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## Brief report: A pilot study of the validity and reliability of the Greek version of the Social Communication Questionnaire



Vasiliki Zarokanellou<sup>a,\*</sup>, Gerasimos Kolaitis<sup>a</sup>, Maria Vlassopoulos<sup>b</sup>,  
Katerina Papanikolaou<sup>a</sup>

<sup>a</sup> Child Psychiatric Department, Medical School of the National and Kapodistrian University of Athens, Aghia Sophia Children's Hospital, 11527 Athens, Greece

<sup>b</sup> 1st Psychiatric Department, Medical School of the National and Kapodistrian University of Athens, Child and Adolescent Unit of Community Mental Health Centre Byron Kessariani, Dilou 14, 16121 Vyronas, Greece

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### ABSTRACT

In this pilot study we investigated the psychometric properties of the Greek version of SCQ in a small sample of 130 seven to ten year-old children (77 typically developing children and 53 children with a diagnosis of ASD). The children with ASD were diagnosed with Autism (n1 = 27) or High-Functioning ASD (n2 = 26). The three subscales of the SCQ were confirmed and the modification indices produced an acceptable fit. The Cronbach- $\alpha$  coefficient was high and acceptable for all subscales and the total SCQ score. Roc analysis yielded an optimal cut-off point of 15 for the Autism group versus the Non-ASD group with a sensitivity of 96.3% and a specificity of 98.7%. For both the ASD group as a total and the High-Functioning ASD group the optimal cut-off point was found to be 11 with a satisfactory balance between sensitivity and specificity. The Greek version of SCQ seems to be a valid and reliable instrument for 7 to 10 year-old children. The findings support the need for adjusting the cut-off point to the subject's level of functioning.

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## 1. Introduction

Given the growing prevalence of ASD (Zablotsky et al., 2015; Kim et al., 2011) and the recognized importance of early diagnosis and intervention, the accurate identification of individuals with ASD has become an increasingly important issue. Even though an autism spectrum disorder can be detected in the early preschool years, a significant delay exists between the time of first parental concerns and the time of first diagnosis and many children, especially the more able ones, may miss being diagnosed even when they enter school (Kim et al., 2011; Lipkin et al., 2015; Wiggins, Baio, & Rice, 2006).

The Social Communication Questionnaire (SCQ) (Rutter, Bailey, & Lord, 2003) is a parent-report screening instrument that consists of 40 questions based on the Autism Diagnostic Interview-Revised (ADI-R, Rutter, Le Couteur, & Lord, 2003). The questionnaire has two forms, a Lifetime and a Current form, and can generally be completed by the primary caregiver in less than 10 min. In the primary standardization study of the SCQ, Berument, Rutter, Lord, Pickles, and Bailey (1999) suggested scores of 15 or more as the standard optimal cut-off point for differentiating PDDs from other diagnoses with a sensitivity of

\* Corresponding author.

E-mail addresses: [vas\\_zaro@med.uoa.gr](mailto:vas_zaro@med.uoa.gr), [zarokanellou@gmail.com](mailto:zarokanellou@gmail.com) (V. Zarokanellou), [gkolaitis@med.uoa.gr](mailto:gkolaitis@med.uoa.gr) (G. Kolaitis), [marvlas@med.uoa.gr](mailto:marvlas@med.uoa.gr) (M. Vlassopoulos), [katpapan@med.uoa.gr](mailto:katpapan@med.uoa.gr) (K. Papanikolaou).

0.85 and a specificity of 0.75. The same cut-off point gave a high and satisfactory sensitivity and specificity for autism versus other diagnoses.

There is a vast body of research studies (Allen, Silvore, Williams, & Hutchins, 2007; Bölte, Holtmann, & Poustka, 2008; Charman et al., 2007; Eaves, Winger & Ho, 2006; Sato et al., 2009; Öner, Öner, Çöp, & Munir, 2012; Wiggins et al., 2007) that examine the psychometric properties of the SCQ Lifetime form in preschool and school-aged children. Also, evidence of the cross-cultural validity of non English versions of the SCQ comes from the German adaptation (Bölte et al., 2008), the Turkish (Avcil, Baykara, Baydur, Münir, & İnal Emiroğlu, 2015; Öner et al., 2012) and the Portuguese version (Sato et al., 2009). From this literature body, it seems that some parameters such as the sample's age (Allen et al., 2007; Brooks & Benson, 2013; Corsello et al., 2007; Lee, David, Rusyniak, Landa, & Newschaffer, 2007; Wiggins et al., 2007), the severity of the diagnosis (Bölte et al., 2008; Corsello et al., 2007; Johnson et al., 2011; Schanding, Nowell, & Goin-Kochel, 2012), participants' IQs (Corsello et al., 2007; Eaves et al., 2006; Schanding et al., 2012), the existence of behavioral problems (Charman et al., 2007), participants' verbal abilities (Eaves et al., 2006; Wiggins et al., 2007) and the completion of the SCQ prior to the ADI-R or to a formal assessment (Corsello, Anderson, Qui, Risi, & Lord, 2004; Corsello et al., 2007) affect the efficiency of this screener. Many authors (Berument et al., 1999; Corsello et al., 2007; Johnson et al., 2011; Lee et al., 2007; Schanding et al., 2012; Wiggins et al., 2007) suggest that adapting the cut-off point seems very important according to the sample and the purpose of the screening.

Although in most studies it was found that the SCQ is better at differentiating ASD from non-ASD disorders in older children (Charman et al., 2007; Corsello et al., 2007; Wiggins et al., 2007) there are very few studies focusing on children attending the first years of elementary school. This is of particular interest for High-Functioning children with ASD who are more easily missed during a screening procedure and for whom findings suggest that an adjustment of the cut-off point is often needed. The scope of this study was to examine the psychometric properties of the Greek version of the SCQ Lifetime in 7 to 10 year-old children.

## 2. Methods

### 2.1. Participants and procedure

SCQ data were collected from three different samples. An Autism group ( $n = 27$ ) including children with a prior diagnosis of autism and a High-Functioning ASD group ( $n = 26$ ) recruited from clinical settings during the follow-up assessment and a group of children without a formal statement of special education needs recruited from mainstream schools (Non-Spectrum group,  $n = 77$ ). The two groups of Autism and High-Functioning ASD together constituted the ASD group. All participants in the High-Functioning group had a non-verbal IQ  $> 70$  as measured by Raven's Coloured Progressive Matrices (Sideridis, Adoniou, Mouzaki, & Simos, 2015) and verbal skills at the 4–5 words utterance level. The total sample consisted of 130 children aged 7 to 9 years and eleven months old. A diagnosis of Pervasive Developmental Disorder (PDD) had already been given by a multidisciplinary team based on DSM-IV-TR and ICD-10 criteria. Although golden standard measures were not used, most clinicians were ADI and ADOS trained. The proportion of verbal subjects was 100% in the Non-Spectrum group, 59.3% in the Autism group and 100% in the High-Functioning ASD group ( $p = 0.001$ ). No major comorbid psychiatric disorders were reported.

The authors prepared the Greek translated and back-translated version of SCQ, which was then approved by the original publisher (Western Psychological Services, WPS). A written consent was signed by all informants entering the study which was part of a wider project on the language characteristics of children with ASD. All informants were parents of the children.

### 2.2. Statistical analysis

Confirmatory factor analysis (CFA) with maximum likelihood procedure was used to assess the theoretical model for the SCQ. For all models, independence of error terms was specified. A number of approaches were used to assess the fit of the CFA models, including the comparative fit index (CFI), the goodness of fit index (GFI), the  $X^2$  goodness of fit test and the root mean

**Table 1**  
Sample's characteristics.

	Group			P-value
	Non-Spectrum	Autism	High-Functioning ASD	
Age (months), mean (SD)	101 (10.1)	103.3 (8.8)	100.6 (12.3)	0.554 <sup>*</sup>
Sex, N (%)				
Boys	39 (50.6)	24 (88.9)	19 (73.1)	<0.001 <sup>**</sup>
Girls	38 (49.4)	3 (11.1)	7 (26.9)	
Non-verbal IQ criteria	IQ > 70	IQ < 70	IQ > 70	

<sup>\*</sup> ANOVA.

<sup>\*\*</sup> Pearson's chi-square test.

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