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The reliability and validity of the Social Responsiveness Scale in a UK general child population

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ABSTRACT

This is the first UK study to report the reliability, validity, and factor structure of the Social Responsiveness Scale (SRS) in a general population sample. Parents of 500 children (aged 5–8 years) in North East England completed the SRS. Profiles of scores were similar to USA norms, and a single factor structure was identified. Good construct validity and internal consistency were found. Children with identified special needs were found to have significantly higher SRS scores than those without. The findings suggest the SRS performs in similar ways in UK and USA general population samples of children and can be used without modification in the UK.

1. Introduction

The Social Responsiveness Scale (SRS) (Constantino & Gruber, 2005) was developed to measure the presence of impairments in reciprocal social behaviours. This 65 item rating scale provides a measure of severity for each behaviour (mild to severe), resulting in a total score and five subscale scores. It can be completed by parents, teachers or other frequent carers in 15–20 min. Scores on the SRS have been found to have a continuous distribution, to be higher in males than females (Constantino & Todd, 2003) and to have a single factor structure (Constantino, Przybeck, Friesen, & Todd, 2000; Constantino, Hudziak, & Todd, 2003; Constantino et al., 2004). The SRS was developed in the USA and general population norms have been reported for USA respondents by the authors (Constantino & Gruber, 2005). It has been used in a variety of ways as: a measure of the severity of social impairment in children at risk for autism/ASD; a general population screening tool; and for behavioural, genetic and intervention evaluation studies.

The SRS has been shown to have good psychometric properties and a single factor structure in a German sample with clinical and non-clinical cases (Bölte, Poustka, & Constantino, 2008). To date there is no published UK study investigating the psychometric properties of this instrument in a general population sample. This means that equivalence of norm scores for a UK sample cannot be assumed. Indeed total scores for the German version of the SRS have been reported to be lower than the USA normative SRS scores (Bölte et al., 2008).

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Assessment of validity of an instrument includes the need to consider language and cultural factors, since it cannot be assumed that English versions of a measure will perform in the same way in different English speaking countries. For example, the Strengths and Difficulties Questionnaire (SDQ), a screening measure of child mental health translated into over 60 different languages, has good psychometric properties reported for several translations (e.g. Australian English, Hawes & Dadds, 2004; Dutch, van Widenfelt, Goedhart, Treffers, & Goodman, 2003; and Swedish, Smedje, Broman, Hetta, & von Knorring, 1999) but the UK, USA and Australian versions each have slight modifications in terminology and differences in norm scores have been reported (www.sdq.co.uk). The reported British parent-rated SDQ total difficulties norm for males is 0.2 standard deviations greater than the Australian equivalent score. Therefore, despite the shared language between the USA and UK, it is important to investigate the use of the SRS in a UK general population and compare the findings with the US normative data as published by the original authors of the instrument.

The aims of this study were to: examine how parent reported SRS scores in a North East UK general population sample of 5–8 year olds compare with the published USA norms; investigate whether the factor structure is similar to that found in previous reported studies; and report the psychometric properties (including internal consistency and validity) of the SRS within the UK dataset. We predict that UK general population SRS total scores will be similar to those reported in US general population samples; males will have higher SRS scores than females; one factor will account for most of the variance; and construct validity of the SRS will be demonstrated with moderate correlations between the SRS and parent-reported measures of repetitive behaviours. In addition we predict that a group identified as having special needs in the UK general population sample will have higher SRS scores compared with the group of children with no identified special needs. We anticipate that elevated SRS scores will be associated with other psychological difficulties.

2. Method

2.1. Participants

The participants were parents of 500 children from a UK longitudinal cohort study – the Gateshead Millennium Study (GMS). The Gateshead Millennium Study (GMS) recruited a population based cohort of 1029 Gateshead resident children born between June 1999 and May 2000. The children were studied prospectively using parent report questionnaires shortly after birth, at 6 weeks and at 4, 8, 12 and 30 months. The cohort has been re-traced at school entry, a parent report questionnaire booklet completed and the children directly assessed aged 7–9 years (Parkinson et al., 2011). Five hundred and six booklets were returned at age 5–8 years but 6 cases were excluded because of missing data.

Regarding representativeness, the original sample was comparable with the northern region of England in terms of socio-economic deprivation apart from slight under-representation of the most affluent quintile, assessed using the Townsend deprivation index from the 1991 census (ONS, 2000). Non participation was higher in the least affluent families than in the most affluent. For the current study the distribution across all the deprivation quintiles was fairly even and is representative of the north of England. For details of sample and recruitment procedures see Parkinson et al. (2011). The study received a favourable ethical opinion from Gateshead Local Research Ethics Committee.

2.2. Procedure

Once families had consented to take part in the follow up study, parents received a booklet containing the questionnaires either by post or delivered to the home by a research associate. Parents (usually the mother) completed the booklet and returned it to the research team (using the stamped addressed envelope provided). The booklet included a demographic information section; the Repetitive Behaviours Questionnaire 2 (RBQ2); the Strengths and Difficulties Questionnaire (SDQ); and the Social Responsiveness Scale (SRS).

2.3. Measures

2.3.1. Social responsiveness scale (parent version)

For this study the SRS version for 4–18 year olds was used. Each item has four response options which are answered on a Likert Scale, ranging through 'not true', 'sometimes true', 'often true' to 'almost always true'. Upon completion of all items, raw total and subscale scores were calculated. The original authors also report the grouping of items into five theoretical subscales for the purpose of clinical description, including social awareness, social cognition, social communication, social motivation, and autistic mannerisms (Constantino & Gruber, 2005). SRS total raw scores range from 0 to 195, with higher scores indicating increased social impairment. The total raw score cut-point as recommended by the original authors is 70 for possible ASD in males and 65 for females with no adjustments according to age range (Constantino & Todd, 2003; Constantino & Gruber, 2005). The same authors also report significant correlations between the SRS and the Autism Diagnostic Interview-Revised (Constantino, Davis, et al., 2003). Cronbach's alpha scores indicate that the overall SRS scale has good internal consistency ($\alpha = .94$ in males; $\alpha = .93$ in females, parent rated) (Constantino & Gruber, 2005). A single underlying factor structure has been identified by USA studies in both clinical and general population samples (Constantino et al., 2000; Constantino, Hudziak, et al., 2003; Constantino et al., 2004). For this reason, although the SRS theoretical