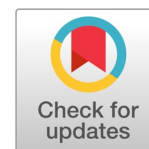


Psychometric evaluation of the Bangla version of Body Image States Scale (B-BISS) for young adults in Bangladesh

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ARTICLE INFO

Received: 20th June, 2025

Revised: 22nd July, 2025

Accepted: 24th July, 2025

Keywords:

body image states
psychometric evaluation
psychological distress
self-compassion
young adults

ABSTRACT

Body image satisfaction is an important psychological construct that influences mental health and well-being, yet culturally adapted and validated tools are limited in Bangladesh. This study aimed to evaluate the psychometric properties of the Bangla Body Image States Scale (B-BISS) for measuring momentary body image states. A total of 579 young adults aged between 19 and 28 years, primarily university students of Bangladesh, were recruited through convenience sampling. Exploratory factor analysis (EFA) supported a unidimensional structure, with a single factor explaining 82.5% of the variance. This structure was further confirmed by confirmatory factor analysis (CFA), which demonstrated excellent model fit (CFI = 0.99, TLI = 0.99, SRMR = 0.03, RMSEA = 0.10). Internal consistency was excellent, with Cronbach's $\alpha = 0.97$ and McDonald's $\omega = 0.97$. Measurement invariance indicated that the scale can be applied in the same way across gender. Additionally, convergent validity was established through significant correlations with related constructs, including psychological distress and self-compassion. B-BISS had positive association with self-compassion ($r = 0.13$, $p < .001$) and negative with psychological distress, including depression ($r = -0.16$, $p < .001$), anxiety ($r = -0.09$, $p < .05$), and stress ($r = -0.12$, $p < .01$). Overall, the B-BISS demonstrated robust psychometric properties, confirming its suitability as a sound measure for assessing body image states among young adults in Bangladesh. Measuring body image states can offer psychologists, psychotherapists, and researchers a better understanding of body image concerns and the targeted interventions to have better momentary body image states in young adults of Bangladesh.

1. Introduction

As individuals grow and develop, their body image becomes a crucial aspect of self-worth, influencing how they perceive themselves as well as how others perceive them in social situations [1]. With its cognitive-emotional, behavioral, and perceptual facets, body image encompasses individuals' thoughts, feelings, and behaviors about their physical appearance [2-4]. Individuals' satisfaction or dissatisfaction about their body image has been conceptualized either from its situational context or from the stable personality traits [2-4]. Previously used measures reflecting body image satisfaction or dissatisfaction were mainly trait-based such as the Body Shape Questionnaire [5, 6], the Male Body Dissatisfaction Scale [7, 8], and the shape and weight concern subscales of the Eating Disorder Examination

Questionnaire (EDE-Q) [9-11]. These measures with their retrospective nature evaluated the body image in a punctual fashion ignoring the assessment of body image with momentary states [12]. However, the growing body of research on body image has highlighted its dynamic nature, indicating that body image is not only a stable trait but also can vary in response to contextual factors such as mood, social interactions, and situational body comparisons [13, 14]. This fluidity shows how important it is to focus on momentary body image states influenced by both internal and external factors like daily stressors, social comparisons, and changing cultural expectations [15, 16]. Therefore, the necessity to measure the momentary body image states in a reliable and valid way lead researchers to develop tools such as the Body Satisfaction Situation Scale (BSSS) [17] Body

Appreciation Scale-2 [18, 19], and the Body Image States Scale (BISS) [2].

Among these scales, the Body Image States Scale (BISS) developed by Cash et al. [2] measures the momentary body image satisfaction with six Likert-type items asking the participant's present moment feelings about their physical appearance, body size and shape, or physical attractiveness. The BISS was designed to measure momentary changes in body image states, focusing on emotional reactions individuals have about their appearance [20]. By capturing the transient aspects of body image, the BISS allows for a nuanced understanding of how individuals feel about their appearances in different situations. This scale has been proved to be an effective and widely used tool in experimental and virtual reality paradigms [21-25] as well as in naturalistic settings [26, 27] to understand the contextual nature of body image [28-30]. In recent years, research on momentary body image states has been shifted from the experimental investigations to cross-sectional validation studies across diverse cultures and populations [31], designing to explore the psychometric properties of BISS without differing situational contexts. A few years before, the BISS was translated in Italian [22], Dutch [32], and German [33] for use in experimental studies since the development of this measure by Cash et al. [2]. Recently, the cross-sectional studies determining the factor structure, reliability, and validity of the six-item BISS have been conducted in Spanish [34] and French [12] cultural contexts with young adult populations. The study findings demonstrated a single factor structure with excellent psychometric properties of the BISS in these contexts.

Considering these aspects, the present study aimed to evaluate the psychometric properties of the Bangla translation of the BISS on a single cross-sectional sample of young adults in Bangladesh. The young adult population in Bangladesh is exposed to both traditional beauty norms and global media portrayals leading to a conflict that affects their body image and psychological well-being [35]. In a society where traditional beauty standards coexist with modern media portrayals, the young population of Bangladesh is exposed to conflicting ideas of what constitutes an "ideal body" [36]. The portrayal of the "ideal body" in popular media exacerbates this issue particularly for young women who often feel pressure to conform to unrealistic standards [2, 37]. In respect of western and Latin American populations, men were found to be more preoccupied with their muscularity and gaining weight [38] whereas, women were more conscious about being thin and toned [39], with higher socioeconomic status's young adult women were more concerned about their body image [40-42]. Therefore, the complex dynamic nature of emerging identities, social relationships, peer pressure, and media exposure play an essential role to have both positive and negative influences on body image states in young adults, influencing their overall psychological well-being [43-48]. Studies have demonstrated that dissatisfaction with one's body can lead to severe psychological issues such as anxiety, depression, and low self-esteem [49-51]. Hence, to validate the Bangla Body Image States Scale (B-BISS), it seems important to address the role of psychological distress on body image states and the protective role of self-compassion to have momentary body image satisfaction in the young adult population of Bangladesh. In line with this, body image has been identified as a potential key factor where satisfaction leads to happiness

and psychological well-being and dissatisfaction exacerbates the symptoms of psychopathology such as depression and anxiety in young adults, especially in women compared to men [52-55]. In such cases, self-compassion as a protective factor keeps young adults away from and buffers against the detrimental effects of appearance comparisons [56]. Moreover, self-compassion embraces perceived imperfections as a part of being human instead of making judgments about one's own physical attractiveness relative to others, ultimately reducing the distress associated with the experience of failing to meet socially prescribed beauty standards [57, 58]. Taken together, the objectives of the present study were: 1) to determine the internal consistency reliabilities of the B-BISS; 2) to explore the factor structure of the B-BISS emerged from exploratory factor analysis and to confirm the factor retention through parallel analysis; 3) to examine the structural validity of the B-BISS using confirmatory factor analysis; 4) to investigate whether the B-BISS can invariably be applied across gender; and 5) to determine the convergent validity of the scale through its relationship with depression, anxiety, stress as well as with the self-compassion of young adults.

2. Materials and methods

2.1. Participants

A total of 579 young adult students were selected from various public and private universities in Bangladesh using the convenience sampling technique. The participants' ages ranged between 19 and 28 years ($M = 23.11$, $SD = 1.79$). Among them, 42.14% were male ($n = 244$) and 57.86% were female ($n = 335$). Most respondents were unmarried ($n = 509$, 87.91%). Regarding living arrangements, 61.66% of the participants resided in university-provided accommodations. In terms of permanent address, 38.69% reported urban residency, while 61.31% reported rural residency. Socioeconomic status distribution showed that 84.46% participants self-reported themselves as middle class, 14.51% as lower class, and 1.04% as upper class.

2.2. Procedure

Following the guidelines of the International Test Commission [59] for adapting psychological instruments, the Body Image States Scale (BISS) [2] was translated into Bangla using the forward-backward translation method. Four bilingual professionals, proficient in both languages and experienced in the development and adaptation of psychological tools, independently translated the original items into Bangla. These translations were then synthesized into a single version through discussion and consensus. To verify the accuracy and cultural appropriateness of the translation, three additional bilingual experts performed back-translations. The back-translations were again synthesized and compared with the original English version to check for conceptual consistency, and no significant discrepancies in items' meanings were identified.

To evaluate the clarity, cultural relevance, and comprehensibility of the Bangla BISS (B-BISS), a pilot testing was conducted with 25 young adults aged 19 to 28 years (13 males, 12 females; $M = 22.31$, $SD = 1.57$). Cognitive interviews were conducted to assess participants' understanding of the items. The feedback confirmed that the items were clear, culturally appropriate, and adequately captured the construct of state-level body image. The study followed the ethical guidelines for human subject research

[60] and its later revisions. Ethical approval was obtained from the Ethical Review Committee–Research and Publication (ERCRP) of the Department of Psychology, University of Rajshahi, Bangladesh [approval code: ERCRP-PSYRU-7(6)25].

The final Bangla version of the BISS, along with other related measures, was digitized and administered via Google Forms. The survey link, which included all relevant study information, was distributed through online platforms such as Facebook, WhatsApp, and email. The first page of the form provided information on the study objectives, confidentiality, voluntary participation, and informed consent. Only participants who provided informed consent were allowed to proceed to the questionnaires. Completing the survey took approximately 20 minutes, after which participants were thanked for their time and cooperation.

2.3. Measures

2.3.1. Bangla Body Image States Scale (B-BISS)

The six-item Body Image States Scale (BISS) [2] was translated into Bangla following the appropriate guidelines and was used to assess individuals' momentary evaluations and feelings about their physical appearance. Each item targets a specific dimension of state body image, such as satisfaction with overall appearance, body size and shape, and weight; feelings of physical attractiveness or unattractiveness; current perceptions of one's appearance compared to usual feelings; and comparisons of one's looks relative to the average person. Responses were recorded on a 9-point Likert-type scale, with half of the items phrased in a positive-to-negative direction and the other half in a negative-to-positive direction. For example, item response options may range from "extremely dissatisfied" (1) to "extremely satisfied" (9), or from "extremely physically unattractive" (1) to "extremely physically attractive" (9). Items 2, 4, and 6 were reverse-scored. A total score was computed by averaging all six items, with higher scores indicating greater momentary satisfaction with one's body image. The BISS has demonstrated solid psychometric properties. In the original validation, internal consistency (Cronbach's α) was reported as .77 for women and .72 for men, with a test-retest reliability (over 2–3 weeks) of $r = .69$ for females and $r = .68$ for males ($p < .001$). In the present sample, the internal consistency of the Bangla Body Image State Scale (B-BISS) was found to be $\alpha = .97$ and $\omega = .97$. Prior research also supported the scale's convergent validity through significant associations with measures of body dissatisfaction and appearance-related concerns.

2.3.2. Depression Anxiety Stress Scale-21 (DASS-21)

The Bangla version of the Depression Anxiety Stress Scale-21 (DASS-21) [61], originally developed by Lovibond and Lovibond [62], is a self-report instrument designed to assess symptoms of depression, anxiety, and stress. Each of the three subscales comprises seven items, with a total of 21 items in the scale. Participants rated their experiences on each statement over the past week using a 4-point Likert scale ranging from 0 (did not apply to me at all) to 3 (applied to me very much or most of the time). Subscale scores were computed by summing up the responses of the seven items and multiplying the total by two, resulting in subscale scores ranging from 0 to 42. The Bangla version has demonstrated robust psychometric properties in prior research [63], with both Classical Test Theory (CTT) and Item Response Theory (IRT) analyses supporting a three-factor correlated model and

strict measurement invariance across gender, with all items demonstrating acceptable discrimination indices. In the present study, the Bangla version of the DASS-21 [61] demonstrated good internal consistency reliability, with values of $\alpha = .84$ and $\omega = .84$ for the depression subscale, $\alpha = .82$ and $\omega = .82$ for the anxiety subscale, and $\alpha = .80$ and $\omega = .81$ for the stress subscale.

2.3.3. Bangla Version of the Self-Compassion Scale-Short Form (SCS-SF)

The Bangla Self-Compassion Scale–Short Form (SCS-SF) [64] is an adapted version of the Self-Compassion Scale–Short Form developed by Raes et al. [65]. This 12-item self-report measure was designed to assess an individual's ability to respond to personal difficulties with kindness and understanding, rather than with self-criticism. Respondents rated each item on a 5-point Likert scale ranging from 1 (almost never) to 5 (almost always). The scale includes six positively framed items (Items 2, 3, 5, 6, 7, and 10) and six negatively framed items (Items 1, 4, 8, 9, 11, and 12), with the latter being reverse-scored. The positive subscale items represent three components of self-compassion: self-kindness (Items 2 and 6), mindfulness (Items 3 and 7), and common humanity (Items 5 and 10). The negative subscale items assess self-judgment (Items 11 and 12), isolation (Items 4 and 8), and over-identification (Items 1 and 9). Higher overall scores indicate greater self-compassion, while lower scores reflect lower levels of self-compassion.

2.4. Data Analyses

Data analyses were conducted using the IBM SPSS (version 26), JASP (0.19.1 version), RStudio (version 2023.12.1.402), and Microsoft Excel 365. The psychometric evaluation of the B-BISS followed the Classical Test Theory (CTT) with advanced psychometric approaches. Normality of the data was evaluated through skewness and kurtosis, with the skewness value less than 2 and the kurtosis value less than 7 were considered acceptable indicators of normality for large sample sizes ($N > 300$) [66]. Within the CTT framework, analyses included mean inter-item correlations (acceptable range: 0.15–0.50) [67], corrected item-total correlations (acceptable ≥ 0.30) [68], internal consistency reliability using Cronbach's alpha and McDonald's omega (acceptable $\geq .70$) [69]. Exploratory factor analysis (EFA), parallel analysis, confirmatory factor analysis (CFA), and multi-group confirmatory factor analysis (MGCFA) were also conducted under the CTT approach. Factor loadings obtained from CFA were used to calculate Average Variance Extraction (AVE; acceptable ≥ 0.50) [70] and the Composite Reliability (CR; acceptable ≥ 0.70) [70].

Prior to EFA, sampling adequacy and data suitability were checked using the determinant value ($> .0001$) [71], the Kaiser-Meyer-Olkin (KMO) value ($> .60$) [72], and Bartlett's test of sphericity ($p < .001$) [72]. Factor retention was based on the eigenvalue criterion (≥ 1.0) [73], and was further supported by parallel analysis [74, 75]. In CFA, model fit was evaluated using multiple indices: the chi-square to degrees of freedom ratio ($\chi^2/df < 5$) [76], the comparative fit index (CFI) and Tucker-Lewis index (TLI) (both ≥ 0.95) [77], the root mean square error of approximation (RMSEA), and standardized root mean square residual (SRMR; ≤ 0.08) [78]. To test measurement invariance across gender, MGCFA was performed. Invariance was supported if changes in CFI ($\Delta CFI \leq 0.010$) and RMSEA ($\Delta RMSEA \leq 0.015$) remained

within recommended limits [79]. Additionally, Pearson's correlation coefficients were used to assess the convergent validity of the B-BISS with related psychological constructs.

3. Result and discussion

Table 1 presents the baseline demographic characteristics of the participants (N = 579), including gender, age, marital status, income, socioeconomic status, and residence.

Table 2 represents the descriptive statistics and item-level analysis of the B-BISS items. Mean scores ranged from 4.83 (SD = 1.89) to 5.35 (SD = 2.24). The skewness (ranging from -0.03 to 0.31) and kurtosis values (ranging from -0.82 to -0.39) were within the acceptable thresholds (<2 for skewness and <7

Table 1. Baseline demographic characteristics of the participants (N = 579)

Variables	N = 579 Mean ± SD, n (%)
Gender	
Male	244 (42.14%)
Female	335 (57.86%)
Age	23.11±1.79
Marital Status	
Unmarried	509 (87.91%)
Married	70 (12.09%)
Family monthly income	34167 BDT
Present socioeconomic status	
Upper class	6 (1.04%)
Middle class	489 (84.46%)
Lower class	84 (14.51%)
Present address	
Hall	357 (61.66%)
Mess	114 (19.68%)
House	108 (18.66%)

Table 2. Descriptive statistics and item-level psychometric properties of the B-BISS

Items	M	SD	Skewness	Kurtosis	CITC
B-BISS 1	5.35	2.24	0.08	-0.80	0.91
B-BISS 2	4.83	2.15	0.31	-0.82	0.89
B-BISS 3	5.22	2.14	0.12	-0.73	0.89
B-BISS 4	4.83	1.89	0.16	-0.82	0.86
B-BISS 5	5.13	1.84	0.06	-0.39	0.89
B-BISS 6	5.06	1.89	-0.03	-0.60	0.88

Table 3. Scale-level psychometric properties of the B-BISS

Properties	Scores	Suggested cutoffs
Omega (ω)	0.97	≥ 0.70
Alpha (α)	0.97	≥ 0.70
CR	0.97	≥ 0.70
AVE	0.86	≥ 0.50

for kurtosis [66], suggesting that the data were normally distributed. The corrected item-total correlations ranged from 0.88 (item 6) to 0.91 (item 1), demonstrating strong consistency of each item with the overall scale. The mean item-total correlation was 0.82, further supporting the internal consistency of the items. As shown in Table 3, the B-BISS demonstrated excellent internal consistency reliability. Both McDonald's ω and Cronbach's α were .97, indicating a

high level of internal consistency. Additionally, the Composite Reliability (CR) was 0.97, and the AVE value was 0.86, both exceeding recommended thresholds and supporting the scale's reliability and validity, respectively.

To assess the factor structure of the B-BISS, an exploratory factor analysis (EFA) was conducted. The determinant value was acceptable, the Kaiser–Meyer–Olkin (KMO) measure was 0.93, and Bartlett's test of sphericity was significant ($\chi^2 = 4166.25$, $p < .001$), indicating that the data were suitable for factor analysis. EFA using GeominQ oblique rotation revealed a unidimensional structure, with single factor having an eigenvalue of 5.12 and accounting for 82.5% of the total variance. To confirm factor retention, parallel analysis (PA) was conducted, showing that the actual data eigenvalue exceeded the simulated mean eigenvalue, supporting the

Table 4. Model fit indices of B-BISS using confirmatory factor analysis.

Fit indices	Values	Suggested cut offs
χ^2/df	7.20	< 5
CFI	0.99	≥ 0.95
TLI	0.99	≥ 0.95
RMSEA	0.10	≤ 0.08
SRMR	0.03	≤ 0.08

Table 5. Factor loadings of the B-BISS items.

Items	Factor Loadings	
	EFA	CFA
B-BISS 1	0.94	0.95
B-BISS 2	0.91	0.92
B-BISS 3	0.91	0.94
B-BISS 4	0.90	0.91
B-BISS 5	0.90	0.93
B-BISS 6	0.88	0.93

retention of a single-factor model. Furthermore, visual inspection of the scree plot (Figure 1a) confirmed the

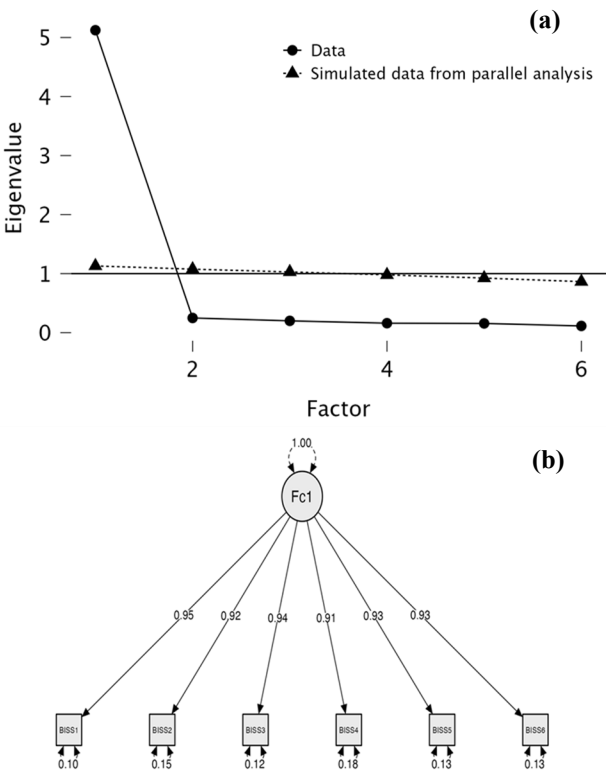


Figure 1. (a) Scree plot illustrating parallel analysis for B-BISS items; (b) Confirmatory factor analysis model of the B-BISS.

retention of single factor. To validate this structure, confirmatory factor analysis (CFA) was conducted on the six-item B-BISS. As presented in Table 4, the CFA model demonstrated a good fit to the data. The χ^2/df ratio was 7.20 (values below 5 are preferred), and fit indices including CFI = 0.99, TLI = 0.99, and SRMR = 0.03 were all within recommended thresholds. Although the RMSEA was 0.10, slightly exceeding the conventional cutoff, the overall fit indices indicated an adequate model fit and supported the unidimensionality of the B-BISS.

Table 5 presents the factor loadings of the B-BISS items

Table 6. Measurement invariances of the B-BISS across gender

	Model fit			Model comparison				
	χ^2	<i>df</i>	<i>p</i>	<i>CFI</i>	<i>TLI</i>	<i>RMSEA</i>	<i>ACFI</i>	<i>ARMSEA</i>
Gender (Male/Female)								
Configural	69.67	18		0.997	0.995	0.100		
Metric	76.43	23	< 0.001	0.997	0.996	0.090	0.000	0.010

from both the exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). All items showed strong loadings on a

Table 7. Correlations of B-BISS with Bangla SCS-SF and DASS-21 subscales

B-BISS	Coefficients	95% CI
Bangla SCS-SF	$r = 0.13^{***}$	[0.21, 0.05]
DASS-21: Depression	$r = -0.16^{***}$	[-0.08, -0.24]
DASS-21: Anxiety	$r = -0.09^*$	[-0.004, -0.17]
DASS-21: Stress	$r = -0.12^{**}$	[-0.04, -0.20]

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

single factor in both analyses, indicating consistent and robust factor structure. The loadings ranged from 0.88 to 0.93 in the

EFA and from 0.90 to 0.95 in the CFA (Figure 1b).

Next to CFA, a multi-group confirmatory factor analysis was performed to test the invariability of the BISS across gender. The values of ΔCFI and $\Delta RMSEA$ represented in Table 6 fall within the recommended ranges, indicating that the B-BISS can invariably be applied across gender.

To assess the convergent validity of the B-BISS, its correlations with self-compassion (SCS-SF) and psychological distress, as measured by the Depression Anxiety Stress Scales (DASS), were examined. The B-BISS total showed a significant positive association with self-compassion ($r = 0.13$, $p < .001$, 95% CI [0.05, 0.21]; Table 7), indicating that individuals with greater satisfaction in their body image tend to report higher levels of self-kindness and emotional resilience. In contrast, significant negative correlations were observed between the BISS and the three DASS subscales, suggesting that higher body image satisfaction is associated with lower levels of psychological distress. Specifically, as shown in Table 7, B-BISS scores were negatively associated with depression ($r = -0.16$, $p < .001$, 95% CI [-0.24, -0.08]), anxiety ($r = -0.09$, $p < .05$, 95% CI [-0.17, -0.004]), and stress ($r = -0.12$, $p < .01$, 95% CI [-0.20, -0.04]). These findings support the convergent validity of the B-BISS, as it is meaningfully linked to greater self-compassion and reduced psychological distress.

4. Discussion

The aim of the study was to evaluate the psychometric properties of the Bangla version of the Body Image States Scale (B-BISS) among young adults in Bangladesh. Body image is a crucial aspect of psychological well-being and has been widely studied for its associations with mental health indicators [49, 50]. In Bangladesh, traditional beauty standards—especially the preference for fair skin and a slender body shape among women—continue to strongly influence societal ideals of appearance. Simultaneously, increasing exposure to social media and global media

promotes Western standards of beauty, including Eurocentric features for women and muscularity for men, intensifying body image pressures [80, 81]. The tension between these enduring cultural norms and emerging global standards has been associated with negative effects, including increased body dissatisfaction, self-objectification, and engagement in harmful behaviors like extreme dieting, particularly among young women [82, 83]. These challenges are particularly pronounced in young adults, who are navigating cultural expectations and are especially sensitive to appearance-related judgments. While body image research has been well established in Western contexts, studies in non-Western and South Asian cultures remain limited [84]. Despite growing concern over body image issues in Bangladesh, there is a notable lack of validated tools for assessing momentary (state-level) body image satisfaction. The present study addresses this gap by validating the Body Image States Scale (BISS) for use in Bangladeshi young adults.

The findings of the study indicate that the Bangla version of the Body Image States Scale (B-BISS) possesses strong psychometric properties, demonstrating excellent internal consistency reliability. These results align with the studies in Western contexts—such as the Spanish and French validations of the BISS—which also reported strong reliability based on Cronbach's alpha and McDonald's omega [12, 85]. Additionally, item-level psychometric indicators including mean inter-item correlations, corrected item-total correlations, composite reliability, and the average variance extraction (AVE) met the recommended thresholds [67, 68, 70]. Exploratory factor analysis (EFA) revealed a unidimensional structure for the B-BISS, with factor retention supported by parallel analysis. This structure was further confirmed through confirmatory factor analysis (CFA), which validated the appropriateness of a single-factor model. This finding is consistent with earlier validations of the BISS in French, Colombian, and Spanish populations [12, 34, 85]. Although the CFA indicated a good model fit, the RMSEA value slightly exceeded the conventional threshold of 0.08; however, such inflation is commonly observed in models with low degrees of freedom [86]. Despite this, the overall model fit remains acceptable, supporting the B-BISS as a valid instrument for measuring momentary body image states of young adults in Bangladesh. Additionally, the study assessed the gender invariability of the B-BISS using multi-group confirmatory factor analysis (MGCFA), demonstrating

measurement invariance across gender. This finding indicates that the scale functions in the same way for both male and female participants. These results are consistent with the Spanish validation of the BISS [85], supporting the gender invariance. However, our findings differ from the Colombian validation [34], where the assumption of measurement invariance across gender was not supported, highlighting the potential influence of cultural context on the scale's structural stability.

The findings of the present study support the convergent validity of the Bangla Body Image State Scale (B-BISS), showing its significant positive association with self-compassion and negative association with psychological distress. These results align with previous research exhibiting that body image concerns are closely linked to psychological difficulties. For example, research [50] found that individuals with greater body image dissatisfaction experienced higher levels of social anxiety and psychological distress. Similarly, Paans et al. [87] reported that depression is associated with greater body dissatisfaction and distorted body size perception, further highlighting the emotional toll of negative body image. Moreover, self-compassion appears to play a protective role in this dynamic. Studies have shown that individuals with higher levels of self-compassion reported less body shame, appearance comparison, and internalization of unrealistic beauty ideals [56, 88]. This suggests that self-compassion may reduce vulnerability to body image-related distress, a finding reflected in the current study through the positive relationship between body image satisfaction and self-compassion. Together, these findings establish the B-BISS as a valid tool for assessing body image states of young adults in the socio-cultural context of Bangladesh.

4.1. Limitations and future research

The study has several limitations. Firstly, the data were collected using a convenience sampling method, which may limit the generalizability of the findings to a broader population. The sample consisted primarily of young adults, excluding a wider age range—particularly elderly people—who also experience body image concerns, though in different ways [89, 90]. Future research should employ more diverse sampling strategies, including participants from various age groups and socioeconomic backgrounds, to enhance the representativeness of the results. Additionally, the potential influence of social desirability bias cannot be overlooked, as participants may have responded in ways they perceived as socially acceptable—particularly in relation to sensitive topics such as body image—rather than accurately reflecting their momentary, state-level experiences. The study also did not examine cultural factors such as media influence, peer pressure, and prevailing beauty standards [86, 91-93], particularly salient in Bangladesh, where global and local ideals often conflict. These cultural variables serve as potential moderators, influencing how individuals experience and report body image at the state level, and thus may impact the scale's validity and applicability. Future research should explore these moderating effects to ensure cultural sensitivity and contextual relevance. Despite these limitations, the B-BISS appears appropriate and psychometrically robust for measuring body image states in young adults of Bangladesh.

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Funding

No financial support was received for conducting this study.

Acknowledgement

We would like to thank the study participants for their valuable responses. We also extend our sincere gratitude to the research assistants for their roles in data collection and contribution to the data coding

Ethical Approval:

The ethical approval of the present study was taken from the Ethical Review Committee-Research and Publication (ERCRP), Department of Psychology, University of Rajshahi, Rajshahi-6205, Bangladesh [approval code: ERCRP-PSYRU-7(6)25].

Consent of Participate:

Informed consent was obtained from all participants included in the study.

Consent to Publish:

All the authors are aware of the submission made. All the authors have shared their consent to publish this submitted work.

Author Contributions

Shakira Khatun: Material Preparation, statistical analyses, writing-contributions in preparing original and subsequent drafts, reviewing, and editing; Nasim Rana Masud: Material Preparation, statistical analyses, writing-contributions in preparing original draft; Mohd. Ashik Shahrier: Conceptualization, methodology, material preparation, statistical analyses, writing-original draft preparation, subsequent drafts, reviewing, and editing.