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Cross-Cultural Adaptation of the Physical Appearance Comparison Scale-Revised in Iran

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Quantitative Study

Abstract

Background: The comparison of physical appearance may play an important role in many body-related variables. The Physical Appearance Comparison Scale-Revised (PACS-R) is a recently developed instrument for measurement of physical appearance comparisons in a number of contexts. The aim of the present study was to validate the Persian version of this scale.

Methods: The scale was administered following a standard back-translation procedure. The sample consisted of 206 female university students. The Body Appreciation Scale (BAS), Life Orientation Test (LOT), Interest in Aesthetic Rhinoplasty Scale (IARS), and Body Mass Index (BMI) were used for assessment of concurrent validity. The factor structure of the scale was investigated using exploratory factor analysis (EFA). Analysis of variance (ANOVA), bivariate correlation coefficients, and one-sample t-test were used in SPSS software for statistical analysis. Effect sizes were also computed in comparisons between the Iranian sample and the American sample on which the scale was developed. Moreover, the reliability of the scale was evaluated using Cronbach's alpha.

Results: All items had adequate psychometric qualities in item analysis. The instrument was internally consistent (alpha = 0.97) and one-dimensional. It was positively correlated with BMI and interest in aesthetic rhinoplasty. Furthermore, PACS-R was inversely associated with optimism and body appreciation. Cross-cultural comparisons suggested that Iranian female participants had lower scores in physical appearance comparison.

Conclusion: The Persian version of the PACS-R is a reliable and valid psychometric scale and may be used in clinical and research settings.

Keywords: Psychometrics, Validity and reliability, Body image, Test adaptation, Physical appearance

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Introduction

A well-established theoretical ground for clear understanding of how people evaluate and appraise themselves is Festinger's social comparison theory (Festinger, 1954). Social comparison theory posits that people generally possess an innate drive to evaluate their attitudes, opinions, and abilities. Broadly, individuals tend to perform self-evaluation based on objective sets of standards; however, the theory suggests that when such information is not present, people do so based on drawing comparisons with similar others. The social comparison theory has been shown to be an

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effective theory for the better understanding of individuals' way of gaining self-knowledge in a large number of aspects. This strength has led some researchers to conclude that social comparison may be one of the most important processes in acquiring self-knowledge (Wood, 1989; Buunk, & Gibbons, 2007).

Historically, the theory solely addressed comparisons of opinions and abilities. Yet, it has recently been generalized to incorporate personal attributes such as physical appearance (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999; Schachter, 1959; Strahan, Wilson, Cressman, & Buote, 2006; Myers, & Crowther, 2009; Bailey, & Ricciardelli, 2010). Several studies have shown significant relations between men's tendency to engage in appearance comparisons and self-esteem, anxiety, drive for muscularity, sexual satisfaction, obligatory exercise, and body dysmorphic disorder (BDD) symptoms (Boroughs, Krawczyk, & Thompson, 2010; Cash, & Smolak, 2012; Smolak, & Stein, 2006; McCreary, & Saucier, 2009; Davison, & McCabe, 2005). This may result in eating pathology (Stice, 2002; Van den Berg, Thompson, Obremski-Brandon, & Coovert, 2002; Pinkasavage, Arigo, & Schumacher, 2015; Brechan, & Kvalem, 2015; Fardouly, Diedrichs, Vartanian, & Halliwell, 2015a; Dakanalis et al. 2015), demanding cosmetic surgeries (Sarwer, Wadden, Pertschuk, & Whitaker, 1998; Frederick, Lever, & Peplau, 2007), self-objectification (Fardouly, Diedrichs, Vartanian, & Halliwell, 2015b), depression (Nesi, & Prinstein, 2015), and etc. Moreover, findings indicate that men engage in appearance-related comparisons to a lesser degree compared to their female counterparts (Davison, & McCabe, 2006; Jones, Vigfusdottir, & Lee, 2004). Gender moderates this relationship, with women showing a stronger relationship between appearance comparison and body dissatisfaction in comparison with men. The research literature proposes the existence of the detrimental role of physical comparison in men's and women's mental health and body-related variables.

Thus far, several psychometric scales have been developed in order to measure individuals' interest in engaging in appearance comparisons; however, each of these instruments has demonstrated at least a few limitations. The Body Comparison Scale (BCS) (Thompson, Coovert, & Stormer, 1999) is a 25-item instrument which measures the desire for comparing one's specific body parts. Nevertheless, this scale is limited in addressing a direct comparison of one's weight or adiposity. This is a shortcoming of this psychometric instrument, considering that weight and thinness are two important facets of appearance which are crucial to body image (Dunn, Lewis, & Patrick, 2010; Striegel-Moore, & Franko, 2002). Moreover, the context of the comparison is also unclear in this scale. Another set of scales were developed in order to measure the tendency for engaging in downward and upward comparisons (O'Brien et al., 2009). These scales are limited in that they cannot assess lateral comparisons. The Body, Eating, and Exercise Comparison Orientation Measure (BEECOM) is also limited in its use among female participants (Fitzsimmons-Craft, Bardone-Cone, & Harney, 2012).

The Physical Appearance Comparison Scale (PACS) is probably the most widely used instrument for measuring appearance comparison; however, it has sometimes suffered from psychometric insufficiency (Davison, & McCabe, 2005; Keery, van den Berg, & Thompson, 2004). In addition to psychometric issues, the scale was recently found to have important theoretical issues. More recent research has shown that body image concerns differ between men and women (Thompson, & Cafri, 2007; Ahern, & Hetherington, 2006). Comparisons of shape and weight were not incorporated into the PACS which may be considered as another limitation in view of the aforementioned gender differences. The PACS may be considered as limited as it only addresses comparisons which occur in "social situations" or at "parties or social

events". This limited range of contexts precludes a psychometrically sound assessment of appearance comparisons which may take place during a typical day (Leahey, Crowther, & Mickelson, 2007).

A recent study revised the PACS as a widely utilized psychometric scale of appearance comparison in order to address a number of limitations in the original version of PACS (Schaefer, & Thompson, 2014). Thus, the Physical Appearance Comparison Scale-Revised (PACS-R) was development and validated. In this revised version, the psychometric characteristics of the instrument were specifically improved to examine different facets of appearance that might be the basis of comparison for genders, and to practically include a broad range of contexts for appearance-related comparisons. The PACS-R is a valid and reliable measure of appearance comparisons and may be used in clinical and research settings.

The current study aimed to investigate the psychometric properties of the Persian version of the PACS-R in Iran. The availability of a valid and reliable Persian version of the PACS-R would provide Iranian researchers and clinicians with a recently developed measure of physical appearance comparisons. It would also improve the possibility of using the PACS-R in cross-cultural studies. Moreover, there has been a rise in the number of studies on body image and related topics such as cosmetic surgery in Iran (e.g. Alipour, Farhangi, Dehghan, & Alipour, 2015; Bagheri, & Mazaheri, 2015; Shahidi, & Jannesari, 2015; Donyavi, Rabiei, Nikfarjam, & Nezhady, 2015; Khazir, Dehdari, & Mahmoodi, 2014; Naragh,i & Atari, 2015a; Zojaji, Arshadi, Keshavarz, Farsibaf, Golzari, & Khorashadizadeh, 2014; Naraghi & Atari, 2015b; Mohammadshahi, Pourreza, Orojlo, Mahmoodi, & Akbari, 2014). Additionally, replicating research findings across different cultures and countries requires the utilization of psychometric instruments for which satisfactory psychometric characteristics have been showed.

Methods

Since the scale developers (Schaefer, & Thompson, 2014) used an all-female sample, the same was done in this study and a sample of 206 female students was recruited from the University of Tehran in the capital of Iran. Tehran may be considered as the cultural, economic, and political center of Iran. Participants ranged in age from 18 to 50 years (mean ± SD = 25.2 ± 3.7) and in BMI from 15.78 to 33.20 (mean ± SD = 21.7 ± 2.9).

PACS-R. An 11-item revised version of the PACS (Schaefer, & Thompson, 2014) was used in this study. The questions were scored based on a 5-point Likert scale ranging from "never" to "always". This one-dimensional scale measures the frequency of an individual's comparison of his/her physical appearance with others in different places. For the purposes of the current study, the PACS-R was translated into Persian, the official language of Iran, using the standard back-translation procedure. Two professional translators initially translated the PACS-R into Persian and a third translator then translated all items back into English. The differences between translation and back-translation were settled by authors.

BAS. Participants completed the Body Appreciation Scale (BAS) (Avalos, Tylka, & Wood-Barcalow, 2005), a 13-item measure of positive body image. Items were rated on a 5-point Likert scale ranging from never to always (1 = never, 5 = always). A recent study examined the factor structure and psychometric properties of the Persian version of the BAS and concluded that only 10 items of the scale had psychometric adequacy in Iranian context (Atari, Akbari-Zardkhaneh, Mohammadi, & Soufiabadi, 2015). The 10-item version of this scale was used in this study. The alpha coefficient of the 10-item BAS was 0.92 in this study.

LOT. The Life Orientation Test (LOT) was developed (Carver, Scheier, & Weintraub, 1989) in order to measure individual differences in generalized optimism versus pessimism. The

LOT is an 8-item test; 4 items are positively worded and 4 others are negatively worded. Response options are provided based on a 4-point Likert scale ranging from 1 to 4. Adequate psychometric properties of the LOT have been reported in Iranian samples (Hasanshahi, 2002). Internal consistency coefficient of the scale was 0.61 in the present study.

IARS. The Interest in Aesthetic Rhinoplasty Scale (IARS) is an 8-item scale developed by Naraghi and Atari (2015c) to measure interest in aesthetic rhinoplasty as the most popular cosmetic surgery in Iran (Lenehan, 2011; Motakef, Motakef, Chung, Ingargiola, & Rodriguez-Feliz, 2014). Response options were provided based on a 4-point Likert scale ranging from "completely disagree" to "completely agree". The IARS showed high internal consistency in the current study ($\alpha = 0.92$).

Demographics. Participants self-reported their demographic details consisting of age, sex, weight, height, and television viewing hours per day. Weight and height were used to calculate the participants' BMI. Moreover, TV viewing hours was considered a measure of media consumption.

Participants were selected using an accidental sampling method from the university's public locations such as library, dining hall, dormitory, conference room, and classrooms. Verbal informed consent was obtained from each participant, and then, a paper-and-pencil survey was administered. Surveys were treated anonymously, and respondents were debriefed on the study once they had provided their answers. No remuneration was given to the participants.

In order to examine the factor structure of the Persian version of the PACS-R, a principal-axis exploratory factor analysis (EFA) with quartimax rotation was performed as only one factor was expected (Pedhazur, & Schmelkin, 1991) based on the theoretical background of the instrument (Schaefer, & Thompson, 2014). The number of factors to be extracted in EFA was determined by factor eigenvalues above 1.0 (EGV1 procedure) and also based on the scree plot (Cattell, 1966). To examine between-group differences in factor scores, analysis of variance (ANOVA) and independent t-test were used. Furthermore, bivariate correlations between PACS-R and related scales were computed for concurrent validity assessment.

Results

Item analysis

Prior to EFA, an item analysis was conducted. Different indices of each item are presented in table 1.

Factor structure

The Kaiser-Meyer-Olkin measure of sampling adequacy was 0.953. Moreover, Bartlett's statistical test was significant ($P < 0.001$). Therefore, the data matrix was factorable. Scree plot suggested the extraction of one factor with an eigenvalue of 7.905 accounting for 71.86% of the total variance. Loadings ranged between 0.728 (item 11) and 0.907 (item 8).

Concurrent validity

The Pearson correlation coefficients between PACS-R and related instruments were calculated to evaluate the concurrent validity of the Persian version of the PACS-R. Results are presented in table 2.

Cross-cultural differences

Every item of the scale was compared with the same item in the study which developed the PACS-R in the United States (Schaefer, & Thompson, 2014). Comparisons are summarized in table 3. Since both studies used all-female samples, gender differences did not affect the comparisons.

Reliability

The internal consistency of the scale was assessed using Cronbach's alpha coefficient. The Cronbach's alpha of the scale was 0.97.

Table 1. Descriptive statistics and corrected item-total correlations for Physical Appearance Comparison Scale-Revised (PACS-R) items

Item no.	Item	Mean ± SD	Range	Skewness SE	Kurtosis SE	Corrected ITC	Alpha if item deleted
1	When I am out in public, I compare my physical appearance to the appearance of others.	1.72 ± 1.029	0-4	0.169	0.337	0.716	0.965
2	When I meet a new person (same sex), I compare my body size to his/her body size.	1.44 ± 1.119	0-4	0.169	0.337	0.848	0.961
3	When I am at work or school, I compare my body shape to the body shape of others.	1.36 ± 1.121	0-4	0.169	0.337	0.882	0.959
4	When I am out in public, I compare my body fat to the body fat of others.	1.08 ± 1.117	0-4	0.170	0.338	0.865	0.960
5	When I am shopping for clothes, I compare my weight to the weight of others.	1.31 ± 1.237	0-4	0.170	0.338	0.825	0.961
6	When I'm at a party, I compare my body shape to the body shape of others.	1.78 ± 1.121	0-4	0.169	0.337	0.862	0.960
7	When I am with a group of friends, I compare my weight to the weight of others.	1.52 ± 1.112	0-4	0.169	0.337	0.851	0.960
8	When I am out in public, I compare my body size to the body size of others.	1.32 ± 1.145	0-4	0.169	0.337	0.888	0.959
9	When I am with a group of friends, I compare my body size to the body size of others.	1.52 ± 1.112	0-4	0.169	0.337	0.876	0.960
10	When I am eating in a restaurant, I compare my body fat to the body fat of others.	0.94 ± 1.067	0-4	0.170	0.339	0.795	0.962
11	When I am at the gym, I compare my physical appearance to the appearance of others.	2.10 ± 1.234	0-4	0.169	0.337	0.715	0.965

SD**:** Standard deviation; SE: Standard error; ITC: Item total correlation

Table 2. Pearson correlations for study variables

	PACS-R	Optimism	BAS	IARS	BMI	TV
PACS-R	1					
Optimism	-0.234**	1				
BAS	-0.456**	0.358**	1			
IARS	0.368**	-0.057	-0.175*	1		
BMI	0.279**	-0.028	-0.330**	-0.024	1	
TV	0.057	0.033	-0.063	-0.013	-0.019	1
Age	-0.060	0.093	0.073	-0.079	0.243**	0.094

PACS-R: Physical Appearance Comparison Scale-Revised; BAS: Body Appreciation Scale; IARS: Interest in Aesthetic Rhinoplasty Scale; BMI: Body mass index

* P < 0.05; ** P < 0.01

Table 3. Comparison of items' means between Iranian and American samples

Item no.	American (mean ± SD)	Iranian (mean ± SD)	One-sample t-test	Effect size
1	2.45 ± 1.08	1.72 ± 1.03	10.13*	0.71
2	2.30 ± 1.14	1.44 ± 1.12	11.01*	0.77
3	2.32 ± 1.12	1.36 ± 1.12	12.31*	0.86
4	2.16 ± 1.18	1.08 ± 1.12	13.86*	0.96
5	2.13 ± 1.24	1.31 ± 1.24	9.46*	0.66
6	2.33 ± 1.19	1.78 ± 1.12	7.08*	0.49
7	2.22 ± 1.18	1.52 ± 1.11	8.98*	0.63
8	2.21 ± 1.15	1.32 ± 1.15	11.15*	0.77
9	2.22 ± 1.17	1.52 ± 1.11	8.98*	0.63
10	1.86 ± 1.26	0.94 ± 1.08	12.29*	0.85
11	2.40 ± 1.20	2.10 ± 1.23	3.52*	0.24
Total	2.24 ± 1.03	1.46 ± 0.98	11.34*	0.80

SD: Standard deviation; *P < 0.01

Discussion

The primary objective of the present study was to examine validity and reliability of the PACS-R in an Iranian context. Item analysis, EFA, reliability evaluation, and correlational analyses were performed in order to check different aspects of the validity and reliability of the scale. Moreover, a preliminary cross-cultural comparison was performed for all 11 items and total scores between American and Iranian samples.

Item analysis indicated that all items initially had the required properties for a psychometric scale. Item 8 had the highest item-scale correlation coefficient (r = 0.888, P < 0.01), while item 11 had the lowest correlation coefficient (r = 0.715, P < 0.01). The lowest mean belonged to item 10 (pertaining to physical appearance comparison in a restaurant), and item 11 (pertaining to physical appearance comparison in a gym) had the highest mean. Findings of this part are consistent with the general view of physical appearance comparisons and results from the American sample based on which the instrument was developed.

EFA suggested that one general factor (physical appearance comparison) was conceptually underlying the whole scale. Results of the factor structure of PACS-R are consistent with previously found factor structure of PACS-R in the United States. PACS-R had a very high reliability coefficient which, surprisingly, was exactly the same as in the original paper (Schaefer & Thompson, 2014).

PACS-R was endorsed for concurrent validity in the current Iranian sample as it was significantly correlated with the expected variables. PACS-R was significantly correlated with BMI. Physical appearance comparison was also significantly associated with interest in aesthetic rhinoplasty as the most popular cosmetic surgery in Iran. This finding is consistent with previously reported data, that is, high interest in cosmetic surgery among female undergraduates is strongly and negatively correlated with positive body image (Swami, 2009; Sarwer, Cash, Magee, Williams, Thompson, Roehrig, & Romanofski, 2005). Moreover, PACS-R was strongly and inversely correlated with body appreciation and optimism. Consequently, those who compare their physical appearance more often are less likely to have optimistic attitudes toward their body.

The preliminary cross-cultural comparisons indicated that Iranian college students had lower scores in all items of PACS-R compared to the American college students. While, the cross-cultural differences between Iran and western societies require more complex methodology (Soh, Touyz, & Surgenor, 2006), the findings of the present study may serve as initial results in this concern. A study on Iranian women living inside Iran and in the United States reported that, despite the fact that Western media has

been banned in Iran since the Islamic revolution in 1978, there were comparatively few differences in eating pathology between the two groups (Abdollahi, & Mann, 2001). Women who lived in Iran at the time were more likely to exercise vigorously to control their weight or body shape and were more interested in keeping an empty stomach (Abdollahi, & Mann, 2001). Furthermore, a study in 1998 reported Iran as having no access to western media and hypothesized that lack of access to high-standard-setting western media would result in higher body esteem among Iranians (Akiba, 1998). This hypothesis was accepted by a cross-cultural research on a small group of participants from Iran and the U.S. However, it seems that such hypotheses could no longer apply to the present social condition of Iran, as western media are largely consumed in the Iranian society today. In addition, there was a statistically insignificant positive correlation between TV viewing and physical appearance comparisons in this study. Nevertheless, the present findings are consistent with the notion that Iranian participants score higher in positive body-related variables. It seems that individuals compare their physical appearance less when in a restaurant in both cultures. Though, gyms are found to be places in which the highest rate of physical comparison is seen. While a considerable difference was observed between item 11 (comparison in gym) and other items in the Iranian sample, the American sample did not show such a difference.

The present study has several limitations. First, the current study used a female sample. Since women engage in appearance comparisons to a higher extent and women's comparisons are more closely associated with body dissatisfaction (Myers, & Crowther, 2009; Jones, et al. 2004), gender differences in physical appearance comparisons should be addressed in future researches. Additionally, the present sample of participants was recruited from a university setting and consisted of females mostly from Tehran who were between the ages of 22 to 28. Third, the 40-item version of the instrument was not incorporated into this study. Despite these limitations, the current study provided evidence that the Persian version of the PACS-R has sound psychometric properties. Therefore, it can be confidently used as a reliable and valid instrument in clinical and research settings.

Conflict of Interests

Authors have no conflict of interests.

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