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The validity of the social communication questionnaire in adults with intellectual disability

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ABSTRACT

This study assessed the validity of the Social Communication Questionnaire (SCQ) in a sample of 69 adults, aged 18–40 years old. Participants included 21 adults diagnosed with an autism spectrum disorder (ASD) and intellectual disability (ID), and 48 individuals diagnosed with ID and no diagnosis of an ASD. The SCQ yielded a sensitivity of .71 and a specificity of .77 at the authors' recommended cutoff score of 15 (Berument et al., 1999). However, when sensitivity was prioritized over specificity, the optimal cutoff score was 12, which yielded a sensitivity of .86 and a specificity of .60. The internal consistencies of the total scale ($\alpha = .87$), the social interaction subscale ($\alpha = .83$), and the restricted repetitive behavior subscale ($\alpha = .81$) were good, but the communication subscale performed poorly ($\alpha = .48$). The SCQ shows promise as a screening measure for adults with ID whose early developmental history may be unavailable. A lower cutoff score than the authors originally proposed is recommended in adults.

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1. Introduction

The term autism spectrum disorders (ASD) refers to a group of related neurodevelopmental conditions, presenting with a heterogeneous constellation of behavioral symptoms characterized by impairments in three domains: reciprocal social interaction, communication skills, and restricted interests/repetitive patterns of behavior (American Psychiatric Association, 2000). According to the Center for Disease Control and Prevention (CDC), the prevalence of autism spectrum disorders in 2008 among children sampled across the United States was 1 in 88 (Center for Disease Control and Prevention, 2012).

Developing and refining ASD assessment measures for young children has been a significant research focus over the past decade, and experts in the field note the growing trend to diagnose ASD in younger children between the ages of 1 and 3 years, in order to promote the best outcomes for treatment (see Matson, Beighley, & Turygin, 2012). However, because ASD is a lifelong disorder, it is also important to assess for its presence in adults who may have been misdiagnosed with similar disorders before the increased awareness of ASD (Matson & Neal, 2009). It is also crucial to assess for changes in ASD symptoms and effects of interventions throughout the lifespan (Matson, Beighley, & Turygin, 2012; Matson & Neal, 2009; Seltzer, Shattuck, Abbeduto, & Greenberg, 2004; Shattuck et al., 2007).

Due to the increasing prevalence of ASD and the large amount of resources needed for clinician-rated diagnostic tools, such as the Autism Diagnostic Interview–Revised (ADI-R) (Le Couteur, Rutter Lord, & McLennan, 1989; Lord, 1997; Lord, Rutter, & Le Couteur, 1994) and the Autism Diagnostic Observation Schedule (ADOS) (DiLavore, Lord, & Rutter, 1995; Lord et al., 1989, 2000), caregiver-rated screening measures have been developed as less costly and time-consuming methods to screen for ASD. While these screening measures are not designed to provide a diagnosis, they do provide an efficient method for screening large groups of individuals who may need further assessment.

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Screening measures are often evaluated based on sensitivity (the proportion of individuals who are correctly identified by a screening measure as having a specific condition) and specificity (the proportion of individuals who are correctly identified by the measure as *not* having that condition). Glasgow (2005) argues that the sensitivity of screening measures should be 70–80% and specificity should be 80%, in order to minimize over-referrals to clinicians. However, some researchers argue that sensitivity should be given more weight, as it is more important to identify those who need further assessment (i.e. Norris & Lecavalier, 2010).

One such screening measure, the Social Communication Questionnaire (SCQ), which was developed with a sample of both children and adults, has been widely used and researched (Berument, Rutter, Lord, Pickles, & Bailey, 1999; Rutter et al., 2003). The SCQ (originally the Autism Screening Questionnaire [ASQ]), is based on the original Autism Diagnostic Interview (Le Couteur et al., 1989) and consists of 40 questions that focus on behavioral impairments in the areas of reciprocal social interaction, language and communication, and repetitive and stereotyped patterns of behavior (Berument et al., 1999). The SCQ includes two versions: the SCQ Lifetime, which measures ASD symptoms that have ever been present, with a focus on ages 4-to-5 years, and the SCQ Current, which measures current ASD symptoms. The SCQ Lifetime was designed to screen for individuals older than six years old who may need further assessment. When children are younger than six years old, the SCQ Current can be used to screen for ASD. The SCQ Current can also be used to compare overall levels or severity of ASD symptoms across different samples and to assess current ASD symptoms and change over time in older children, adolescents, and adults.

The first published study of the SCQ examined the diagnostic validity, factor structure and convergent validity with the ADI-R in a British sample of 160 individuals, aged 4–40 years, with a diagnosis of ASD and 40 individuals without a diagnosis of ASD. Correlations between the SCQ and ADI were conducted and receiver operating characteristics analyses and score comparisons among different populations were carried out to assess the discriminative validity of the SCQ. Berument and colleagues reported that correlation coefficients between the SCQ and ADI total scores, as well as the SCQ and ADI domains, were significant (SCQ Total and ADI total, $r = .71$) (Berument et al., 1999). The authors reported that an optimal cutoff score of 15 produced a sensitivity of .85 and a specificity of .75 for differentiating between individuals with and without a diagnosis of ASD and sensitivity of .96 and specificity of .67 for differentiating ASD from intellectual disability (Berument et al., 1999).

There have been several independent studies examining the psychometric properties of the SCQ in children. In older children and adolescents, the SCQ exhibited good agreement with the ADI-R, but poor agreement with the ADOS (Bishop & Norbury, 2002; Howlin & Karpf, 2004). Other studies in older children reported sensitivity ranging from .86 to .90 and specificity ranging from .57 to .78, with increased behavioral problems reducing specificity (Chandler, Charman, Baird, & Simonoff, 2007; Charman et al., 2007).

Studies of the SCQ in younger children have found that the established cutoff score of 15 produces lower sensitivity and specificity than the initial report, with sensitivity ranging from .71 to .92 and specificity ranging from .53 to .62 (Eaves, Wingert, Ho, & Mickelson, 2006; Witwer & Lecavalier, 2007). However, lowering the cutoff score appears to improve discriminative validity (Allen, Silvore, Williams, & Hutchins, 2007; Lee et al., 2007; Snow & Lecavalier, 2008; Wiggins, Bakeman, Adamson, & Robins, 2007).

In a sample of 590 children and adolescents, aged 2–16 years, Corsello and colleagues (2007) replicated the methods used in the initial psychometric study and found lower sensitivity (.71) and specificity (.71) than Berument et al. (1999). They also reported lower sensitivity for younger children (aged <5 years, 5–7 years) than older children (aged 8–10 years, >11 years). Consistent with previous studies, lowering the cutoff score improved sensitivity, but did not improve specificity (Corsello et al., 2007).

In a recent study examining the validity of a Chinese version of the SCQ in 736 children aged 2-to-18-years old, the authors reported good test–retest reliability and high internal consistencies (Gau et al., 2011). The SCQ demonstrated good divergent validity, with significantly higher mean subscale scores in the ASD group, and the authors reported satisfactory concurrent validity with the ADI-R (Gau et al., 2011). Additionally, boys scored significantly higher than girls on the total SCQ score, and children with intellectual disability (ID) scored significantly higher on the social interaction subscale than children without ID (Gau et al., 2011).

While the psychometric studies of the SCQ in children and adolescents provide robust evidence that the SCQ is useful and valid, no independent studies on the validity of the SCQ among adults with ASD were found. However, there are several aspects of this measure that bode well for the overall psychometric properties with an adult population. The initial validation sample included adults up to age 40, and previous studies have shown stronger discriminative validity with older children and adolescents (e.g. Corsello et al., 2007). Additionally, the focus of the SCQ on current, observable behavior could facilitate the use of this measure with adults (Berument et al., 1999). While the SCQ Current version has not been used to screen for the presence of ASD in an adult population, this version was examined in the present study in order to assess its usefulness in screening for ASD in adults with intellectual disability, whose developmental histories are often unavailable or difficult to obtain.

2. Methods

2.1. Participants

2.1.1. Participants diagnosed with intellectual disability (participants with ID)

Participants included 69 adults, aged 19–40 years old (mean age = 29.3, SD = 6.4 years) with a previous diagnosis of intellectual disability (ID) by a psychologist or psychiatrist with experience in the intellectual and developmental disability

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