Original paper

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Validation and cultural adaptation of the Brief Obsessive Compulsive Scale (BOCS) among Sri Lankan Sinhala speaking children and adolescents

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Abstract

Background

Epidemiological studies reveal that over 50% of adults with obsessive compulsive disorder (OCD) report that their symptoms started during childhood or adolescence, with a mean age of onset around 9 years. Lack of diagnostic tools for screening of OCD among children and adolescents in their native language, adds to the burden of already limited child and adolescence mental health services (CAMHS) in Sri Lanka.

Methods

The Brief Obsessive Compulsive Scale (BOCS) was translated into Sinhala, and cultural and semantic adaptation was conducted. Criterion validity was measured for the symptom checklist and severity scale, by administration of the translated tool to a sample of children and adolescents – the cases consisted of 50 children and adolescents aged 8-18 years, diagnosed to have OCD, who attended the CAMHS at Lady Ridgeway Hospital, Sri Lanka. Age and sex matched controls consisting of 50 healthy children and adolescents were selected from the general population.

Results

Criterion validity scores were obtained via the receiver operator curve for the severity scale, with a cut off of 0.92, which had a sensitivity and specificity of 100% and 92% respectively. The reliability measured by Cronbach's alpha were 0.78 and 0.94 for the symptom checklist and severity scale respectively.

Conclusions

The locally validated BOCS has a high criterion validity, with an excellent reliability for diagnosing OCD in children and adolescents in Sri Lanka.

Key words: Sinhala BOCS, OCD in children, validation, cultural adaptation

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Introduction

Obsessive compulsive disorder (OCD) was considered to be an adult psychiatric disorder, until classic symptoms of OCD were reported in a child of 5 years, by Janet (1). Over the last two decades, studies have revealed that the mean age at onset of OCD ranges from 9 years in hospital samples, to 12.8 years in community samples (2, 3). The ICD 10 and the DSM 5 lists the same core diagnostic criteria for OCD in children and adolescents, as well as for adults (4,5). However, the presentation in children and adolescents may vary from that of the adults. Characteristically, children and adolescents with OCD report multiple obsessions and compulsions, with the content changing over time, as opposed to the few obsessive-compulsive symptomatology in adults (1).

The ICD-10 and DSM 5 are classification systems that are regularly used in the day-to-day clinical practice in CAMHS. However, a trained clinician is required if the child or adolescent is to be diagnosed using either of the above sets of criteria (4,5). It is reported that, although the core symptoms of OCD can be easily elicited, most outpatients with OCD remain un identified by clinicians (6). Furthermore, many of these children and adolescents who are diagnosed with OCD, are later found to have further symptoms that have not been detected, which appear to impact their response to

treatment and levels of functioning (6). The use of rating scales may improve and facilitate the assessment of OCD and monitoring of treatment response (3).

The recovery rate of untreated OCD is reported to be around 13-30%. However, the overall remission rate with treatment is reported to be around 40% (1). An epidemiological study done on OCD in a group of 18-year-olds showed that past depression and substance abuse could have an impact on the onset of OCD (3). Thus, it is of paramount importance to diagnose OCD early in children to improve their quality of life.

The current tools used in the assessment of OCD in children and adolescents include diagnostic interviews and symptom rating scales (1). An array of self-reporting scales for OCD are available. However, each has it's own limitations – such as being too extensive or repetitive thus hampering clinical use, or lack of discriminative power, low convergence with the Y-BOCS, inclusion of items not associated with OCD or not measuring severity (7-13, 22).

The Yale – Brown Obsessive-Compulsive Scale (Y-BOCS) is regarded as the gold standard for diagnosis of OCD (14,15). For children, the CY-BOCS was introduced in 1997 (16). Both versions are extensively used in research and in clinical settings (16). The Brief Obsessive-Compulsive Scale (BOCS) is a shortened, self-rated combined version of the Y-BOCS and CY-BOCS, developed between 1997 and 2002 (17). It consists of both a symptom checklist section illustrated with examples, and a severity scale section. The BOCS is frequently used in child, adolescent, and adult psychiatry settings in Sweden and other countries (17).

The BOCS has 11 symptom categories, covered by 16 items which forms the BOCS symptom checklist (17). The respondent is further required to include any additional symptoms not included in the checklist, to the list of "most troublesome symptoms" (17). The BOCS is freely available online and can be administered within 5-10 minutes. Special abilities or training are not necessary to carry out the test (17).

A cut off score of 1.50 (mean score of the severity scale) is suggestive of OCD in children and adolescents, and higher BOCS scores indicate severe OCD (17). The BOCS is reported to have a good internal consistency ($\alpha > 0.80$), and the alpha value for internal consistency of the severity scale has been reported to be 0.94 (17). The validity of the BOCS is well established incorrelation to the clinical diagnosis of OCD and with other self-reported scales (17).

Current translation practices of rating scales include forward and back translation, decentering, the bilingual approach, and the committee approach (18,19). Back translation is defined as translating with minimum changes to the final version in the original language (18). A combined qualitative and quantitative approach to translate and culturally validate a tool has been reported to be more appropriate for Asian countries (18,20).

Methods

Translation, backtranslation and cultural adaptation

Written approval for use of the tool in this research, was obtained from Prof. Susanne Bejerot (17). A combined qualitative and quantitative approach was used to translate the original Brief Obsessive Compulsive scale to Sinhala (Annexure 1). A panel of 6 professionals in the field of child psychiatry, consisting of a child psychiatrist, a senior registrar in child psychiatry, a medical officer in child psychiatry, a social work instructor, a registered nurse and a clinical psychologist who were bilingual (fluent in both English and Sinhala) translated the BOCS individually. The group then discussed all the translated items and the best translation for each item on the scale was unanimously confirmed and when needed changes made to the stems of the statements to help local adaptation.

The translated scale was reviewed by 3 experts who were not in the translation panel (a child psychiatrist, a psychologist, and ageneral adult psychiatrist) to assess the content for semantic and conceptual validity, and cultural acceptability. They were requested to give a score between 1-5 for each item. The average score for each item were between 3-5, and none of the stems were rated less than 3. The final translated scale was back translated to English by a bilingual expert who had not viewed the original scale. The back translation was compared with the original questionnaire. The back translation was sent to the original author who agreed with the current format. The translated scale was pre-tested on a group of 6 children and adolescents aged 8-18 years,who were in-patients of ward 19 at the Lady Ridgeway Hospital for Children, irrespective of the diagnosis. Among this group, three children who were diagnosed with OCD, also tested positive as per the translated BOCS.

Criterion validation of the translated BOCS

Ethical approval for the study was obtained from the Ethical Review Committee of the Lady Ridgeway Hospital, Sri Lanka (LRH/DA/05/2017). Permission was also obtained from the Director of Lady Ridgeway Hospital, the Ministry of Education and the relevant school principal, prior to starting the study.

Patients aged 8-18 years, who were clinically diagnosed to have OCD by a consultant child and adolescent psychiatrist according to the ICD 10 criteria, during their

first visit, were considered eligible for inclusion in the study, as cases. Children and adolescents matched for age and gender, without any other mental health diagnoses, who were attending a mainstream school in the Western Province of Sri Lanka, were considered as controls for this study. Exclusion criteria for both cases and controls were, having either a hearing or visual impairments, or learning disabilities.

Each child's caregiver was educated about the research and were informed that the data would be published anonymously, and that their treatment/care in hospital or at school would not be impacted by their consent to participate. A written information sheet was also provided to the primary caregiver. Eligible children whose main caregiver gave informed written consent for their participation in the study were included in this research. For participants aged 16 years and above, informed consent was obtained from the adolescent concerned and their caregiver.

The translated and culturally adapted BOCS Sinhala version was administered among children and adolescents who completed inclusion criteria as cases, who attended the University Psychological Medicine Unit and Child Guidance Clinic, Lady Ridgeway Hospital (LRH) for Children, Colombo, Sri Lanka and the Adolescent Psychiatric Clinic, National Hospital of Sri Lanka (NHSL), during the study period. The sample size was calculated to detect a targeted sensitivity of 85%, and a specificity of 85% using the following formula: n = 4 z 2 p (1-p)/ w2 (21). A total of 50 children and adolescents with OCD were selected as cases.

With regards to data collection from controls, the translated and culturally adapted BOCS Sinhala version was administered among age and gender matched children and adolescents attending a mainstream school in the Western Province of Sri Lanka. A total of 20 females and 30 males were included as controls. Data collection was carried out with the help of the relevant class teachers. For children aged 15 years or above, the self-administered questionnaire was given (n=12). Thereafter the children and adolescents were interviewed by a senior registrar in psychiatry in order to assess for the presence or absence of OCD and to fill the severity scale, when relevant. Data analysis was conducted using SPSS 20 software.

Results

There were 60 males and 40 females in the total sample. The mean age of the samples was 12.22 years (SD 2.8) with the minimum age being 8 years and maximum age 18 years (Table 1). The mean score of the BOCS severity scale among cases was 2.38 (SD 0.51), and among controls was 0.41 (SD 0.46). Both the symptom checklist and the severity scale had a Cronbach's alpha above 0.7.

The validity indicators (sensitivity, specificity) were calculated for the culturally adapted Sinhala version of the BOCS initially using the cut off values of the original study, which has a mean score of 1.5 in the severity scale (Table 2). Criterion validity was assessed using the receiver operating analysis and optimum cut off points valid for the Sri Lankan population were identified. The area under the ROC curve was 0.99 (SE 0.008) which was statistically significant for the validity of BOCS (Figure1). The sensitivity and specificityof the Sinhala BOCS was 100% and 92% respectively, when considering a cut off value of 0.9167 (mean score of the severity scale) with reference to the ROC curve values (Table 3). Accordingly, the cut off was adjusted to 0.92.

Table 1. Participants with and without OCD – distribution by age and gender

Demographic characteristic	With OCD	Without OCD	Total
Age group			
8 – 11 years	23	23	46
12 – 14 years	15	15	30
15 – 18 years	12	12	24
			100
Gender			
Male	30	30	60
Female	20	20	40
			100

Table 2. Reliability of the symptom checklist and the severity scale		
Scale	Number of items	Cronbach's alpha
Symptom checklist	16	0.780
Severity scale	6	0.948

Table 3. Cut off values for the mean score of the BOCS as per the ROC analysis, with validity		
Cut off value	Sensitivity	Specificity
-1.0000	1.000	1.000
.0833	1.000	.640
.2500	1.000	.620
.4167	1.000	.400
.5833	1.000	.280
.7500	1.000	.180
.9167	1.000	.080
1.0833	.980	.060
1.3333	.980	.040
1.5833	.960	.040
1.7500	.920	.040
1.9167	.860	.020
2.0833	.700	.020
2.2500	.600	.020
2.4167	.420	.000
2.5833	.320	.000
2.7500	.220	.000
2.9167	.140	.000
3.0833	.120	.000
3.3333	.040	.000
3.5833	.020	.000
4.6667	.000	.000

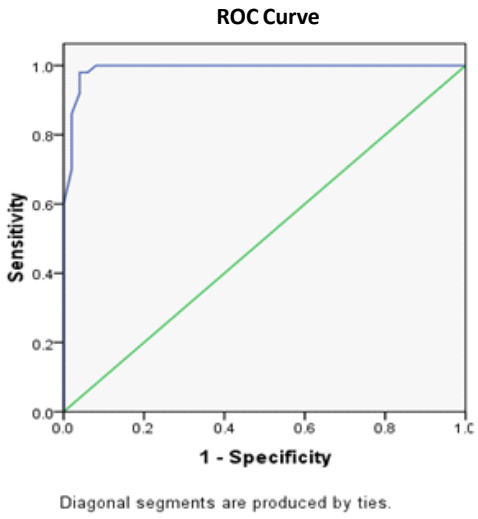

Figure 1. Receiver operator curve for the mean score of the BOCS severity scale.

Discussion

Due to the insufficiency of trained clinicians in child psychiatric services in Sri Lanka, the validation of BOCS will help with early identification of OCD among children and adolescents, thus paving the way for appropriate interventions, and improvement of the quality of life of children with OCD. The authors did not find that any major changes required during the pre-testing of the translated Sinhala BOCS. The expert committee review indicated that there is a high validity for the culturally adapted Sinhala version of the BOCS. A cut off of 0.92 was identified for the Sinhala BOCS for children and adolescents, with a specificity of 92% and sensitivity of 100%. Further, the significant differences identified between the cases and controls indicate that the Sinhala BOCS can clearly differentiate between children and adolescents with and without OCD.

The space given to write down 'other' obsessional symptoms was utilized by 40% (n=20) of our sample, indicating the importance of "other symptoms" Thirteen children with OCD, out of 20, had reported that the most troublesome obsession was the "other symptoms". Details of the other symptoms were not mentioned in the original study article (6). The authors hope to conduct further research using the Sinhala BOCS to ascertain more details of the demographic characteristics and phenomenology of OCD among children and adolescents in Sri Lanka.

Limitations

The cases in this study were limited to hospital samples, and were not derived from the community. Therefore the results are more applicable to the CAMHS hospital setting.

Conclusions

The culturally adapted Sinhala version of the BOCS can be used among Sinhala speaking children, adolescents, in psychiatric clinical settings. However, there is a timely need to conduct community studies using the culturally validated Sinhala BOCS to identify its validity among this group, as well as to further explore the prevalence, demographic characteristics and phenomenology of OCD in Sri Lankan children and adolescents.

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Statement of contribution

DR and MFSPS designed the research. DR conducted the data collection and analysis. DS supervised the methodology, data analysis.

Conflicts of interest

None declared.

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