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Danish norms for the Strengths and Difficulties Questionnaire

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ABSTRACT

INTRODUCTION: The Strengths and Difficulties Questionnaire (SDQ) is a brief well-validated psychometric instrument for assessment of developmental, behavioural and emotional problems in children and adolescents. Versions of the questionnaire covering the 2-17-year age range are answered by parents and by pedagogues or teachers. Also, a self-report version can be used from the age of 11 years. The SDQ is well-accepted by informants and is increasingly preferred both internationally and in Denmark for research and evaluation purposes. The questionnaire is also well-suited for clinical use, especially in the primary sector. However, no comprehensive set of Danish norms has been available before this study.

METHODS: Data from an extensive survey in a Danish municipality was used to generate national norms for SDQ scores. These norms were compared with British and Nordic population data.

RESULTS: Across informants, threshold values show some variation with age and often differ between sexes. Therefore, norms are provided both with and without gender stratification. Similarities as well as differences were found between the Danish norms and materials from other countries. The differences may, to some extent, be attributable to methodological issues.

CONCLUSION: We expect that the availability of Danish SDQ norms will further stimulate the use of the instrument.

FUNDING: TrygFonden provided financial support for the development of Danish SDQ norms.

TRIAL REGISTRATION: not relevant.

The Strengths and Difficulties Questionnaire (SDQ) is a brief questionnaire focusing on a child's or young person's mental health. As implied by the name, the SDQ – in addition to questions about distress and problematic behaviour - also addresses the child's or young person's resources. Almost identical versions are available for collection of information from parents and from professionals (teachers or pedagogues) who know the child or young person well and from the children and adolescents themselves from the age of 11 years.

The first versions of SDQ were published by the British child psychiatrist Robert Goodman in 1997 [1]. Owing to good psychometric properties and a high user acceptance, the SDQ is now one of the most used measures of child mental health worldwide [2].

The questionnaire includes 25 statements about the child's behaviour over the past six months. For each statement, the informant is asked whether it is "Not true", "Partially true" or "Certainly true". When scores are calculated, the middle option is always assigned a value of 1. For the two other options, the value assigned is either 0 or 2 depending on the wording of the statement. Five scores ranging from 0 to 10 can be calculated, each based on the answers to five questions. Four of these scores are summed to a total difficulty score. In contrast, the fifth, the prosocial score, reflects social strengths. The literature confirming the factor structure underlying these scores includes two Danish studies based on data from both low-risk and high-risk populations [3, 4].

Frequently, the extended version of the Strengths and Difficulties Questionnaire is used, permitting the calculation of an additional impact score [5]. This score only differs from zero if the respondent estimates that the difficulties reported affect the well-being of the child/young person or his or her function in one or more areas "quite a lot" or "a great deal". The impact score ranges from 0 to 10 for questionnaires completed by parents or by the young people themselves. As teachers and pedagogues are not asked about the child's or young person's function at home or in relation to leisure activities, the impact score has a maximum value of 6 for this group of responders.

Questionnaires in more than 70 different languages can be downloaded free of charge from the international website [6]. The SDQ can also be used electronically, but this requires a license agreement with the copyright holders.

In 2003, the SDQ was translated into Danish; and in 2014 this translation was revised in collaboration with Professor Goodman to ensure that the Danish wording matches the child's age also at a detailed level. The material now includes four almost identical versions in Danish aimed at different age segments: 2-4 years, 5-6 years (not attending school), 4-10 years (attending school) and 11-17 years [7]. The increased complexity was deemed acceptable as the SDQ is increasingly used

ORIGINAL ARTICLE

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TABLE 1

Age 2-6 years, not attending school: norms and exact percentages for the Strengths and Difficulties Questionnaire (SDQ) scores. The values are scores (%).

	Boys (n_1 = 460; n_2 = 675)			
	close to average	slightly raised/ slightly lowered[a]	high/low[a]	very high/ very low[a]
1. SDQ completed by parent				
Emotional problems score	0-3 (81.3)	4 (8.3)	5 (6.5)	6-10 (3.9)
Conduct problems score	0-3 (84.8)	4 (8.7)	5 (4.1)	6-10 (2.4)
Hyperactivity score	0-5 (83.3)	6 (8.3)	7 (3.7)	8-10 (4.8)
Peer problems score	0-2 (86.3)	3 (6.1)	4 (5.2)	5-10 (2.4)
Total difficulties score	0-12 (82.6)	13-15 (9.6)	16-17 (3.9)	18-40 (3.9)
Prosocial score	6-10 (87.2)	5 (7.6)	-	0-4 (5.2)
Impact score	0 (90.0)	-	1-2 (7.6)	3-10 (2.6)
2. SDQ completed by professional				
Emotional problems score	0-2 (79.7)	3-4 (13.9)	5 (3.4)	6-10 (3.0)
Conduct problems score	0-3 (84.0)	4 (6.7)	5-6 (6.7)	7-10 (2.7)
Hyperactivity score	0-6 (83.9)	7-8 (8.7)	9 (3.4)	10 (4.0)
Peer problems score	0-2 (82.2)	3-4 (10.5)	5 (3.0)	6-10 (4.2)
Total difficulties score	0-12 (81.2)	13-16 (9.3)	17-20 (5.4)	21-40 (4.2)
Prosocial score	5-10 (85.3)	4 (4.6)	3 (5.0)	0-2 (5.0)
Impact score	0 (80.2)	1-2 (14.2)	3 (2.8)	4-6 (2.8)

a) Category description used for the prosocial score.

TABLE 2

Age 6-10 years, attending school: norms and exact percentages for the Strengths and Difficulties Questionnaire (SDQ) scores. The values are scores (%).

	Boys (n_1 = 737; n_2 = 1,019)			
	close to average	slightly raised/ slightly lowered[a]	high/low[a]	very high/ very low[a]
1. SDQ completed by parent				
Emotional problems score	0-4 (82.5)	5-6 (10.0)	7 (4.3)	8-10 (3.1)
Conduct problems score	0-2 (80.2)	3 (10.0)	4 (6.1)	5-10 (3.7)
Hyperactivity score	0-6 (85.6)	7-8 (8.7)	9 (3.5)	10 (2.2)
Peer problems score	0-2 (82.9)	3-4 (10.3)	5 (2.6)	6-10 (4.2)
Total difficulties score	0-13 (80.6)	14-17 (10.5)	18-20 (3.7)	21-40 (5.3)
Prosocial score	7-10 (86.3)	6 (6.2)	5 (5.0)	0-4 (2.5)
Impact score	0-1 (82.0)	2-3 (10.7)	4 (2.2)	5-10 (5.2)
2. SDQ completed by professional				
Emotional problems score	0-3 (86.6)	4 (5.3)	5 (3.9)	6-10 (4.2)
Conduct problems score	0-3 (83.7)	4 (6.2)	5-6 (7.0)	7-10 (3.1)
Hyperactivity score	0-7 (82.1)	8-9 (11.7)	10 (6.2)	-
Peer problems score	0-2 (82.2)	3-4 (11.6)	5 (2.6)	6-10 (3.6)
Total difficulties score	0-13 (79.7)	14-17 (10.1)	18-20 (4.7)	21-40 (5.5)
Prosocial score	5-10 (87.5)	4 (5.4)	3 (3.3)	0-2 (3.8)
Impact score	0-1 (82.1)	2 (8.5)	3 (5.1)	4-6 (4.2)

a) Category description used for the prosocial score.

Girls (n_1 = 392; n_2 = 594)				Both sexes (N_1 = 852; N_2 = 1,269)			
close to average	slightly raised/ slightly lowered[a]	high /low[a]	very high/ very low[a]	close to average	slightly raised/ slightly lowered[a]	high/low[a]	very high/ very low[a]
0-3 (81.6)	4-5 (13.0)	–	6-10 (5.4)	0-3 (81.4)	4-5 (13.9)	–	6-10 (4.6)
0-3 (86.0)	4 (8.4)	5 (3.3)	6-10 (2.3)	0-3 (85.3)	4 (8.6)	5 (3.8)	6-10 (2.4)
0-5 (86.7)	6 (5.4)	7 (2.6)	8-10 (5.3)	0-5 (84.9)	6 (6.9)	7 (3.2)	8-10 (5.1)
0-2 (88.8)	3 (6.6)	–	4-10 (4.6)	0-2 (87.4)	3 (6.3)	4 (4.1)	5-10 (2.1)
0-11 (82.7)	12-14 (8.9)	15-16 (3.3)	17-40 (5.1)	0-11 (80.5)	12-14 (9.8)	15-17 (5.6)	18-40 (4.0)
7-10 (86.0)	6 (7.9)	5 (3.1)	0-4 (3.1)	7-10 (79.7)	6 (10.6)	5 (5.5)	0-4 (4.3)
0 (90.1)	–	1 (3.3)	2-10 (4.6)	0 (89.9)	–	1-2 (6.6)	3-10 (3.5)
0-3 (87.2)	4 (5.7)	5 (3.5)	6-10 (3.5)	0--3 (88.0)	4 (5.3)	5 (3.5)	6-10 (3.2)
0-2 (85.4)	3 (5.7)	4 (3.9)	5-10 (5.1)	0-3 (87.3)	4 (3.4)	5 (3.0)	6-10 (4.4)
0-5 (86.7)	6 (3.5)	7-8 (6.1)	9-10 (3.7)	0-5 (80.9)	6-7 (9.9)	8-9 (6.5)	10 (2.8)
0-2 (86.9)	3 (6.2)	4 (4.0)	5-10 (2.9)	0-2 (84.5)	3 (6.0)	4 (4.4)	5-10 (5.1)
0-9 (80.5)	10-13 (9.4)	14-17 (5.7)	18-40 (4.4)	0-11 (82.1)	12-15 (9.0)	16-18 (3.8)	19-40 (5.1)
6-10 (86.2)	5 (6.6)	4 (4.4)	0-3 (2.9)	6-10 (80.0)	4-5 (13.3)	3 (3.1)	0-2 (3.6)
0 (88.7)	1 (3.9)	2 (3.4)	3-6 (4.0)	0 (84.2)	1 (6.5)	2 (4.5)	3-6 (4.9)

Girls (n_1 = 713; n_2 = 936)				Both sexes (N_1 = 1,450; N_2 = 1,955)			
close to average	slightly raised/ slightly lowered[a]	high /low[a]	very high/ very low[a]	close to average	slightly raised/ slightly lowered[a]	high/low[a]	very high/ very low[a]
0-4 (80.1)	5-6 (11.9)	7 (4.21)	8-10 (3.8)	0-4 (81.3)	5-6 (11.0)	7 (4.3)	8-10 (3.4)
0-2 (88.9)	3 (7.9)	–	4-10 (3.2)	0-2 (84.5)	3 (9.0)	4 (3.9)	5-10 (2.7)
0-4 (83.9)	5-6 (8.6)	7 (3.5)	8-10 (4.1)	0-5 (83.7)	6-7 (8.9)	8 (3.8)	9-10 (3.6)
0-2 (86.3)	3 (6.0)	4 (3.9)	5-10 (3.8)	0-2 (84.6)	3 (6.1)	4 (4.0)	5-10 (5.3)
0-11 (82.5)	12-14 (8.0)	15-17 (5.0)	18-40 (4.5)	0-12 (81.9)	13-15 (7.6)	16-19 (6.1)	20-40 (4.4)
8-10 (87.4)	7 (7.7)	–	0-6 (4.9)	8-10 (81.0)	7 (9.7)	6 (5.0)	0-5 (4.3)
0 (82.5)	1-2 (10.4)	3 (3.2)	4-10 (3.9)	0-1 (84.8)	2 (5.5)	3-4 (6.3)	5-10 (3.5)
0-3 (81.7)	4-5 (11.2)	6 (1.6)	7-10 (5.4)	0-3 (84.3)	4 (6.1)	5-6 (6.0)	7-10 (3.6)
0-1 (83.4)	2 (7.1)	3-4 (6.3)	5-10 (3.2)	0-2 (82.7)	3-4 (10.5)	5 (2.8)	6-10 (4.0)
0-3 (80.0)	4-5 (10.7)	6-7 (5.0)	8-10 (4.3)	0-5 (79.9)	6-8 (12.4)	9 (3.8)	10 (4.0)
0-2 (87.2)	3 (5.9)	4 (2.8)	5-10 (4.2)	0-2 (84.6)	3 (6.6)	4 (3.6)	5-10 (5.2)
0-8 (80.2)	9-13 (9.7)	14-16 (4.7)	17-40 (5.3)	0-11 (80.2)	12-16 (11.0)	17-19 (3.7)	20-40 (5.2)
7-10 (86.2)	6 (5.5)	5 (4.9)	0-4 (3.4)	5-10 (84.7)	6 (7.1)	4 (3.9)	0-3 (4.3)
0 (85.3)	1 (5.6)	2 (4.1)	3-6 (5.1)	0-1 (86.3)	2 (6.4)	3 (4.3)	4-6 (3.0)

electronically, where an automatic selection of the right version is possible.

In Denmark, the SDQ was first used in a research context [8]. In recent years, the documented validity and the high degree of user acceptance have stimulated its wider use both as a screening tool and as part of the evaluation of psychosocial interventions. The SDQ also matches the need for a simple, well-documented instrument that can be used clinically by non-specialists in the primary sector. This has been recognised by the Danish Health Authority. Thus, the SDQ is now included as a standard psychometric tool in their recommendations for the collaborative handling of attention deficit hyperactivity disorder, eating disorders, anxiety and depression in the primary and secondary sector [9].

In the interpretation of scores generated from the SDQ, it is important to know how far a specific personal profile deviates from the average. In the absence of Danish norms, score values are often compared with the British norms published on the international SDQ website [6]. However, as differences between countries cannot be excluded, there has been a growing demand for Danish national norms.

As psychometric scores typically show some variation across both gender and age, stratified norms might be preferred. At the individual level, it is valuable to know if a reported behaviour deviates from what is commonly seen in same-sex peers. However, for some purposes, unisex norms may be more relevant. If, for example, high values for the SDQ impact score are used to indicate a need for assessment and possible intervention, unisex cut-off values for this score might be preferred. Also, unisex norms simplify epidemiological comparisons between nationalities.

METHODS

The data used to generate the Danish norms stem from a survey conducted in 2015 by the Municipality of Assens in the central part of Denmark. The purpose was to assess the well-being of children and young people attending a municipal day-care service, kindergarten or

TABLE 3

Age 11-17 years: norms and exact percentages for the Strengths and Difficulties Questionnaire (SDQ) scores. The values are scores (%).

	Boys (n_1 = 843; n_2 = 1,192; n_3 = 830)			
	close to average	slightly raised/ slightly lowered[a]	high/low[a]	very high/ very low[a]
1. SDQ completed by parent				
Emotional problems score	0-3 (80.4)	4-5 (12.6)	6 (2.6)	7-10 (4.4)
Conduct problems score	0-2 (86.8)	3 (7.1)	4 (3.2)	5-10 (2.9)
Hyperactivity score	0-5 (85.4)	6 (4.5)	7-8 (6.1)	9-10 (4.0)
Peer problems score	0-3 (85.1)	4 (5.5)	5 (4.6)	6-10 (4.9)
Total difficulties score	0-12 (82.6)	13-16 (8.6)	17-19 (4.0)	20-40 (4.9)
Prosocial score	7-10 (85.4)	6 (7.7)	5 (4.2)	0-4 (2.7)
Impact score	0-1 (84.1)	2 (4.5)	3-4 (5.9)	5-10 (5.5)
2. SDQ completed by professional				
Emotional problems score	0-2 (81.6)	3-4 (10.2)	5 (3.0)	6-10 (5.2)
Conduct problems score	0-2 (87.4)	3 (4.3)	4 (3.9)	5-10 (4.7)
Hyperactivity score	0-5 (81.6)	6-7 (8.8)	8-9 (6.5)	10 (3.0)
Peer problems score	0-2 (80.9)	3-4 (12.1)	5 (2.5)	6-10 (4.5)
Total difficulties score	0-11 (81.6)	12-15 (9.2)	16-19 (4.9)	20-40 (4.2)
Prosocial score	5-10 (87.9)	4 (4.6)	3 (3.1)	0-2 (4.4)
Impact score	0-1 (86.1)	2 (5.2)	3 (3.8)	4-6 (4.9)
3. Self-completed SDQ				
Emotional problems score	0-3 (82.0)	4-5 (12.1)	6 (2.7)	7-10 (3.2)
Conduct problems score	0-3 (87.9)	4 (6.3)	5 (2.3)	6-10 (2.8)
Hyperactivity score	0-6 (87.6)	7 (5.7)	8 (4.5)	9-10 (2.3)
Peer problems score	0-3 (84.3)	4 (8.0)	5 (4.9)	6-10 (2.8)
Total difficulties score	0-13 (80.2)	14-16 (10.0)	17-19 (5.4)	20-40 (4.6)
Prosocial score	6-10 (83.6)	5 (10.9)	4 (3.1)	0-3 (2.4)
Impact score	0 (87.6)	1 (5.6)	2 (3.9)	3-10 (2.8)

a) Category description used for the prosocial score.

school (0-10th grade). The survey included children in special educational settings, but not children in private day-care or kindergarten (25%) or school (18%).

Parents were invited to participate via the electronic system routinely used for school-home communication. A unique log-in was provided for filling out the questionnaire at a protected internet site. The parents received a reminder a few days before the specified deadline if the questionnaire had not already been answered. From grade six, students were invited to complete the self-report version of the SDQ electronically at school.

Data were analysed at the group level without the possibility of identifying individual children.

Assens Municipality consists of both rural and urban areas, including a suburb of the nearby city of Odense. Demographically, average educational and income levels for the adult population were both slightly below the national mean at the time of data collection [10]. The proportion of children and young people (aged 2-17 years) immigrated from or with parents who had immigrated from a "non-western country" was 2.3% and thus considerably lower than the national mean of 7.2% [10].

Presentation of data

In accordance with standard practice for SDQ norms, raw score values in defined percentile intervals have been identified (**Table 1**, **Table 2** and **Table 3**). For all scores except the prosocial score, values above the 95th percentile are referred to as "Very high", values between the 90th and the 94th percentile as "High" and values between the 80th and the 89th percentile as "Slightly raised". Similarly, the values below the fifth percentile for the prosocial score are described as "Very low", values between the sixth and the tenth percentile as "Low" and values between the 11th and the 20th percentile as "Slightly lowered". Raw score intervals were rounded to the nearest whole number.

As this categorisation constitutes a rather coarse description of the data, the exact prevalence of the score values within each category is also given in the tables.

Girls (n_1 = 853; n_2 = 1,135; n_3 = 779)				Both sexes (N_1 = 1,696; N_2 = 2,427; N_3 = 1,609)			
close to average	slightly raised/ slightly lowered[a]	high /low[a]	very high/ very low[a]	close to average	slightly raised/ slightly lowered[a]	high/low[a]	very high/ very low[a]
0-4 (79.6)	5-6 (13.7)	7 (2.9)	8-10 (3.8)	0-4 (83.5)	5 (6.4)	6-7 (6.9)	8-10 (3.2)
0-1 (82.5)	2 (11.1)	3 (3.9)	4-10 (2.5)	0-1 (79.7)	2 (10.6)	3 (5.5)	4-10 (4.3)
0-3 (83.2)	4-5 (10.4)	6 (3.4)	7-10 (2.9)	0-4 (82.5)	5 (7.1)	6-7 (6.8)	8-10 (3.7)
0-2 (82.0)	3-4 (12.6)	5 (2.8)	6-10 (2.7)	0-2 (79.7)	3-4 (12.8)	5 (3.7)	6-10 (3.8)
0-10 (81.8)	11-14 (9.5)	15-17 (4.1)	18-40 (4.6)	0-11 (82.1)	12-15 (8.8)	16-18 (4.4)	19-40 (4.7)
8-10 (87.5)	7 (7.3)	6 (3.5)	0-5 (1.8)	8-10 (80.8)	7 (9.3)	6 (5.6)	0-5 (4.3)
0 (79.8)	1-2 (10.9)	3-4 (5.3)	5-10 (4.0)	0-1 (85.0)	2 (4.7)	3-4 (5.6)	5-10 (4.7)
0-3 (83.5)	4-5 (9.2)	6 (2.8)	7-10 (4.4)	0-3 (85.7)	4 (4.7)	5-6 (5.7)	7-10 (4.0)
0 (80.2)	1-2 (14.0)	3 (2.8)	4-10 (2.9)	0-1 (83.4)	2 (7.5)	3-4 (6.4)	5-10 (2.7)
0-2 (79.5)	3-4 (11.0)	5-6 (6.1)	7-10 (3.4)	0-4 (80.7)	5-6 (10.9)	7-8 (4.8)	9-10 (3.6)
0-2 (86.2)	3 (5.6)	4 (4.5)	5-10 (3.7)	0-2 (83.6)	3 (5.9)	4 (5.2)	5-10 (5.3)
0-8 (81.8)	9-11 (8.3)	12-15 (5.3)	16-40 (4.7)	0-10 (82.9)	11-13 (6.9)	14-17 (5.2)	18-40 (5.0)
7-10 (81.0)	5-6 (14.2)	-	0-4 (4.9)	6-10 (82.1)	5 (9.5)	4 (3.6)	0-3 (4.8)
0 (84.5)	1 (5.8)	2-3 (7.0)	4-6 (2.8)	0 (80.8)	1-2 (12.0)	3 (3.3)	4-6 (3.9)
0-5 (80.6)	6-7 (13.7)	8 (3.3)	9-10 (2.4)	0-5 (87.1)	6 (4.8)	7 (4.7)	8-10 (3.4)
0-2 (83.1)	3 (10.5)	4 (3.1)	5-10 (3.3)	0-3 (90.9)	-	4 (4.7)	5-10 (4.5)
0-5 (83.6)	6 (6.4)	7 (4.7)	8-10 (5.3)	0-5 (80.4)	6-7 (13.6)	8 (4.2)	9-10 (1.9)
0-3 (84.9)	4 (7.6)	5 (4.2)	6-10 (3.3)	0-3 (84.7)	4 (7.7)	5 (4.5)	6-10 (3.0)
0-14 (80.6)	15-18 (10.1)	19-20 (4.5)	21-40 (4.8)	0-14 (82.5)	15-17 (8.0)	18-20 (5.6)	21-40 (4.0)
7-10 (83.5)	6 (8.8)	5 (4.8)	0-4 (2.9)	6-10 (88.1)	5 (7.8)	-	0-4 (4.2)
0 (80.1)	1-2 (11.0)	3-4 (5.4)	5-10 (3.4)	0 (83.8)	1 (6.3)	2-3 (6.1)	4-10 (3.7)

In order to obtain sufficiently robust numbers, data from the 2-4-years version and the 5-6-years version of the SDQ have been pooled.

Norms are presented both with and without stratification for gender.

Trial registration: not relevant.

RESULTS

Parents and pedagogues were invited to fill out the SDQ for 1,344 preschool children. For this age group, 852 completed questionnaires were obtained from parents (63%) and 1,269 from pedagogues (94%).

Of the 1,987 pupils aged 6-10 years who were attending municipal schools (including special education settings), 1,450 completed questionnaires were available from parents (73%) and 1,955 from teachers (98%). Of the 2,531 students aged 11-17 years, 1,696 completed questionnaires were available from parents (67%) and 2,427 from teachers (96%).

A total of 1,938 students from both general and special education settings were invited to fill out the self-report version of the SDQ, and 1,609 completed questionnaires were returned (83%).

For questionnaires completed by parents and professionals, the thresholds for the total difficulties score are higher for boys than for girls in all three age groups. This gender difference is most pronounced in assessments from professionals and is primarily driven by higher ratings of hyperactivity and conduct problems in boys than in girls. In responses from both parents and professionals, the total difficulties scores are relatively stable across the age groups, although there is some age-related variation in the underlying scores.

In all age groups, parents as well as pedagogues and teachers more frequently report pro-social behaviour in girls than in boys with the difference again being most pronounced in questionnaires answered by professionals.

No direct comparison can be made between the informants in relation to the impact score because of the fewer underlying questions in the SDQ versions for professionals. But similar to the total difficulties score, a pattern can be recognised with higher cut-off scores for boys than for girls across age groups.

The cut-off levels for the total difficulties score in self-reports from boys and girls do not differ much. But considerably fewer boys than girls find that reported problems have a substantial impact on their well-being and function. This runs counter to the assessments made by parents and teachers who identify more boys than girls with difficulties affecting daily life.

DISCUSSION

Despite widespread use of the SDQ, only one other complete set of SDQ norms has been published. It is based on data from England and Scotland and is available from the international SDQ website [6]. These norms do not differentiate between genders, and the age intervals used reflect the younger age for starting school in the UK. However, the British cut-off values for the total difficulties score across age groups are not markedly different from the Danish cut-off values for both sexes combined. The cut-off values for the impact score are also comparable before school age. For school-aged children, the Danish cut-off values for the impact score are higher than the British values. It may be speculated that this might to some degree reflect differences in the data collection methods used. The data providing the current British norms for 2-4-year-olds were obtained locally in Scotland in a manner that resembles the way in which data for the Danish SDQ norms were collected [6]. On the other hand, the data used for the British norms for older children stem from nationwide surveys employing interviewers. Apart from the answers being verbal, the questionnaire was here used in a context of more comprehensive information gathering about children and adolescents [6]. Each method has advantages and shortcomings, but the former probably most resemble the manner in which the SDQ is typically used.

In the Nordic countries, Swedish and Finnish norms for the SDQ completed by parents or professionals are available only for limited age intervals and do not include the impact score. In these materials, cut-off values for the problem scores in assessments from both parents and professionals tend to be lower than those of the Danish norms. However, the differences should be interpreted in light of the moderate response rates of these studies: In the three Swedish surveys, the participation rates ranged from 40% to 54% [11-13]. In the Finnish study, it was possible to obtain data from either a parent or a teacher for 64% of the target group [14].

There are reasons to expect lower problem scores when participation rates are low. A lower socioeconomic status is associated with higher SDQ problem scores, but also with poorer survey participation [15, 16]. More direct evidence of differences between responders and non-responders was provided by a Norwegian epidemiological study, where higher teacher-reported problem scores were found in a group of children where parents had not returned the questionnaire [17].

For SDQ self-reports, high quality data are available from two large Norwegian school-based population studies with response rates of 80% and 84%, respectively [18, 19]. The gender-averaged 90 percentile thresholds for the total difficulties score were 18 in one of the studies and 19 in the other. This is roughly in line

with the similar Danish threshold of 18. It should, however, be noted that the Norwegian samples included high-school students.

Although acceptable response rates were obtained in the survey, parent responses were lacking for about one third of the target population. This could cause deflated cut-off values for adverse scores. However, some characteristics of the sample may be expected to counteract any trend towards a too narrow estimation of the normal range. Firstly, the sample included children with developmental difficulties attending special kindergartens and special educational settings. Secondly, the sample did not include children attending private schools. Thirdly, although not far from the national average, lower income and shorter education characterised the municipality contributing the data.

The material includes a very low percentage of children with a non-western background. In a Swedish study, parents' country of birth has been shown to influence their SDQ ratings compared with ratings made by teachers [20]. If this is indeed the case, it may be preferable to have national norms originating from an ethnically homogenous population and then be attentive to any cultural differences when the SDQ is answered by immigrant parents.

CONCLUSION

It is expected that the availability of Danish norms will facilitate a more widespread use of the SDQ as a standard tool for physicians and other professionals involved in helping children and young people with mental difficulties.

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