Psychiatr. Pol. 2019; 53(5): 1087–1101
PL ISSN 0033-2674 (PRINT), ISSN 2391-5854 (ONLINE)
www.psychiatriapolska.pl
DOI: https://doi.org/10.12740/PP/95085

Adaptation of *the Body Image Self-Consciousness Scale* (BISC-PL) in Polish females

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Summary

Aim. This paper presents the Polish version of *the Body Image Self-Consciousness Scale* (BISC-PL) originally developed by M.W. Wiederman.

Methods. Psychometric properties of the BISC-PL were examined in a sample of 169 young women aged 18–35 (M = 22.24; SD = 3.61) who self-identified as heterosexual. Measures of sexual self-esteem, heterosexual experience, body satisfaction, self-monitoring and other variables were administered along with the BISC-PL for validity testing.

Results. Confirmatory factor analysis (with the use of WLSMV) proved the one-factor structure of the BISC-PL. Goodness of fit indices were: CFI = 0.91; TLI = 0.90; RMSEA = 0.06; SRMR = 0.05. In most cases the tool confirmed its construct and discriminant validity with regard to the aforementioned variables. BISC-PL scores were predictive of sexual self-esteem and self-evaluation of oneself as a sexual partner, beyond effects due to body satisfaction and self-evaluated body attractiveness. The instrument was found to be a reliable (α = 0.96) and valid measure of body image self-consciousness during physical intimacy with a partner in studied women.

Conclusions. Polish version of the BISC can be considered comparable to the original measure. The BISC-PL may be recommended as a useful tool to complement Polish research and practice. Results are discussed with regard to limitations of the current research and implications for future studies.

Key words: BISC, body image self-consciousness, confirmatory factor analysis

Introduction

Body image is a complex, multidimensional phenomenon that can be described from multiple perspectives, including developmental, sociocultural, cognitive behavioral, psychodynamic, and others. It refers to the mental representation of embodiment and affects various aspects of human life, also sexual experiences [1]. As the sexual act

involves bodily sensations, it seems logical that it also influences body image experiences. However, research findings on the direct relationship between body image and sexual functioning remain inconsistent. In Wiederman and Hurst [2], some attractiveness and body-image variables were related to sexual experience, while others were not. In Ackard et al. [3], body image was associated with frequency of sexual activity and comfort with sexual practices. Nevertheless, it was not the primary predictor for most of the dependent variables distinguished in their research. Cash et al. [4] reported weak association between dispositional body dissatisfaction and sexual functioning. Therefore, researchers are seeking more complex and indirect associations between body image and sexuality.

Referring to the phenomenon called 'spectatoring', described by Masters and Johnson [5], and his own research [6], Wiederman concluded that having an overall positive or negative body image is less predictive of sexual experiences than being focused on body image during sexual interaction [7]. His thesis is supported by results obtained in other studies [e.g., 4, 8] and many studies have started considering the distinction between dispositional and contextual body image appraisals [e.g., 9]. Body image self-consciousness has been established a predictor of various domains of sexuality, both in men and women. For example, Sanchez and Kiefer [10] found body image self-consciousness to be a mediator of relationships between body shame and sexual pleasure and problems. Woertman and van den Brink [11] reviewed data from 57 studies and concluded that body image issues affect not only sexual responses and experiences during sexual activity, but also risky sexual behavior or sexual avoidance.

Body Image Self-Consciousness Scale (BISC)

The Body Image Self-Consciousness Scale (BISC) developed by Wiederman [12] is a 15-item self-report measure of women's body image self-consciousness during physically intimate interaction. It applies to females with or without sexual experience. The BISC has been shown to be a reliable and valid tool in American [e.g., 13–17], Canadian [e.g., 9, 18, 19], Australian [e.g., 20, 21], and Croatian [22] research. Since its development the instrument has undergone a few modifications. For example, Morrison et al. [18] adjusted the BISC to be gender neutral and reduced the number of items from 15 to 11. Schick et al. [17] replaced the word 'body' with the word 'genitals' to measure genital image self-consciousness. The Irish researchers [23] created a male version of the BISC. The aforementioned authors reported that those changes did not negatively affect the psychometric characteristics of the BISC. The BISC Scale is widely used, yet, to the author's knowledge, has not previously been applied in the Polish cultural context.

Therefore, the present study was designed to develop and validate the Polish equivalent of the BISC (BISC-PL), parallel to Wiederman's measure, intended for heterosexual women only. In order to examine BISC-PL construct validity, the author used other body-image related measures. Body satisfaction, body mass index (BMI) and self-evaluation of body attractiveness were taken into account. It was expected that they would show moderate correlations with women's body image self-consciousness during sexual activity with a partner. Self-monitoring and impulsiveness were measured in order to examine BISC-PL discriminant validity. Ideally, scores on the BISC-PL should not be related to those variables or should at least present low correlation. The construct validity of the tool and its utility were also verified through a series of regression analyzes. The following variables were used for this purpose: 'sexual self-esteem', 'self-evaluation of oneself as a sexual partner' and 'heterosexual experience'.

Material and methods

Participants and procedure

Validation studies were conducted in two stages. First stage took place between November 2015 and February 2016, participants completed the BISC-PL scale along with a battery of questionnaires chosen for construct and discriminant validity testing. The study was carried out among 114 female volunteers aged 18 years or older. Participants were recruited in various ways. Fifty of the women responded to an invitation published online or announced orally during introductory psychology classes among first-year students of psychology. Fifty-three women were recruited from among adult students of an upper-secondary school, and 11 women from among students of a general secondary school for adults located in Wielkopolska Voivodeship (Poland). The second pool of data was collected between June 2016 and June 2018. The subjects were recruited using the snowball sampling. It started with an oral invitation to participate in the study addressed to the students of the fourth year of psychology. Inclusion of additional 71 measurements into the database created after the first stage of research allowed to meet the requirements of sample size for confirmatory factor analysis and strengthened the obtained conclusions.

The group was intended to be homogenous in terms of sexual orientation, as research show that this variable affects body-image outcomes [e.g., 24, 25]. According to research [e.g., 26, 27] also pregnancy and childbirth change body-image perception and assessment. Sixteen subjects were excluded from the statistical analyses: one woman gave birth to a child; two females identified themselves as bisexual, 1 did not give any information on her sexual orientation. Twelve females were excluded due to a significant lack of data in their responses (half or more of the questionnaire answers were omitted). Final sample consisted of 169 subjects. There was missing data only

in three items of the BISC-PL and it was handled by imputation (maximum likelihood estimate). Statistical analyses reported below were conducted on 169 female participants aged 18–35 (M = 22.24; SD = 3.61).

Measures

Measures selected for validity testing had either previously been used by Polish researchers or were prepared for use in the current study.

(1) Sociodemographic profile

A self-constructed *Personal Questionnaire* was used to provide sample characteristics. Respondents were asked about their age, education, place of residence, weight, height, marital and relationship status, sexual orientation, and whether they were pregnant or have children.

(2) Body Image Self-Consciousness

Subjects completed the Polish version of the BISC (see annex). Using a 6-point Likert-type scale, where the possible answers were: 0 – never, 1 – rarely, 2 – sometimes, 3 – often, 4 – usually, 5 – always, participants responded how often each of 15 statements is or would be true for them. A total score (ranging from 0 to 75) was generated by summing across items, with higher scores indicating greater body image self-consciousness during physical intimacy with a partner.

(3) Body satisfaction

Body satisfaction was measured with *the Body Image Questionnaire* (BIQ_1 and BIQ_2) created by Zarek [28, 29].

(4) Body size

Body size was estimated using the Body Mass Index (BMI) on the basis of participants' declarations of their current height and weight. The Quetelet's index (kg/m^2) was computed.

(5) Self-evaluated body attractiveness

Participants were asked to respond to the statement: 'Overall, I estimate my body attractiveness as...', and it was possible to choose answer from the following range: 1 – 'well below average', 5 – 'well above average'.

(6) Self-monitoring

Ability to observe and control one's own expression and self-presentation was measured with the use of the Polish version of *the Self-Monitoring Scale* adopted by Czarnota-Bojarska [30].

(7) Impulsiveness

Impulsiveness was measured with the subscale from *the Impulsiveness Questionnaire* in the Polish version adopted by Jaworowska [31].

(8) Sexual self-esteem

Sexual self-esteem was measured with the use of the Polish Short Version of *the Sexual Self-Esteem Inventory for Women* (SSEI-W) [32]. In the SSEI-W, apart from the total score, it is possible to obtain subscale scores in 'Skill/Experience', 'Attractiveness', 'Control', 'Moral Judgement' and 'Adaptiveness scales'. Total score ranges from 35 to 210 and subscale scores from 7 to 42. Higher scores indicate greater sexual self-esteem (either overall or in a specific domain).

(9) Self-evaluation of oneself as a sexual partner

Respondents were asked to use a 5-point scale (1 – well below average, 2 – below average, 3 – average, 4 – above average, and 5 – well above average) to estimate themselves as a sexual partners. The statement was: 'Myself in the role of a sexual partner I estimate as...'.

(10) Heterosexual experience

A few questions were designed to measure participants' heterosexual experience. Women were asked if they were currently in a relationship, are currently sexually active, whether they had ever experienced different forms of sexual activity (petting, vaginal intercourse, cunnilingus, fellatio, and anal intercourse). As being in a heterosexual relationship does not necessarily mean that someone is sexually involved with a partner, current relationship status and sexual activity were combined together to divide research participants into 4 categories: 1. females not in a relationship and not sexually active; 2. females not in a relationship and sexually active; 3. females in a relationship and not sexually active; 4. females in a relationship and sexually active. Unfortunately, those four groups were not equally represented in the research sample (in group 1. $N = 14$, in group 2. $N = 8$, in group 3. $N = 3$, and in group 4. $N = 67$), so this way of division could not be used for testing differences in mean BISC-PL scores. A disproportion in number of women who had and had not experienced sexual initiation was also present in the research sample. Of the 98 heterosexual women (4 women did not respond to questions regarding sexual initiation) 11 (11.2%) had never experienced petting, 4 (4.1%) had never had vaginal intercourse, 8 (8.2%) had never received cunnilingus, 17 (17.3%) had never performed fellatio, and 54 (55.1%) had never had anal intercourse. Thus, to test the relationship between BISC-PL scores and female heterosexual experience, the author developed an index indicating diversity of experienced sexual activity forms. It ranges from 0 to 5, with a higher number

indicating a greater diversity of experienced types of sexual initiation. It was created by summing reported forms of sexual activity, e.g., if a woman had never experienced cunnilingus and fellatio, but declared that she had performed petting, vaginal and anal intercourse, she was assigned 3 index points. Cronbach's α coefficient in the research sample for the diversity index was satisfactory (α = 0.74).

Results

BISC-PL development

In the process of developing the BISC-PL, three independent judges (psychologists with additional sexology education) translated BISC Scale items into Polish. Next, four other judges assessed those translations in respect of translation accuracy and linguistic correctness. They were asked to assign a number of 1–3 to each translation, where 1 indicated the worst, 2 good and 3 the best translation. Their assessments were statistically verified with the use of Kendall's coefficient of concordance. Results showed that judges were highly concordant ($W = 0.81$) only in the case of three BISC-PL items (4, 10 and 15, $\chi^2 = 6.50$; $p = 0.04$). Other assessments (12 items) were unremarkably concordant or lacked concordance. This could be due to slight stylistic and grammatical differences (e.g., they used synonymous words) between evaluated translations. Semantically, the translations of the remaining 12 items can be considered identical. Thus, the selection of translations included in the questionnaire was based on the mean values of the ranks.

BISC-PL structure and reliability

A confirmatory factor analysis using WLSMV method (mean and variance adjusted weighted least squares) was conducted to prove one-factor structure of the Polish version of the BISC. In addition to the direct impact of the latent variable on the 15 questionnaire items, the model assumed a correlation between two pairs of semantically similar items (6 and 11 as well as 8 and 13). The confirmatory factor analysis was performed using 169 responses (from both research stages). Its results are presented in Tables 1–3. The postulated model showed a good fit to the data as indicated by both CFI and TLI values as well as RMSEA (90% confidence interval = 0.04–0.08; $p = 0.23$) and SRMR [33].

Table 1. **Factor loadings of the latent variable on all BISC-PL items**

Item	Coefficient	SE	Z	p	Stand. coefficient
BISC_PL_1	1	-	-	-	0.65
BISC_PL_2	1.27	0.16	8.11	<0.001	0.78

table continued on the next page

BISC_PL_3	0.99	0.15	6.85	<0.001	0.65
BISC_PL_4	1.51	0.21	7.11	<0.001	0.84
BISC_PL_5	1.36	0.21	6.44	<0.001	0.81
BISC_PL_6	1.09	0.18	5.94	<0.001	0.77
BISC_PL_7	1.19	0.17	6.85	<0.001	0.81
BISC_PL_8	1.23	0.24	5.08	<0.001	0.67
BISC_PL_9	1.62	0.26	6.21	<0.001	0.82
BISC_PL_10	1.32	0.22	6.06	<0.001	0.69
BISC_PL_11	1.07	0.21	5.08	<0.001	0.73
BISC_PL_12	1.60	0.24	6.78	<0.001	0.88
BISC_PL_13	1.51	0.25	6.15	<0.001	0.87
BISC_PL_14	1.44	0.22	6.57	<0.001	0.81
BISC_PL_15	1.10	0.20	5.64	<0.001	0.75

Table 2. **Values of covariance between two pairs of semantically similar items**

	Estimate	SE	Z	p	Stand. estimate
BISC_PL_8 ~~ BISC_PL_13	0.45	0.10	4.38	<0.001	0.57
BISC_PL_6 ~~ BISC_PL_11	0.26	0.08	3.34	<0.01	0.42

Table 3. **Goodness of fit indices**

χ^2	df	p	CFI	TLI	RMSEA	SRMR
137.62	88.00	<0.01	0.91	0.90	0.06	0.05

CFI – Comparative Fit Index; TLI – Tucker-Lewis Index; RMSEA – Root Mean Square Error of Approximation; SRMR – Standardized Root Mean Square Residual

Cronbach's α statistic was used to calculate the reliability of the scale. Its value (α = 0.96) was similar to those reported by Wiederman [12]: α = 0.94 in study 1 and α = 0.93 in study 2.

On the basis of the aforementioned results it was decided to implement assumption on the one-factor structure of the BISC Scale. Women's scores on the BISC-PL ranged from 0 to 67 with a mean of 16.48 (*SD* = 16.49), which suggests that the typically chosen response was 'rarely'.

BISC-PL validity

The analyzes verifying construct validity of the BISC-PL were carried out using responses obtained from 98 subjects (who participated in the first stage of the study). Table 4 presents results of the correlations between body image self-consciousness and other variables in the research sample. Although the research sample was less homogenous with regard to participants' age than Wiederman's sample [12], still, BISC-PL scores were unrelated to respondents' age.

Table 4. **Pearson's correlations between BISC-PL scores and other variables**

Variable	N[a]	BISC-PL
Respondent age	98	-0.20
Impulsiveness	92	0.26*
Self-monitoring	98	0.03
Sexual self-esteem – total score	98	-0.73**
Sexual self-esteem – skills and experience	98	-0.55**
Sexual self-esteem – attractiveness	98	-0.79**
Sexual self-esteem – control	98	-0.48**
Sexual self-esteem – adaptiveness	98	-0.53**
Sexual self-esteem – morality	98	-0.35**
Overall body satisfaction	98	-0.55**
Satisfaction with body appearance	98	-0.56**
Satisfaction with body functioning	98	-0.39**
Body size (BMI)	97	0.11
Self-evaluated body attractiveness	98	-0.43**
Self-evaluation of oneself as a sexual partner	98	-0.42**
Diversity of experienced sexual activity forms	96	-0.22*

[a] N varies due to missing data (lack of response); *$p < 0.05$; **$p < 0.01$

As far as the construct validity of the BISC-PL is considered, most of the expected correlations was confirmed. Body satisfaction and self-evaluation of body attractiveness showed a moderate and negative correlation (ranging from – 0.39 to – 0.56) with BISC-PL scores. BMI scores were not associated with body image self-consciousness. Self-monitoring was unrelated and impulsiveness was vaguely related (0.26 and statistically significant only at the level of 0.05) to women's body

image self-consciousness during physical intimacy with a partner, giving evidence for the BISC-PL discriminant validity. As expected, BISC-PL scores were moderately (-0.35 to – 0.55) and in two cases (overall sexual self-esteem and sexual attractiveness subscale) highly (-0.73 and – 0.79, respectively) correlated with subscales of sexual self-esteem, as well as with self-evaluation of oneself in the role of a sexual partner. Diversity of experienced sexual activity forms showed low correlation with body image self-consciousness.

The predictive potential of the BISC-PL was tested with the use of three separate hierarchical multiple regression analyses. Explained variables were consecutively: (1) sexual self-esteem; (2) diversity of experienced sexual activity forms; (3) self-evaluation of oneself as a sexual partner. Each time, predictors added at step one were overall body satisfaction and self-evaluated body attractiveness. Body image self-consciousness score was entered at step two.

With regard to sexual self-esteem, the first regression model with two predictors explained 33.4% of variance ($F(2,95) = 25.34$; $p < 0.001$), while the second one explained 58.2% of variance ($F(3,94) = 46.09$; $p < 0.001$) (Table 5). Adding BISC-PL scores to the model significantly increased the explained variance of sexual self-esteem scores: $R^2 = 0.25$; $F(1,94) = 57.46$; $p < 0.001$.

When it comes to diversity of experienced sexual activity forms, neither the first ($F(2,93) = 0.26$; $p = 0.77$), nor the second regression model ($F(3,92) = 2.04$; $p = 0.11$) fit the data.

Adding BISC-PL scores to the regression model, where self-evaluation of oneself as a sexual partner was a dependent variable, slightly increased the percentage of explained variance: from 20.8% ($F(2,95) = 13.74$; $p < 0.001$) to 23.5% ($F(3,94) = 10.91$; $p < 0.001$) (Table 5). In the case of the second model the changes were as follows: $R^2 = 0.03$; $F(1,94) = 4.31$; $p = 0.04$.

Table 5. **Hierarchical regression analysis with sexual self-esteem and self-evaluation of oneself as a sexual partner as dependent variable**

	sexual self-esteem			self-evaluation of oneself as a sexual partner	
	β	t	p	β	t
Body satisfaction	0.31	3.78	<0.01	0.34	3.11
Self-evaluated body attractiveness	-0.13	-1.76	0.08	0.01	0.07
Body image self-consciousness	-0.62	-7.58	<0.01	-0.23	-2.08

Discussion

In Poland, there is a shortage of studies identifying mediator variables of the relationship between body image and sexuality. This study sought to deliver a reliable and valid measure of situational body image self-consciousness that could be used in research with Polish female participants. The analyzes performed by the author show that the Polish version of the BISC Scale has psychometric characteristics similar to the original version of the tool.

Results of confirmatory factor analysis confirmed the one-factor structure of the BISC-PL, which was reported earlier not only by Wiederman [12], but also by Radoš et al. [22] and researchers who modified the BISC to measure genital image self-consciousness [17].

The Polish version of the BISC showed high reliability (Cronbach's α of 0.96). Previously reported internal consistency coefficients were α = 0.92 [14, 15, 18], α = 0.93 [22], α = 0.96 [13, 14, 19, 20], α = 0.97 [21].

As hypothesized, BISC-PL scores were moderately related to scores of other measures of body image, proving its construct validity. Greater body image self-consciousness was related to lower body satisfaction and self-evaluation of body attractiveness. Yet, contrary to Wiederman's outcomes regarding the original scale [12], BISC-PL scores were not correlated with BMI calculated on the basis of the data on weight and height provided by the respondents. Some research indicated lack of direct association between BMI and body image. For example, in a study by Pauls et al. [27] body image as assessed by the BESAQ (*Body Exposure during Sexual Activities Questionnaire*) was not related to BMI ($r = 0.23$; $p = 0.08$). The BESAQ, such as the BISC, is a situational measure of body image, intended to evaluate anxious/avoidant body focus during sexual activity [27, p. 1916]. As present and earlier results regarding the relationship between BMI and BISC scores are inconsistent, future research should address them to enhance understanding of its connections.

As in the case of the original instrument [12], BISC-PL scores were not related to females' self-monitoring, control of own expression and self-presentation. In the current sample, BISC-PL scores presented a low correlation with impulsiveness. The adapted scale demonstrated satisfactory discriminant validity.

Analysis of the construct validity of the BISC-PL using a series of regression analyzes showed partially expected outcomes. Even after statistically controlling for overall body satisfaction and self-evaluated body attractiveness, BISC-PL scores were predictors of sexual self-esteem and self-evaluation of oneself as a sexual partner. In the case of sexual self-esteem, there was a large increase in the percentage of the explained variance of results (from 33.4 to 58.2), in the case of self-evaluation of oneself as a sexual partner, the percentage of explained variance increased slightly

(from 20.8 to 23.5). Females who were less absorbed with their body image during intimacy with a partner had higher levels of sexual self-esteem and viewed themselves as good sex partners. Findings regarding sexual self-esteem are concordant with those reported by Wiederman [12].

Reported outcomes need to be considered with regard to the limitations of the study. A non-random sampling procedure is commonly considered to be a flaw in the study design. Highhouse and Gillespie [34] oppose to that, nevertheless so far the BISC has mostly been used in nonclinical settings, with young participants [e.g., 9, 12–19, 35]. In research by van den Brink et al. [36] some of the examined students (females) were diagnosed with different psychiatric disorders (mood disorder, anxiety disorder, eating disorder, and sexual disorder), but numbers in these groups were low and ranged from 1 to 7 subjects. Having a diagnosis was rather a controlled variable. It would be useful for future research to compare results obtained by students with those from clinical samples and older respondents. Another study limitation is a composition of the sample included in the first stage of the study. The predominance of women with sexual experiences currently in a relationship and sexually active made it unfeasible to conduct intragroup comparisons of BISC-PL scores.

The author applied only one method to examine the BISC-PL reliability, based solely on statistical analysis of particular items. Previous studies have shown a correlation of 0.92 between BISC scores when the scale was administered at a 21 day interval [12] and 0.68 when the examination was repeated over a 12-month time period [14]. Future research could make use of other techniques of reliability testing, e.g., parallel-forms methods.

Conclusions

The study's findings provide initial support for the reliability and validity of the Polish version of *the Body Image Self-Consciousness Scale*. The Polish version of the BISC can be considered comparable to the original tool. The BISC-PL will enable Polish researchers to extend and compare the literature referring to mediators between body image and sexuality with research evidence coming from Eastern Europe. Also, thanks to the adaptation of the BISC, issues concerning body image self-consciousness may be diagnosed and targeted in treatment interventions for women seeking sexual counseling. The usability of the BISC-PL in clinical groups and elder females needs further investigation. The measure needs to be applied with a view to this study's limitations. Its incorporation into the diagnosis process requires involving other sources of information about the diagnosed problem.

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***Body Image Self-Consciousness Scale* (BISC)**

Michael W. Wiederman

Please use the following scale to indicate how often you agree with each statement or how often you think it would be true for you even if you have not engaged in sexual activity. The term partner refers to someone with whom you are romantically or sexually intimate.

0	1	2	3	4	5
Never	Rarely	Sometimes	Often	Usually	Always

1.	I would feel very nervous if a partner were to explore my body before or after having sex.	0	1	2	3	4	5
2.	The idea of having sex without any covers over my body causes me anxiety.	0	1	2	3	4	5
3.	While having sex I am (would be) concerned that my hips and thighs would flatten out and appear larger than they actually are.	0	1	2	3	4	5
4.	During sexual activity, I am (would be) concerned about how my body looks to my partner.	0	1	2	3	4	5
5.	The worst part about having sex is being nude in front of another person.	0	1	2	3	4	5
6.	If a partner were to put a hand on my buttocks I would think, “My partner can feel my fat.”	0	1	2	3	4	5
7.	During sexual activity it is (would be) difficult not to think about how unattractive my body is.	0	1	2	3	4	5
8.	During sex, I (would) prefer to be on the bottom so that my stomach appears flat.	0	1	2	3	4	5
9.	I (would) feel very uncomfortable walking around the bedroom, in front of my partner, completely nude.	0	1	2	3	4	5
10.	The first time I have sex with a new partner, I (would) worry that my partner will get turned off by seeing me without clothes.	0	1	2	3	4	5
11.	If a partner were to put an arm around my waist, I would think, “My partner can tell how fat I am.”	0	1	2	3	4	5
12.	I (could) only feel comfortable enough to have sex if it were dark so that my partner could not clearly see my body.	0	1	2	3	4	5
13.	I (would) prefer having sex with my partner on top so that my partner is less likely to see my body.	0	1	2	3	4	5
14.	I (would) have a difficult time taking a shower or bath with a partner.	0	1	2	3	4	5
15.	I (would) feel anxious receiving a full-body massage from a partner.	0	1	2	3	4	5