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Optimizing the screening of autism spectrum disorders in outpatient clinics: An examination of the Social Communication Questionnaire-Lifetime

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ABSTRACT

Background: The Social Communication Questionnaire-Lifetime (SCQ-L) is a parent report form commonly used to screen for autism spectrum disorder (ASD) symptomology. Further psychometric validation in outpatient settings is essential given the need to prioritize time- and cost-efficient measures. This archival review study examined the internal consistency, construct validity, and predictive validity of the SCQ-L.
Method: Participants were the parents of 76 youth aged 4–12 years who presented with developmental concerns at an outpatient ASD clinic (33 diagnosed with ASD and 43 not diagnosed with ASD).
Results: Results suggested good internal consistency for the SCQ-L total score and SCQ-L Reciprocal Social Interaction subscale, but questionable internal consistency for the SCQ-L Communication and Restricted, Repetitive, Stereotyped Behavior subscales. There was evidence of construct validity for the SCQ-L total score and subscale scores with other measures of social and adaptive functioning, although the relationships between the SCQ-L scores and ASD severity using the Childhood Autism Rating Scale, 2nd edition-High Functioning Form (CARS2-HF) and daily living skills and the relationship between the SCQ-L Communication subscale and Vineland Adaptive Behavior Scale- Communication subscale (VABS-Communication) were weaker than expected. A cutoff of $\geq$15 for differentiating youth with ASD from those without ASD was ideal for the sample studied. At this cut-off sensitivity was 0.70 and specificity was 0.67.
Conclusions: Overall, this study provides further psychometric support for the use of the SCQ-L and clarifies the appropriate cut-off score that will optimize sensitivity and specificity to identify youth with and without ASD in an outpatient setting, where the use of the SCQ is commonly utilized.

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1. Introduction

Given the difficulty in deciding and prioritizing autism-specific assessments for referrals seen in an outpatient clinic, identifying psychometrically sound measures that are time and cost efficient to initially assess for autism symptomology is essential. Early and accurate detection of autism spectrum disorder (ASD), a neurodevelopmental disorder characterized by deficits in social and communication skills, restricted interests and stereotyped behavior patterns (American Psychiatric Association, 2013) facilitates treatment planning and appropriate early intervention. Successful early intervention is associated with a range of improved outcomes for the child, including improvements in social, cognitive, and language functioning and decreased problematic behaviors and autism symptoms (Kasari, Rotheram-Fuller, Locke, & Gulsrud, 2012; Strain & Bovey, 2011; Wong & Kwan, 2010). However, assessments to identify autism symptoms can be lengthy in clinical practice, may not be adequately reimbursed, and require extensive training; thus, there is a need for brief and psychometrically sound measures that accurately identify youth who are likely to display ASD symptomatology and warrant further screening.

The Social Communications Questionnaire- Lifetime (SCQ-L; Berument, Rutter, Lord, Pickles, & Bailey, 1999; Rutter, Bailey, & Lord, 2003), a parent-report questionnaire used in both clinical and research practice that quickly assesses and screens for ASD symptomology and indicates if a more comprehensive diagnostic evaluation is warranted. The SCQ-L was developed using the Autism Diagnostic Interview-Revised (ADI-R; Le Couteur et al., 1989), a gold-standard diagnostic clinical interview, as its foundation. The SCQ-L assesses the three core areas of functioning characteristic of youth with ASD; reciprocal social interaction, language and communication, and repetitive and stereotyped patterns of behavior. It has been used to assess ASD symptomology across a range of psychiatric and neurological conditions (e.g., Down Syndrome, intellectual disability, attention-deficit/hyperactivity disorder) (DiGuiseppi et al., 2010; Magyar et al., 2012; Schwenck & Freitag, 2014; Witwer & Lecavalier, 2007), age ranges (Berument et al., 1999; Corsello et al., 2007; Sappok, Diefenbacher, Gaul, & Bölte, 2015), and service settings (e.g., preschool education services; Lee, David, Rusyniak, Landa, & Newschaffer, 2007).

Researchers examining the psychometric properties of the SCQ in youth with ASD have reported good internal consistency for the total score ($\alpha = 0.90$), and subscale scores (Stereotyped Patterns of Behavior $\alpha = 0.67$–0.86, Social Interaction $\alpha = 0.91$, Communication $\alpha = 0.70$–0.91, Abnormal Language $\alpha = 0.79$) (Berument et al., 1999; Wei, Chesnut, Barnard-Brak, & Richman 2015). Subscale scores on the SCQ demonstrated moderate to strong correlations ($r = 0.55$–0.59) with their respective ADI-R subscales (Berument et al., 1999; Rutter et al., 2003; Wei et al., 2015) and the SCQ total score correlated positively and strongly with 'gold standard' measures of ASD severity (e.g., Autism Diagnostic Observation Scale (ADOS); (Berument et al., 1999; Bishop & Norbury, 2002; Chandler et al., 2007; Corsello et al., 2007; Howlin & Karpf, 2004) suggesting good criterion and construct validity. Moreover, lower adaptive functioning using the Vineland Adaptive Behavior Scale (VABS) was associated with increased ASD severity using the SCQ ($r = -0.35$ and $r = -0.38$; Chandler et al., 2007; Witwer & Lecavalier, 2007; respectively) indicating good convergent validity.

There is a need for ASD screening measures that can effectively distinguish youth with and without ASD. Examining the sensitivity (i.e., the ability of the measure to correctly identify individuals with ASD) and specificity (i.e., the ability of the measures to correctly identify individuals who do not have ASD) of these measures is essential given that low sensitivity could delay identification and initiation of early interventions, and many false positives could invoke undue stress and anxiety associated with receiving an ASD diagnosis for parents and the initiation of unnecessary treatments. As such, these tools should be selected to optimize the balance between sensitivity and specificity in different contexts. Several clinical cutoff scores of the SCQ have been suggested (e.g., $\geq$11, 15, and 22) with varying associated sensitivity and specificity across age range, intellectual functioning, and adaptive functioning (Allen, Silove, Williams, & Hutchins, 2007; Lee et al., 2007; Snow & Lecavalier, 2008; Wiggins, Bakeman, Adamson, & Robins, 2007). In the initial psychometric study of the SCQ, Berument et al. (1999) suggested a cut-off score of 15, resulting in sensitivity of 0.96 and specificity of 0.80 in a sample of 200 participants ranging from 4 to 40 years of age. However, due to lower sensitivities and specificities subsequently found with this cut-off score (Allen et al., 2007; Oosterling et al., 2010; Wiggins et al., 2007), researchers appear to agree that the optimal SCQ cut-off score is dependent upon the context (e.g., research vs. applied clinical practice) and nature of clinical population (e.g., school based populations vs. research specialty clinics) (Corsello et al., 2007; Lee et al., 2007). For example, Corsello et al. (2007) found that within a research sample of youth with and without ASD, the SCQ was most diagnostically accurate when the cutoff was lowered to $\geq$12 and used in combination with the ADOS. When Eaves, Winget, Ho, & Mickelson (2006) lowered their cutoff score to $\geq$11 among a preschool clinic sample with and without ASD, they found increased sensitivity ($\alpha = 0.86$), but decreased specificity ($\alpha = 0.53$). Among very young children (e.g., children ranging from the ages of 17–45 months), Wiggins et al. (2007) recommended a lower SCQ cut-off score than the suggested 15. Researchers have concluded that given the low-specificity, the SCQ is unlikely to be used as a diagnostic tool, but is a useful screening tool when administered with structured observations (Allen et al., 2007).

Collectively, previous data indicate that although a few studies have demonstrated that the SCQ has adequate psychometric properties (e.g., construct, convergent and criterion validity), the frequent use of the SCQ to screen for ASD symptomology suggests that further studies are needed to explore the appropriate SCQ cut-off score that will optimize sensitivity and specificity to identify youth with and without ASD. Given the use of differing SCQ cutoff scores in the existing literature, this study aimed to replicate the internal consistency and convergent validity of the SCQ, and to compare the sensitivity and specificity at different proposed cut-off scores on the SCQ to clarify the optimal score to distinguish between