RESEARCH ARTICLE

THE FARSI VERSION OF THE STRENGTH AND DIFFICULTIES QUESTIONNAIRE SELF-REPORT FORM: THE NORMATIVE DATA AND SCALE PROPERTIES

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Abstract

Objective

This study was performed to evaluate the normative data and psychometric properties and the internal consistency of the Farsi (Persian) version of the Strength and Difficulties Questionnaire (SDQ) self-report form, as a screening tool in a community-based sample of 12 to 17 year-old adolescents of urban Tehran.

Materials & Methods

In this investigation, 1105 adolescents (12 to 17 years old), selected from 250 clusters from all the 22 municipality areas of Tehran, responded to 25 questions of the Farsi version of SDQ self-report form. The frequency of each symptom domains according to Goodman's cutoff points and 90th percentile and the mean score in each subscale were determined.

Results

The 90th percentile cutoff points were somewhat different from those of the previous reports. Using Goodman's cutoff points, the prevalence of symptom domains was relatively high. For example, 13.7 percent of the adolescents studied had total scores equal to 20 or more. There were significant correlations between different subscales and their constituting questions.

Conclusion

Self-report form of SDQ is a valuable tool in the screening of adolescent psychopathologies. Frequency of majority of the symptom domains seems to be higher in the adolescents in Tehran urban areas.

Keywords: The Strength and Difficulties Questionnaire (SDQ), adolescent, screening.

Introduction

Social, cultural, political, and economical changes may affect the life styles and physical and mental health of children and adolescents (1). Emotional and behavioral problems among children and adolescents populations cause significant distress in children themselves and their families and have potential economic and social impacts on their lives (2, 3). Child and adolescent psychiatric disorders are highly prevalent (3) and can co-occur significantly with other morbidities in children, including poor school performance, chronic health problems (4) or amplifying the present medical problems (5), substance misuse and suicidal behaviors (4). In a study from Norway, it was reported that although one third of the children reported

minor perceived difficulties, about 5 percent had definite or severe problems (6). The World Health Organization predicts that by the year 2020, childhood neuropsychiatric disorders will rise proportionately, to become one of the five most common causes of mortality, morbidity, and disability among children (7).

Psychiatric community studies are essential for the planning and development of psychiatric services, being helpful as well in examining the socio-demographic correlates of mental disorders in a given community (5). In order to adequately assess the mental health of children and adolescents, empirically based knowledge of developmental psychopathology is a mandatory prerequisite (8). Evaluation of child and adolescent psychiatric disturbances is mainly based on clinical interviews with parents and teachers, assessment of problem behavior with various questionnaires, and on observations of behavior in a diagnostic setting. For a comprehensive evaluation of such disturbances it is necessary to draw on information from the child or adolescent him/herself as a valuable source for describing his/her feelings, moods, and subjective experiences (9).

Structured diagnostic interviews are now widely used in adult psychiatry, in the fields of clinical trials, epidemiological studies, academic research as well as clinical practice. These instruments improved the reliability of the data collection and interrater reliability, allowing greater homogenization of the subjects taking part in clinical research, a factor vital to reproducibility of the results. Diagnostic instruments allow a systematic and exhaustive exploration of disorders, diagnostic criteria but also severity levels, and duration. In the child and adolescent, increasing research has been documented in pharmacology and epidemiology in the last decade and the standardization of diagnostic procedures is becoming a key feature (10); in addition, instruments have been developed to screen emotional and behavioral problems and mental disorders using questionnaire methods (11).

For comparative cross-cultural studies, adoption of diagnostic systems from other cultures should be validated to ensure validation and applicability of the instrument; this facilitates an objective and replicable diagnostic system. Other countries have various diagnostic systems, which are essential for successful research, their lack being a major limitation for child and adolescent psychiatry research in Iran (12).

Iran, as a developing country, is undergoing significant social, cultural, and economic changes; all these obviously can influence the mental health status of individuals. According to recent surveys Iran has a population about 70 million, of whom over 20 percent of them are aged below 20 years and some are afflicted by psychiatric disorders, requiring mental health services. Unfortunately, there is no estimation regarding the prevalence of child and adolescent psychiatric problems in Iran. The only available data are from small-sized, samples that lack enough reliability (13).

Considering the above-mentioned facts and considering that SDQ could be a valuable screening instrument for child and adolescent psychiatric disorders in many different countries (14-18), we decided to evaluate the psychometric properties of Farsi (Persian) version of the Self-report form of SDQ as a screening tool in a community-based sample of 12 to 17 years old adolescents of Tehran urban areas, report its internal consistency in different symptoms scores and their intra-scale correlations.

Materials & Methods

Participants

Using a multistage, cluster sampling method, cases were selected from 250 clusters proposed by Iran National Statistics Organization selected randomly from all of the 22 municipality areas of Tehran, and included all adolescents, aged between 12-17 years, from all the municipality areas of Tehran. The cases were selected in accordance with their population; the locations and directions of moving in the course of samplings were defined exactly using a detailed 1:14000 map of Tehran (19).

Study design

The present study is a descriptive-analytical one conducted in 2007, on adolescents aged 12-17 years; 1106 of these cases completed the self-report SDQ form.

Cases were selected from each cluster of both sexes, among two age groups (12-14, and 15-17 years). The sample studied were selected by one of the 6 teams consisting of two clinical psychologists (or senior students of clinical

psychology, both genders) using the sampling protocol of the study; they had been instructed on completion of the SDQ by a specialist in the field of child/adolescent psychiatry and had completed 5 questionnaires in the presence of the specialist in 3 consecutive sessions. They were also instructed regarding sampling protocol and detailed locations of the clusters.

After describing the objectives of the study to the parents of children and getting their consent, the examiners filled out self-report form of SDQ for each case. If there were any complaints about probable psychopathologies, they were instructed to refer to one of the child and adolescent psychiatrists collaborating with the study; the examiner did not reveal anything about the probable results of the questionnaires. The first session of the treatment was free of charge. In the case of any missing information in the SDQ answer sheet, the case was excluded from the study.

Instrument

The strength and difficulties questionnaire (SDQ) is a structured questionnaire that is used for screening of child and adolescent psychiatric problems and contains 25 questions that consist of 5 subscales including emotional, hyperactivity, relationship, and conduct problems and pro-social behaviors each having 5 items. The sum of the first four subscales comprise the total difficulty score (18). The questionnaire has 3 forms, the parent-report, teacher-report and the self-report. The self-report form is applied for cases, over 11 years of age. The questionnaire has been translated to different languages (including Farsi) by its designers and the validity and reliability of the translation has been confirmed/tested previously. The 90th percentiles of scores in each subscale in the studied population were determined and compared with Goodman's 90th percentiles.

Statistical analysis

To evaluate the probable relationships between the demographic factors and subscale scores, T-student and Chi square tests were used when appropriate. Standardized factor loading and Cronbach's alpha of self-report version of SDQ were used to study basal statistics and internal consistency. The statistical analyses were done using SPSSWin 15.0 (release 15.0). Significance levels determined at 0.05.

Results

Mean age of the 1106 participants was 14.97±2.02 years; 554 (50.1 %) were male and the remaining were female (Table 1). No statistically significant differences were observed between mean ages of male and female participants ($P > 0.05$).

The mean total problem score in the studied cases was equal to 12.2±6.1, with the difference between mean total problem scores of male and female participants not being statistically significant ($P > 0.05$). The mean scores in each of SDQ subscales and their sex differences are shown in Table 1; as shown, there were significant differences between sexes only in emotional and peer problem scores of SDQ ($P < 0.001$). The boys had more peer problems but less emotional problems. The prosocial behavior subscale score was significantly higher in girls ($P = 0.007$). The number of adolescents with problem behaviors was higher in the northern and southern municipality areas of Tehran, differences between the municipality areas not statistically significant.

Comparing the 90th percentile scores with the Goodman's cutoff scores, revealed minor differences (Table 2), e.g. the 90th percentile total score, which was equal to 20) was higher than that proposed by Goodman et al (18). Except for hyperactivity and peer problem scores, in the other subscales, the 90th percentile scores had 1 point differences with Goodman cutoff scores.

Using the Goodman's cutoff points (18) in our sample, revealed a higher number of cases who had total and each subscales scores greater than the cutoff points (Table 3). Over 151(13.7%) cases had total problem scores equal ≥ 20 more Cronbach's alphas for the emotional, conduct, hyperactivity, and peer problems and prosocial behavior subscales for boys and girls were in the range 0.69-0.79 (Table 4), the highest being found in the emotional problem subscale (0.778 for boys and 0.790 for girls) and the lowest in the peer problem subscale (0.692 for boys and 0.690 for girls).

Intra-scale correlations were generally large, but very small correlations ($r \leq 0.20$) were found between peer and conduct problems and prosocial behavior (correlation with the other subscales were negative) and emotional and peer problems (Table 5).

Table 1. Total and sub-scale scores for the Strengths and Difficulties Questionnaire Self-report form by gender.

Gender / Number	All cases 1106 mean (SD)	Boys 554 mean (SD)	Girls 552 mean (SD)	Gender effects P
Total difficulties score	12.2 (6.1)	12.2 (5.9)	12.2 (6.2)	NS
Emotional problems	2.8 (2.3)	2.5 (2.1)	3.1 (2.4)	< 0.001
Conduct problems	3.0 (2.0)	3.0 (2.0)	3.0 (1.9)	NS
Hyperactivity/ inattention problems	3.8 (2.4)	3.9 (2.4)	3.8 (2.4)	NS
Peer problems	2.5 (1.8)	2.7 (1.9)	2.3 (1.7)	< 0.001
Prosocial behavior	8.0 (1.6)	7.8 (1.9)	8.1 (1.8)	0.007

Table 2. 90th percentile scores in different subscales in the present study and cutoff scores proposed by Goodman et al (18).

Subscale	90th percentile (Iran)	Goodman's cutoff points (UK)
Total Problems	21	20
Emotional Problems	6	7
Conduct Problems	6	5
Hyperactivity Problems	7	7
Peer Problems	5	5
Prosocial Behaviors	5	4

Table 3. Frequency of cases with scores equal ≥90th percentile and cutoff scores proposed by Goodman et al (18).

Subscale	90th percentile Number (%)	Goodman's cutoff points Number (%)
Total Problems	126 (11.4)	151 (13.7)
Emotional Problems	158 (14.3)	79 (7.1)
Conduct Problems	130 (11.8)	245 (22.2)
Hyperactivity Problems	167 (15.1)	167 (15.1)
Peer Problems	155 (14.0)	155 (14.0)
Prosocial Behaviors	109 (9.9)	53 (4.8)

Table 4. Cronbach alphas for different subscales with their constituting questions in the Farsi version of Strength and Difficulties Questionnaire Self-report form.

Subscale	Boys	Girls	total
Emotional Problems	0.744	0.761	0.755
Conduct Problems	0.723	0.721	0.721
Hyperactivity Problems	0.749	0.755	0.752
Peer Problems	0.692	0.690	0.692
Prosocial Behaviors	0.745	0.751	0.748

Table 5. Correlation between different subscales in the adolescents studied.

		prosocial	total	peer	hyperactivity	conduct	emotional
Emotional Problems	Pearson Correlation	-0.88(*)	.760(*)	.393(*)	4.12(*)	.313(*)	1
	Sig. (2-tailed)	0.03	.000	.000	.000	.000	
Conduct Problems	Pearson Correlation	-3.84(*)	.695(*)	.163(*)	.518(*)	1	.313(*)
	Sig. (2-tailed)	0.00	.000	.000	.000		.000
Hyperactivity Problems	Pearson Correlation	-2.71(*)	.789(*)	.223(*)	1	.518(*)	.412(*)
	Sig. (2-tailed)	0.00	.000	.000		.000	.000
Peer Problems	Pearson Correlation	-.119(*)	.586(*)	1	.223(*)	.163(*)	.393(*)
	Sig. (2-tailed)	.000	.000		.000	.000	.000
Total Problems	Pearson Correlation	-.300(*)	1	.586(*)	.789(*)	.695(*)	.760(*)
	Sig. (2-tailed)	.000		.000	.000	.000	.000
Prosocial Behaviors	Pearson Correlation	1	-.300(*)	-.119(*)	-.271(*)	-.384(*)	-.088(*)
	Sig. (2-tailed)		.000	.000	.000	.000	.003

* Correlation is significant at the 0.01 level (2-tailed).

Discussion

In the present study, that was a descriptive – analytical one and was performed as a part of a larger nationwide study; psychometric properties of Farsi version SDQ and prevalence of different problem domains according to SDQ in a community sample of Tehran children and adolescents were evaluated. No statistically significant differences regarding age distribution of the studied adolescents were found in either sex;.this makes comparisons between sex groups possible.

The mean total problem score in the studied adolescents were comparable with that reported from UK (18) but higher than reports from Norway and Finland (6), Germany (20) or Nordic countries (21). The 90th percentile cutoff point for total difficulty score was higher than those of the above-mentioned studies. The 90th percentile cutoff point in the present study was equal to 21 that were higher than that -20- found in the UK

sample (18), 18 in the Norwegian sample (6) and 16 in the German sample (20). The differences observed between mean total problem score or 90th percentile cutoff points in the present study and those from previous reports may be due to cultural differences, socio-economic stressors, differences in statistical and sampling methods, and variations in cultural definitions of normal behaviors and symptoms of disorders. This problem was more prominent in the conduct problem subscale in which considering the Goodman's cutoff point caused more than 1 adolescent in every five to be categorized as problematic. The rapid pace of cultural changes in Iran as a developing country and the ongoing shifts in the socio-cultural behaviors may be an important factor that induces behaviors, considered problematic. On the other hand, the reported cutoff point for prosocial behavior subscale in the studies by Goodman (18) was lower than the 90th percentile of the present study (see Table 2), and can be due to cultural differences between the adolescents of the two countries, or a bias in reporting behaviors that are socially approved or rewarded.

The effects of socio-economic status on the prevalence of psychiatric disorders and problem behaviors is another factor that must be considered in any study designed to evaluate the frequency of such disorders. The observed frequency of problem behaviors in the present study was higher in the northern and southern municipality areas of Tehran. It must be noted that the distribution of different socio-economic classes in Tehran is so that the higher socio-economic status classes are mostly in the northern areas and the lower socio-economic classes mostly live in the southern areas. The higher frequency of problem behaviors in the lower socio-economic status group was an expectable one (due to poverty, higher frequency of social stressors, etc), but the relatively high frequency of problem behaviors in the higher socio-economic status classes is an interesting finding that needs further evaluation. This higher frequency may be due to deviant parenting style or ever-changing cultural norms.

The correlation between SDQ total score and its consisting subscales were statistically significant. The correlations between each of subscales and their constituting questions were significant too. This finding is not a surprising one; as it was noted before; SDQ is a questionnaire whose validity and reliability **is** approved in many different countries with varied languages and cultures (13, 15-18, 20-23). The very small correlations found between the peer and conduct problems and prosocial behaviors can be due to the above mentioned differences in the studied populations.

Limitations

The present study was performed using only the self-report version of SDQ, which may have been a cause of some bias in the reported results. The next phases of the study are underperformance with the follow up of the same cases and both versions of SDQ and comparing the results with clinical interviews.

The sampling method that was done by direct interview with the adolescents at their home may cause a bias in visiting adolescents that remain in their homes due to any psychiatric problems. To avoid such a bias, in the case that there were the sought after adolescent in the selected house, and the adolescent himself/herself was not at home at the time of the interview, an appointment with his/her family was set to visit the adolescent.

To avoid any problems in reading the SDQ questions, the questions were read out for the respondents and they answered the questions verbally.

In conclusion, the self-report version of SDQ may be used as an appropriate, easy to use and reliable measure for screening psychiatric disorders in the adolescent population. However, its results should be interpreted with attention to socio-cultural norms of each culture/country. The results of the present study also raise some concerns about the high frequency of problem behaviors in the adolescent population in Tehran, and must be weighed against a standard method for evaluation of psychiatric disorders in the studied population.

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Competing Interests Statement

The authors declare that they have no competing financial interests.

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