Short Report: Clinical Utility of the Parent-reported Strengths and Difficulties Questionnaire as a Screen for Emotional and Behavioural Difficulties in Children and Adolescents with Intellectual Disability

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Summary: *We assessed the clinical utility of the parent-reported Strengths and Difficulties Questionnaire (SDQ) as a screen for emotional and behavioural difficulties in 626 children and young people with intellectual disability (ID). Using the Developmental Behavioural Checklist (DBC2-P) to determine clinical caseness, the area under the curve for the SDQ total difficulties score was .876 (95% CI = .841, .911), indicating it is a good measure for identifying significant emotional and behavioural difficulties requiring further investigation. Analyses supported the use of the same cut-off for those with and without ID, which may assist with consistent and comparable assessment in clinical practice.*

Keywords: *Intellectual Disability, Developmental Disorders, Rating Scales, Children and Young People, Emotional and Behavioural Difficulties*

INTRODUCTION

Children with intellectual disability (ID) have increased emotional and behavioural difficulties and mental health problems compared to typically developing children[1], with a 36% prevalence for any psychiatric disorder for children and adolescents with ID (vs. 8% in those without ID).[2] Although prevalence rates are high, there can be challenges in screening and diagnosis; especially when considering whether mental health problems present differently in children with ID. NICE suggests that the gold standard for assessing emotional and behavioural difficulties in children and young people with ID[3] is the Developmental Behavioural Checklist – Parent Report[4] (DBC2-P). However, clinical settings in the UK and across the world, especially those serving children with a range of intellectual ability, often rely on shorter screening measures developed for the general population before full assessment and/or acceptance to services.[5] Often used is the Strengths and Difficulties Questionnaire[6] (SDQ), a brief measure with parent, teacher and child self-report versions freely and readily available. Although there has been strong evidence for the capacity of the SDQ to identify those who require a full clinical assessment in the general population[7], there is less evidence for children and young people with ID. A previous study in a group of 83 young people with ID found that SDQ and DBC-P total scores correlated well, and the SDQ 'borderline' cut-off identified 86% of those who met the DBC-P clinical cut-off.[8] The aim of the present study was to examine whether the SDQ can be used as a screen for emotional and behavioural problems in children and young people with ID, using data in comparison with the DBC2-P in a community research sample of children and young people with ID.

METHOD

Participants were from the first wave of the Cerebra 1000 Families study, a UK cohort of families of children with ID.[9] The National Health Service West Midlands—South Birmingham Research Ethics Committee granted ethical approval. Written informed consent was obtained from all participants. The present sample were primary carers from 626 families who completed the SDQ and the DBC2-P for their child with ID. Children's ages ranged from 4 years to 15 years 11 months (M age = 8.98, SD = 2.97), The majority of the children were male (67.9%; n = 425), 51.1% had a diagnosis of autism, based on parent report; 87.1% of primary carers were White British. ID was determined by parental report. The Vineland Adaptive Behavior Scale (VABS-II) conducted alongside the DBC2-P indicated that children ranged from mild to severe ID (Adaptive Behavior Composite [ABC] scores mean = 58, range = 25-94).

Measures: The SDQ parent-report[6] is a 25-item measure for children 4 to 17 years old with five key scales: emotional problems, conduct problems, hyperactivity/inattention, peer relationship problems, and prosocial behaviour. A total difficulties score is obtained by summing the four problem scales. For the current 4-band scoring, total scores 0-13 indicate 'close to average', 14-16 indicate 'slightly raised' 17-19 indicate 'high', and 20-40 indicate 'very high' problem levels. Previous 3-band scoring used scores 14-16 as 'borderline', and 17-40 as 'abnormal'. [10]

The DBC2-P[4] is a 96-item (each scored 0—2) measure of emotional and behavioural problems in 4-18 year olds with intellectual or developmental disabilities. The subscales are: disruptive/antisocial behaviour, self-absorbed, communication disturbance, anxiety, and social relating. The Total Behaviour Problem Score sums all items and a cut-off score of 46 can be used to identify clinically significant levels of emotional and behavioural disturbance.

Statistical Analysis: The clinical cut-off for the DBC2-P was used as the gold standard criterion for emotional and behavioural problems. Receiver Operator Characteristic (ROC) analysis examined the association between SDQ and DBC caseness. Area under the Curve (AUC) effect sizes indicated the magnitude of this association. We estimated sensitivity, specificity, and optimal cut-off values for the SDQ Total Difficulties score.

RESULTS

The AUC was .876 (p <.001, SE = .018, 95% CI = .841, .911), indicating that the SDQ total score is a good measure for indicating when children and young people with ID have clinically significant emotional and behavioural difficulties (Figure 1). When considering both sensitivity and specificity, a SDQ cut-off score of 17 (.819 sensitivity, .787 specificity) was optimal for children with ID (matching 'High' problem levels). The SDQ cut-off of 14 ('Slightly Raised' problems) showed high sensitivity (.931) but low specificity (.481). The SDQ 'Very High' cut-off score of 20 showed low sensitivity (.670) but high specificity (.898).

Using the 'High' cut-off of 17, the SDQ identified 81.9% of children who met the clinical cut-off on the DBC2-P, with a false positive rate of 21.3%. Given the SDQ is for brief screening, and the children scoring above the SDQ cut-off are still likely to be demonstrating difficulties that would benefit from identification and support, this false positive rate may be acceptable.

The majority (69.4%) of children with ID scored above 17 in the SDQ, indicating clinically significant emotional and behavioural difficulties. Correlations between the SDQ and DBC2-P were as expected, with a strong correlation between total scores (r = .72, *p* <.001) and the expected correlations between the respective subscales: SDQ emotional subscale and DBC2-P anxiety subscale (r =.60 , *p* <.001), SDQ conduct problems and DBC2-P disruptive/antisocial subscale (r =.66 , *p* <.001), and SDQ peer problems and DBC2-P social relating subscales (r = .47, *p* <.001).

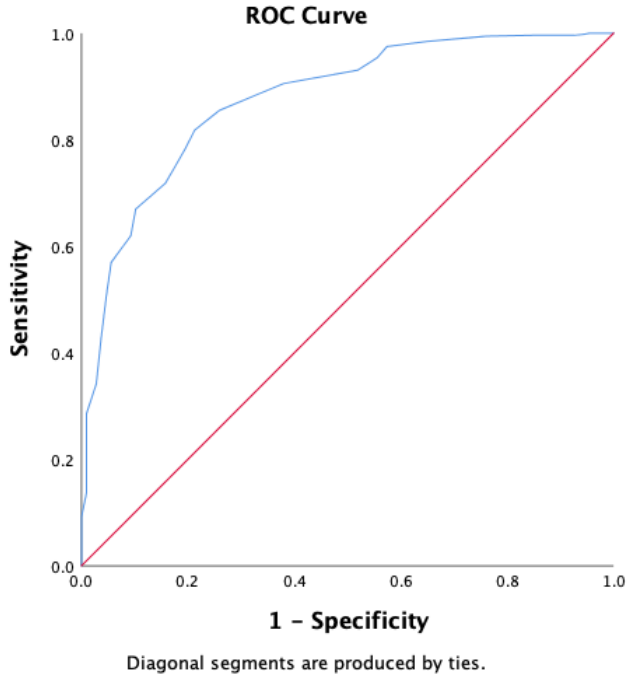

Figure 1. ROC Curve for the parent-reported SDQ Total Difficulties Score.

Some clinicians have queried if the SDQ is suitable for use across the range of ID. Using VABS-II[11] ABC scores to define groups, children with milder ID (ABC score ≥ 55; n = 414) had an AUC for SDQ total scores of .878 (*p* <.001, SE = .022, 95% CI = .834, .921) and those with more severe (ABC score < 55; n = 204) an AUC of .876 (*p* <.001, SE = .031, 95% CI = .814, .937). The 'High' SDQ cut-off identified 83.7% of those with milder ID and 78.3% of those with more severe ID, with false positive rates of 21.4% and 21.1% respectively.

Boys (n = 425) and girls (n = 199) showed similar results, with an AUC for SDQ total scores of .849 (*p* <.001, SE = .027, 95% CI = 795, .903) and .904 (*p* <.001, SE = .024, 95% CI = .857, .950) respectively. The 'High' cut-off identified 82.0% of boys and 81.9% of girls, with false positive rates of 26.4% and 16.4% respectively.

When looking at autism, AUC scores indicated the SDQ is a fair to good measure. For the autism group (n = 320), the AUC was .755 (p = .03, SE = .081, 95% CI = .596, .913), and for the non-autistic group (n = 306), the AUC was .831 (p <.001, SE = .024, 95% CI = .784, .878). The 'High' cut-off identified 90.4% of the autism group and 68.6% of the non-autistic group, with false positive rates of 66.7% and 18.6% respectively. This high false positive rate in the autism group may be acceptable as it is based on very low numbers of negative cases (n = 6).

DISCUSSION

Findings indicated that the SDQ is a clinically useful screen for emotional and behavioural difficulties for children and young people with ID prior to formal assessment, given the strong association between SDQ total scores and the DBC2-P clinical cut-off. Unlike previous research which supported the older 'borderline' cut-off for children with ID [8], the best balance of specificity and sensitivity was found using the existing SDQ 'high' cut-off[10]. Using the same cut-off enables the comparison of children with ID to other children, and consistent clinical use in services serving children across the range of intellectual ability. The SDQ total score also appeared to be suitable for use both in milder and more severe ID groups, although additional testing of sub-groups is needed based on more than VABS ABC scores. The SDQ appears suitable for both boys and girls. The SDQ is a fair measure for children with ID and autism, with excellent sensitivity, although further investigation may be useful.

This study is based on cross-sectional data. Longitudinal data would allow researchers to examine the predictive validity of the SDQ in the identification of emotional and behavioural problems in children with ID. Multiple informants, particularly child-self report, would be useful to consider in the future, as multi-informant report increased the sensitivity of the SDQ in a child community sample.[7] Previous research in small groups of children with ID indicate that the self-report SDQ may be an appropriate measure in this population[12,13] given modified wording.[13] The 1000 Families study relied on caregiver report only, and so clinical interviews and diagnoses were not available for this study. Further research using diagnostic interviews would allow for further examination of the clinical utility of the SDQ for children with ID. In addition, attention to other factors that may be associated with the utility of the SDQ (e.g., ethnicity) is needed.

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