Adaptation and Validation of Parental Behavioral Scale for Children with Autism Spectrum Disorders to Kannada

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ABSTRACT

Background: Assessment of parenting behaviors in parents of children with autism is crucial in the assessment and treatment processes. Efficient tools and instruments with known psychometric properties are needed to assess parenting behaviors in parents of children with autism. Given the lack of such tools in the Indian context, there is a need to develop and/or adapt tools/scale to assess the parenting behaviors in regional languages. Aim of the Study: To adapt, translate and validate the Parental behavioral scale for Autism spectrum disorder (PBS-A) to Kannada. Materials and Methods: The original version of PBS-A was given to three healthcare professionals to examine the sociocultural suitability of items. The linguistic adaptation was performed through a forward-backward translation scheme. It was then administered on 50 parents of children with autism. Further, the psychometric properties of PBS-A Kannada version were examined, viz. acceptability, test-retest reliability and internal consistency. Results: Kannada version of PBS-A showed an excellent test-retest reliability (ICC = 0.993) and an overall high level of internal consistency (α = 0.93). The acceptability was found to be good among the Speech-language pathologists (SLP) ratings (κ = 0.485). Conclusions: Kannada version of PBS-A is a valid and reliable scale that can be useful for assessing the parenting behavior.

Key words: Autism spectrum disorder, parenting behaviors, parenting behavior scale

Key messages: (a) Kannada version of PBS-A is a valid and reliable tool to assess parenting behavior. (b) It permits easy comparison with cross-cultural and cross-linguistic parenting behavior data from parents of children with autism.

Parenting plays a crucial role in the socialization of children and helps them acquire social, emotional and cognitive skills to function in the society. The two major aspects of parenting identified are parental warmth and parental control. Parental warmth refers to the support and responsiveness offered by the parents. Parental control, on the other hand, refers to a multidimensional construct referring to behavioral control offered by the parents to influence child’s behavior by setting and enforcing standards of behavior, and psychological control, corresponding to control of child’s behavior through...
Assessment of Parental behavior suggests that parents of a child with Autism spectrum disorder (ASD) exhibit high parenting stress and other emotional difficulties.[3-8] A few studies indicate individual factors that contribute to higher levels of parental stress, such as the gender of the parents,[4,9] age of the child[10] and behavioral characteristics of the child.[5,6] Meirsschaut et al.[10] studied mothers' recognition of the impact of raising a child with ASD on family and personal life. Their results suggested that to maximize the outcome of intervention, parenting experiences should be taken into consideration. The parents of children with autism not only experience the stress of having a child with ASD but also have to adjust with the feelings of receiving a new diagnosis of ASD and starting up with the treatment services.

With the recent rise in the number and complexity of parenting research, various efficient tools and instruments with known psychometric properties are needed to assess the parenting behaviors in parents of children with autism. In their daily professional practices, several health care professionals use different tools to assess, diagnose and later intervene in parenting behaviors. It is thus essential to be aware of the relevance, validity and reliability measurements of such available tools.

The Ghent parental behavioral scale (GPBS)[11] that focuses specifically on parental behavior has proven validity in the European context (Dutch-speaking community). The scale was further extended to the ASD group by including specific items which are relevant for children with ASD, which resulted in the development of Parental behavior scale for ASD (PBS-A)[12] including 52 items. This scale was also extended for use in younger children and has both pre-school and toddler versions.[13] This scale can be used for research purposes. PBS-A consists of five sub-constructs: Positive Parenting with 11 statements, Discipline with six statements, Harsh Punishment with five items, Material Rewarding with four items, and Rules with six statements along with the two added sub-constructs: Stimulating the Development with 11 statements and Adapting the Environment with nine statements. The occurrences of these behaviors are graded on a 5-point rating scale (1-5) ranked as almost never, rarely, sometimes, often, and almost always. The questionnaire can be carried out for fathers and mothers of the child with Autism between the ages 6 and 18 years old. The scale has been found to have acceptable to high internal consistency. These reports suggest the utility of the tool regarding the evaluation and management of children and families with ASD.

At present, only a few studies are available that focus on parenting behavior in parents of children with ASD. In particular, there are no studies on parenting behaviors available in the Indian context. The present study, therefore, aimed to adapt, translate and validate PBS-A - Short version for parents of children with ASD to Kannada, the language spoken in the state of Karnataka, India.

**MATERIALS AND METHODS**

The study used a cross-sectional design. The permission and consent to adapt and translate the tool to Kannada were obtained from the authors. The formal approval to conduct the study was obtained from the Institutional Ethics Committee (IEC 466/2017). The study protocol was also registered under the Clinical Trial Registry – India (CTRI, Trial registration No CTRI2017/11/010337). The items in the original English version of the scale were given to three qualified health care professionals (who work with children with ASD), including a psychiatrist, a clinical psychologist, and a speech-language pathologist, to check for the sociocultural acceptability. The modified and adapted version (which incorporated the inputs from the three experts) of the PBS-A was then taken for translation.

The adapted English version of PBS-A was translated to Kannada by a bilingual translator. Both forward (English to Kannada), and backward (Kannada to English) translations were carried out to check the reliability of the test items. Translated Kannada version of the scale was proofread by three native speakers of Kannada language (bilingual speakers) who were university students pursuing the graduate course in Speech-Language Pathology.

The adapted and translated version of PBS-A in Kannada was checked for the content validation by giving the questionnaire along with a grading sheet to three experienced Speech Language Pathologists. They were asked to rate each item of the questionnaire as “agree” or “disagree”, as well as to suggest modifications (if any). The final version of PBS-A in Kannada was then administered on the parents of children with autism, as described below.

**Participants:** A total of 50 parents of children with autism from Kannada speaking, reading and writing background participated in the validation of the scale. Parents of children aged 6 to 18 years who had received a formal diagnosis of ASD as per DSM-5 criteria by qualified psychiatrists and clinical psychologists were included in the study. Parents of children with autism who also had associated intellectual disability or other comorbid conditions (e.g., Attention Deficit
Hyperactivity Disorder) were excluded. Parents who were not able to read and write Kannada were also excluded.

Procedure: Participants were recruited from local hospitals, various speech and hearing centers/clinics, and special schools for children with developmental disability. Contact details of the parents from Karnataka were then retrieved from the hospital, clinics and special school records (with permission). Identified parents were then contacted (over the telephone) to obtain permission and informed consent. After receiving their written informed consent, parents were explained about the purpose of the study and about the scale and were requested to participate in the study. Parents who consented to participate were provided with the Kannada version of PBS-A to fill out their responses. They were instructed regarding how to fill the questionnaire. The filled in questionnaire forms were collected on the same day. Furthermore, the questionnaire was given to three parents once again within a duration of 15 to 30 days, in order to check for the test-retest reliability of the adapted and translated version of PBS-A in Kannada. The obtained data were subjected to statistical analysis using Statistical package for the social science (SPSS) software for Windows version 16.

RESULTS
The results of the psychometric evaluation of the scale are described as follows. In the adaptation phase, the professionals suggested a few modifications by changing the language style to make it more suitable for the Indian context, such as a few changes in some terminologies which are not familiar in the Kannada context. They suggested an alteration in specific terms that are quite harsh: for instance, ‘beat’ for ‘slap,’ ‘task’ for ‘chore,’ and ‘beat’ for ‘spank.’ All suggested corrections were considered and necessary changes were incorporated in the scale accordingly.

In the translation phase, the three bilingual university students suggested eliminating two items (16 and 22) from the questionnaire, as one was not meaningful in Kannada and the other was subject to a discrepancy. The statements eliminated were: (Statement no. 16) When my child has done his/her best, I allow something extra (for instance staying up later), and (Statement no. 22) I shake my child when we fight. Subsequently, the scale was provided to three parents of children with autism for checking the ease of understanding and acceptance of their sociocultural background. Those parents could comprehend all questions without any confusion and agreed to the approval of all items to their sociocultural environment. Online-only Appendices A and B present the adapted and translated final version of the PBS-A in Kannada and adapted final version of PBS-A in English, respectively.

In the validation phase, the Kannada version was administered to 50 parents of children with autism. Their answers were coded on a 5-point rating scale: 1 as “almost never”, 2 as “rarely”, 3 as “sometimes”, 4 as “often” and 5 as “nearly always”. The mean scores (standard deviation) obtained by the parents of children with ASD on the seven domains of the scale were: positive parenting 46.04 (6.21); material rewarding 11.86 (1.83); rules 24.92 (4.39); discipline 18.94 (4.33); harsh punishment 11.34 (3.19); stimulating the development 42.08 (8.25); and adapting the environment 34.44 (5.29).

The scale was checked for its psychometric properties (test-retest reliability and internal consistency). The results obtained are presented as follows:

Test-retest reliability
Within 15-30 days of initial administration, we re-administered the scale on three participants to evaluate the test-retest reliability. The intraclass correlation coefficient (ICC) analysis of the data showed a high test-retest reliability (ICC = 0.993).

Acceptability
The adapted and translated Kannada version of the tool was then provided to three qualified SLPs (native Kannada speakers who also knew to read and write Kannada) for acceptability of its contents. All three SLPs were asked to indicate their agreement/disagreement with each item of the scale and provide suggestions/modifications, if any. The inter-rater reliability was found to be as: Kappa, k = 0.485 (P < 0.005), revealing a moderate agreement among the SLPs ratings.

Internal consistency
The internal consistency (reliability) of the scale was measured using the Cronbach alpha. The results showed Cronbach alpha value of 0.93, indicating excellent internal consistency. Table 1 below shows the item-to-total statistics presenting the ‘Cronbach alpha if item deleted’ in the final column for all 50 items of the scale. Further, the statements in each domain showed acceptable to high alpha values (Positive Parenting-0.84; Material Rewarding-0.92; Rules-0.93; Discipline-0.93; Harsh Punishment-0.93; Stimulating the Development-0.89; Adapting the Environment-0.92).

DISCUSSION
The present study aimed to adapt, translate and validate the widely used PBS-A - Short version for
parents of children with ASD to Kannada. The Kannada version of PBS-A yielded an overall high test-retest reliability (ICC = 0.993) as well as internal consistency ($\alpha = 0.93$), which in turn were comparable to those of the original instrument in English. Further, the extremely small percent of missing data from the current study was indicative of its higher acceptability by the participants.

| Item    | Scale mean if item deleted | Scale variance if item deleted | Item-to-total correlation | Cronbach’s alpha if item deleted |
|---------|----------------------------|-------------------------------|---------------------------|----------------------------------|
| POS 2   | 185.34                     | 589.21                        | 0.29                      | 0.93                             |
| POS 8   | 185.18                     | 581.29                        | 0.50                      | 0.93                             |
| POS 11  | 186.02                     | 580.59                        | 0.36                      | 0.93                             |
| POS 17  | 185.74                     | 568.4                         | 0.61                      | 0.93                             |
| POS 20  | 185.34                     | 576.07                        | 0.69                      | 0.93                             |
| POS 26  | 185.24                     | 570.68                        | 0.74                      | 0.93                             |
| POS 29  | 185                        | 585.92                        | 0.54                      | 0.93                             |
| POS 31  | 185.46                     | 579.27                        | 0.57                      | 0.93                             |
| POS 36  | 184.98                     | 581.04                        | 0.59                      | 0.93                             |
| POS 37  | 186.02                     | 563.57                        | 0.63                      | 0.93                             |
| POS 41  | 185.24                     | 586.76                        | 0.40                      | 0.93                             |
| MAT 6   | 185.82                     | 601.66                        | -0.01                     | 0.93                             |
| MAT 24  | 185.6                      | 579.02                        | 0.44                      | 0.93                             |
| MAT 38  | 185.52                     | 580.70                        | 0.48                      | 0.93                             |
| RUL 4   | 185.1                      | 577.24                        | 0.64                      | 0.93                             |
| RUL 14  | 185.62                     | 566.44                        | 0.57                      | 0.93                             |
| RUL 22  | 185.5                      | 574.95                        | 0.58                      | 0.93                             |
| RUL 34  | 185.2                      | 575.14                        | 0.59                      | 0.93                             |
| RUL 44  | 185.5                      | 578.75                        | 0.57                      | 0.93                             |
| RUL 47  | 185.76                     | 564.839                       | 0.70                      | 0.93                             |
| DIS 1   | 186.92                     | 590.32                        | 0.25                      | 0.93                             |
| DIS 7   | 186.88                     | 596.35                        | 0.10                      | 0.93                             |
| DIS 10  | 186.12                     | 598.59                        | 0.04                      | 0.93                             |
| DIS 19  | 186.38                     | 584.2                         | 0.25                      | 0.93                             |
| DIS 30  | 186.24                     | 583.86                        | 0.29                      | 0.93                             |
| DIS 40  | 186.12                     | 589.99                        | 0.24                      | 0.93                             |
| HAR 3   | 186.68                     | 603.24                        | -0.04                     | 0.93                             |
| HAR 12  | 186.84                     | 603.53                        | -0.05                     | 0.93                             |
| HAR 32  | 186.66                     | 575.21                        | 0.44                      | 0.93                             |
| HAR 42  | 186.88                     | 584.19                        | 0.33                      | 0.93                             |
| STI 5   | 185.68                     | 571.94                        | 0.60                      | 0.93                             |
| STI 13  | 185.54                     | 578.91                        | 0.42                      | 0.93                             |
| STI 21  | 185.12                     | 577.25                        | 0.62                      | 0.93                             |
| STI 25  | 185.32                     | 573.77                        | 0.62                      | 0.93                             |
| STI 28  | 185.48                     | 580.95                        | 0.49                      | 0.93                             |
| STI 33  | 186.08                     | 568.65                        | 0.69                      | 0.93                             |
| STI 39  | 186.96                     | 564.65                        | 0.65                      | 0.93                             |
| STI 43  | 185.94                     | 564.14                        | 0.72                      | 0.92                             |
| STI 46  | 186.02                     | 561.45                        | 0.66                      | 0.93                             |
| STI 49  | 186.16                     | 579.24                        | 0.48                      | 0.93                             |
| STI 50  | 186.18                     | 551.79                        | 0.74                      | 0.92                             |
| ADA 15  | 185.86                     | 569.51                        | 0.49                      | 0.93                             |
| ADA 9   | 186.6                      | 584.09                        | 0.30                      | 0.93                             |
| ADA 16  | 186.28                     | 579.55                        | 0.32                      | 0.93                             |
| ADA 18  | 185.82                     | 572.19                        | 0.56                      | 0.93                             |
| ADA 23  | 186                        | 586.41                        | 0.29                      | 0.93                             |
| ADA 27  | 185.6                      | 581.84                        | 0.37                      | 0.93                             |
| ADA 35  | 185.28                     | 585.63                        | 0.42                      | 0.93                             |
| ADA 45  | 185.52                     | 574.5                         | 0.50                      | 0.93                             |
| ADA 48  | 186.06                     | 584.71                        | 0.28                      | 0.93                             |

PBS-A – Parental behavioral scale for Autism spectrum disorder, POS – Positive parenting, MAT – Material Rewarding, RUL – Rules, DIS – Discipline, HAR – Harsh punishment, STI – Stimulating the development, ADA – Adapting the environment.
Results of the present study showed higher scores on positive parenting and rules section, and lower scores on discipline and stimulating the development sections, which do not match the results of other studies from western context. It could be due to many possible reasons such as cultural variations across different communities, parent variables (socioeconomic status, educational level, and marital status), child variables (gender, the severity of autism), and context variables (the type of school). All these variables could affect the outcome of studies like this.

Our results furthermore support the claim that parenting behavior is important when considering behavior problems in children with ASD and also, focusing on the parental behavior aids further examination of the effectiveness of interventions programs.

Hence, the current study should be considered as a first attempt to address this need in the Indian context. Further, it permits easy comparison with cross-cultural and cross-linguistic parenting behavior data from parents of children with ASD.

As, to the best of our knowledge, the present study was the first in the Indian context, further research is warranted to verify our results. Future investigations also can focus on evaluating the parental behavior using the Kannada version of PBS-A in parents of typically developing children and the results can be compared to better understand the parenting behaviors/practices in parents of children with autism.

CONCLUSION

The Kannada version of PBS-A is a valid and reliable scale that can be useful in Kannada-speaking population for assessing the parenting behavior for research, clinical and counseling purposes. Further, it permits easy comparison with cross-cultural and cross-linguistic parenting behavior data from parents of children with ASD.

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Conflicts of interest
There are no conflicts of interest.

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