrate less behavioral mimicry. Accurate facial-affect recognition is important for effective communication. In SAD, inaccurate interpretation of facial expressions may reinforce maladaptive cognitive patterns. A study assessing emotion identification using Pictures of Facial Affect demonstrated that children and adolescents with SAD had significantly poorer facial-affect recognition than typically developing controls. Similarly, a separate study demonstrated that highly socially anxious adults were faster than matched controls at classifying angry, sad, and fearful faces when confronted with a social threat. Notably, under no-threat conditions, there was no difference between groups. Finally, adults with SAD demonstrate a lower number of fixations and dwell time in the eye area of pictures of faces, with a correlation between the severity of social anxiety and the degree of gaze avoidance. Gaze avoidance may contribute to inaccurate facial-affect recognition.

The key feature for the differential diagnosis of social impairment in SAD is preoccupation with, or fear of, negative evaluation, including humiliation, rejection, or negative evaluation resulting in avoiding social situations or enduring them with intense fear.

**Obsessive-Compulsive Disorder** Obsessive-compulsive disorder (OCD) is a psychiatric disorder characterized by recurrent obsessions and compulsions that are time-consuming, cause clinically significant distress, or result in impairment in social, occupational, or other important areas of functioning. While social impairment is not a core symptom of OCD, it can, because of its significant impact on social functioning, be considered an associated symptom. OCD symptom onset typically occurs gradually during adolescence, with a mean age of onset of 12.8 years.

While decreased quality of life and social impairment are associated with OCD, the exact nature of social dysfunction and the underlying mechanisms have been minimally investigated. Children and adolescents with OCD have lower social competence and more social problems as measured by the Child Behavior Checklist. Adults with OCD report greater overall social dysfunction, which correlates with OCD symptom severity. Fifty percent of adults with OCD report a lifetime history of bullying. Social functioning improves with treatment of OCD symptoms. Thus, impairments in social functioning seem to be more episodic and temporally related to the presence of obsessions and compulsions.

Studies on social functioning in OCD have identified family functioning as a domain that is particularly affected. A study comparing caregiver burden in OCD and schizophrenia found that while overall caregiver burden was higher in schizophrenia, the level of burden in the domains of disruption of family leisure, interaction, and effect on physical and mental health of others was similar. Overall caregiver burden is higher in OCD than in depression. The impact of OCD on relationships with family members may be related to the involvement of family members in compulsions or to family accommodation of OCD symptoms. One study found that 88.2% of family members report accommodating a patient’s OCD symptoms, which correlated with poor family functioning, attitudes of rejection toward the patient, and family stress. It remains unclear whether social impairment in OCD is directly related to OCD symptoms. OCD symptom subtypes may differentially affect social functioning. One study that assessed five OCD symptom subtypes (symmetry/ordering, hoarding, over-responsibility for harm, contamination, and taboo) found that symmetry and contamination subtypes were most associated with decreased social quality of life. Further research characterizing social impairment in OCD and how these impairments are related to OCD symptomatology is needed.

- The key feature for the differential diagnosis of social impairment in OCD is the presence of either obsessions or compulsions that are time-consuming or cause clinically significant distress.

**Major Depressive Disorder** Major depressive disorder (MDD) is a mood disorder characterized by episodes of sustained sadness accompanied by neurovegetative symptoms (such as changes in appetite, decreased energy, and decreased concentration) and negative cognitions (such as guilt, hopelessness, anxious ruminations, and suicidal thoughts) lasting for at least two weeks. MDD typically has a chronic course and is highly recurrent. At least 80% of patients will have at least two lifetime major depressive episodes.

Although social deficits are not a core symptom of MDD—and individuals with MDD generally do not have baseline social impairment—it stands to reason that depressive symptoms such as amotivation, anhedonia, and decreased interest would compromise social functioning and the ability to maintain and enjoy relationships. The association between social impairment and depression was first acknowledged in a series of studies from 1971 assessing 40 women with MDD and 40 controls. These studies found that the women with MDD demonstrated a diverse range of social deficits, including decreased work performance, interpersonal friction, inhibited communication, submissive dependency, disrupted family attachment, and anxious rumination. Subsequent studies demonstrated that adults with MDD report poorer intimate relationships and less satisfying social interactions, while prepubertal children report impaired school behaviors, poorer relationships
with parents and siblings, and lower ability to maintain positive peer relationships during depressive episodes.\textsuperscript{101}

Social impairment associated with MDD tends to correlate with the severity of the mood episode and at least partially improves with treatment. A six-week, double-blind, randomized, controlled trial of 189 adults experiencing a major depressive episode randomized to phenelzine, imipramine, or placebo assessed social functioning using the Social Adjustment Scale. Patients who had a response to the antidepressant demonstrated improved functioning, whereas nonresponders did not, suggesting that social impairment is at least partly a direct consequence of depressive symptoms.\textsuperscript{102} A similar study demonstrated that Social Adaption Self-Evaluation Scale scores improved with both reboxetine and fluoxetine, but not placebo.\textsuperscript{103} Finally, Miller and colleagues\textsuperscript{104} conducted a study comparing imipramine and sertraline for the treatment of MDD. The authors found that treatment with either medication resulted in significant improvement in social functioning, with improvements appearing early during treatment. At the end of the 12-week study, however, subjects did not achieve the levels of social functioning of non-depressed controls.

While social functioning improves with treatment for depression, it often does not fully return to baseline, and social impairments may persist for years, even when patients are in remission.\textsuperscript{105} A study assessing prepubertal children who had recovered from a depressive episode for at least four months found that, while school functioning normalized, family and extra-familial relationships improved only partially.\textsuperscript{101} There are several possible reasons for ongoing social impairment. First, patients who are in remission may experience residual depressive symptoms that continue to affect social functioning. Residual depressive symptoms are common during remission, affecting about one-third of patients.\textsuperscript{106} Patients who remit with residual symptoms are significantly impaired in most domains of interpersonal social functioning compared to those who remit fully.\textsuperscript{107} In a study assessing whether alexithymia and somatization in patients with remitted major depression was associated with impaired social functioning, the only significant predictor of social impairment was residual mood symptoms.\textsuperscript{108} In a prospective study that included adults who had received antidepressant treatment and did not currently meet criteria for a major depressive episode, partial remitters were compared to full remitters.\textsuperscript{109} After six months of follow-up, 77% of the complete remitters achieved normal social functioning, whereas only 47% of the partial remitters achieved normal social functioning. In addition to the impact of residual symptoms, recent studies have demonstrated subtle impairments in social cognition among individuals with MDD. Patients with MDD interpret social cognitive stimuli differently from healthy controls, and interpretation of others’ emotions is affected by a mood-congruent bias.\textsuperscript{110} Social cognitive performance on standardized tasks is inversely associated with the severity of depression. The bias toward negative emotions persists, however, even when in remission from a major depressive episode. Yamada and colleagues\textsuperscript{111} evaluated theory-of-mind abilities in 100 adults with MDD during a period of remission and prospectively followed the cohort for one year. The authors found that ToM deficits were associated with a higher risk of relapse of depression (relative risk = 8.286; 95% CI, 2.61–26.32). Taken together, these studies suggest that lingering symptoms of depression that do not meet the diagnostic threshold for a depressive episode may have large effects on resolution of social functioning and that patients with MDD may have subtle mood-congruent impairments in social cognition.

  - The key feature for the differential diagnosis of social impairment in MDD is persistently sad mood for at least two weeks that is accompanied by neurovegetative symptoms and negative cognitions.

**Bipolar disorder** Bipolar disorder is a mood disorder characterized by at least one lifetime episode of mania, a distinct period of abnormally and persistently elevated, expansive, or irritable mood, accompanied by increased activity or energy that lasts for at least one week (or any duration if hospitalization is necessary).\textsuperscript{1} The manic episode may be preceded by or may be followed by major depressive episodes. Bipolar disorder is associated with impaired family functioning, peer relationships, and involvement in satisfying recreational activities. Individuals with bipolar disorder have smaller social networks, both online and in real life.\textsuperscript{112} A 15-year follow-up study of 113 patients with bipolar disorder demonstrated that up to one-third of patients were psychosocially impaired, with 27.3% of patients reporting impaired friendships and 15.6% reporting impaired global social adjustment.\textsuperscript{113} A separate longitudinal study demonstrated that compared to relatives without a history of an affective disorder, individuals with bipolar disorder were half as likely to ever be married and had decreased overall satisfaction with interpersonal relationships.\textsuperscript{114}

While social impairment is not a core symptom of bipolar disorder, decreased social functioning has been associated with each mood phase of bipolar disorder and can be considered an associated symptom of the disorder. As reviewed above, depressive episodes are thought to at least partially mediate social impairment. Mania is also associated with aberrant social functioning. Decreased impulse control, psychomotor agitation, and limited insight regarding the impact of one’s behaviors during mania likely contribute to what can amount to severe social impairment. Over 10% of respondents from the National Epidemiologic Survey on Alcohol and Related Conditions reported legal involvement during their most severe manic episode, highlighting the severity of impairment in social functioning that can occur during mania.\textsuperscript{115} A separate multicenter, cross-sectional study of 253 patients with bipolar disorder demonstrated that hypomania causes increased interpersonal friction and is associated with greater social impairment than depression or euthymia.\textsuperscript{116} Teenagers experiencing mania report lower social skills and fewer friends than teenagers with ADHD.\textsuperscript{117} Aggression, which can be an associated symptom of mania, is the strongest correlate of
family conflict in youth with bipolar disorder. Overall, family environments of adolescents with bipolar disorder are characterized by greater conflict and hostility accompanied by less warmth, cohesion, and adaptability compared to family environments of healthy, age-matched controls.

In addition to mood-based social impairment, there may also be a trait-based component of social impairment in bipolar disorder. Some studies have demonstrated impairments in social cognition and ToM in bipolar disorder, albeit of lesser severity than in schizophrenia. In contrast to this finding, a study of 18 euthymic adolescents with bipolar disorder and 18 healthy, age-matched controls demonstrated that while the two groups had similar social-skills knowledge, youth with bipolar disorder had greater social-skills performance deficits. Self-rated social-skills performance deficits included inappropriate assertion, impulsivity, jealousy, and overconfidence, while parent-rated performance deficits included greater displays of inappropriate social behaviors with less frequent display of appropriate social skills. A study of euthymic undergraduates at high risk for bipolar disorder based upon the Hypomanic Personality Scale demonstrated a tendency to experience contempt, implicit dominance tendencies, and perceptions of being more powerful and influential. These traits may be an additional source of interpersonal conflict.

The key feature for the differential diagnosis of social impairment in bipolar disorder is at least one lifetime episode of mania: persistently elevated or irritable mood accompanied by an increase in energy or activity that lasts for at least one week or results in hospitalization.

Young Adult Onset (~16 to 25 Years Old)

Schizophrenia. Schizophrenia is a primary psychotic disorder, characterized by positive and negative symptoms. Positive symptoms include delusions, hallucinations, disorganized speech, and disorganized behaviors. Negative symptoms and cognitive impairment are also prominent features of the illness. Common negative symptoms include anhedonia, social withdrawal, avolition, affective flattening, and alogia (poverty of speech and thought). Schizophrenia is a chronic condition that typically occurs in three phases: the prodromal phase, active psychosis, and the residual phase. Prodromal symptoms such as peculiar behavior, impaired hygiene, abnormal speech, odd beliefs, and unusual perceptual experiences that do not meet the threshold for schizophrenia can occur months or even years prior to the onset of frank psychotic symptoms. During the active psychosis phase, patients primarily experience positive psychotic symptoms but can also experience some negative symptoms. The most prominent symptoms of the residual phase are negative symptoms and cognitive impairment.

Significant social impairment is seen throughout each phase of the illness and can begin even prior to the prodromal phase. Social impairment prior to the prodromal phase was first reported in a prospective British study that followed patients with schizophrenia from the National Child Development Study. That study analyzed ratings of social behavior made by teachers at ages 7 and 11 years. At both these age points, children who later developed schizophrenia had higher rates of social maladjustment, including overreactive and hostile behaviors. Girls who later developed schizophrenia were noted to be more withdrawn at 11 years of age. These findings were replicated in a maternal recall study. Maternal recall of social functioning between the ages of 5 and 16 years of patients with schizophrenia were compared to those of healthy controls. In this study, patients with schizophrenia were 27 times more likely than healthy controls to have scores in the lowest quartile for social adjustment.

Multiple studies have also demonstrated social impairment during the prodromal phase of illness. A study assessing social and role functioning among adolescents and young adults (ages 12–29 years) who met criteria for Attenuated Positive Symptom syndrome demonstrated impairments in both social and role functioning among prodromal youth. In a separate study comparing Social Responsiveness Scale scores among 61 youth at clinical high risk for psychosis, 20 youth with psychotic illness, and 36 healthy controls (ages 12 to 18 years), youth at clinical high risk and youth with psychotic illness had more social deficits than healthy controls. Furthermore, the Social Responsiveness Scale scores predicted social functioning at follow-up seven months later. Anhedonia, but not social anxiety, was found to predict social impairment among youth who met criteria for Attenuated Psychotic Symptom Syndrome.

Adults with schizophrenia experience social dysfunction in multiple domains, including lower rates of marriage, smaller social networks, lack of involvement in social activities, difficulty communicating, and limited social supports. Unfortunately, social impairment persists even after psychotic symptoms remit. Social deficits remain prominent during the residual phase of the illness and are closely related to negative symptoms. Negative symptoms have been shown to correlate more strongly than other symptoms of psychosis with overall functioning. In addition to social withdrawal being in and of itself a negative symptom, social impairments during the residual phase of the illness may be related to cognitive deficits. It has been hypothesized that social cognition is a higher-order cognitive function that depends on more basic cognitive processes. Different domains of social functioning are likely dependent on different basic cognitive functions. For example, in a study that assessed social functioning in 28 adult inpatients with schizophrenia through role-play and community social functioning, deficits in these two areas were only moderately correlated. Furthermore, role-play deficits were associated with a wide range of cognitive deficits, including delayed verbal memory, attention, and executive function, whereas community-functioning deficits were associated only with immediate and delayed verbal memory.

Social cognitive deficits have been widely documented in schizophrenia, and likely at least partially account for the pervasiveness of social impairment in schizophrenia. A meta-analysis that included 29 studies assessing mentalizing
abilities in patients with schizophrenia found that ToM impairments were greater than one standard deviation below the normal range. Impaired mentalizing abilities was not moderated by age, gender, or IQ. Notably, patients who had symptoms of disorganization were more greatly impaired, and patients who were in remission had sustained ToM deficits. Individuals with schizophrenia are also less sensitive to social reward than healthy controls. Patients with schizophrenia rate genuine smiles as less rewarding than healthy controls do. This may contribute to low motivation for social interaction. Finally, schizophrenia has been associated with impaired affect recognition. A study that compared 30 patients with paranoid schizophrenia, 31 patients with schizophrenia, and 30 healthy controls found that both schizophrenia groups were less accurate than the control group in identifying facial affect. These results were replicated in a study that demonstrated that patients with schizophrenia had impaired affect recognition for both pictures and video clips. Interestingly, this study found that increased delusional ideation was associated with a tendency to rate faces as more trustworthy.

The key features for the differential diagnosis of schizophrenia are a deteriorating course with a stereotyped sequence of symptom development beginning with prodromal psychotic symptoms, followed by frank psychotic symptoms, negative symptoms, and, finally, cognitive impairment.

Personality disorders Personality disorders are defined in DSM-5 as an “enduring pattern of inner experience and behavior that deviates markedly from the expectations of the individual’s experience,” with manifestations in at least two of the following: thoughts, feelings, interpersonal functioning, and impulse control. The pattern of inner experience and behavior must be inflexible and occur across a broad range of situations. Personality disorders are relatively common, occurring in about 13% of the general population, with a higher prevalence among clinical populations or individuals with other mental illnesses. A study of non-treatment-seeking individuals with depression in five countries found that personality disorders were present in 22% of this population. A separate 12-year prospective study demonstrated that personality disorders predicted persistent social dysfunction among individuals with dysthymia, generalized anxiety disorder, or panic disorder. Personality disorders have been associated with a range of social impairments. Psychiatrists report negative countertransference reactions toward individuals with personality disorders, describing them as “manipulative, attention-seeking, and annoying.” Social functioning as measured by the Social Functioning Schedule among those with personality disorders is significantly lower than in those without personality disorders. There was no difference in Social Functioning Schedule scores across the different personality disorders.

Ten distinct personality disorders are described in DSM-5. Here, we provide a summary of the nature of social impairment in each of these disorders.

Cluster A personality disorders are characterized by unusual behaviors and include paranoid, schizoid, and schizotypal personality disorders.

- Paranoid personality disorder is marked by a pattern of responding to other people with suspiciousness and of interpreting their motives as malevolent. Compared to other personality disorders, there has been little empirical study of this disorder. Pervasive paranoia likely greatly affects the ability to develop alliances and maintain long-term relationships. Future research characterizing social impairment in paranoid personality disorder is needed.

- Schizoid personality disorder is defined as a “pervasive pattern of detachment from social relationships and a restricted range of expression of emotions in interpersonal settings.” The social style of individuals with schizoid personality disorder has been described as “having few friends, preferring solitary activities, being closedmouthed, being a follower rather than a leader in group situations, and possessing inordinate sensitivity.” Individuals with schizoid personality disorder typically do not crave social interaction and are indifferent to the company of others.

- Schizotypal personality disorder is considered an intermediate schizophrenia-spectrum phenotype, with reduced capacity for close relationships, cognitive or perceptual distortions, and odd or peculiar behavior. Interpersonal symptoms that are included in the diagnostic criteria include lack of close friends and excessive social anxiety that does not diminish with familiarity.

Cluster B personality disorders are characterized by emotional, dramatic, or erratic behavior and include antisocial, borderline, histrionic, and narcissistic personality disorders.

- Antisocial personality disorder is defined as a “pervasive pattern of disregard for and violation of the rights of others, occurring since age 15 years.” Several features of the core diagnostic criteria are directly related to significant social impairment, particularly with regard to citizenship. These behaviors include repeatedly engaging in criminal behavior, deceitfulness, conning others for personal profit or pleasure, repeated physical assaults, and lack of remorse. Longitudinal studies suggest that as individuals with antisocial personality disorder age, they have less trouble with the law, though they may remain in conflict with families, neighbors, and coworkers. Symptoms of antisocial personality disorder also interfere with forming intimate relationships. A twin study demonstrated that men with less severe antisocial personality disorder were more likely to marry than their more antisocial twin.

- Borderline personality disorder (BPD) is defined as a “pervasive pattern of instability of interpersonal relationships, self-image, and affects, and marked impulsivity, beginning by early adulthood and present in a variety of contexts.” The pattern of interpersonal relationships in BPD described by the DSM-5 diagnostic criteria...
include unstable, intense relationships that are characterized by extremes of idealization and devaluation. The long-term outcomes of patients with BPD (n = 175) were assessed and compared to patients with Cluster C personality disorders (n = 312) and MDD without a comorbid personality disorder (n = 95) by Gunderson and colleagues. The authors prospectively followed this cohort over a ten-year period and found that 85% of patients who met criteria for BPD remitted. Social functioning was assessed using the Global Social Adjustment score. Despite remission of BPD, the BPD group demonstrated severe and persistent impairment in social functioning compared to the two other groups.

- Histrionic personality disorder is characterized by a pervasive pattern of attention-seeking behaviors and emotional dysregulation. While empirical data on social impairment in histrionic personality is lacking, many of the defining features of the disorder likely contribute to deficits in multiple dimensions of social functioning. Individuals with this personality disorder may feel underappreciated or disregarded when they are not the center of attention and may present as vibrant, overly seductive, or inappropriately sexual, or with dramatic and extremely expressive emotions. These behaviors likely detrimentally affect the ability to form and maintain genuine relationships; individuals with histrionic personality disorder often overestimate the intimacy of friendships and romantic relationships.

- Narcissistic personality disorder is characterized by preoccupation with the pursuit of applause, wealth, power, or social prestige. This drive can create superficially adaptive social behaviors and social success; however, because the behaviors are in the service of exhibitionism, these individuals typically lack close relationships. Cluster C is considered the anxious, fearful cluster and includes avoidant, dependent, and obsessive-compulsive personality disorders.

- The hallmark symptoms of avoidant personality disorder are pervasive social inhibition, feelings of inadequacy, and hypersensitivity to negative evaluation. Several studies support the hypothesis that social anxiety disorder and avoidant personality disorder lie on a continuum, where avoidant personality disorder is associated with greater impairments. Due to avoidance of social interactions, individuals with avoidant personality disorder have highly impaired daily functioning. The severity of social inhibition tends to remain constant over time. Although social inhibition is severe in avoidant personality disorder, these individuals typically have normal capacity for social interaction, as demonstrated by good response rates to behavioral therapies.

- The core feature of dependent personality disorder is a pervasive and excessive need to be taken care of, which leads to submissive and clinging behavior, and to fear of separation—which begin during early adulthood.

These traits are socially undesirable, resulting in decreased peer acceptance. Bornstein and colleagues have conceptualized dependent personality disorder as pertaining to individuals who have the primary goal of obtaining and maintaining nurturant relationships (for themselves). Individuals with dependent personality disorder are highly motivated to form relationships with individuals who can provide guidance, support, or protection. Notably, these patients are able to adapt their social behaviors to meet this goal.

- Obsessive-compulsive personality disorder is characterized by a “pervasive pattern of preoccupation with orderliness, perfectionism, and mental and interpersonal control, at the expense of flexibility, openness and efficiency.” These symptoms lead to several interpersonal difficulties. Individuals with this personality disorder report hostile-dominant interpersonal problems and difficulty tolerating warm-dominant behavior by others. They also demonstrate less empathic perspective taking relative to healthy controls.

- The key feature for the differential diagnosis of social impairment in personality disorders is an enduring pattern of inner experience and behavior that deviates markedly from sociocultural norms, affecting cognition, affectivity, interpersonal functioning, and impulse control.

Later-Life Onset (>50 Years Old): Neurocognitive Disorders

Neurocognitive disorders are characterized by a decline in one or more cognitive domains. DSM-5 distinguishes between mild and major neurocognitive disorders. In mild neurocognitive disorder, the modest cognitive decline does not interfere with independent living, whereas major neurocognitive disorders are associated with significant cognitive decline that impairs independence. Mild neurocognitive disorder is a risk factor for developing major neurocognitive disorder. In one study, 28% of patients with mild neurocognitive disorder progressed to major neurocognitive disorder over a three-year period. Neurocognitive disorders are common, affecting 3.6% of adults ages 65 to 74 years, 13.6% of adults ages 75 to 84 years, and 34.6% of adults older than 85 years. The etiologies of major neurocognitive impairment include, among others, Alzheimer’s disease, frontotemporal dementia (FTD), dementia with Lewy bodies, and vascular disease. Social impairment is known to accompany neurocognitive disorders and can be present early in the disease course. In fact, changes in social functioning should prompt screening for cognitive impairment in older adults. Individuals at risk for mild cognitive impairment have smaller, denser social networks. In a study of 330 patients with mild Alzheimer’s disease who were living at home, investigators found that 54.2% of this sample had low social participation, where social participation was assessed based on frequency of having visitors in the home, visiting others, and participating in social activities.
activities outside the home.\textsuperscript{161} Predictors for low social participation included requiring assistance for activities of daily living and the presence of neuropsychiatric symptoms.\textsuperscript{161}\textsuperscript{162} The authors hypothesized that social distancing may contribute to accelerated cognitive decline. Individuals who meet criteria for major neurocognitive impairment have smaller, denser social networks, perceive less social support, and are less engaged in the community than healthy, age-matched controls.\textsuperscript{160} Short-term memory deficits have been associated with increased inappropriate social behaviors among individuals with early dementia.\textsuperscript{162} While changes in social functioning can be apparent very early in the disease course, the severity of social impairment typically parallels disease progression.

Frontotemporal dementia is a type of neurocognitive impairment with the insidious development of prominent deficits in behavior, executive function, and language.\textsuperscript{163} Because of these hallmark symptoms, characterizing and understanding the mechanisms that drive social impairment in FTD have been comparatively well researched. Social behavior changes that are present early in the course of FTD include losing interest in friends and family, inability to understand other people’s distress, behaving callously toward loved ones, impulsivity, lack of social graces, and approaching strangers in an overly familiar way.\textsuperscript{164,165} A study comparing awareness of social cognition deficits between 12 patients with FTD and 12 age-matched patients with Alzheimer’s disease found that greater socioemotional agnosia in FTD distinguished the two groups.\textsuperscript{166} Patients with FTD demonstrate impairment on a wide range of ToM tasks, but no impairments in general comprehension or memory. Comparatively, patients with Alzheimer’s disease seem to retain ToM abilities, with the exception of tasks that require working memory.\textsuperscript{167} The finding of prominent social cognitive deficits associated with FTD was confirmed in a separate study that included 18 patients with FTD and 13 control subjects.\textsuperscript{168} This study demonstrated that the FTD group had impaired mentalizing, moral reasoning, and emotion recognition. Accurate recognition of anger and disgust were most impaired. The authors suggest that the inability to accurately recognize these emotions may cause difficulty identifying social violations. Atrophy of several brain circuits have been mapped to impairments in different social domains. Atrophy of the mesolimbic reward network results in socioemotional detachment; atrophy of an interoceptive, pain-related network results in lack of social apprehension; and atrophy of a perceptual network results in a lack of awareness or understanding of social and emotional behavior.\textsuperscript{164} White matter tract alterations of the frontotemporal connections in the right hemisphere have also been associated with impaired social cognition in FTD.\textsuperscript{169}

- The key feature for the differential diagnosis of social impairment in neurocognitive disorders is significant cognitive decline from a previous level that eventually results in a loss of independence.

**CLINICAL APPROACH TO THE DIFFERENTIAL DIAGNOSIS OF SOCIAL IMPAIRMENT**

Impairments in social functioning are either core or associated symptoms of many psychiatric disorders, affecting individuals across the lifespan. When assessing a patient presenting with social impairment, it can be helpful to consider the following factors: age at the time of symptom onset, features of social impairment, verbal communication ability, nonverbal communication style, the course of social impairment, whether deficits of social cognition are present, and the key features of the accompanying neuropsychiatric symptoms (see Table 1). Careful assessment of each of these factors can help clarify the diagnosis in situations of diagnostic complexity, such as psychiatric comorbidity. New onset of a psychiatric comorbidity can worsen social functioning. Awareness of the typical course of social impairment associated with each disorder can help guide clinicians in formulating appropriate treatment goals.

The age of onset of the psychiatric disorder can help narrow the differential diagnosis. A diagnostic algorithm for social impairment based on age of onset is provided in Figure 1 (The same figure is presented in color in Supplemental Figure 1, available at http://links.lww.com/HRI/A116.). Of the disorders we have discussed in this article, only disinhibited social engagement disorder, reactive attachment disorder, intellectual disability, and attention-deficit/hyperactivity disorder have strict age cutoffs for diagnosis. Since the timing of symptom development can vary, there is deliberate overlap of the age-groups we present. When assessing the most salient features of social impairment, the clinician should consider whether the deficits are best characterized as impaired social reciprocity, challenges isolated to specific relationships, or globally decreased social participation. Deficits in social reciprocity and in understanding relationships are a requirement for diagnosing autism spectrum disorder but may also be seen in RAD. Challenges with specific types of relationships may also yield diagnostic information. For example, trouble with peer relationships are common in ADHD; family functioning is most impaired in OCD; the caregiver-child relationship is impaired in DSED and RAD; and individuals with personality disorders often struggle to maintain long-term close friendships or intimate relationships. Globally decreased social participation is typically seen in schizophrenia, a major depressive episode, or neurocognitive impairment.

The features of verbal and nonverbal communication should also be considered. Atypical features or use of speech are seen in ADHD, ASD, DSED, RAD, and selective mutism. Language acquisition is highly variable in ASD, which can present with no speech, delayed acquisition of speech, loss of speech, repetitive use of speech, or abnormal prosody. Nonverbal communication deficits such as decreased eye contact, difficulty understanding nonverbal communication, and limited use of nonverbal communication are among the core symptoms of ASD. Atypical nonverbal communication also occurs, however, in several other psychiatric disorders. For example, there is gaze avoidance in social anxiety disorder. It is also important to note that
<table>
<thead>
<tr>
<th>DSM-5 disorder</th>
<th>Age of onset (years)</th>
<th>Features of social impairment</th>
<th>Nonverbal communication</th>
<th>Verbal communication</th>
<th>Course of social impairment</th>
<th>Social cognition</th>
<th>Key features of the accompanying neurodevelopmental or psychiatric symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autism spectrum disorder</td>
<td>Prior to preschool</td>
<td>Abnormal reciprocity</td>
<td>Vehicle can include:</td>
<td>Lacks</td>
<td>Fairly stable, may persist</td>
<td>Mistrustful</td>
<td>Social dysfunction, repetitive behaviors, restricted behaviors</td>
</tr>
<tr>
<td>Intellectual disability</td>
<td>Before age 12</td>
<td>Inattention, hyperactivity</td>
<td>Vehicle can include:</td>
<td>Inappropriate times</td>
<td>Impulsive</td>
<td>Hyperactive</td>
<td>Hypersensitivity, hyperactivity, inappropriate times</td>
</tr>
<tr>
<td>Reactive attachment disorder</td>
<td>Before age 6</td>
<td>Social disinterest</td>
<td>Vehicle can include:</td>
<td>Flat affect</td>
<td>Difficult</td>
<td>Hyperactive, intrusive</td>
<td>Social disinterest, hyperactivity, inappropriate times</td>
</tr>
<tr>
<td>Intellectual disability</td>
<td>Before age 12</td>
<td>Inattention, hyperactivity</td>
<td>Vehicle can include:</td>
<td>Impulsive</td>
<td>Hyperactive</td>
<td>Hyperactive, intrusive</td>
<td>Social disinterest, hyperactivity, inappropriate times</td>
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<td>Vehicle can include:</td>
<td>Impulsive</td>
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<td>Hyperactive, intrusive</td>
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<td>Intellectual disability</td>
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<td>Vehicle can include:</td>
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<td>Hyperactive, intrusive</td>
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<td>Impulsive</td>
<td>Hyperactive</td>
<td>Hyperactive, intrusive</td>
<td>Social disinterest, hyperactivity, inappropriate times</td>
</tr>
<tr>
<td>Disorder</td>
<td>Age (years)</td>
<td>Symptoms</td>
<td>The Psychiatric Differential Diagnosis for Social Impairment</td>
<td></td>
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</tbody>
</table>
| Selective mutism               | 5–12 years  | Failure to speak in certain situations                                   | Occurs in multiple settings  
Partial response to medication  
Difficulty attuning to others  
Social-cue deficits  
Positive illusionary bias  
Symptoms are present prior to 12 years and occur in 2 or more settings |
| Social anxiety disorder        | 10–18 years | Shy, quiet, withdrawn in unfamiliar settings  
Avoidance of social settings | Speech is intact in more comfortable situations (e.g., home)  
Premorbid speech disorder is common  
Normal prosocial nonverbal communication (e.g., nodding, giggling)  
Usually improves with age  
Impairment does not occur in less-demanding settings  
Intact  
Difficulty speaking in certain situations  
Comorbid anxiety is common |
| Obsessive-compulsive disorder  | 10–18 years | Lower social competence  
Impaired family functioning | Subtle gaze avoidance  
Social avoidance improves as the setting becomes more familiar  
Disorder is usually chronic  
Subtle deficits in mimicry and affect recognition  
Comorbid anxiety is common  
Fear of humiliation, rejection, and negative evaluation  
Results in avoiding social situations or enduring social situations with intense fear |
| Major depressive disorder      | 10–18 years | In childhood: Impaired school behavior  
Impaired family relationships  
Fewer positive friendships  
In adulthood: Poorer intimate relationships | In childhood: Impaired school behavior  
Impaired family relationships  
Fewer positive friendships  
In adulthood: Poorer intimate relationships  
Intact  
Correlates with mood episode, but residual social impairment may remain  
Subtle misattribution of social cues that are affected by mood state  
Persistently low mood for at least 2 weeks  
Neurovegetative symptoms  
Negative cognitions |
<table>
<thead>
<tr>
<th>Condition</th>
<th>Age</th>
<th>Symptoms</th>
<th>Features</th>
<th>Other Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bipolar disorder</td>
<td>10–18 years old</td>
<td>Decreased satisfaction with social interactions</td>
<td>Intact between episodes of mood disorder</td>
<td>Correlates with mood episode, but residual social impairment may remain</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Decreased work performance</td>
<td>Intact</td>
<td>Emotion dysregulation inhibits application of social skills</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Impaired friendships</td>
<td></td>
<td>At least one lifetime episode of mania</td>
</tr>
<tr>
<td>Schizophrenia</td>
<td>16–25 years old</td>
<td>Decreased social interest</td>
<td>Poverty of speech</td>
<td>Occurs throughout the entire course of illness; highly correlated with negative symptoms</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Smaller social networks</td>
<td>Disorganized speech</td>
<td>Impaired mentalizing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Less involvement in social activities</td>
<td>Social withdrawal</td>
<td>Impaired affect recognition</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Limited social supports</td>
<td></td>
<td>Less sensitive to social reward</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Positive symptoms</td>
</tr>
<tr>
<td>Personality disorders</td>
<td>16–25 years old</td>
<td>Difficulty developing and maintaining relationships</td>
<td>Variable, depending on personality disorder</td>
<td>Variable, depending on personality disorder</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td>Variable, depending on personality disorder</td>
<td>Pervasive, occurs in multiple settings</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Variable, depending on personality disorder</td>
<td>Severity of social impairment may correlate with severity of personality disorder</td>
</tr>
<tr>
<td>Neurocognitive impairment</td>
<td>&gt;50 years old</td>
<td>Smaller, denser social networks</td>
<td>Deviant from social norms</td>
<td>Alzheimer's: retains mentalizing FTD; impaired mentalizing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Low social participation</td>
<td></td>
<td>Cognitive decline</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inappropriate social behaviors</td>
<td></td>
<td>Gradual loss of independence</td>
</tr>
</tbody>
</table>

Table 1: The Psychiatric Differential Diagnosis for Social Impairment

DSM-5, *Diagnostic and Statistical Manual of Mental Disorders*, 5th ed.; FTD, frontotemporal dementia.
Figure 1. Algorithm for assessing social impairment across the lifespan. ADHD, attention-deficit/hyperactivity disorder; ASD, autism spectrum disorder; OCD.
children with SM have impaired speech production in certain settings but that they usually retain normal, prosocial nonverbal communication. Children with ADHD and DSED can be overly talkative and intrusive with their speech, whereas children with RAD and SM have diminished spontaneous speech.

The course of social impairment—including whether it is pervasive and which settings it occurs in—can provide high-yield diagnostic information. Social impairment in ADHD, ASD, DSED, ID, personality disorders, RAD, and schizophrenia is fairly chronic and pervasive. By contrast, the severity of social impairment seen in neurocognitive disorders typically becomes more severe over time. Social impairment waxes and wanes in tandem with the severity of affective symptoms in bipolar disorder, OCD, MDD, and SAD. Finally, social impairment is setting-specific in SAD and SM. In these two disorders, socially stressful settings typically exacerbate the social deficits.

Interestingly, deficits in social cognition (the psychologic processes underlying social behavior) have been observed in virtually all the psychiatric disorders that present with social impairment as either core or associated symptoms. Given this observation, it is important to note that deficits in social cognition are much more readily apparent in some disorders than others. For example, the deficits tend to be quite mild in MDD and OCD, moderate in SAD, and much more overt in ASD, mania, neurocognitive impairment, and schizophrenia. Finally, key features of the accompanying neuropsychiatric symptoms that are more specific to each of the diagnoses in the psychiatric differential for social impairment are shown in Table 1.

CONCLUSION

Social impairment occurs in many psychiatric disorders, affecting individuals of all ages. As social impairment is broadly defined, the nature and severity of social impairment can vary greatly across diagnostic categories. By reviewing the specific features of social impairment in 13 psychiatric disorders, we are able to provide a clinical framework for the psychiatric assessment of social impairment. Consideration of the age of onset of social impairment can be helpful to narrow the differential diagnosis. Factors that further inform the diagnostic evaluation include the following: the most salient features of social impairment, verbal communication ability, nonverbal communication style, the course of social impairment, whether deficits of social cognition are present, and the nature of the accompanying neuropsychiatric symptoms.

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