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**A validation and norming study of the strengths and difficulties questionnaire in the New Zealand context**

**Final reports – Executive summary**

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**Authors:**

Paula Kersten, Alain Vandal, Kathryn McPherson, Hinemoa Elder, Shoba Nayar, Margaret Dudley

**Researchers:** Heather Robertson, Robyn Tauroa

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**Contact for Information:**

Paula Kersten, PhD  
Associate Professor of Rehabilitation  
Person Centred Research Centre  
School of Rehabilitation and Occupation Studies  
AUT University  
Akoranga Drive Campus  
Private Bag 92006  
Auckland  
Phone: +64 9 9219180  
Fax: +64 9 9219620  
[Paula.kersten@aut.ac.nz](mailto:Paula.kersten@aut.ac.nz)

## Executive summary

This study aimed to examine the reliability and validity of the Strengths and Difficulties Questionnaire (SDQ) in the New Zealand preschool population, and to produce normative data for this population. The work was carried out as four studies, each addressing specific objectives:

1. A qualitative study, in which we used focus groups and interviews, evaluated the face and cultural validity of the SDQ;
2. In a retrospective data analysis of SDQ data available for children who had received a Before School Check (B4SC) in 2011 we used confirmatory factor analysis (CFA), Rasch analysis, and reliability statistics to examine the reliability and structural validity of the SDQ;
3. The same data were used to produce optimal threshold values for the SDQ (normative data);
4. A prospective study, comparing SDQ scores with a gold standard nurse assessment, examined the predictive validity of the SDQ in Māori.

### Key findings are summarised below:

The qualitative study provided in-depth information about different stakeholders' views of the SDQ:

- Many parents reported they were unclear about the purpose of the SDQ, variable process of administration, and difficulties understanding the context in which they should consider the questions and response options, difficulty with understanding the questions and response options. In addition, parents from the Māori, Pacific Island, Asian, and new immigrant groups reported the tool or its administration processes lacked explicit consideration of children in their cultural context. Timing of the questionnaire and the value of multiple perspectives were highlighted as important.
- Māori parents and teachers advised that the process and tool appeared to many as a Pākehā approach to labelling their children, which did not allow thinking about children in the context of their history. Māori parents and kaiako generally did not support the use of the SDQ or a questionnaire based approach, preferring kanohi te kanohi.
- Many teachers were not supportive of the tool as they felt it conflicted with a strengths based approach (that underpinning educational practice) and they did not always feel informed enough about the child's context to complete it fully. Teachers were concerned about the tool's cultural appropriateness and felt it was particularly problematic for parents with English as a second language. Further, teachers had difficulty with the timing of the questionnaire, considering the fast pace at which children change at this age.
- Discussions of the SDQ during the qualitative study helped parents and teachers to get a better understanding of the purpose of the SDQ and on reflection many said they could see its value.
- Providers reported they expend huge resource and effort to reach parents, support parents in the process, reach and engage teachers, reconciling different views expressed by different parents or between parents and teachers, as well as reconciling their own observations with opinions of others.
- Providers were committed to enhance the health and wellbeing of children and whanau and some saw the SDQ as a valuable tool. They recommended that referral pathways should be improved to make this happen.

The assessment of the validity and reliability of the SDQ revealed the following:

- Data quality checks on Ministry of Health provided SDQ data resulted in the deletion of 39% of cases as data either showed spurious patterns or analysis at individual item level was not possible. Data distribution of the SDQ scales was as expected with most children being scored at the lower end of the 4 difficulty scales (indicating no problems) and at the higher end for the prosocial scale (indicating no problems).

- Overall, internal consistency of the scales was disappointingly low, as was inter-rater agreement between parents and teachers, for all ethnicity and rurality groups.
- Both the CFA and Rasch analysis showed that the scales did not fit the proposed Goodman factor structure and there was evidence of bias in the way people answer questions depending on their ethnicity. Possible reasons for the poor fit to the Goodman structure in the New Zealand context have been proposed (see report 3, page 35).

The norming data analysis showed:

- For many of the scales and groups the threshold values were lower than that found in British samples (but not for all groups and scales, see report 4, section 2.1).
- We found smaller proportions of children allocated to the 'abnormal' category than expected when the published threshold values are applied for many of the groups and scales.
- Noticeable differences were found for Māori and Pacific peoples on the Difficulty scale in particular.

The prospective predictive validity study included 225 tamariki (46% female, 54% male, all Māori):

- The optimal thresholds for Māori child referral were lower for the SDQ-P and SDQ-T than the published threshold and there were differences between boys and girls. Child referral SDQ-P: sensitivity 62%, specificity 83%, Positive Predictive Value 0.35, negative Predictive Value 0.94. When the published threshold for the SDQ-P (i.e. 17) is applied to our data we see an increase in specificity for child referral (94%) but a dramatic drop in sensitivity (28%).
- The optimal threshold for the SDQ-T Māori child referral was also lower than that recommended. Child referral SDQ-T: sensitivity 77%, specificity 78%, Positive Predictive Value 0.31, Negative Predictive Value 0.96. When the published thresholds for the SDQ-T (i.e. 16) is applied to our data we see an increase in specificity for child referral (94%) but sensitivity drops down to 0%.
- Optimal threshold values for parental referral and combined child-parental were almost identical for boys and girls as for child-referrals.

## Conclusions

Whilst the different components of the study have been presented as separate reports they are interlinked and a number of observations can be made when we look across:

- Resource implications were identified by providers in terms of obtaining SDQ data, especially when collecting teacher data. Some providers were more successful than others in obtaining such data but this was at a cost of a lot of resource. This will have affected the varying levels of missing data observed amongst District Health Board regions.
- Many people reported difficulties understanding the SDQ questions, response options and the context within which they should make the assessments of their children. If different interpretations are at play this can have an impact upon the validity and reliability of the SDQ. Therefore, the structural validity and reliability could potentially be better (or worse) than found here, depending on advice to raters/questionnaire completers.
- Māori stakeholders in particular were generally negative about the use of the SDQ as part of routine practice and this will be having an effect on uptake.
- Issues with data quality could have impacted upon the outcomes of the three quantitative analysis which all relied either entirely or partly on routinely collected data as part of the B4SC. Data quality was especially affected in the teacher data. This could be a result of data entry systems which set responses as zero by default which is only overridden when data is entered. Consequently, spurious patterns could simply mean data were not available. In our analyses we used a conservative approach and excluded such spurious data.

- Data from the normative and predictive validity studies suggest that for many scales and groups the British threshold values for child-referral currently used in New Zealand are on the high end (that is – under identifying children with behavioural and emotional difficulties). However, firm recommendations about changing our recommended thresholds cannot be made due to the lack of structural validity and levels of understanding of the actual questionnaire for some parents.

## Recommendations

The following recommendations are made in our reports:

If the SDQ is retained as part of the B4SC we make the following recommendations:

### **Administration processes of the SDQ:**

1. These should be standardised across providers and DHBs. Given so many parents needed help completing the tool this could include more detailed but standardised explanations for the purpose of the tool, the questions and response options, and the context within which they should consider the SDQ questions;
2. To provide parents/whānau with an option of face to face support when completing the SDQ;
3. To provide parents/whānau for whom English is not their first language with choice to use different SDQ language version and to use the services from translators when required;
4. Providers should be recording which language version they used for each parent SDQ, in addition to parents' preferred language – these data can then inform future data analyses;
5. For clinical staff to note any cultural issues mentioned by parents when completing the SDQ so that these can be considered when reviewing SDQ scores;
6. To provide feedback to parents/ whānau about their child's SDQ scores;
7. Providers should enter data for all individual items so that future work can include all (or most) data and quality checks can be carried out;
8. Reversing questions should be done electronically, after data entry (for example in a simple Excel sheet) so that human error is less likely to occur in scoring the questionnaire.

### **Stakeholder engagement:**

1. For services to further strengthen their work with educational providers so that more complete data can be collected from teachers;
2. For services to engage more with Māori stakeholders, consider their concerns about a questionnaire approach and to consider if different approaches would be more acceptable.

### **Services:**

1. To provide training for B4SC providers / nurses on administration and data entry of the SDQ;
2. Respondents reported the importance of recognising multiple perspectives. In addition, since we identified some problems with the structural validity it is important to maintain the use of advisory boards to determine appropriateness of referrals, rather than relying solely on SDQ scores;
3. To ensure clinical and where available education input is sought for child-referral to specialist services (as is current practice);
4. Referral pathways for children with behavioural and emotional difficulties need to be further developed.

### **Ministry of Health:**

1. To consider the resource implications for the recommendations made above;
2. Providing some positive stories about the potential usefulness of the tool nationally may support B4SC providers in engaging parents/whānau and teachers in SDQ data collection;

3. To consider some of the limitations of the tool when interpreting national level data, given some issues with face, cultural and language validity have been identified.
4. To provide services with guidelines on SDQ data entry and to conduct quality checks on SDQ data routinely;
5. It will be worthwhile repeating the retrospective data analysis after implementing the recommendations made above;
6. In the absence of gold standard data with which the SDQ results in the general population can be compared it is important not to make hasty decisions in terms of SDQ thresholds. Before any decisions are made about lowering or raising SDQ threshold some routine data could be collected to inform policy makers of SDQ scores alongside nurses' and where appropriate Advisory Board views as to whether or not onward referral is required. This will allow an investigation of the appropriateness of the published thresholds or those derived from our norming and predictive validity studies;
7. To consider the SDQ-P Total Difficulties scale thresholds presented in this report and discuss what would be acceptable levels of sensitivity and specificity for appropriate targeting of services. To monitor any changes made prospectively;
8. Further evaluation should be carried out to evaluate the usefulness of threshold values for determining appropriateness of onward parent referral and to evaluate the benefits of parental programmes;
9. To pilot and evaluate the implementation of an SDQ-P screen at 6-years of age;
10. To carry out quality checks on SDQ-T data entry, examining specific spurious patterns (e.g. all zero scores).