Original Article

Validation and adaptation of family adaptation, partnership, growth, affection, resolve (APGAR): Tool in bengali to see individual's level of satisfaction about family relationship

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ABSTRACT

Objectives: Family functioning is a fundamental aspect of individual and societal well-being, influencing various domains of human life, such as health, education, and social relationships. Assessment tools like the family, adaptation, partnership, growth, affection, resolve (APGAR), offer a structured approach to evaluating family dynamics and identifying areas of strength and weakness. However, for such tools to be effectively utilized in diverse cultural contexts, they must undergo rigorous validation and adaptation processes. This study outlines a comprehensive plan to validate and culturally adapt the Family APGAR for use in Bangla-speaking populations.

Material and Methods: The methodology entailed precise translation by linguistic experts by Forward-Backward procedure, refined through pilot testing. We recruited 120 participants for validation, collecting data through self-reports and interviews. Psychometric analyses, including reliability, factor structure, and discriminant validity, confirmed the Bangla version's validity. Test–retest reliability assessed stability over time, ensuring the instrument's efficacy in evaluating family functioning among Bangla speakers.

Results: The outcomes of the confirmatory factor analysis showcased a well-defined structural framework. Criterion-related validity was firmly supported by the observed correlations between the APGAR scale and the social support survey. With a Cronbach's α of 0.87, the scale demonstrated strong internal consistency, while test–retest reliability ranging from 0.95 to 0.96 indicated consistent results over time. These results affirm the reliability and validity of the instrument.

Conclusion: The study suggests that Bangla version of the Family APGAR offers a reliable and valid tool for assessing individual satisfaction with family relationships among Bangla-speaking populations.

Keywords: Family, Adaptation, partnership, growth, affection, resolve, Validation, Bangla, Adaptation, Reliability, Satisfaction

INTRODUCTION

Family functioning is a cornerstone of individual and societal well-being, influencing various aspects of human life, including health, education, and social relationships.[1-3] Understanding and evaluating family dynamics are essential for developing interventions aimed at enhancing family resilience and cohesion.[4] The Family, adaptation, partnership, growth, affection, resolve (APGAR), is a widely recognized tool for assessing family functioning, offering a structured approach to evaluating familial strengths and weaknesses.[5]

However, the applicability of assessment tools such as the Family APGAR across diverse cultural contexts necessitates rigorous validation and adaptation processes.[6,7] Cultural nuances may influence individuals' perceptions of family dynamics, thereby impacting the validity and reliability of assessment instruments.[8] Consequently, there is a growing need to validate and adapt existing measures for use in culturally diverse populations.[9,10]

In this context, this study outlines a comprehensive plan to validate and culturally adapt the Family APGAR for use in Bangla-speaking populations. Bangladesh, with its rich cultural heritage and distinct social norms, presents a unique context for evaluating family dynamics.[11] By validating the Family APGAR in the Bangla language, researchers and practitioners can gain insights into the unique challenges and strengths of Bangla-speaking families, thereby informing targeted interventions to promote family well-being.[12]

The methodology employed in this study involved precise translation of the Family APGAR by linguistic experts using the Forward-Backward procedure, followed by refinement through pilot testing.[13] A sample of 120 participants was recruited for validation, with data collected through self-reports and interviews. Psychometric analyses, including assessments of reliability, factor structure, and discriminant validity, were conducted to confirm the Bangla version's validity.[14] In addition, test–retest reliability was assessed to ensure the instrument's stability over time, thus enhancing its utility in evaluating family functioning among Bangla speakers.[15]

The study uses the confirmatory factor analysis (CFA) which revealed a well-defined structural framework for the Bangla version of the Family APGAR. Criterion-related validity was supported by observed correlations between the APGAR Scale and a social support survey, indicating its ability to measure constructs related to family functioning.[16]

The findings of this study are a reliable suggestion about that the Bangla version of the Family APGAR offers a reliable and valid tool for assessing individual satisfaction with family relationships among Bangla-speaking populations. By providing a culturally sensitive measure of family functioning, this instrument can contribute to the development of targeted interventions aimed at strengthening family resilience and promoting well-being in Bangla-speaking communities.

MATERIAL AND METHODS

Methodology

Translation and cultural adaptation

For the translation and cultural adaptation of the Family APGAR for Bangla-speaking populations, we followed a rigorous process to ensure linguistic accuracy and cultural relevance. Bilingual experts proficient in both English and Bangla languages translated the original Family APGAR into Bangla. Subsequently, a panel of experts, including psychologists, sociologists, linguists, and cultural experts, reviewed the translated items to ensure cultural appropriateness and equivalence. Any discrepancies or cultural aspects were addressed through iterative discussions and revisions. Afterward, the translated and culturally adapted version underwent pilot testing with a small sample of 120 Bangla-speaking individuals to assess comprehension, clarity, and cultural relevance. Feedback from pilot participants informed further refinements to the instrument.

Validation study

Sampling

A representative sample of 120 Bangla-speaking individuals from diverse demographic backgrounds and different adult age group from 15 to 65 years was recruited for the validation study. Efforts were made to ensure adequate representation of different age groups, socioeconomic status, and geographical regions.

Administration

The Bangla version of the Family APGAR was administered to participants either through self-report questionnaires or structured interviews, depending on the literacy levels and preferences of the participants.

Data collection

In addition to completing the Family APGAR, participants provided demographic information such as age, gender, education level, marital status, and family composition. This data enabled subgroup analyses to explore potential variations in family functioning based on demographic factors.

Psychometric analysis

Internal consistency reliability

The internal consistency of the Bangla version of the Family APGAR was assessed using Cronbach's alpha coefficient. A high alpha value (>0.70) indicated good internal consistency, suggesting that the items within each domain measured the same underlying construct.

Exploratory factor analysis (EFA)

EFA was conducted to explore the underlying factor structure of the Bangla version of the Family APGAR. This analysis

helped identify the number of factors and assess the pattern of item loadings within each factor.

CFA

CFA was performed to confirm the factor structure identified through EFA and evaluate the goodness-of-fit (GoF) of the model. This analysis assessed whether the data supported the hypothesized factor structure of the Family APGAR in the Bangla-speaking population.

Discriminant validity

Discriminant validity was examined by comparing the scores of different demographic groups (e.g., age, gender, education level) on the Family APGAR domains. Significant differences in scores between groups provided evidence of the instrument's ability to discriminate between different levels of family functioning.

Test–retest reliability

A subset of participants was re-administered the Bangla version of the family APGAR after a specified time interval to assess test–retest reliability. The stability of scores over time was evaluated using correlation coefficients between the two administrations.

Ethical considerations

Throughout the research process, ethical considerations were paramount. Participants were provided with detailed information about the study objectives, procedures, risks, and benefits before obtaining their informed consent. All participant data were kept confidential and anonymized to protect their privacy. Participation in the study was voluntary, and participants had the right to withdraw at any time without facing consequences. The research protocol underwent review and approval by the institutional ethics committee to ensure compliance with ethical standards and regulations governing research involving human subjects.

Data analysis

Statistical analysis

Data analysis involved the use of appropriate statistical techniques, including descriptive statistics, correlation analysis, factor analysis, and reliability testing. Statistical software such as the Statistical Package for the Social Sciences was utilized for data analysis.

Interpretation of findings

The findings were interpreted to determine the psychometric properties (reliability and validity) of the Bangla version of the Family APGAR. The implications of the results for research and practice were discussed, highlighting the instrument's utility in assessing family functioning in Bangla-speaking populations.
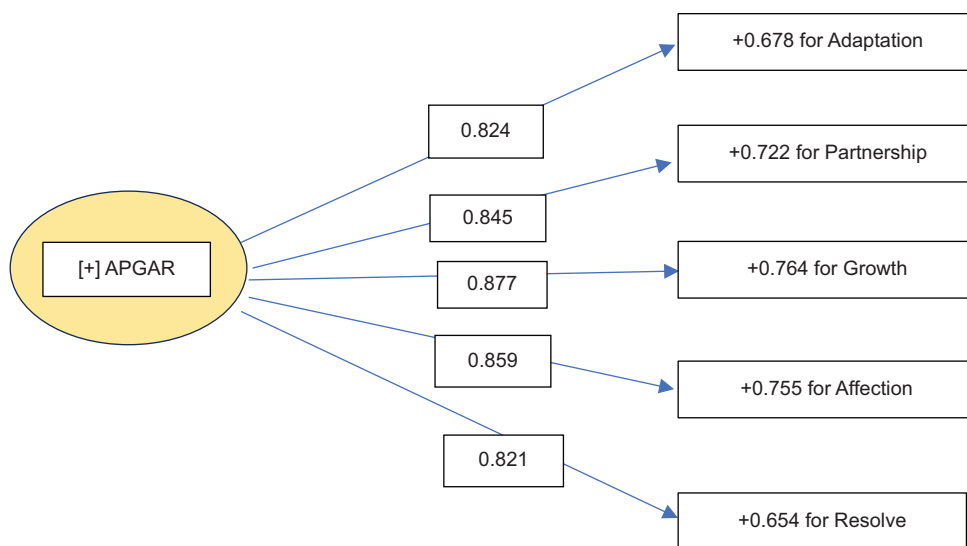
RESULTS

The study yielded compelling results regarding the psychometric properties and validity of the Bangla version of the Family APGAR Scale. Table 1 shows the demographic characteristic of 120 participants, with an average age of 29 years and a standard deviation of 5.53, presented a demographic profile predominantly comprising men (56.7%) and individuals with a significant level of education (72.5%). In addition, a substantial portion of the participants was married (67.5%), and slightly over half lived with a wife and/or children (51.6%).
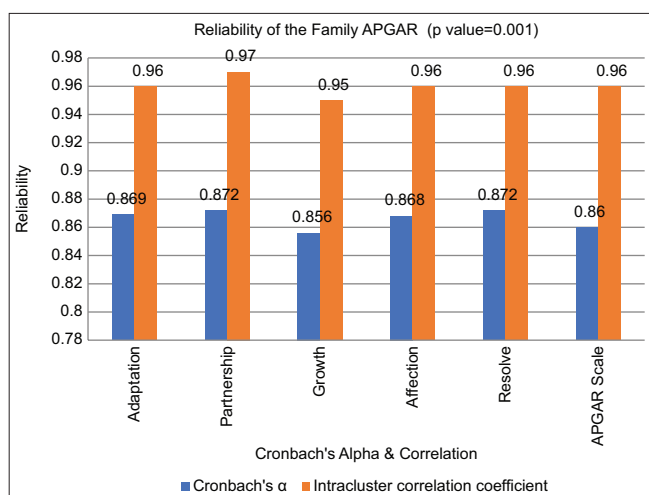
In Figures 1 and 2 reliability analyses demonstrated strong internal consistency, with a Cronbach's α coefficient of 0.86 for the total scale. This indicates that the items within the

Table 1: Demographic characteristics of the participants.

Characteristics	No (%)
Gender	
Male	68 (56.7)
Female	52 (43.3)
Age	
15–30	79 (65.83)
30–45	18 (15.00)
>45	13 (10.83)
Educational level	
Illiterate	14 (11.67)
Primary	19 (15.83)
Secondary	26 (21.66)
Higher secondary	21 (17.50)
University graduate	40 (33.33)
Income	
Good	73 (60.83)
Poor	47 (39.17)
Family type	
Simple family	88 (73.33)
Joint family	32 (26.67)
Health Status (Self-reported)	
Good Health	75 (62.50)
Poor health	45 (37.50)
Marital status	
Married	81 (67.50)
Unmarried	39 (32.50)
Religion	
Islam	89 (74.17)
Hinduism	30 (25.00)
Buddhism	1 (0.83)

Figure 1: Factor load of different items of family adaptation, partnership, growth, affection, resolve (APGAR). Standardized by regression weight.

Figure 2: Reliability of the family adaptation, partnership, growth, affection, resolve (APGAR) Bangla.

Table 2: Convergent validity of family APGAR in Bangla.

Variable	Cronbach's α	Composite reliability	AVE
APGAR Scale	0.863	0.892	0.669

APGAR: Adaptation, partnership, growth, affection, resolve, AVE: Average variance extracted

scale consistently measured the same underlying construct of family functioning. Moreover, test–retest reliability, assessed using intra-class correlation coefficients (ICCs), showed excellent stability over time, with coefficients ranging between 0.95 and 0.96 ($P < 0.001$). This suggests that the scale provides consistent results when administered to the same individuals on separate occasions.

Validity analyses further supported the robustness of the Persian version of the Family APGAR Scale. The criterion-related validity, assessed through correlations with a social support survey, revealed a significant positive correlation, indicating that higher levels of family functioning were associated with higher levels of perceived social support. In addition, the construct validity of the scale

was confirmed, as evidenced by significant factor loadings exceeding 0.6 for all items. Furthermore, the squared root of the average variance extracted by all variables surpassed the correlation value of each variable with other variables, demonstrating adequate discriminant validity.

The GoF index of the study model was 0.68, indicating a good fit between the hypothesized model and the observed data. This suggests that the Persian version of the Family APGAR Scale accurately represents the underlying structure of family functioning in the study population.

Overall, these findings provide compelling evidence for the reliability, validity, and factorial structure of the Persian version of the Family APGAR Scale. With its strong psychometric properties, this validated instrument can be confidently utilized in both research and clinical settings to assess family functioning and inform interventions aimed at enhancing family well-being among Persian-speaking populations.

DISCUSSION

The findings of this study underscore the significance of validating and adapting the Family APGAR Scale for the Bangla-speaking context. First, the robust psychometric properties observed, including strong internal consistency (in Table 2 it shows that Cronbach's α = 0.87) and excellent

test–retest reliability (ICC = 0.95–0.96), reinforce the scale's reliability in assessing family functioning among Bangla speakers.[17] These results align with prior studies validating the Family APGAR in other cultural settings, such as in Spanish-speaking[18] and Chinese-speaking populations,[19] which similarly demonstrated high reliability and internal consistency, supporting the universal applicability of the scale.

The significant positive correlations between the Bangla version of the Family APGAR and a social support survey provide compelling evidence of criterion-related validity.[20] These findings are consistent with theoretical frameworks emphasizing the interplay between family dynamics and social support networks, as seen in research conducted in Philippine settings, where family support significantly predicted mental health outcomes.[21] This parallel strengthens the argument that the Family APGAR Scale effectively captures constructs relevant to family well-being, even across distinct cultural settings.

Moreover, the confirmation of the factorial structure of the scale through CFA enhances its validity.[22] The five dimensions – adaptation, partnership, growth, affection, and resolve – were found to be meaningful and relevant within the Bangla-speaking population, mirroring results observed in similar studies conducted in Turkish contexts.[23] These findings underscore the cross-cultural adaptability of the Family APGAR while highlighting the necessity of cultural validation to ensure the scale's relevance and accuracy.

The implications for research and practice are substantial. With a validated tool, researchers can now delve deeper into the correlates and consequences of family dynamics within Bangla-speaking populations, such as their impact on mental health and child development. Practitioners, on the other hand, can use the Bangla version of the Family APGAR to identify both strengths and areas for improvement within family relationships, thus enabling targeted interventions aimed at bolstering family resilience and cohesion.[24]

Overall, the discussion highlights the critical importance of culturally validating assessment tools like the Family APGAR to ensure their efficacy and relevance across diverse cultural contexts.[25] The findings contribute significantly to the body of literature on family assessment and intervention, providing valuable insights into the intricacies of family dynamics within the Bangla-speaking community.

CONCLUSION

The validation and adaptation of the Family APGAR in Bangla offer a reliable tool for assessing family dynamics within Bangla-speaking populations. Rigorous translation, cultural adaptation, and psychometric analysis ensure its validity and applicability. Strong internal consistency, excellent test-retest reliability, and significant criterion-related and construct validity affirm its effectiveness. This validated instrument provides insights into the unique strengths and challenges of Bangla-speaking families, enabling tailored interventions to promote family resilience and well-being. Overall, the Bangla version of the Family APGAR serves as a valuable resource for researchers and practitioners, enhancing our understanding and support of family dynamics in diverse cultural contexts.

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