

Original article

Psychometric properties of the parent and teacher forms of the Japanese version of the Strengths and Difficulties Questionnaire

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Abstract

Objective: This study examined the psychometric properties of the parent and teacher forms of the Japanese version of the Strengths and Difficulties Questionnaire (SDQ).

Method: Parents and teachers of 1487 elementary school children (759 boys and 728 girls aged 6–12 years) participated in this study.

Results: The results of confirmatory factor analyses of the parent and teacher versions of the SDQ supported the five-factor structure reported in previous studies. However, factor invariance across sex was not observed. The alpha coefficients for the subscales of the SDQs varied between 0.55 and 0.86, the same reliability measures that were also reported in previous studies. Moreover, analyses of variance showed significant differences on all of the subscales according to sex and teacher–parent ratings.

Conclusion: The factor structure of the SDQ was generally supported, but more gender-segregated investigations of the factor structures are needed. Parents tended to give higher ratings on the difficulties and strengths of children compared to the teachers. Boys were rated higher than girls were on difficulties, while girls were rated higher than boys were on strengths.

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Keywords: Elementary school; Factor structure; Factor invariance; Sex differences; Teacher-rated; Parent-rated; Reliability

1. Introduction

The Strengths and Difficulties Questionnaire (SDQ) is an easy-to-use, 25-item instrument designed to assess children and youth for the presence of maladaptive behaviors [1]. Previous studies have revealed a relationship between the SDQ and more severe problems, such as attention deficit hyperactivity disorder, emotional

disorder, conduct disorder [2,3], and psychiatric disorders [4]. The SDQ is widely used as a screening tool for the early detection of behavioral problems in children and youth. It consists of four subscales (emotional symptoms, conduct problems, hyperactivity–inattention, and peer problems), which have a total score for evaluating behavioral difficulties (total difficulties score), and one subscale (prosocial behavior) for evaluating behavioral adaptation. Moderate to high reliability coefficients have been reported for the parent ($\alpha = 0.57–0.82$), teacher ($\alpha = 0.70–0.87$), and youth versions ($\alpha = 0.41–0.80$) of the SDQ [5]. An advantage of the SDQ is that the parents or teachers of 4–16-year-olds can evaluate the children for various problems, and the

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children (11–16-year-olds) can evaluate themselves for the same problems. The present study however, focuses on the parent and teacher versions of the SDQ as a screening instrument for behavioral problems in elementary school children.

Parents' and teachers' observations of children in their everyday activities differ, since parents observe children primarily at home, while the teachers observe them primarily at school. It is not surprising that the correlations between the teacher and parent ratings are consistently moderate to high [1,5]. In addition, the cut-off points of the SDQ scores differ between the parent and teacher versions, as parents tend to give higher ratings of difficulties in their children compared to the teachers' ratings [1].

With respect to sex differences in the behavioral adaptation of children, teachers report almost twice as many behavioral problems in elementary and middle school boys compared to girls of the same age [6]. The teacher-rated reports on the SDQ reflect a tendency of scores on the difficulties subscales to be higher for boys than girls, who receive higher scores on the strengths subscales [7,8]. The same trend is observed in the parent-rated SDQ as well, with boys scoring higher on the difficulties subscales both at school and at home.

The SDQ is widely used as a five-factor scale comprising emotional symptoms, conduct problems, hyperactivity–inattention, peer problems, and prosocial behavior. Although a study by Goodman [5] found a robust and simple structure in the parent-rated SDQ, it did not find a robust five-factor structure in the teacher-rated SDQ, which had a few items that either had a loading on multiple factors, or did not load on the general factors. Some previous studies that conducted confirmatory factor analyses on the five-factor model reported that the goodness of fit of the five-factor model is inadequate. For example, it has been reported that the goodness of fit of the teacher version is lower than the parent version [5,9], and that the loading is inadequate for some items, such as item 22, “steals from home, school, or elsewhere” [10]. Debates on the appropriateness of the factor structure of the SDQ continue [11]. Given the sex differences in the scores on the difficulties and strengths subscales, it may be presumed that there are different factor structures for boys and for girls. However, few studies have investigated the factor invariance across sex. One of those studies, d'Acremont and Vander Linden [10], reported a strong factor invariance across sex in a slightly modified five-factor model of the teacher-rated SDQ, with a sample of middle-school children. However, the age group of their study's participants [10] was restricted to the degree that the results did not shed light on the factor invariance across sex in the total SDQ target age group.

In Japan, problems related to the mental health of children are considered extremely important; therefore,

clarification of the psychometric properties of the SDQ is imperative. Using a large-scale dataset from a sample of 4–12-year-olds, Matsuishi et al. [12] found that the Japanese version of the SDQ for parents has a five-factor structure, similar to that of Goodman's [5] SDQ version for parents. This study also found that although the alpha coefficients for the peer problems and conduct problems subscales were low (0.52 each), the total difficulties scores, and the scores for conduct problems, hyperactivity/inattention, and peer problems were significantly higher for boys than girls. On the other hand, the scores on the emotional symptoms and prosocial behavior subscales were significantly higher for girls than boys. The results of the Matsuishi et al. [12] study were obtained from an exploratory factor analysis, but Mellor and Stokes [9], who investigated the factor structure of the SDQ, insisted that confirmatory factor analysis, and not exploratory factor analysis, should be used to verify the appropriateness of the factor structure. In response to this argument, Nishimura and Koizumi [13] conducted a confirmatory factor analysis of the teacher-rated SDQ with a sample of 4–6-year-old kindergarten children. The goodness of fit of the five-factor structure reported by Nishimura and Koizumi [13] was adequate, but as reported by d'Acremont and Vander Linden [10], the factor loading of item 22 was extremely low, and it was difficult to confirm the factor structure for conduct problems. The knowledge gained by Nishimura and Koizumi [13] is extremely important, but since their sample was restricted to 4–6-year-olds, the data are extremely limited and the instrument requires further research to extend our knowledge of its psychometric properties.

Therefore, the present study was conducted to clarify the psychometric properties of the SDQ with a sample of elementary school children, using the Japanese versions of SDQ for parents and teachers. The specific aim was to investigate the reproducibility of the five-factor structure advocated by Goodman [5], by conducting confirmatory factor analysis. We also investigated the association between the parent and teacher versions, as well as sex differences, with the objective of learning about the assessment of difficulties and strengths in elementary school children.

2. Methods

2.1. Participants

The study sample consisted of children (from 6 to 12 years old) in grades 1–6 of all public elementary schools in a city in Aichi prefecture. Consent to participate in the study was obtained in writing from the parents of 1578 children (consent rate = 82.1%) after an explanation of the study procedure was provided. The parents and teachers of the children also participated

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