Reliability and validity of the Youth Self-Report, Bangladesh Version

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ABSTRACT

The objectives of this study were to develop the Bangladesh version of the Youth Self-Report (YSR), and assess its reliability and validity in an adolescent population in Dhaka city, Bangladesh. One-hundred-and-eighty-seven boys (mean age: 14.6 years, SD: 2.1) and 137 girls (mean age: 15.2 years, SD: 2.0) from residential areas, and 27 boys (mean age: 17.0, SD: 1.4) and 14 girls (mean age: 15.4, SD: 2.8) from a psychiatric hospital, all within the range of 11–18 years, were interviewed using a questionnaire that consisted of the Bangla translation of the YSR and other questions. Thirty-eight randomly selected adolescents were administered the same questionnaire one week after the first administration. All the core scores and most of the subscales showed high internal consistency other than small item-number subscales, and satisfactory test-retest reliability. Good discriminant validity was shown for most of the scale scores. This study showed that the Bangla translation of the YSR had sufficient reliability and validity for use in Bangladesh. The cutoff scores of the scales were higher for the Bangla version than for the original English version, and further studies exploring this point would be an asset. Copyright © 2005 John Wiley & Sons, Ltd.

Key words: adolescent, Bangladesh, mental health, slum, urbanization

Introduction

In developing countries, mental health issues tend to be ignored in favour of other health problems, although mental and neurological disorders account for as much as 12% of the total disability-adjusted life years (DALYs) lost (World Health Organization, 2001). According to a report by the WHO, the mental health budgets of the majority of countries constitute less than 1% of the total health expenditures, and more than 40% of countries, including developed countries, have no policy on mental health (World Health Organization, 2001). More than 90% of countries have no mental health policy regarding children and adolescents (World Health Organization, 2001). This situation is critical, especially in developing countries, because the proportion of young people in

the total population is high and the futures of these countries rest on their shoulders. Furthermore, young people represent the most vulnerable age group.

In Bangladesh, there has been no official legislation or data on the mental health of children and adolescents. Although Rabbani et al. (1999) showed that 13.4% of urban primary school children in Dhaka had emotional, conduct or undifferentiated disorders by using teachers' reports, the mental status of adolescents remains unclear. To date, only the reliability and validity of the Strengths and Difficulties Questionnaire (SDQ) has been assessed utilizing adolescent subjects (Goodman et al., 2000; Mullick et al., 2001), and an internationally comparable and culturally valid self-reporting questionnaire for adolescents is lacking in Bangladesh.

Therefore, this study aimed to develop an internationally comparable and culturally valid Bangla translation of an Achenbach System of Empirically Based Assessment (ASEBA) form, the Youth Self-Report (YSR), and assess its reliability and validity.

Methods

Subjects

General population subjects

This study was conducted in Dhaka city, the capital of Bangladesh. To obtain representative data for Dhaka city, we randomly selected six wards, and one residential area from each ward was chosen as the survey site.

A household survey was conducted in each residential area by visiting the houses clockwise, one by one, using a post office as the starting point. All adolescents aged between 11 and 18 years were asked to participate. When there were several adolescents in this age range in one family, only one adolescent was selected. Before the interview, the adolescent and his/her parents provided verbal consent. Interviews with the respondents were conducted in places away from other people for privacy and confidentiality. The mean ages of the subjects were 14.61 years ($SD = 2.10$) for 187 boys and 15.16 years ($SD = 2.02$) for 137 girls. These subjects were designated the 'residential' group (the demographic data are shown in Table 1). The response rate was 91.53%.

Clinical subjects

All the adolescents of the same age group attending the National Institute of Mental Health Hospital in Dhaka city from 29 June-17 July 2003 were asked to participate in this study as the clinical group for analysis of the discriminant validity of the mental health scale. Of 45 adolescents, 41 participated in this study with verbal consent from themselves and their parents (a response rate of 91.11%). The clinical group consisted of seven inpatients (males: 5, females: 2) and 34 outpatients (males: 22, females: 12). Their mean ages were 17.00 years ($SD = 1.36$) for the 27 boys and 15.43 years ($SD = 2.77$) for the 14 girls. The patients' clinical diagnoses according to the Diagnostic and Statistical Manual of Mental Disorders Fourth Edition (DSM-IV) (American Psychiatric Association, 2000), as assessed by qualified psychiatrists, were obtained from their medical records (males:

schizophrenia, 12; epilepsy, 4; mental retardation, 3; mood disorders, 2; pervasive developmental disorders, 2; attention-deficit/hyperactivity disorder (ADHD), 1; conduct disorder, 1; substance-related disorders, 1; not specified, 1; females: schizophrenia, 6; mental retardation, 2; mood disorders, 2; ADHD, 2; epilepsy, 1; not specified, 1).

Follow-up

At one week after the initial administration of the interview, 38 adolescents (males: 14, females: 24), in two randomly selected residential areas, were readministered the same questionnaire to evaluate the test-retest reliability of the scale.

Instruments

An Achenbach System of Empirically Based Assessment (ASEBA) form, the Youth Self-Report (YSR), is one of the most used self-rating questionnaires internationally (translated into more than 60 languages) to assess the competence or adaptive functioning, and emotional and behavioural problems of adolescents (De Groot et al., 1996; Mollica et al., 1997; Kuramoto et al., 1999; Liu et al., 2000; Roussos et al., 2001; Lambert et al., 2003; Ekeröth et al., 2003; Heyerdahl et al., 2004; Janssen et al., 2004). In this study, only the problem scale was employed because the part regarding competence or adaptive functioning is difficult to use in a non-schoolgoing setting. On the problem scale used in this study, respondents rated each problem item as 0 (not true), 1 (somewhat or sometimes true) or 2 (very true or often true). By summing the 1s and 2s for all items, eight syndromes (anxious/depressed, withdrawn/depressed, somatic complaints, social problems, thought problems, attention problems, rule-breaking behaviour and aggressive behaviour) as well as internalizing, externalizing and total problem scores were calculated. In addition, DSM-oriented scales derived from affective problems, anxiety problems, somatic problems, attention deficit/hyperactivity problems, oppositional defiant problems and conduct problems were computed to infer each respondent's diagnosis. There have been previous studies using ASEBA scales across different countries and cultures, and cross-cultural validity and reliability have been shown in many countries, including non-Western countries (Achenbach et al., 2001).

Furthermore, some demographic and other information that were not included in the YSR, including

Table 1. Demographic data

	Residential						Clinical					
	Male (n=187)			Female (n=137)			Male (n=27)			Female (n=14)		
	Mean ^a / Frequency ^b / Median ^c	SD ^a /% ^b / 1st-3rd quartile ^c	Mean ^a / Frequency ^b / Median ^c	SD ^a /% ^b / 1st-3rd quartile ^c	Mean ^a / Frequency ^b / Median ^c	SD ^a /% ^b / 1st-3rd quartile ^c	Mean ^a / Frequency ^b / Median ^c	SD ^a /% ^b / 1st-3rd quartile ^c	Mean ^a / Frequency ^b / Median ^c	SD ^a /% ^b / 1st-3rd quartile ^c	t ¹ /χ ^{2b} /U ^c	t ¹ /χ ^{2b} /U ^c
Age ^a	14.61	(2.10)	15.16	(2.02)	17.00	(1.36)	15.43	(2.77)	15.43	(2.77)	2.45	
Religion ^b												
Islam	183	(97.90)	134	(97.80)	27	(100.00)	14	(100.00)	14	(100.00)	–	
Hindu	4	(2.10)	3	(2.20)	0	(0.00)	0	(0.00)	0	(0.00)		
Ethnicity ^b												
Bangla	187	(100.00)	137	(100.00)	27	(100.00)	14	(100.00)	14	(100.00)	–	
Others	0	(0.00)	0	(0.00)	0	(0.00)	0	(0.00)	0	(0.00)		
School ^b												
Going to school	178	(95.20)	133	(97.10)	11	(40.70)	3	(21.40)	3	(21.40)	2.15	
Quit going to school	9	(4.80)	9	(2.20)	11	(40.70)	9	(64.30)	9	(64.30)		
Never entered school	0	(0.00)	1	(0.70)	5	(18.50)	2	(14.30)	2	(14.30)		
Job Status ^b												
Not working	173	(95.10)	124	(93.20)	4	(14.80)	0	(0.00)	0	(0.00)	2.30	
Working	9	(4.90)	9	(6.80)	23	(85.20)	14	(100.00)	14	(100.00)		
Current disease ^b												
Yes	11	(6.00)	14	(10.30)	1	(3.70)	1	(7.10)	1	(7.10)	0.24	
No	173	(94.00)	122	(89.70)	26	(96.3)	13	(92.90)	13	(92.90)		
Yearly family income (Tk) ^c	146 000	(96 000–240 000)	144 000	(100 000–240 000)	120 000	(96 000–240 000)	24 000	(28 500–102 000)	24 000	(28 500–102 000)	132.50	

* p < 0.05.

^a t-test; ^b χ² analysis; ^c Mann–Whitney U-test.

1\$=56Tk.

religion and ethnicity, history of education, occupational status, current disease and yearly income of the family were also obtained.

The Bangla version of the YSR and other questions were independently translated by two different bilinguals (Bangla and English) who were experienced health workers. After checking of the two translations by a different highly experienced Bangladeshi public health doctor, back translations were made and revision was performed. For the Bangla translated questionnaire, a pretest was conducted to check whether the questions were acceptable. After small revisions reflecting the results of the pretest, the final version was completed.

The questionnaire consisting of the YSR and other questions was answered through interviews because the literacy rate in Bangladesh is as low as 57% for males and 29.9% for females (United Nations Development Program: UNDP, 2002), and the YSR can be administered orally by an interviewer who completes the form on the basis of the respondent's answers (Achenbach et al., 2001). Nine experienced interviewers (5 males and 4 females) were recruited, and subjected to one week of training and supervision by experienced public health doctors. The female interviewers were principally in charge of interviewing the female respondents.

All procedures were approved by the ethical committee of the School of Medicine, the University of Tokyo.

Data analysis

Cronbach's α was calculated to check the internal consistency of the YSR. To examine the test-retest reliability, the Pearson product-moment correlation coefficient between the first and second administrations was calculated.

To test the discriminant validity, an analysis of covariance (ANCOVA) putting age and income as covariates was employed between the residential group and the clinical group. Here, income was divided into 5 groups: 1 = 0–19 percentile, 2 = 20–39 percentile, 3 = 40–59 percentile, 4 = 60–79 percentile, 5 = 80–100 percentile based on the study subjects' income distribution, where a higher percentile indicates a higher income. According to the method used in the original English version of the YSR, the cutoff scores for the borderline clinical range and the clinical range of the YSR scores were set using the 93 percentile and

98 percentile of the residential group data, respectively, for each gender.

The SPSS version 11.0J was used for the analyses. Statistical significance was set at 0.05.

Results

Reliability of the YSR

Table 2 shows the Cronbach's α and Pearson product-moment correlation coefficient of the first and second administrations. Most of the scales had high α including core scores as the YSR total score, the YSR internalizing score and the YSR externalizing score, showing high internal consistency. Only subscales consisting of a small number of questions including YSR withdrawn/depressed (8 items), YSR social problems (11 items), YSR DSM-oriented anxiety problems (6 items) and YSR DSM-oriented oppositional defiant problems (5 items) had α of less than 0.6. The test-retest correlations between the first and second administrations of the scales were mostly high, except for the 3 subscales of YSR social problems, YSR rule-breaking behaviour and YSR DSM-oriented conduct problems, which were moderate ($r = 0.55$ – 0.57).

Validity of the YSR

All the scale scores, except for the subscales of YSR thought problems in males, and YSR anxious/depressed, YSR thought problems, YSR aggressive behaviour, YSR DSM-oriented anxiety problems, YSR DSM-oriented attention deficit/hyperactivity problems and YSR DSM-oriented oppositional defiant problems in females, were significantly different between the residential population and the clinical population (all the scores in the residential group were better than those in the clinical group for every significant difference), and showed sufficient discriminant validity (Table 3). Table 4 shows the cutoff scores of the borderline clinical range (above the 93 percentile) and the clinical range (above the 98 percentile) for each gender.

Discussion

The present study showed the YSR Bangla version had a certain reliability and validity.

Regarding the reliability, the internal consistency of each scale was mostly sufficient, and the test-retest reliabilities of all the scales were good; Nunnally (1978) suggests that α of more than 0.7 is good, and

Table 2. Internal consistency and correlation of the scores for the first and second administrations of the YSR in the residential group

Scale name (number of items)	α^a	r^b
	(n = 324)	(n = 38)
YSR		
Syndrome scales		
Anxious/depressed (13)	0.61	0.76
Withdrawn/depressed (8)	0.47	0.74
Somatic complaints (10)	0.71	0.81
Social problems (11)	0.48	0.55
Thought problems (12)	0.71	0.69
Attention problems (9)	0.61	0.73
Rule-breaking behaviour (15)	0.71	0.57
Aggressive behaviour (17)	0.77	0.70
Internalizing (31)	0.80	0.69
Externalizing (32)	0.83	0.80
Total score (105)	0.90	0.86
DSM-oriented scales		
Affective problems (13)	0.73	0.78
Anxiety problems (6)	0.41	0.71
Somatic complaints (7)	0.61	0.74
Attention deficit/hyperactivity problems (7)	0.60	0.70
Oppositional defiant problems (5)	0.58	0.60
Conduct problems (15)	0.70	0.55

^a Cronbach's α .^b Pearson product-moment correlation coefficient. All were significant at $p < 0.01$.

YSR = Youth Self-Report.

the value of correlation 0.50 to 1.0 or -0.50 to 1.0 is suggested as large correlation (Cohen, 1988). Although the α of some of the subscales were low, a low α does not necessarily mean low reliability, whereas a high α indicates good internal consistency. Scales that consist of small amounts of items tend to have low α , and all the subscales with an $\alpha < 0.6$ in this study were small item-number subscales.

Regarding the discriminant validity, most of the scale scores in the YSR were significantly different between the two groups, and all the scores in the residential group were better than those in the clinical group for every significant difference. The reason why some scales did not show significant differences between the groups may be attributed to the small number of clinical subjects, especially females, and the fact that the diagnoses included in the clinical group were limited. In particular, interpretation of the comparisons with the female clinical subjects requires caution. By increasing the numbers of subjects, espe-

cially the clinical subjects, and expanding or narrowing the variety of diagnoses in future studies, further significant differences may be found. In addition, this study was based on a self-report, and a lack of insight into their own problems may have influenced the outcome. Evaluation by others, such as parents, teachers or doctors may reveal different aspects. Furthermore, this study was carried out using interviews, and factors such as shyness may have influenced the subjects' answers, although the interviews were conducted taking privacy and confidentiality in consideration.

This study presented preliminary cutoff scores for the borderline clinical range and the clinical range of the YSR total score and subscales. Compared with the cutoff scores for the original English version of the YSR, almost all the cutoff scores were higher for the Bangla data (Achenbach et al., 2001), and this tendency was also observed in previous studies in Cambodia (Mollica et al., 1997), Siberia (Slobodskaya et al., 1999) and Greece (Roussos et al., 2001). Since

Table 3. Comparison between the residential and clinical groups for the YSR by ANCOVA with age and income as covariates

	Male				Female			
	Residential (n = 187)		Clinical (n = 27)		Residential (n = 137)		Clinical (n = 14)	
	Mean	(SE)	Mean	(SE)	Mean	(SE)	Mean	(SE)
YSR								
Syndrome scales								
Anxious/depressed	9.20	(0.27)	13.18	(0.78)	10.34	(0.36)	10.95	(1.23)
Withdrawn/depressed	5.72	(0.19)	8.91	(0.55)	6.03	(0.25)	9.81	(0.84)
Somatic complaints	4.52	(0.24)	10.43	(0.70)	5.75	(0.34)	9.50	(1.16)
Social problems	6.60	(0.23)	12.01	(0.65)	7.67	(0.28)	11.54	(0.94)
Thought problems	3.86	(0.26)	4.38	(0.75)	4.41	(0.29)	3.56	(1.00)
Attention problems	7.40	(0.26)	11.75	(0.73)	8.11	(0.28)	10.33	(0.95)
Rule-breaking behaviour	4.85	(0.28)	8.64	(0.80)	3.50	(0.25)	6.69	(0.87)
Aggressive behaviour	9.37	(0.40)	15.86	(1.13)	10.21	(0.46)	12.08	(1.57)
Other problems	4.55	(0.20)	5.79	(0.57)	5.62	(0.21)	4.91	(0.73)
Internalizing	19.43	(0.59)	32.52	(1.68)	22.11	(0.75)	30.26	(2.56)
Externalizing	14.22	(0.62)	24.50	(1.76)	13.71	(0.62)	18.77	(2.12)
Total score	56.06	(1.60)	90.95	(4.55)	61.76	(1.84)	80.91	(6.26)
DSM-oriented scales								
Affective problems	6.26	(0.31)	12.39	(0.88)	8.25	(0.38)	11.40	(1.30)
Anxiety problems	4.20	(0.16)	7.01	(0.46)	4.95	(0.20)	5.09	(0.69)
Somatic complaints	2.68	(0.17)	6.56	(0.48)	3.36	(0.25)	6.25	(0.85)
Attention deficit/hyperactivity problems	5.32	(0.22)	8.35	(0.62)	6.04	(0.24)	7.22	(0.82)
Oppositional defiant problems	2.86	(0.15)	4.28	(0.43)	3.10	(0.18)	3.65	(0.61)
Conduct problems	4.96	(0.30)	11.67	(0.86)	4.21	(0.31)	7.81	(1.07)

* $p < 0.05$; ** $p < 0.01$.

YSR = Youth Self-Report.

Table 4. Cutoff scores for the borderline clinical range and the clinical range of the YSR

Scale (score range)	Male		Female	
	Borderline clinical range (93 percentile)	Clinical range (98 percentile)	Borderline clinical range (93 percentile)	Clinical range (98 percentile)
YSR				
Syndrome scales				
Anxious/depressed (0–26)	15	18	18	19
Withdrawn/depressed (0–16)	11	12	10	12
Somatic complaints (0–20)	9	12	12	15
Social problems (0–22)	12	13	13	14
Thought problems (0–24)	10	14	10	14
Attention problems (0–18)	12	15	13	14
Rule-Breaking behaviour (0–30)	11	14	9	11
Aggressive behaviour (0–34)	18	21	19	23
Internalizing (0–62)	31	39	37	41
Externalizing (0–64)	29	33	25	30
Total score (0–240)	92	105	93	110
DSM-oriented scales				
Affective problems (0–26)	13	17	15	18
Anxiety problems (0–12)	7	9	8	9
Somatic complaints (0–14)	6	8	8	11
Attention deficit/hyperactivity problems (0–14)	10	12	10	11
Oppositional defiant problems (0–10)	6	7	6	8
Conduct problems (0–30)	12	15	10	13

If the score is the cutoff score or above, it is included in the range.
YSR = Youth Self-Report.

cultural differences are supposed to be reflected, this does not necessarily indicate that Bangladeshi adolescents are in a worse state, and further studies regarding this point are needed. The sensitivity and specificity of the cutoff scores calculated for the male residential and clinical subjects were mostly satisfying (data not shown), although those for the females were not analysed due to the small number of female clinical subjects. Due to the small number of clinical subjects and the types of diagnoses included in the clinical group, further studies to confirm the adequacy of these cutoff scores are needed, and at that time, the diagnoses included should also be reconsidered. However, given the situation that there are only a few scales regarding the mental health of adolescents in Bangladesh, it is helpful to have internationally comparable screening scales with which primary doctors and other health workers can infer the mental health status and the need for intervention for individuals or groups/areas.

There were some limitations to this study. First, the participants in this study were only from Dhaka city, the capital of Bangladesh, and were not representative of Bangladesh, since their average yearly income was rather higher than the national economical indices of Bangladesh (UNDP, 2002). However, since this study adopted a randomized sampling method that included both schoolgoing and non-schoolgoing adolescents, the outcome shown in this study suggests important characteristics of the adolescents in urban areas of Bangladesh. Furthermore, when there were several adolescents in the specified age range in one family, we selected one of these adolescents to participate in the study without any defined selection rules, and this may have skewed the outcome. It will also be important to reveal the situation of slum-dwelling adolescents in future studies. Finally, because mental health problems are highly stigmatized in Bangladesh, this may have skewed the answers toward the modest side.

In conclusion, this study showed that the Bangla translation of the YSR had reliability and validity. The cutoff scores of the scales were higher for the Bangla version than for the original English version, and further studies to explore this point would be an asset.

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