

Psychometric Properties of the Iranian Version of Physical Disability Sexual and Body Esteem Questionnaire in Women with Polycystic Ovary Syndrome

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ABSTRACT

Aims The objective of this study was to evaluate the psychometric properties of the Iranian version of the physical disability sexual and body esteem questionnaire (PDSBE) in women with polycystic ovary syndrome (PCOS).

Materials & Methods The present cross sectional study was conducted on 100 women with PCOS referred to the infertility clinic in Hormozgan province, Iran. After translating the questionnaire and to determine the linguistic validity, a panel of experts evaluated the content validity index (CVI) and content validity ratio (CVR). Exploratory factor analysis (EFA) was done to assess the questionnaire structure. Discriminate and convergent validity were evaluated, using known group comparisons and correlating PDSBE with body image concern inventory (BICI).

Findings CVI and CVR results were 0.9 and 0.95, respectively. The results of EFA showed a 2 factor structure (sexual esteem and sexual attraction perceived by others) responsible for 61.21% of variance. A Cronbach's alpha test of the questionnaire was satisfactory. The results of known group comparisons showed that PDSBE differentiates well between patients, who differ in terms of clinical characteristics. Moreover, the results of convergent validity were indicative of a desirable correlation between the scores of BICI questionnaire and the domains of sexual esteem ($r=0.43$, $p<0.001$) and attractiveness of PDSBE ($r=0.48$; $p<0.001$).

Conclusion The PDSBE is an understandable and readable questionnaire. Also, women with normal clinical features had higher level of sexual esteem and felt more attractive.

Keywords Validity; Reliability; Sexual; Polycystic Ovary Syndrome

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[1] The prevalence and features of the polycystic ovary syndrome in an unselected ... [2] Mood disorders, psychiatric symptoms, and distress in women presenting for infertility ... [3] An investigation of the relationship between emotional maladjustment and ... [4] The polycystic ovary syndrome--a medical condition but also an important psychosocial ... [5] The multidimensional sexuality questionnaire: An objective self-report measure of psychological tendencies associated with ... [6] Mental representation of the body ... [7] My body is a temple: Eating disturbances, religious involvement, and mental health among young adult ... [8] The impact of physical disability on body ... [9] Nommsen-Rivers LA, McCrory MA, Lönnerdal B. A randomized study of the effects of aerobic exercise by lactating women on breast-milk volume ... [10] Physical activity and health: A report of the Surgeon ... [11] The effect of regular exercise on menstrual cycle pattern and early follicular hormonal and physiological parameters in Turkish ... [12] Development and Validation of the Physical ... [13] Validation of a Scale for Body and Sexual ... [14] Are obese women at higher risk for ... [15] A Quantitative Approach To Content ... [16] Pregnancy complications and birth outcomes in obese ... [17] Obesity, obstetric complications and cesarean delivery ... [18] Consensus on infertility treatment related to ... [19] Iranian version of modified polycystic ovary syndrome ... [20] The EORTC core quality of life questionnaire ... [21] Body Image Concern Inventory (BICI) for Identifying ... [22] Coefficient alpha and the internal structure ... [23] Clinical assessment of body hair growth ... [24] Polycystic ovaries and associated clinical and biochemical ... [25] Educational inequalities in self-reported health ... [26] Body image in women treated for ... [27] Beyond body image: the experience of breast ... [28] GBody image dimensions and cancer: A heuristic cognitive behavioural ... [29] Body image satisfaction and self-esteem status among the patients with polycystic ovary ... [30] Body and sexual esteem as mediators of the physical disability-interpersonal competencies ...

Introduction

Polycystic ovary syndrome (PCOS) is the most prevalent and complex endocrine disorder that affects women of reproductive age [1]. Patients with PCOS suffer from physical disability due to the symptoms of the disease, such as hirsutism, menstrual disorder, and infertility. Irregular menses and issues related to infertility cause stress in the family, sexual function disorder, problems in the workplace, and changes in self-concept [2-4]. As PCOS is frequently diagnosed at an age when finding a sexual partner and marriage are assumed important for individuals, it is possible that concerns over appearance may cause serious problems in women with PCOS [4], including effects on sexual confidence and body image. Sexual confidence is defined as the self-confidence and capacity of the individual to engage in satisfactory and pleasurable sexual experiences [5].

Body esteem refers to an overall (positive or negative) evaluation of one's body [6]. It is closely associated with mental health as it affects an individual's thought patterns, their physical condition, their behaviors, values, and life goals [7]. When a person with a physical disability faces the reality of being unable to match their body with the ideal body, his or her body esteem will be expected to suffer [8]. Most studies evaluating the impact of physical disability on sexual and body esteem have reported a deleterious effect on body esteem [9, 10]. Silvers found that people with physical disabilities reported lower sexual esteem and higher sexual depression (negative mood state due to sexual functioning) than people without disabilities [11]. These results are supported by qualitative studies that reveal people with physical disabilities commonly feel that they are sexually unattractive [8, 10]. For example, the authors suggest that having a body that is not capable of responding as one would want, and that responds in a different way from that endorsed by societal norms can lead to a lack of sexual satisfaction, frustration, and a reduced enjoyment of sexual activity. Moreover, authors found that a large proportion of participants felt that their disability interfered with their ability to pleasure a sexual partner, and this clearly affected their feelings of sexual attractiveness, sexual worth, and sexual esteem.

Developed by Taleporos and McCabe, the physical disability sexual and body esteem questionnaire (PDSBE) is the only measure available to evaluate the abilities of the person with physical disability in experiencing positive feelings about sexuality and the body image. The answers of this questionnaire are classified in 5 sections from strongly agree to strongly disagree based on the Likert spectrum. The average score for all 3 domains is separately calculated. The higher scores indicate a possible negative effect of disability on sexual and body confidence [12]. The results of a previous study

suggested a favorable correlation of this questionnaire. Exploratory and confirmatory factor analysis using varimax rotation showed 3 factors namely sexual esteem, attractiveness to others, and body esteem. However, factor analysis by Ferando *et al.* extracted only 2 factors (sexual esteem and sexual attractiveness) [13].

At present, there is no gold standard for the long-term treatment of women with PCOS, who do not want to get pregnant. Clinical treatment is mainly based on the physical symptoms; the negative consequences experienced in the daily lives of these patients, such as social isolation, sexual relationships, and self-esteem are less considered. Studies have reported that individuals are concerned with how PCOS affects their quality of life more than the severity of physical symptoms. More studies are required for the patients' concerns about PCOS and its impact on their lives. Some studies have assessed the psychometric properties of the Iranian version of the PDSBE questionnaire. The aim of this study was to evaluate these psychometric properties in the Iranian version of the PDBSE in people with PCOS.

Materials and Methods

The present study is a cross sectional observational study conducted on women with PCOS referred to the infertility clinic of Leila Hospital, Hormozgan, Iran during 6 months from 2015 to 2016. Leila Hospital is the only hospital for infertility treatment in Hormozgan province.

After explaining the research aim and obtaining written consent from patients, participants were asked to complete the questionnaires. Inclusion criteria included being 15 to 40 years, being married, absence of non-classic adrenal hyperplasia, thyroid dysfunction, and hyperprolactinemia, being non-smoker, and having the following Rotterdam diagnostic criteria:

- 1) Polycystic ovaries visualized on ultrasound scan (presence of 12 follicles or more in 1 or both ovaries and/or increased ovarian volume i.e., >10ml)
- 2) Clinical signs of hyperandrogenism (hirsutism score based on hirsutism score greater than 7 or obvious acne)
- 3) Having an interval between menstrual periods >35 days and/or amenorrhea, defined as the absence of vaginal bleeding for at least 6 months (i.e. 199 days).

The research team approached 119 women and after explaining the aim of the study, written consent was obtained from each participant, who volunteered to participate in the study, and the questionnaires were distributed and completed. Out of 119 women, who were invited to participate in the study, 19 declined to participate in the study (for unknown reasons).

The Ethics Committee of the Hormozgan Medical University approved the study with code

HUMS.REC.1396.135.

Translation and cultural adaptation: After the author's permission, we used translation re-translation approach to translate the English version of PDSBE questionnaire to Persian. Firstly, the questionnaire was translated to Persian by 2 Persian-speaking persons, whose native language was English. These translators were requested to focus on conceptual rather than literal translation methods. After the verification of Persian translation by the Iranian research team, translations were compared and the best phrasing was selected. Then, back translation was done by 2 persons, who were native in Persian and English. The translators were unaware of the original questionnaire. Next, the research team matched Persian and English versions. Finally, the gaps in translation and back translation were reviewed and resolved by a group of translators, psychometrics, and the research team.

Face validity: Face validity means that the content of a tool is relevant to a particular study's purpose. In addition, people who complete the questionnaire understand the phrasing and wording of the tool [14]. In the present study, face validity was tested by 2 qualitative and quantitative methods. To determine the qualitative face validity, 30 patients with PCOS were interviewed face to face; difficulty level, irrelevancy, and ambiguity were measured. Then, the degree of impact (completely important - 5, somewhat important - 4, averagely important - 3, slightly important - 2, and it does not matter - 1) was considered for each item, using Likert scale. Next, participants were asked to evaluate the items, and the score of each item impact was calculated based on the following formula: Importance \times frequency (percent)

The importance of mean score was based on the above-mentioned Likert spectrum; frequency refers to the number of patients who rated 5 and 4. If the mean score was greater than 1.4, it would be considered suitable for further analysis.

Content validity: In content validity, the tool content is assessed to ensure that the tool measures what it claims to measure. In the present study, content validity was evaluated by quantitative and qualitative methods. In the qualitative method, 10 experts were asked to provide the necessary feedback after qualitative evaluation of the questionnaire based on the standards of grammar, using the correct words, proper placement of phrases, and scoring. After receiving qualitative feedback from experts and modifying items, CVR and CVI were used for the assessment of quantitative validity. CVR numerical value was determined, using the table of minimum value determination established by Lawshe and it was compared to the criteria available in table according to the number of experts [15]. The CVI score was calculated based on the following formula to

compute the total number of agreed scores for each question that received the highest score (>3).

Number of experts who rated >3

Total number of experts

Question acceptance was based on the following criteria: CVI >0.79 was considered appropriate, $0.7 < \text{CVI} < 0.79$ was modified and reviewed, and CVI < 0.7 was considered incredible and excluded [16].

Factor analysis: In order to understand the underlying variable of the questionnaire, exploratory factor analysis method was used. First, Kaiser Meyer Olkin test (KMO) was performed for sampling adequacy; the values greater than 0.7 were considered acceptable. Afterwards, correlation among the questions was determined by Kruit-Bartlett test (BT). Several rules determine the number of factors in exploratory factor analysis. In the present study, we used a specific value to determine the number of constructive factors of PDSBE. Moreover, varimax rotation was used to simplify factors and to make them interpretable. After rotation, the questions with factor loadings of greater than 0.3 were preserved. In order to reduce the statistical errors, it was suggested that the number of subjects per question be at least 5:1. The number of 100 patients was considered suitable for this survey [17, 18].

Discriminate validity: This value shows to what extent a tool can differentiate between different groups with different special features [19]. Discriminate validity was assessed, using known group in comparison to measure to what extent can PDSBE differentiate between subgroups that are different in terms of hirsutism, acne, BMI, infertility, and menstruation.

Convergent validity: It is expected that similar domains show a high level of correlation between their related scales. For evaluation of the convergent validity, it was assumed that there is a significant correlation between PDSBE questionnaire and body image. Correlation >0.4 was considered favorable [20].

To evaluate body image, we used Body Image Concern Inventory (BICI). This questionnaire was developed by Littleton *et al.* and consisted of 19 questions. The validity and reliability of the questionnaire were approved in Iran [21].

Reliability: Reliability refers to the overall consistency and stability of a measure. In the present study, reliability was determined, using the internal consistency method and retest method. In order to determine internal consistency, Cronbach's alpha was calculated for the whole questionnaire and for each of the factors, Cronbach's alpha >0.7 was considered favorable [22].

The following variables were evaluated for the study:

1. Menstrual history: All patients were asked about the interval between menstruations during previous 12 months and they were categorized to <21 days,

21 to 34 days, 35 to 60 days (oligomenorrhea), >199 days (amenorrhea).

2. BMI: Weight and height were calculated by weight/ height squared (kg/m^2) in all patients.

3. Body hair: Clinical assessment of hirsutism was determined, using the Ferriman-Gallwey Scoring System (F/G score). Nine body sites (the upper lip, chin, chest, upper back, lower back, upper abdomen, lower abdomen, arm, and thigh) were graded from 0 (no terminal hair) to 4 (severe hirsutism). Scores ranged from 0 to 36. Score 7 or more was considered positive for hirsutism [17, 18, 22, 23].

4. Acne: The Global Acne Grading System (GAGS) was used to determine acne. The GAGS considers 6 locations on the face and chest/upper back, with a factor for each location based on surface area, distribution, and density of pilosebaceous units. The borders on the face are delineated by the hairline, jaw line, and ears. The chest and upper back have been included because their involvement is critical in order to assess the severity of acne and to decide upon treatment. Each of 6 locations is graded separately 0 to 4 with the most severe lesion within that location determining the local score. The global score is a summation of all local scores [18, 19, 23, 24].

5. Socio-demographic status: The study used years of formal education as a measure of socioeconomic status categorized into 5 levels: no education, first level (1-5 years), second level (6-9 years), third level (10-12 years), and fourth level (more than 12 years). Iranian studies showed that education is a good proxy measure for socioeconomic status of Iranians [19, 20, 24, 25].

The mean \pm SD and percentage were used for quantitative and qualitative variables, respectively. Data analysis was done, using SPSS version 21. P value <0.05 was considered significant.

Findings

Totally, 100 women with PCOS entered the study during 6 months. The mean age of women was 24.44 ± 5.23 years old and patients with infertility were 80 people (Table 1).

Face validity: Almost all women noted that the PDSBE was easy to understand and read. According to participants' opinions, a few word changes were required to increase transparency of the PDSBE.

Table 1) Socio-demographic and clinical characteristics of participants (n=100)

Socio-demographic characteristics	Mean \pm SD
Age (years)	24.44 \pm 5.23
Education (years)	12.03 \pm 1.70
BMI (kg/m^2)	25.41 \pm 4.63
Hirsutism score	5.13 \pm 2.73
Acne score	2.43 \pm 4.88
Interval between menstruation	N (%)
21-35 days	18 (18.0)
>35 days	50 (50.0)
>3 months	20 (20.0)
Variable	12 (12.0)

Content validity: Total CVR and CVI were 0.9 and 0.95, respectively, indicating a favorable content validity. Due to the cultural and religious issues of Iranian society, the words "partner" and "multiple sexual patients" changed to "spouse".

Construct validity: The results of the KNMO test (0.87) and BT($\chi^2=354.57$, $p<0.001$) showed that the implementation of factor analysis based on the correlation matrix was justified. The highest percentage of total variance (50.43) was explained by the first factor and the remaining percent (10.78) was explained by the second factor. In other words, factor analysis determined 2 factors with a value of more than 1, which explained 61.21 of variance. The first factor (sexual esteem) is responsible for 50.43% of variance. This domain included 5 questions (Table 2). The second factor (attractiveness) was responsible for 10.78% of variance, which contained 5 questions (Table 2).

Table 2) Factor loading from PDSBE

Question	Factor 1	Factor 2
S1	0.72	0.11
S2	0.81	0.07
S3	0.61	0.23
S4	0.62	0.21
S5	0.85	0.19
S6	0.15	0.67
S7	0.28	0.70
S8	0.26	0.79
S9	0.21	0.69
S10	0.29	0.69

Three questions "I feel sexually frustrated because of my disability ", " I feel like people not sexually interested because of my disability ", and " I believe that I'm rejected by possible sexual partners because of my disability " were loaded in 2 factors (sexual esteem and sexual attractiveness perceived by others).

Convergent validity: There was a significant correlation between the scores of BICI questionnaire and the domains of sexual esteem ($r=0.43$; $p<0.001$) and attractiveness ($r=0.48$; $p<0.001$).

Discriminate validity: Comparison of known group showed that PDSBE could differentiate well among women with different clinical features (hirsutism, acne, menstruation, infertility, BMI). The results showed that women with normal clinical features had higher level of sexual esteem and felt more attractive (Table 3).

Reliability: Cronbach's alpha was 0.86 for the whole questionnaire, indicating a favorable reliability of PDSBE. Cronbach's values show that Cronbach's alpha is more favorable in a 2 factor questionnaire rather than a 3 factor questionnaire. This approves the results of factorial validity (Table 3).

Table 3) Cronbach's 'α, floor of ceiling effect of PDSBE

Domain	Cronbach's'α	Mean±SD	Minimum (% floor)	Maximum (% ceiling)
Two factors				
Sexual esteem	0.77	13.28±3.65	5 (2.5)	23 (1.2)
Attraction	0.77	14.01±3.58	5 (1.2)	23 (1.2)
Three factors				
Sexual esteem	0.70	-	-	-
Attractiveness	0.76	-	-	-
Body esteem	0.65	-	-	-

Discussion

Body esteem refers to an individual's perception of their body including appearance, emotional reaction, and body position [26, 27]. Negative body esteem can result in body dissatisfaction, feeling a lack of charm, preoccupation about the appearance of some part of the body, and possibly, physical and psychological problems [27, 28]. PCOS is a syndrome with a sex hormone disorder that is associated with a biological, physical, and psychological factors, affecting one's body esteem [29]. This is the first study in the field of evaluation of psychometric properties of Iranian version of PDSBE among patients with PCOS.

In the present study, cultural and religious adaptation were considered while translating PDSBE based on the guidelines for cultural adaptation of a measure's psychometric properties reference.

The findings of the present study showed that patients with irregular menses, infertility, higher scores of hirsutism and acne, and a high BMI had low PDSBE score compared with patients without these clinical features. This indicates that PDSBE can differentiate well between different subgroups in terms of clinical features and have a favorable discriminate validity. The results of our study is similar to a study conducted by *Taleporos et al.* (date), in which the overall score of PDSBE was significantly correlated with the scores of depression ($R=0.37$), anxiety ($r=0.23$), self-esteem ($r=0.52$), sexual esteem ($r=0.52$), body esteem ($r=0.41$), and mutual sexual activity ($r=0.45$) [12].

Our results also showed that there is a poor floor and ceiling effect in all dimensions of PDSBE. The poor floor and ceiling effect mainly occurs in general tool with more irrelevant dimensions [19]. More studies on the evaluation of responsive are recommended.

The Iranian version of PDSBE had 2 factors responsible for 60.81% of variance and all factor loading were greater than 0.3 for each factor. In the original version, questions were loaded in 3 factors; sexual esteem, body esteem, and attractiveness to others [28].

Our results are similar to a study conducted in Brazil, suggesting that for Iranian women like Brazilian women, others' opinions may be more important in self-evaluation of body esteem [13]. In a study carried out by Lease, Cohen, and Dahlbeskin, a

different cultural setting, it has been reported that for people with physical disability, body esteem is strongly associated with social environment [30]. The results of reliability also showed that the dimensions of a 2 factorial questionnaire have more reliability compared to 3 factorial one.

Generally, PDSBE is a beneficial tool for clinical evaluation of sexual esteem and attractiveness in Iranian patients with PCOS. However, in this study, there were some limitations; participants were selected from only referral infertility clinic in Hormozgan that limits the generalizability of the findings. In addition, due to the cultural and religious issues of Iranian society, all patients were married. More studies with larger sample size and in other regions of Iran are suggested for more evaluation of Iranian version of PDSBE.

Conclusion

The PDSBE is an understandable and readable questionnaire. Also, women with normal clinical features had higher level of sexual esteem and felt more attractive.

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