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Research paper

Translation and Adaptation of Psychological Well-being Scale (PWBS) and its Psychometric Validation

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ABSTRACT

This study aimed to adapt and validate Carol Ryff's Psychological Well-Being Scale (PWBS) into Bangla for the context of Bangladesh. A sample of 264 students from public and private universities was selected using a stratified random sampling approach. The PWBS was translated into Bangla, validated through expert reviews and pilot testing, and administered to participants. Unlike the original six-factor PWBS, the Bangla version revealed a five-factor structure, with items relating to environmental mastery showing conflicting loadings and being excluded. The findings highlight unique cultural nuances in the conceptualization of well-being within a non-Western context. This advances the understanding of how psychological well-being is expressed across diverse societies and contributes to the broader agenda of making psychological assessment more inclusive and representative of the Global South. The adapted scale demonstrated acceptable internal consistency reliability (Cronbach's alpha = 0.659). This research provides a validated tool for further studies and practical applications in the Bangladeshi context, significantly contributing to the promotion of mental health, supporting individuals in need, advancing scientific knowledge, and informing policies and practices aimed at enhancing well-being at both individual and societal levels.

Keywords: psychological well-being, Bangla scale, adaptation, university students, collectivist society, global south

Within the intricate tapestry of human existence, the pursuit of well-being has long stood as a paramount aspiration (Bozalek et al., 2024). Far beyond the mere absence of illness, Eudaimonic well-being, a multifaceted concept, encompasses not just contentment, but also fulfilment and positive functioning such as the ability to cope effectively with challenges (Ryff, 1989). A wealth of contemporary research indicates that individuals with higher levels of psychological well-being experience "flourishing" rather than just surviving (Hernández-Torrano et al., 2020), enjoy improved physical health and longevity (Ryff, 2013). Moreover, they tend to have more satisfying and fulfilling relationships with others (Patrick et al., 2007; Lyubomirsky et al., 2005), increased resilience in the face of adversity (Harding et al., 2019) and enhanced productivity (Isham et al., 2019). Conversely, the absence of psychological well-being renders individuals susceptible to stress, anxiety, and depression (Kersemaekers et al., 2018; Erden et al., 2023; Giovanis et al., 2024), increased socioeconomic issues (Van Hal, 2015), feelings of isolation and profound loneliness (Campbell et al., 2022), and a lack of self-care behaviours and diminished coherence (Brett et al., 2022).

This vulnerability is particularly pronounced among university students, a population navigating the developmental transition of emerging adulthood while facing academic, social, and economic pressures (Browne et al., 2017). In Bangladesh, this vulnerability has been further exacerbated by recent sociohistorical stressors. The COVID-19 pandemic exacted a heavy psychological toll on students, with studies reporting alarming levels of distress as 72% of students exhibited depressive symptoms and over half reported poor mental well-being (Faisal et al., 2021). This distress has persisted beyond the pandemic. The psychological strain has persisted beyond the pandemic, compounded by the socio-political instability following the July 2024 movement, which introduced additional uncertainty and collective stress among Generation Z students (Shakira, 2026). The most serious sign of this mental health crisis is the increasing rate of suicide attempts. A recent meta-analysis by Shuvo et al. (2024) reported a national prevalence of 4.25%, with a steady increase observed between 2010 and 2023.

Despite the clear need for intervention, mental health research in Bangladesh has traditionally adopted a "deficit model," focusing primarily on symptoms of distress such as depression, anxiety, and stress. Widely used instruments such as the PHQ-9 and DASS-21 dominate the literature (Islam et al., 2020; Ahmed et al., 2022; Rahman et al., 2022), while comparatively little attention has been given to "positive functioning," or what makes life worth living. Although recent efforts have introduced tools such as the WHO-5 Well-being Index (Rahaman et al., 2025) for general screening and the Resilience Evaluation Scale (Rahman & Islam, 2026) to measure coping capacities, these measures are largely unidimensional. They fail to capture the multidimensional architecture of flourishing, such as autonomy or personal growth, that is essential for a student's long-term development.

Ryff's Psychological Well-Being Scale (PWBS) addresses this gap, conceptualizing well-being across six core dimensions: 1. Self-acceptance (maintaining positive self-evaluations, fostering an optimistic outlook on one's life and personal history), 2. Personal Growth (experiencing ongoing personal growth and development), 3. Purpose in Life (holding the belief that one's life possesses purpose and significance), 4. Positive Relations with Others (nurturing high-quality relationships with others), 5. Environmental Mastery (effectively managing one's life and surrounding environment), and 6. Autonomy (experiencing a sense of self-determination and autonomy) (Ryff, 1989). The PWBS has been widely used and adapted across cultural contexts, including Mexico, Iran, Thailand, Singapore, Italy, Romania, China, and Australia, demonstrating varying factor structures and psychometric properties (Abbott et al., 2006; Asghar, 2008; Burns & Machin, 2008; Sirigatti et al., 2012; Costea-Bărluţiu et al., 2018; Gao & McLellan, 2018; Klainin-Yobas et al., 2020; Hernández et al., 2023).

These cross-cultural variations underscore the importance of cultural sensitivity in psychological measurement (Age, 2025; Acar, 2025). For instance, while studies in European contexts have largely supported the original six-factor structure (Sirigatti et al., 2012), research in Asian and Latin American settings has revealed meaningful deviations. In Thailand and Singapore, autonomy and personal growth merged into a single factor, reflecting collectivist values where independence is viewed as a means of self-improvement rather than an end in itself (Klainin-Yobas et al., 2020). Similarly, Mexican medical students emphasized emotional regulation over environmental mastery, reflecting contextual academic pressures (Hernández et al., 2023). These findings suggest that constructs such as autonomy or personal growth are culturally embedded rather than universal.

This issue is particularly relevant in Bangladesh, where social interdependence, family obligation, and collective identity strongly shape individual experiences. In such contexts, autonomy may be interpreted not as independence from others but as the ability to fulfill responsibilities within relational networks (Chirkov, 2008; Ahmed, 2024). Likewise, environmental mastery may be constrained by structural and socioeconomic limitations common in developing countries (Aldawsari et al., 2018; Jandu & Pradhan, 2025; Natsi & Vitsou, 2025). As Bowman (2010) observed in the United States, first-generation and minority students often score differently on these scales as they struggle to balance home values with university expectations, a reality many Bangladeshi students face as they navigate a rapidly modernizing society. Without appropriate linguistic and cultural adaptation, the direct application of Western-developed instruments risks conceptual distortion and reduced validity.

Although the PWBS has demonstrated strong psychometric properties across cultures, showing reliability coefficients ranging from .82 to .93 in multiple studies (Ryff & Keyes, 1995; Hernández et al., 2023; Klainin-Yobas et al., 2020), its applicability in Bangladesh has not yet been systematically examined. Existing adaptations in other countries further indicate that scale length and dimensional structure may require modification to achieve cultural relevance, as evidenced by adaptations in Romania, China, and Australia, where reliability coefficients ranged from moderate to acceptable (Burns & Machin, 2008; Costea-Bărluţiu et al., 2018; Gao & McLellan, 2018).

Against this backdrop, the present study seeks to address a critical gap in Bangladeshi mental health research by adapting and validating the Psychological Well-Being Scale in Bangla. By providing a culturally sensitive measure of well-being, this study aims to shift the research focus from a deficit-based model toward a strengths-oriented understanding of student mental health. Such an approach is essential for informing evidence-based

interventions, promoting holistic development, and supporting the implementation of well-being–oriented educational policies in Bangladesh.

In light of these gaps, the present study aims to:

1) Linguistically and culturally, adapt the Ryff's Psychological Well-Being Scale (PWBS) into Bangla to ensure conceptual equivalence within the Bangladeshi context.
2) Statistically evaluate the psychometric properties of the adapted scale, including an analysis of its factor structure, internal consistency, and validity among a diverse sample of university students.

METHODOLOGY

This study adopted a quantitative cross-sectional design to translate, culturally adapt, and psychometrically validate the 18-item Psychological Well-Being Scale (PWBS) within the Bangladeshi context. The methodological process comprised sample selection using stratified sampling across public and private universities, systematic translation and adaptation of the PWBS into Bangla following established international guidelines, pilot testing, and large-scale data collection. Ethical standards for research involving human participants were adhered to throughout the study.

Research sample

The target population comprised students currently enrolled in undergraduate and master's degree programs at public and private universities in Bangladesh during the data collection period. In this study, undergraduate students referred to those enrolled from the first through the final (fourth) year of a bachelor's degree program, while master's students referred to those enrolled in taught or research-based postgraduate programs, excluding MPhil and doctoral students.

Given the unequal distribution of students across university types in Bangladesh, where public universities enroll a substantially larger proportion of students (Bangladesh Education Statistics, 2022), a stratified random sampling approach was employed, with university type (public vs. private) serving as the primary stratification variable. This strategy was adopted to ensure proportional representation of students from both sectors and to enhance the external validity of the findings (Creswell, 2009). A higher number of participants were intentionally drawn from public universities to reflect their greater representation in the national higher education system.

Participants were recruited from a total of 33 universities across Bangladesh using a combination of in-person classroom-based recruitment and online survey distribution. Within each stratum (public and private universities), students were approached through classroom announcements and institutional networks, and participation was voluntary. Although the exact number of participants from each institution was not predetermined, care was taken to ensure approximate proportionality across university type, academic discipline, and year of study. This approach aligns with applied educational research practices where probability sampling frames are difficult to implement across multiple institutions (Creswell & Guetterman, 2024).

Data were collected from universities located in Dhaka, Cumilla, Chattogram and Rajshahi, ensuring geographic diversity. Within each university type, students from science, social science, arts, and business faculties were included to ensure heterogeneity of academic backgrounds. A total of 267 students initially participated. Three respondents were excluded because they were not currently enrolled at the time of data collection, resulting in a final sample of 264 students, including 192 undergraduate students and 72 master's students see **Table 1**. Of the final sample, 159 students (60.2%) were enrolled in public universities and 105 (39.8%) in private universities. The sample comprised 157 males (59.5%) and 107 females (40.5%), with ages ranging from 18 to 27 years.

In terms of academic background, 45.8% were from the science faculty, 26.9% from the social science faculty, 15.2% from the arts faculty, and 12.1% from the business studies faculty. Undergraduate representation included first-year (12.9%), second-year (18.9%), third-year (17.0%), and fourth-year students (23.9%). In addition, participants reported varied living arrangements, with 45.1% residing in their family homes, 26.1% in university residential halls, 23.1% in hostels, 4.5% in sublet accommodations, and 1.1% in relatives' houses. This variable was included because residential context is closely associated with autonomy, environmental mastery, and social connectedness, key dimensions of psychological well-being, particularly within collectivist societies such as Bangladesh.

Table 1

Demographic Characteristics of the Sample (N = 264)

Variable	Category	n	%
University Type	Public	159	60.2
	Private	105	39.8

Gender	Male	157	59.5
	Female	107	40.5
Age	18-22	101	38.3
	23-27	163	61.7
Level of Study	Undergraduate	192	72.7
	Master's	72	27.3
Year of Study (UG)	1st year	34	12.9
	2nd year	50	18.9
	3rd year	45	17.0
	4th year	63	23.9
Academic Discipline	Science Faculty	121	45.8
	Social Science Faculty	72	26.9
	Arts Faculty	40	15.2
	Business Studies Faculty	32	12.1
Living Arrangement	Own family home	119	45.1
	University residential hall	69	26.1
	Hostel	61	23.1
	Sublet	12	4.5
	Relative's house	03	1.1

Data collection tools

The study used the Psychological Well-Being Scale (PWBS) developed by Ryff (1989), a widely used and psychometrically sound instrument designed to assess psychological well-being. The Psychological Well-Being Scale (PWBS) exists in multiple versions, including the original 120-item version, as well as 84-item, 54-item, and 18-item shortened forms (Ryff & Keyes, 1995). While longer versions provide comprehensive coverage of the construct, shorter versions have been widely adopted in empirical research due to their feasibility, reduced respondent burden, and suitability for large-scale or student-based studies. The present study employed the 18-item version of the PWBS, which has been extensively used and validated across diverse cultural contexts, including studies conducted in Asia, Europe, and Latin America (e.g., Sirigatti et al., 2012; Klainin-Yobas et al., 2020; Hernández et al., 2023). The 18-item version retains representation of all six theoretical dimensions while minimizing fatigue and careless responding.

The original PWBS includes both positively worded items (e.g., "I live life one day at a time and don't really think about the future.") and negatively worded items (e.g., "Some people wander aimlessly through life, but I am not one of them."). Such mixed-item wording is commonly used in psychological scales to reduce acquiescence bias. However, prior research indicates that item wording may also introduce method effects and common method variance, potentially influencing factor structure and validity estimates (Podsakoff et al., 2003; Chyung et al., 2018). Accordingly, all negatively worded items were reverse-coded prior to analysis. Responses were recorded on a 7-point Likert scale, ranging from Strongly Disagree to Strongly Agree, with higher scores indicating greater psychological well-being.

Pilot testing

The preliminary pilot testing was conducted in two stages to assess item clarity, comprehension, and administration feasibility, following the recommendations of Van Teijlingen et al. (2001). In the first pilot phase ($n = 30$), participants were asked to complete the questionnaire and provide feedback on item clarity, wording, and response difficulty. Several participants reported minor ambiguity in the phrasing of negatively worded items. Based on this feedback, minor linguistic refinements were made to improve clarity while preserving conceptual meaning.

A second pilot test with an additional 20 students was conducted to confirm the revised version's comprehensibility and flow. Participants in this phase reported no difficulties in understanding the items, and the average completion time was approximately six minutes. No items were identified as confusing or misleading, and therefore, the finalized version was retained for the main study.

Data collection procedure

Data collection was conducted between October 2023 and February 2024. The finalized Bangla version of the PWBS was administered using both online tools and paper-based formats to increase accessibility. Participants were approached through university networks and classroom announcements. Prior to participation, students were informed about the study objectives, confidentiality of responses, and their right to withdraw at any time.

Written informed consent was obtained from all participants. The survey required approximately 6 minutes to complete.

Ethical

Ethical principles were strictly followed throughout the study. All participants were provided informed consent, which entailed a comprehensive explanation of the study's objectives, methodologies, and the voluntary nature of their participation. The confidentiality of responses was upheld, and the identity of participants remained anonymous. The research adhered to the ethical principles established by the Institute of Education and Research. Their safety and protection from undue stress were ensured, as emphasised by Favaretto et al. (2020).

FINDINGS

Exploratory factor analysis (EFA) was conducted to examine the underlying factor structure of the Bangla version of the 18-item Psychological Well-Being Scale (PWBS), as no previously validated Bangla short form exists. Prior to factor extraction, the suitability of the dataset for EFA was assessed using standard diagnostic tests.

Assessment of factorability

The Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy was .731, exceeding the recommended minimum value of .60 (Kaiser, 1970b), indicating that the sample size was adequate for factor analysis. Bartlett's Test of Sphericity was statistically significant, $\chi^2(153) = 800.02$, $p < .001$, confirming that the correlation matrix was not an identity matrix and that the variables shared sufficient common variance to justify factor extraction.
Having established the appropriateness of the data for EFA, the inter-item correlation matrix was examined, see **Table 2** (See Apendix). Inspection of the matrix revealed multiple statistically significant correlations among the PWBS items, indicating meaningful associations without evidence of singularity. The determinant of the correlation matrix was .044, suggesting an acceptable level of multicollinearity (Field, 2013). In addition, Measures of Sampling Adequacy (MSA) derived from the anti-image correlation matrix exceeded the recommended threshold of .50 for all items, further supporting their inclusion in the analysis.

Factor extraction and retention criteria

Before deciding to perform exploratory factor analysis, the suitability of the data set and adequacy of sample size were checked. Here, the discrete variables in the dataset were suitable for exploratory factor analysis. The sample size (N = 264) satisfied commonly recommended guidelines, which suggest a minimum ratio of 10 participants per item, with ratios of 10:1 to 15:1 considered optimal for stable factor solutions (Field, 2013).
Given the theoretical expectation that dimensions of psychological well-being are correlated, principal component analysis (PCA) with Promax rotation was employed. Factor retention decisions were guided by multiple criteria: (a) the Kaiser–Guttman criterion (eigenvalues > 1), (b) visual inspection of the scree plot, (c) parallel analysis, and (d) theoretical interpretability.

The preliminary examination using the Kaiser-Guttman criterion, which considers eigenvalues greater than 1.00, revealed a 6-factor structure of the PWBS. This structure consisted of 18 items and accounted for 57.53% of the total variance, see **Table 3**. According to Kaiser (1960), factors with eigenvalues exceeding 1.00 represent meaningful contributions to explained variance. This criterion is considered appropriate when sample size exceeds 250 and average communalities are moderate to high (Field, 2013), both of which were satisfied in the present study.

Table 3

Total Variance Explained by Principal Components

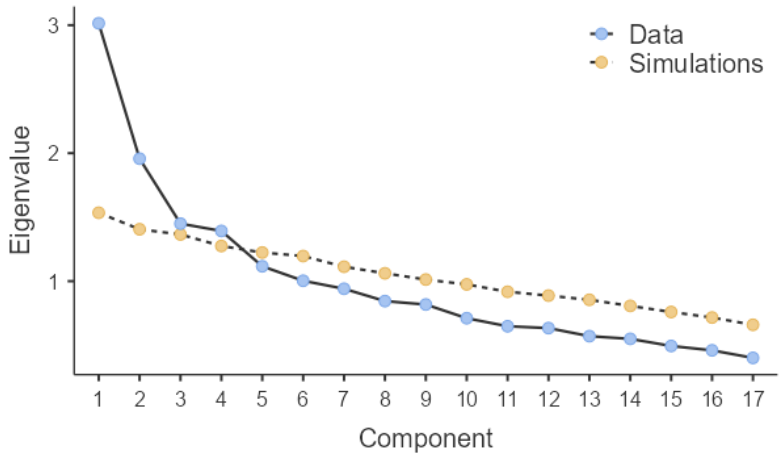
Component	Eigenvalue	% of Variance	Cumulative %
1	3.423	19.015	19.015
2	1.963	10.903	29.918
3	1.451	8.063	37.981
4	1.395	7.747	45.728
5	1.119	6.218	51.946
6	1.005	5.583	57.529

Note. Only components with eigenvalues > 1.00 were initially retained following the Kaiser–Guttman criterion.

Cattell (1966) describes the scree test as another technique for retaining factors. Inspection of the scree plot revealed a difficult interpretation because it begins to tail off after three factors, followed by a more gradual levelling off, with a noticeable inflexion between the third and fourth components, as shown in **Figure 1**.

Figure 1

Scree plots of eigenvalues with Parallel Analysis



While scree plots offer a reasonably reliable method for choosing factors, especially when dealing with over 200 participants (Stevens, 2002), they shouldn't be the sole deciding factor (Field, 2013). To further strengthen factor retention decisions, parallel analysis (Horn, 1965) was conducted using 1,000 randomly generated datasets. Results indicated that the first two observed eigenvalues clearly exceeded those obtained from random data, while the third factor approached the simulation threshold. Factors beyond the third did not exceed randomly generated eigenvalues.

However, as noted by Glorfeld (1995), parallel analysis may underestimate the number of factors in applied research when theoretical constructs are complex or culturally variable. Therefore, despite the more parsimonious solution suggested by parallel analysis, a five-factor model was retained based on theoretical interpretability, consistency with Ryff's multidimensional conceptualization of psychological well-being, and evidence from prior cross-cultural validations demonstrating factor merging and structural variability across cultural contexts. Given that the primary aim of the study was cultural adaptation rather than model reduction, theoretical coherence was prioritized alongside statistical criteria.

The appropriateness of Promax rotation was supported by the component correlation matrix, which indicated several moderate inter-factor correlations (r = .18–.43; Table 4), confirming that the extracted factors were related but not redundant. Factor loadings were interpreted using a conservative cutoff of .30, with cross-loadings examined for conceptual consistency (Kline, 2014). The final rotated factor matrix is presented in **Table 5**.

Table 4

Component Correlation Matrix after Promax Rotation

Component	1	2	3	4	5	6
1	1					
2	.425	1				
3	.177	.219	1			
4	.061	-.028	-.298	1		
5	.331	.201	.130	-.033	1	
6	-.259	-.193	-.032	-.027	-.202	1

Extraction Method: Principal Component Analysis.
Rotation Method: Promax with Kaiser Normalization.

Table 5

Rotated factor matrix for PWBS items

	Factor Loadings					
Items of PWBS	1	2	3	4	5	6

SA5 In many ways I feel disappointed about my achievements in life	.817					
SA2 When I look at the story of my life, I am pleased with how things have turned out so far	.816					
SA1 I like most parts of my personality	.489					
AU17 I have confidence in my own opinions, even if they are different from the way most other people think		.902				
AU18 I judge myself by what I think is important, not by the values of what others think is important		.704				
AU15 I tend to be influenced by people with strong opinions		.669				
PG12 I think it is important to have new experiences that challenge how I think about myself and the world			.753			
PG11 For me, life has been a continuous process of learning, changing, and growth			.610			
PL3 Some people wander aimlessly through life, but I am not one of them			.532			
EM9 I am good at managing the responsibilities of daily life			.405			(.305)
EM4 The demands of everyday life often get me down			(.380)			.302
PL7 I live life one day at a time and don't really think about the future				.756		
PG14 I gave up trying to make big improvements or changes in my life a long time ago				.687		
PL10 I sometimes feel as if I've done all there is to do in life				.651		
PR6 Maintaining close relationships has been difficult and frustrating for me					.739	
PR16 I have not experienced many warm and trusting relationships with others					.684	
PR13 People would describe me as a giving person, willing to share my time with others					.503	
EM8 In general, I feel I am in charge of the situation in which I live						.857
Eigen Value	2.779	2.377	2.101	1.714	1.965	1.427

Note. N= 264
Factor loadings below 0.30 were suppressed.
Method of extraction: principal component analysis
Rotation method: Promax with Kaiser normalisation
Convergence of rotation occurred after 11 iterations.
SA= Self-Acceptance, PL=Purpose in Life, EM= Environmental Mastery, PR= Positive Relations with Others, PG= Personal Growth, AU= Autonomy

Interpretation of factor structure

The retained five-factor structure showed both convergence with and divergence from the original six-factor model proposed by Ryff (1989). Items representing Self-Acceptance, Autonomy, and Positive Relations with Others loaded coherently and aligned closely with their original theoretical definitions.

It is observed that two items from the Personal Growth scale (PG12, PG11) and one item from the Purpose in Life (PL3) of the original scale exhibit loadings on Factor 3, indicating a convergence of these items under the Personal Growth construct. However, the two remaining Purpose in Life items (PL10 and PL14) of the original scale alongside one Personal Growth item (PG14) predominantly load on Factor 4, providing additional evidence for the distinct presence of Purpose in Life. Notably, in the Bangladeshi context, items 3, 11 and 12 appear to represent factor 3 Personal Growth (PG) whereas items 7, 10 and 14 represent Purpose in Life (PL). This implies a close association between these constructs, suggesting a potential overlap in perception among Bangladeshi participants. Factor 6, identified as environmental mastery in the original scale, may not adequately represent environmental mastery in the context of Bangladeshi culture. The loadings of EM4 and EM9 on both Factor 3 (Personal Growth) and Factor 6 suggest some potential ambiguity in their interpretation. Therefore, EM 8, 9 and 4 were removed from the scale as statistical identification of a factor requires a minimum of three measured variables (Fabrigar & Wegener, 2011). Finally, the Bangla version of the PWBS retained five dimensions: Self-Acceptance, Autonomy, Personal Growth, Purpose in Life, and Positive Relations with Others.

Reliability of the PWB scale

In educational research, it may be challenging to test the reliability of an instrument such as an attitude scale by merely conducting repeated readings, as human beings undergo constant change due to their experiences between instrument administrations and the experience of the measurement process (Taber, 2017). Nevertheless, the internal consistency reliability of the retained PWBS items was examined using Cronbach's alpha. Cronbach's

alpha estimates the degree to which items within a scale measure a common underlying construct (Cronbach, 1951), and it is widely used in psychological and educational research.

The overall Cronbach's alpha for the final Bangla PWBS was α = .659, indicating moderate internal consistency. While this value falls slightly below the conventional .70 threshold, it remains acceptable for exploratory research and scale adaptation studies, particularly when using brief multidimensional instruments (Nunnally & Bernstein, 1994; Taber, 2017).

The moderate reliability may reflect the reduced number of items retained in the adapted version, the multidimensional nature of psychological well-being, and potential variation in item interpretation within the Bangladeshi cultural context. Overall, these findings suggest that the Bangla PWBS is suitable for use in research settings, with appropriate caution in interpretation.

Validity of the PWB scale

Convergent Validity

The convergent validity of the Bangla version of PWBS was assessed by calculating inter-factor correlations and correlations between each factor and the total PWBS score. The Pearson correlation coefficients and their significance levels are presented in the table below (see **Table 6**).

Table 6

Inter-factor Correlations

PWBS Factors	SA	PL	PR	PG	AU	
SA	1					
PL	.145*	1				
PR	.245**	.047	1			
PG	.273**	.275**	.189**	1		
AU	.378**	.132*	.103	.105	1	1

Note. N=264
*. P < 0.05 (2-tailed).
**. P < 0.01 (2-tailed).
SA= Self-Acceptance, PL=Purpose in Life, EM= Environmental Mastery, PR= Positive Relations with Others, PG= Personal Growth, AU= Autonomy, PWBS=Psychological Well-being Scale

Inter-factor correlations ranged from small to moderate (r = .145 to .378), indicating that while the dimensions were related, they remained empirically distinguishable. The strongest association was observed between Self-Acceptance and Autonomy (r = .378, p < .01), reflecting conceptual overlap between positive self-evaluation and self-determination.

The factor-total correlation analysis was conducted to assess the relationships between the total score of the Psychological Well-Being Scale and each factor derived from factor analysis. Factor–total correlations were all positive and statistically significant, ranging from r = .447 to r = .731. These findings indicate that each factor contributed meaningfully to the overall psychological well-being construct, supporting the internal structure and convergent validity of the scale (see **Table 7**).

Table 7

Factor-total Correlations

PWBS Factors/Total PWBS	SA	PL	PR	PG	AU	Total Score
SA	1					
PL	.145*	1				
PR	.245**	.047	1			
PG	.273**	.275**	.189**	1		
AU	.378**	.132*	.103	.105	1	
Total Score	.731**	.447**	.552**	.518**	.624**	1

Note. N=264
*. P < 0.05 (2-tailed).
**. P < 0.01 (2-tailed).
SA= Self-Acceptance, PL=Purpose in Life, EM= Environmental Mastery, PR= Positive Relations with Others, PG= Personal Growth, AU= Autonomy, PWBS=Psychological Well-being Scale

Discriminant Validity

The discriminant validity was examined by correlating PWBS scores with measures of depression, anxiety, and stress from the Depression Anxiety Stress Scales (DASS). As hypothesized, overall psychological well-being demonstrated negative correlations with depression, anxiety, and stress indicators (r = -.315 to -.529), suggesting that higher well-being is associated with lower psychological distress (see **Table 8**).

Table 8

Discriminant Validity of PWBS

PWBS dimensions/PWBS	DASS factors/DASS			
	Depression	Anxiety	Stress	DASS
Self-acceptance	-.529**	-.055	-107	-.275
Autonomy	-.300*	-.176	-.51	-.209
Personal Growth	-.180	-.036	-0.20	-.095
Positive Relations with Others	-.340*	-.255	-.342*	-.354*
Purpose in Life	-.134	-.026	-.007	-.067
PWBS	-.514**	-.155	-.130	-.315*

Note. N=50
*. P < 0.05 (2-tailed).
**. P < 0.01 (2-tailed).
PWBS=Psychological Well-being Scale, DASS= Depression Anxiety Stress Scales

Notably, Self-acceptance demonstrated a strong negative correlation with depression (r = -.529, p < 0.01), underscoring its protective role against depressive symptoms. Autonomy also exhibited a moderate negative correlation with depression (r = -.300, p < 0.05) and a strong negative correlation with stress (r = -.51, p < 0.05), highlighting its significance in predicting favourable well-being outcomes. Personal Growth and Purpose in Life showed weaker and non-significant associations with distress variables, suggesting that these dimensions may reflect positive functioning independent of negative affect.

It should be noted that DASS data were collected from a subsample of participants rather than the full study sample. Therefore, these findings are interpreted as preliminary evidence supporting discriminant validity rather than definitive validation. Despite this limitation, the observed pattern of correlations aligns with theoretical expectations and prior empirical research.

DISCUSSION

The present study examined the factor structure and psychometric properties of the Bangla version of the 18-item Psychological Well-Being Scale (PWBS) among Bangladeshi university students. Overall, the findings provide partial support for Ryff's multidimensional model of psychological well-being while highlighting culturally meaningful deviations in dimensional structure. In particular, the retained five-factor solution, Self-Acceptance, Autonomy, Positive Relations with Others, Personal Growth, and Purpose in Life, underscores the relevance of core well-being dimensions for Bangladeshi students, while also illustrating how cultural context shapes the expression and interpretation of psychological well-being.

Consistent with prior cross-cultural research, the factor structure of shortened versions of the PWBS frequently diverges from the original six-factor model, especially in non-Western settings. While studies using longer versions of the PWBS often replicate the six-factor structure in Western and some Asian contexts (Hernández et al., 2023; Luştrea et al., 2018), validations of the 18-item version commonly yield fewer factors. For example, the Thai and Singapore versions of the PWBS retained two factors with 16 and 15 items respectively across the samples (Klainin‐Yobas et al., 2020). The reliability reported in the Singapore version suggested slightly low reliability, with Cronbach's alpha (α) 0.56. The Italian versions of PWBS supported a five-factor structure and two second-order latent constructs (Sirigatti et al., 2012). The present findings align with this broader pattern, suggesting that abbreviated PWBS forms may be particularly sensitive to cultural variation in construct organization.

The Bangla version of PWBS yielded a five-factor structure with moderate internal consistency (α = 0.66). It is because in general, longer tests produce higher reliabilities. Importantly, the primary objective of the study was cultural adaptation and construct validity, rather than maximizing internal consistency, which aligns with recommendations for early-stage scale validation in cross-cultural contexts (Nunnally & Bernstein, 1994; Taber, 2017).

The dissolution of environmental mastery

One of the most notable findings was the exclusion of the Environmental Mastery dimension. Items originally intended to measure environmental mastery demonstrated inconsistent and conceptually ambiguous loadings, leading to their removal. EM8 ("In general, I feel I am in charge of the situation in which I live") and EM9 ("I am good at managing the responsibilities of daily life") suggest that some participants have a strong sense of environmental mastery. However, EM4 ("The demands of everyday life often get me down") suggests that some participants may have a weak sense of environmental mastery. The ambiguity in the interpretation of EM4 and EM9 could stem from the fact that they tap into both positive and negative aspects of environmental mastery.

Rather than reflecting measurement weakness alone, this pattern may be understood in light of the contextual realities faced by Bangladeshi university students. In collectivist and resource-constrained settings, environmental mastery may be less about individual agency over circumstances but instead involve adaptability, endurance, and relational negotiation within structural constraints (Hobfoll et al., 2002; Joshanloo, 2013; Sherman et al., 2021).

Consequently, managing daily responsibilities may be interpreted as evidence of maturity and developmental progress, thereby overlapping conceptually with Personal Growth rather than forming a distinct psychological domain. This interpretation is consistent with cross-cultural findings suggesting that agency-related constructs often reorganize in contexts where external constraints limit personal control (Bosse & Phillips, 2014).

Cultural reinterpretation of purpose and growth

The present findings also revealed meaningful reorganization between the Purpose in Life and Personal Growth dimensions. Item 14 ("I gave up trying to make big improvements or changes in my life a long time ago"), originally associated with Purpose in Life, loaded with Personal Growth items. "Giving up" on big improvements could be interpreted differently in a collectivistic society like Bangladesh. Given the strong emphasis on family support and the prevalent practice of living with family in Asian cultures, individuals in these contexts may prioritize fulfilling their roles within the family or community over personal growth aspirations (Chirkov et al., 2003; Faudzi et al., 2018). Consequently, this may not necessarily indicate a lack of purpose but rather an acknowledgement and acceptance of one's present circumstances, with a focus on finding meaning within them.

Similarly, Item 3 ("Some people wander aimlessly...") was reclassified into Personal Growth. In a country with limited resources and high unemployment, "aimlessness" is a significant social fear. Therefore, having a clear direction is not just a philosophical "purpose"; it is a tangible sign of Personal Growth and a tool for socio-economic survival. Rejecting aimlessness is a proactive step toward building a better future for the family, a sentiment echoed by the rising "Generation Z" activism in the country (Shakira, 2026).Assessment of Factorability

The Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy was .731, exceeding the recommended minimum value of .60 (Kaiser, 1970b), indicating that the sample size was adequate for factor analysis. Bartlett's Test of Sphericity was statistically significant, $\chi^2(153) = 800.02$, $p < .001$, confirming that the correlation matrix was not an identity

Autonomy as collective agency

Autonomy emerged as a stable and distinct factor, though its meaning likely differs from the individualistic conception emphasized in Western frameworks. While Ryff (1989) defines autonomy as independence and resistance to social pressure, autonomy in collectivist cultures is often embedded within social relationships. For Bangladeshi students, autonomy may be better conceptualized as relational agency, the capacity to make meaningful choices while honouring family obligations and social expectations (Christman, 2004).

This interpretation aligns with prior research demonstrating that autonomy and relatedness are not mutually exclusive in many Asian contexts (Klainin-Yobas et al., 2020). Rather than opposing social norms, well-being may arise from successfully navigating them. In this sense, autonomy reflects internal strength and decision-making capacity within a relational framework, supporting psychological well-being without undermining social harmony.

Positive relations as a protective shield

The Positive Relations with Others factor is perhaps the most culturally sensitive. While the Western definition emphasizes "warm, trusting relationships," the Bangladeshi interpretation extends to social harmony and hierarchical respect.

In a society where the suicide rate among students has seen a concerning rise (Shuvo et al., 2024), the ability to maintain strong ties acts as a vital "buffer." However, these relations are often obligatory rather than

voluntary. For our participants, well-being is derived from harmony within the family. As Christopher and Hickinbottom (2008) argue, Western psychology often overlooks that in many cultures, the individual is not the primary unit of well-being; the family is. Thus, the Positive Relations dimension in the Bangla PWBS likely captures the student's success in maintaining their position within their domestic and social hierarchy.

Self-acceptance amidst social comparison

Self-Acceptance remained a robust dimension, though its meaning appears closely tied to social evaluation and moral standing. In cultures where honor, reputation, and family identity are emphasized, self-acceptance may be less about internal self-affirmation and more about perceiving oneself as meeting social and familial expectations (Mosquera, 2022). For Bangladeshi students, accepting oneself may depend on maintaining academic performance, moral conduct, and family reputation. Thus, in the Bangla PWBS, self-acceptance likely captures the student's sense of "virtuous identity", the feeling that they are a "good" son, daughter, or citizen according to traditional norms (Ryff & Singer, 2008).

This socially grounded form of self-acceptance may help explain its strong association with psychological well-being despite structural pressures. Accepting one's limitations and past experiences can function as a form of resilience, particularly in contexts where upward mobility is uncertain and external evaluation is pervasive. As such, self-acceptance in the Bangla PWBS likely reflects a balance between personal appraisal and social validation rather than purely individual self-esteem.

Overall, the present findings suggest that while Ryff's model provides a valuable framework for understanding psychological well-being, its dimensions are not culturally fixed. Instead, they are reorganized and reinterpreted in response to social structure, cultural values, and lived realities, underscoring the importance of culturally sensitive validation when adapting well-being measures across contexts.

IMPLICATIONS, LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

This study has several implications for theory, measurement, and practice in educational and cross-cultural psychology. The five-factor structure of the Bangla PWBS provides partial support for Ryff's multidimensional model while illustrating that the organization of psychological well-being is shaped by cultural and contextual factors. The observed merging and reinterpretation of dimensions suggest that Western models of well-being may not fully capture how well-being is experienced and articulated by university students in collectivistic and resource-constrained contexts (Joshanloo, 2013). These findings support calls for culturally responsive frameworks that conceptualize well-being as socially embedded and relational rather than solely individualistic.

Methodologically, the study demonstrates the importance of combining statistical criteria with theoretical and cultural interpretability when adapting psychological measures (Hernández et al., 2023). The Bangla PWBS offers a contextually appropriate tool for assessing psychological well-being among Bangladeshi university students and may be useful for future research in similar South and Southeast Asian settings.

Practically, the findings suggest that educational institutions should attend to relational support, self-acceptance, and adaptive goal orientation when designing student well-being initiatives. The adapted scale can inform needs assessments and support evidence-based interventions aimed at promoting student well-being within higher education systems across the Asia-Pacific region (King et al., 2016).

Despite the contributions of the present study, several limitations should be acknowledged, which also point toward important directions for future research.

First, the use of a cross-sectional design and a university-student sample limits generalizability. Future research should validate the Bangla PWBS across more diverse populations, including non-student adults, adolescents, and individuals from rural or marginalized backgrounds, to examine whether the observed factor structure remains stable across populations.

Second, the study employed the 18-item short form of the PWBS, which restricts construct coverage and may contribute to dimensional overlap, particularly in cross-cultural contexts. Future studies may benefit from examining longer versions of the PWBS or developing culturally informed items to better capture context-specific aspects of environmental mastery and agency.

Third, the moderate internal consistency observed is consistent with early-stage scale adaptation and shortened multidimensional instruments. Future research should supplement Cronbach's alpha with alternative reliability estimates (e.g., McDonald's ω or test–retest reliability) to provide a more comprehensive evaluation of measurement stability (Hayes & Coutts, 2020).

Fourth, although culturally grounded interpretations were offered to explain dimensional shifts, qualitative methods were not employed. Future studies using cognitive interviews or mixed-methods approaches could directly examine how respondents interpret PWBS items in the Bangladeshi context. Such qualitative inquiries

are essential for uncovering subjective awareness and localized definitions of well-being that standardized scales may overlook (Türen & Kuru, 2023).

Finally, the present study relied on exploratory factor analysis, which is appropriate for initial adaptation but does not allow formal testing of competing models. Subsequent research should employ confirmatory factor analysis and measurement invariance testing to further establish the structural validity of the Bangla PWBS across subgroups.

In sum, the present findings provide an important foundation for culturally responsive measurement of psychological well-being in Bangladesh, while highlighting clear directions for future methodological and theoretical refinement.

CONCLUSIONS

This study translated and validated the Bangla version of the 18-item Psychological Well-Being Scale among Bangladeshi university students. The findings provide partial support for Ryff's model, yielding a culturally coherent five-factor structure comprising Self-Acceptance, Autonomy, Positive Relations with Others, Personal Growth, and Purpose in Life. The exclusion of Environmental Mastery and the overlap between Personal Growth and Purpose in Life highlight how sociocultural context shapes the interpretation of well-being constructs.

Despite moderate internal consistency, the Bangla PWBS demonstrates acceptable reliability and construct validity for exploratory and applied use. Overall, the study underscores the importance of culturally sensitive adaptation in psychological measurement and contributes a contextually relevant tool for assessing student well-being in Bangladesh and comparable Asia-Pacific contexts.

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Ethical statement

Ethical approval was not required for this study, as the institution where the research was conducted does not require Institutional Review Board (IRB) oversight for such survey-based studies. Informed consent was obtained from all participants prior to data collection.

Competing interests

The authors declare no financial or non-financial competing interests.

Author contributions

S.H.A. was responsible for the translation and cultural adaptation of the Psychological Well-Being Scale (PWBS), data collection, statistical analysis, and drafting of the manuscript. S.H. reviewed the translated instrument, contributed to decisions regarding factor retention, and critically revised the manuscript. Both authors read and approved the final manuscript.

Data availability

The data supporting the findings of this study were collected through online (Google Forms) and paper-based surveys administered to university students. Due to confidentiality and privacy considerations, the dataset is not publicly available. De-identified data may be made available upon reasonable request to the corresponding author, subject to ethical considerations and institutional guidelines.

AI disclosure

AI-assisted tools were used at various stages of manuscript preparation to support language clarity and academic writing.

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Appendix

Table 2

Correlation matrix (R-matrix) for PWBS

	SA1	SA2	SA5	PL3	PL7	PL10	EM4	EM8	EM9	PR6	PR13	PR16	PG11	PG12	PG14	AU 15	AU 17	AU 18
SA1	1																	
SA2	.468	1																
SA5	.341	.405	1															
PL3	.320	.262	.134	1														
PL7	-.081	-.084	.038	.042	1													
PL10	.076	.000	.063	.056	.193	1												
EM4	.216	.130	.331	.000	.086	.131	1											
EM8	-.047	.054	-.064	-.005	-.087	.015	-.194	1										
EM9	.384	.368	.248	.394	-.161	-.107	.096	-.084	1									
PR6	.206	.124	.225	.104	-.072	.209	.226	-.070	.226	1								
PR13	.169	.068	.003	.097	-.177	-.117	-.012	.075	.198	.186	1							
PR16	.108	.081	.153	.076	-.052	.122	.172	-.036	.104	.228	.088	1						
PG11	.229	.298	.203	.233	-.159	-.020	-.037	.061	.369	.158	.156	-.004	1					
PG12	.066	.064	-.030	.075	.066	.010	-.177	.105	.071	-.024	.189	-.069	.311	1				
PG14	.085	.123	.219	.180	.247	.247	.142	-.014	.093	.227	-.052	.145	.061	.036	1			
AU15	.202	.211	.274	.124	.065	.107	.211	-.065	.201	.175	-.069	.180	.000	-.059	.121	1		
AU17	.264	.186	.082	.135	.019	-.036	.137	.040	.238	.053	.079	-.033	.123	-.028	.034	.355	1	
AU18	.355	.265	.219	.217	-.088	.064	.003	.092	.196	.017	.042	-.009	.197	.089	.018	.301	.416	1
Determinant = .044																		

Note: SA= Self-Acceptance, PL= Purpose in Life, EM= Environmental Mastery, PR= Positive Relations with Others, PG= Personal Growth, AU= Autonomy

Bangla Version of Ryff's Psychological Well-Being Scale (18 Items)

No.	English Item (Subscale)	বাংলা(Bangla Adaptation)
1	"I like most parts of my personality." (Self-Acceptance)	আমার ব্যক্তিত্বের বেশীরভাগই আমার কাছে পছন্দনীয়।
2	"When I look at the story of my life, I am pleased with how things have turned out so far." (Self-Acceptance)	আমি আমার জীবন নিয়ে সন্তুষ্ট।
3	"Some people wander aimlessly through life, but I am not one of them." (Purpose in Life)	জীবনে উদ্দেশ্যহীনভাবে ঘুরে বেড়ানোর মত মানুষ আমি নই।
4	"The demands of everyday life often get me down." (Environmental Mastery)	যুগের চাহিদার সাথে তাল মিলাতে গিয়ে আমি প্রায়ই হতাশ হই।
5	"In many ways I feel disappointed about my achievements in life." (Self-Acceptance)	প্রায়ই আমি আমার অর্জন নিয়ে হতাশা বোধ করি।
6	"Maintaining close relationships has been difficult and frustrating for me." (Positive Relations)	কাছের মানুষের সাথে গভীর সম্পর্ক বজায় রাখা আমার জন্য ক্লান্তিকর।
7	"I live life one day at a time and don't really think about the future." (Purpose in Life)	আমি জীবনের প্রতিটি মুহূর্তকে উপভোগ করি এবং ভবিষ্যতের কথা তেমন ভাবি না।
8	"In general, I feel I am in charge of the situation in which I live." (Environmental Mastery)	নিজের পরিস্থিতির জন্য সাধারণত আমি নিজেই দায়ী।
9	"I am good at managing the responsibilities of daily life." (Environmental Mastery)	আমি আমার দায়িত্ব বেশ ভালোভাবেই পালন করতে পারি।
10	"I sometimes feel as if I've done all there is to do in life." (Purpose in Life)	মাঝে মাঝে মনে হয় জীবনে যা করার আছে সবই করে ফেলেছি।
11	"For me, life has been a continuous process of learning, changing, and growth." (Personal Growth)	আমার কাছে জীবন মানে শেখা, পরিবর্তন এবং বিকাশের একটি ক্রমাগত প্রক্রিয়া।
12	"I think it is important to have new experiences that challenge how I think about myself and the world." (Personal Growth)	আমার মনে হয় নতুন পরিস্থিতিতে খাপ খাওয়ানোর জন্য নিজেকে পরিবর্তন করা খুব জরুরি।
13	"People would describe me as a giving person, willing to share my time with others." (Positive Relations)	সবাই জানে আমি অন্যদের সময় দেই।
14	"I gave up trying to make big improvements or changes in my life a long time ago" (Personal Growth)	আমি জীবনে বড় কিছু করার আশা করি না।
15	"I tend to be influenced by people with strong opinions" (Autonomy)	আমি অন্যের দ্বারা প্রভাবিত হওয়ার প্রবণতা রাখি।
16	"I have not experienced many warm and trusting relationships with others." (Positive Relations)	আমার খুব বেশি কাছের ও বিশ্বস্ত বন্ধু নেই।
17	"I have confidence in my own opinions, even if they are different from the way most other people think." (Autonomy)	আমি স্রোতের বিপরীতে গিয়ে নিজের মতামত প্রকাশ করতে ভয় পাই না।
18	"I judge myself by what I think is important, not by the values of what others think is important." (Autonomy)	আমি যা গুরুত্বপূর্ণ ভাবি তাই করি, অন্যরা আমাকে নিয়ে কি ভাবছে সেটি গুরুত্বপূর্ণ নয়।