

## Research Paper

## Psychometric Properties of Body Image Psychological Inflexibility Scale

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**ABSTRACT****Objectives** The aim of present study was to examine the psychometric properties of the Iranian version of the Body Image Psychological Inflexibility Scale (BIPIS) in students of both genders.**Methods** The study sample consisted of Bu-Ali-Sina University students enrolled during the academic year 2016. A total of 329 students were selected based on multistage cluster sampling. To study the psychometric characteristics of the BIPIS, it was first translated with the help of the double-translation technique and then administered along with the Body Dysmorphic Meta-Cognitive Questionnaire and Body Image-Acceptance and Action questionnaire. The collected data was analyzed, and thereafter, its reliability, validity and confirmatory factor analysis were calculated.**Results** Analysis of the collected data showed that the scale has a reliability of 0.90 to 0.93 alpha coefficients in general and both genders. In addition, the concurrent validity of both genders with the sub-scales of Body Dysmorphic Meta-Cognitive Questionnaire and Body Image-Acceptance and Action Questionnaire was 0.71, 0.62, 0.75, 0.69 and -0.58 for Meta-Cognitive strategies, thought- action fusion, Meta-Cognitive negative and positive beliefs, safety behaviors, and body image-acceptance and action questionnaire respectively. Which in the  $P < 0.01$  level was significant. Moreover, the results of the confirmatory factor analysis supported the factor structure of the questionnaire.**Conclusion** The BIPIS favors psychometric properties among Iranian students.**Key words:**

Psychological inflexibility, Body image, Body dysmorphic, Factor analysis

**Extended Abstract****1. Introduction**

**P**ychological flexibility includes the ability of the individual to fully experience thoughts and feelings without resistance [13, 14]. Body image inflexibility occurs when people are reluctant to experience thoughts, emotions and physical feelings associated with body image and attempt to change the shape or the occurrence of these experiences [15]. Body image inflexibility also represents a set of behaviors characterized

by the avoidance of painful and traumatic experiences that damage personal values [13, 14]. To the best of my knowledge, no study in Iran evaluates the psychometric properties and factor structure of Body Image Psychological Inflexibility Scale (BIPIS) [18]. This study, therefore, examines the validity, reliability and factor structure of BIPIS with Iranian students as the sample population.

**2. Method**

This research used descriptive-psychometric methods. The study sample comprised students of Bu-Ali-Sina University enrolled in the academic year 2016. A total of

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329 students were selected based on a multistage cluster sampling. To evaluate the psychometric properties of the scale, Body image inflexibility Scale was first translated with the help of the reverse translation technique and then administered along with the Body Dysmorphic Meta-Cognitive Questionnaire and Image Acceptance and Action Questionnaire. The collected data were analyzed using the SPSS software (ver. 22) and LISREL-8.8. Statistical methods such as Cronbach's alpha, criterion validity, correlation, exploratory and confirmatory factor analysis were put to use.

### 3. Results

Descriptive and demographic characteristics of the participants are presented in Table 1. Reliability: To investigate the stability of BIPIS, Cronbach's alpha coefficients, Split-Half and test-retest coefficients were calculated. Cronbach's alpha coefficient of the 16-Questions scale was 0.92, which indicated that the scale has good internal consistency.

The results of Cronbach's alpha coefficient, Stock split up and retest are presented in Table 2. The results in Table 2 show that Cronbach's alpha coefficient was satisfactory, and the data pertaining to retest reliability and Split-Half coefficients were also significant.

Validity: Correlation coefficients for BIPIS and sub-scales of Meta-Cognitive physical deformities scale were 0.71 for Meta-Cognitive control strategies, 0.62 for objectification of thoughts, 0.75 for positive and negative Meta-Cognitive beliefs, 0.69 for safety behav-

iors and -0.58 for Body Image Psychological Flexibility Questionnaire which significant in  $P < 0.01$ .

The pattern of correlation coefficients of sub-scales, physical deformities Meta-Cognition Scale [26] and body image flexibility questionnaire [15] represented criterion validity as well as favorable divergence validity of the Persian version of BIPIS [18]. Factor Analysis: The value obtained for Kaiser-Meyer-Olkin Measure of Sampling Adequacy was equal to 0.79 and Bartlett's test of sphericity ( $\text{Chi-Square} = 478.38$ )<sup>3</sup> showed that factor analysis is possible. The results of the factors slope graph (scree plot) in Figure 1 and analysis of principal components showed the presence of a component with values greater than 1, which explained 64.69 percent of the variance.

### 4. Discussion and Conclusion

The reliability analysis in this study showed a good stability of BIPIS. The scale alpha coefficients range among both sexes was  $\alpha > 0.90$ . The value of Cronbach's alpha coefficients was similar to the results of the original study of BIPIS conducted by Callaghan et al [18]. But in the present study, alpha for all sub-scales was higher than 0.90. Therefore, the findings of reliability measurement of the present study are in line with the original version. The result of retest coefficients in the present study was 0.62, which was statistically significant ( $P < 0.01$ ) and also showed good reliability over time. The test-retest coefficients obtained was consistent with the study carried out by Callaghan et al. [18]. This indicator reflects the stability of the questionnaire over time.

The results of validity confirmation for BIPIS showed that its scale correlation coefficients are significant with all four

Table 1. Descriptive and demographic characteristics of participants

Group	Number	Percentage	Age		Marital Status	
			Mean	SD	Male Frequency (%)	Female Frequency (%)
Girl	167	50.7	19.67	(1.64)	133(79.6%)	34(20.4%)
Boy	162	49.3	20.84	(1.54)	151(93.2%)	11(6.8%)
Total	329		18.74	(2.84)	284(86.4%)	45(13.6%)

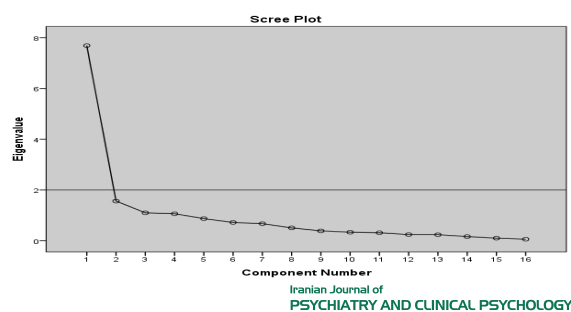
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Table 2. The mean, standard deviation, Alpha coefficients and retest of Body Image Psychological Inflexibility Scale

Sub-Scale	Material	Mean/ SD	Alpha Coefficient			Retest Coefficient (N)	Split Up Coefficient
BIPIS	16-1	56.3(12.2)	0.93	0.90	0.92	0.62**	0.87**

\*\* :  $P < 0.01$

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**Figure 1.** The slope of the graph (scree plot)

sub-scales of Meta-Cognitive control strategies, objectification of the thoughts, positive and negative Meta-Cognitive beliefs, and safety behaviors ( $P < 0.01$ ). In particular, all correlation coefficients between BIPIS and Meta-Cognition of physical deformities can theoretically confirm that BIPIS is a good self-reporting tool for measuring body image psychological inflexibility. The significance of this relationship suggests desirable relations between components. The results of correlation coefficients between sub-scales of BIPIS with Body Image Psychological Inflexibility Questionnaire [15] showed that there was a negative correlation between these two measures, which represented the desirable validity of BIPIS.

Assessment of reliability, validity and confirmatory factor analysis showed that BIPIS possessed adequate psychometric properties; the findings of this study also showed consistency with that of the original study [18]. The Persian version of BIPIS showed that it is a valid tool for assessing the psychological dimensions regarding body image. The calculated indices to evaluate the fitting of the BIPIS model showed Standardized Root Mean Square Residual (SRMR), Root Mean Square Error of Approximation (RMSEA), ( $\chi^2/\text{degree free}$ ) indicators as the most prestigious fitness indicators [33-37] supporting a good fitness model. This finding is in line with the results of the original scale of BIPIS [18]. In general, the desirable psychometric properties of BIPIS have a wide range of uses, ranging from the measurement of various psychological dimensions of physical resources to utilization at the management levels.

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## Conflict of Interest

The authors declared no conflicts of interest.