

# Psychometric Properties of the Body Exposure during Sexual Activities Questionnaire in Mexican University Students

## Propiedades psicométricas del Cuestionario sobre la Exposición Corporal durante la Actividad Sexual en estudiantes universitarios mexicanos

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Recibido: 25/01/2022 Revisado: 10/02/2022 Aceptado: 13/02/2022

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### Abstract

The objective was to evaluate the psychometric properties of the Spanish version of the Body Exposure during Sexual Activities Questionnaire. A total of 997 university students (718 women and 279 men), aged between 18 and 35 years ( $M = 23.76$ ;  $SD = 4.45$ ), were randomly assigned to three samples ( $n_1 = 333$ ;  $n_2 = 335$ ;  $n_3 = 329$ ). The exploratory factor analysis identified a structure of two factors which explain 49.85% of the variance. The confirmatory factorial analysis showed adequate goodness and fit indexes for this model ( $RMSEA = .067$ ;  $SRMR = .049$ ;  $CFI = .931$ ;  $TLI = .922$ ). Furthermore, invariance by weight status was confirmed. Internal consistency and temporal stability were excellent. Body exposure during the sexual intercourse was positively associated with body esteem and sexual satisfaction. It is concluded that the BESAQ is a valid and reliable two-dimensional instrument to evaluate body exposure during sexual intercourse in Mexican university students.

**Keywords:** *psychometrics, factorial validity, measurement invariance, body image, body exposure, university students*

### Resumen

El objetivo fue evaluar las propiedades psicométricas de la versión en español del Cuestionario sobre la Exposición Corporal durante la Actividad Sexual. Un total de 997 universitarios (718 mujeres y 279 hombres), de 18 a 35 años de edad ( $M = 23.76$ ;  $DE = 4.45$ ), fueron asignados aleatoriamente a tres muestras ( $n_1 = 333$ ;  $n_2 = 335$ ;  $n_3 = 329$ ). El análisis factorial exploratorio identificó una estructura de dos factores que explican el 49.85% de la varianza. El análisis factorial confirmatorio mostró índices de bondad y ajuste adecuados para este modelo ( $RMSEA = .067$ ;  $SRMR = .049$ ;  $CFI = .931$ ;  $TLI = .922$ ). Además, se confirmó la invarianza por estatus de peso. La consistencia interna y la estabilidad temporal fueron excelentes. La exposición corporal durante la actividad sexual se asoció positivamente con la estima corporal y con la satisfacción sexual. Se concluye que el BESAQ es un instrumento bidimensional válido y confiable para evaluar la exposición del cuerpo durante las relaciones sexuales en estudiantes universitarios mexicanos.

**Palabras clave:** *psicometría, validez factorial, medición de invarianza, imagen corporal, exposición del cuerpo, universitarios*

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**Author's note:** The first author thanks the Consejo Mexiquense de Ciencia y Tecnología (COMECYT) for granting the support EESP2021-0006 as part of the program Estancias de Investigación Especializadas COMECYT EDOMÉX.

**How to cite:** Flores-Perez, V., Camacho-Ruiz, E. J., Escoto-Ponce de León, M. C., Cervantes-Luna, B. S., & Bosques-Brugada, L. E. (2022). Psychometric Properties of the Body Exposure during Sexual Activities Questionnaire in Mexican University Students. *Revista Evaluar*, 22(1), 43-56. Retrieved from <https://revistas.unc.edu.ar/index.php/revaluar>

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## Introduction

Body image is a multidimensional construction that involves subjective perceptions and attitudes people have about their own body, focusing especially on their physical appearance (Cash & Pruzinsky, 2002). However, it is important to highlight that there is a difference between assessing body image at levels of satisfaction or dissatisfaction and evaluating the experience of body image in a specific context, since it varies over time (Cash, Maikkula, & Yamamiya, 2004).

Among the instruments that analyze body image in specific contexts we can find: the Situational Inventory of Body-Image Dysphoria (SIBID; Cash, 1994), which assesses the frequency of negative body image emotions; the Body Image States Scale (BISS; Cash, Fleming, Alindogan, Steadman, & Whitehead, 2002), which measures the evaluation and affects individuals on their physical appearance; and the Body Exposure during Sexual Activities Questionnaire (BESAQ; Hangen & Cash, 1991) that allows the evaluation of body image experiences in the sexual area.

According to Cash et al. (2004) and Thompson and Schaefer (2019), the BESAQ (Hangen & Cash, 1991) has been one of the main contributions in the field of body image research, as it assesses the extent to which people experience a conscious or anxious focus on the appearance of their body and express desires/attempts to avoid exposure of certain aspects of their body to their sexual partners. It contains 28 items on a Likert-type scale with five response options (0 = *Never*; 4 = *Always*). High scores reflect anxious and avoidant behavior. It can be used with both men and women.

The study by Cash et al. (2004) conducted in the United States on a sample of sexually active university students was of great help in expanding the information regarding reliability

and validity. The BESAQ was shown to have excellent internal consistency ( $\alpha = .95$  women and  $.96$  men), and positively correlated with variables such as body satisfaction, weight concern, appearance investment, and weight status. Similarly, it is considered a predictor of sexual functioning (e.g., pleasure, desire), which is affected by concerns related to body image negatively influencing the quality of life.

Likewise, in countries such as Romania (Creanga, Lacatusu, Anastasiu, & Lungeanu, 2014), Turkey (Dinc & Beji, 2017) and Poland (Nowosielski, Kurpisz, & Kowalczyk, 2019), the BESAQ has been found to have good internal consistency ( $\alpha = .79$  to  $.83$ ), as well as adequate temporal stability (test-retest;  $r = .77$  to  $.93$ ; Dinc & Beji, 2017; Nowosielski et al., 2019). It should be noted that none of these studies included men in their samples.

Only two of the previous studies have examined its factorial structure. For the exploratory factor analysis (EFA), Creanga et al. (2014) used principal component analysis (PCA) with varimax rotation, obtaining six factors for non-pregnant women and seven factors for pregnant women. In the study by Nowosielski et al. (2019), principal-axis factoring extraction with varimax rotation was used, extracting two factors: BESAQ 1 - Sexual Activity and BESAQ 2 - Nudity. In addition, the confirmatory factor analysis (CFA) had satisfactory goodness and fit indices ( $\chi^2 = 1360.0$ ; RMSEA =  $.66$ ; CFI =  $.93$ ; TLI =  $.94$ ) for the bifactorial structure of the BESAQ.

Given the inconsistency of the results, it is clear that more research is needed on the validation of the BESAQ and even when evidence of its use has been found in some studies (Boyer & Pukall, 2014; Claudat & Warren, 2014; Claudat, Warren, & Durette, 2012; Lowder, Ghetti, Moalili, Zycynki, & Cash, 2010; Maillé, Bergeron, & Lambert, 2015; Yamamiya, Cash, & Thompson,

2006), these have mainly targeted women with and without any specific conditions (e.g., chronic pain during sexual intercourse, provoked vestibulodynia). Furthermore, research on men has been limited (Bossio & Pukall, 2018), although this does not mean that men are exempt from having some problems with their body image. Only two studies that included both men and women were found (Brennan, Lalonde, & Bain, 2010; Woods, Hevey, Ryall, & O’Keeffe, 2018). To our knowledge, we found no evidence that the BESAQ has been psychometrically evaluated in the Latin American population, and even less so in Mexico.

Therefore, the objective of this study was to evaluate the psychometric properties of the Spanish version of the BESAQ in university students.

## Method

### *Participants*

The sample included 997 sexually active university students (718 women and 279 men) between 18 and 35 years old ( $M = 23.76$ ;  $SD = 4.45$ ) enrolled in public (93%) and private (7%) universities belonging to the State of Mexico (49.9%), to Mexico City (22.9%) and various states of the Mexican Republic (27.2%) as Aguascalientes, Baja California, Chiapas, Chihuahua, Coahuila, Durango, Guanajuato, Guerrero, Hidalgo, Jalisco, Michoacán, Morelos, Nayarit, Nuevo León, Puebla, Querétaro, Quintana Roo, San Luis Potosí, Sonora, Tabasco, Tamaulipas, Veracruz, Yucatán and Zacatecas.

Likewise, 79.9% of the participants indicated that they are single, and only a minority (18.4%) expressed that their sexual orientation is different from heterosexual. Forty three percent of the participants were working at the same time as studying.

For statistical analyses, the sample was

randomly divided as follows: Sample 1 (EFA) included 333 participants (238 women and 95 men), with a mean age of 23.49 years old ( $SD = 4.43$ ); her BMI ranged from 16.76 to 38.46 ( $M = 24.97$ ;  $SD = 4.18$ ). Sample 2 (CFA) included 335 participants (238 women and 97 men), with a mean age of 24.14 years old ( $SD = 4.60$ ); her BMI ranged from 14.61 to 36.75 ( $M = 24.67$ ;  $SD = 3.77$ ). Sample 3 (invariance) included 329 participants (242 women and 87 men), with a mean age of 23.64 years old ( $SD = 4.31$ ); her BMI ranged from 16.76 to 39.56 ( $M = 24.83$ ,  $SD = 4.45$ ). When comparing the samples, no differences were observed in sex [ $\chi^2_{(2)} = .593$ ;  $p = .743$ ]; by age [ $F_{(996)} = 1.975$ ;  $p = .139$ ], nor in the average score of the BESAQ [ $F_{(996)} = .460$ ,  $p = .631$ ]; therefore, they are equivalent.

Finally, four weeks after the first application a subsample of 109 participants responded to the BESAQ.

### *Instruments*

**Demographic questionnaire.** Information on age, sex, marital status, occupation, sexual orientation, height, and weight were collected. BESAQ (Hangen & Cash, 1991) was described in the previous section.

**Body Esteem Scale (BES; Franzoi & Shields, 1984)** evaluates appreciation for body parts and functions. It comprises 35 items on a Likert-type scale with five response options (1 = *Have strong negative feelings*; 5 = *Have strong positive feelings*), where higher scores indicate greater appreciation for one’s own body. In Mexico, the BES was adapted by Escoto-Ponce de León et al. (2016) identifying two factors: Physical Condition and Weight Concern (PHWC-BES) and Physical and Sexual Attractiveness (PSA-BES).

The internal consistency was adequate ( $\alpha = .86$  to  $.91$ ). For the present study, McDonald's omega coefficient for both subscales were  $.91$  and  $.93$  for women, and for men, it was  $.95$  and  $.93$ , respectively. This scale was used to assess convergent validity.

**New Sexual Satisfaction Scale short version** (NSSS-S; Štulhofer, Buško, & Brouillard, 2011) measures sexual satisfaction. It contains 12 items and is answered on a Likert-type scale (1 = *Not at all satisfied*; 5 = *Extremely satisfied*), the higher the score indicates greater sexual satisfaction. In Mexico, the NSSS-S was validated by Flores-Perez, Camacho-Ruiz, Escoto-Ponce de León, Cervantes-Luna and Ibarra-Espinosa (2021) identifying two factors Ego-Centered and Partner-and Sexual Activity-centered. Internal consistency was excellent for the scale and its subscales ( $\omega = .89$  to  $.94$ ). In this study, McDonald's omega coefficient for the scale was  $.91$ , and for its subscales, it was  $.88$  and  $.83$ , respectively. With this scale, the discriminant validity was evaluated.

### Procedure

The present study was adjusted to the ethical principles of the Declaration of Helsinki (World Medical Association, 1964). Authorization was obtained from the educational institutions to disseminate the instruments through Facebook®. The participants' informed consent was obtained after they received general information about the study. The participants answered the instruments online through the Google Forms® platform from July 13 to September 24, 2021.

### Translation and adaptation process

Permission was obtained from Thomas F. Cash (personal communication, June 9, 2021) to translate and use the BESAQ. The cross-cultural adaptation process comprised five stages: translation, synthesis, back translation, expert committee review, and piloting (Beaton, Bombardier, Guillemin, & Ferraz, 2000). The first stage was carried out by an English lecturer (uninformed), a health professional (informed translator), and a researcher specializing in the field of body image (informed translator) to guarantee conceptual equivalence. The three translations of the BESAQ (from English into Spanish) included the instructions, the 28 items and the five response options.

Subsequently, three authors of this study compared the translations and discussed discrepancies between the versions that reflected language difficulties or uncommon terms. We made linguistic adjustments to the following items: 4 (*inhibido* by *avergonzado*), 6 (*manta* by *cobija*), 8 and 16 (*repulsivo* by *desagradable*), 15 and 23 (*cohibido* by *inseguro*), the terms *actividad sexual/sexo* by *relaciones sexuales* and *compañero* by *pareja*. Once these adjustments were made, a consensus was reached to create the first version of the BESAQ in Spanish.

The first version of the BESAQ was back-translated into the original language (English) by three specialized bilingual translators in order to reach a consensus about the semantic, idiomatic, conceptual and experiential equivalence with the original questionnaire. It should be noted that the translators had no prior knowledge of the subject, did not know the purpose of this study and did not see the original questionnaire at any time.

In the next stage, the specialized committee which included an English lecturer, three specialized translators, three researchers specialized

in the field of body image with experience in the validation of instruments, and a health professional, ensured that the preliminary version of the BESAQ in the Spanish language was fully understandable and equivalent to the original questionnaire. No discrepancies were found so the pre-final version was created.

Finally, the piloting of the pre-final version of the BESAQ was carried out on a sample of 32 sexually active university students (23 women and 9 men), aged between 18 and 35 years old ( $M = 22.84$ ;  $SD = 4.00$ ), enrolled in five public universities and in one private university, belonging to the State of Mexico and Mexico City. They answered the BESAQ on the Google Forms® platform, to assess clarity, comprehension, cultural relevance and legibility. No inconsistencies were reported in the instructions, terms or response options. However, in response to item 10 one participant said that «when it comes to my partner seeing me naked, I have nothing to hide», which was confusing. Likewise, two participants said that the questions were repetitive and one more suggested that the questions could be open-ended.

According to [Reichenheim and Moraes \(2007\)](#), each item must have a comprehension level greater than 90%. In this case, 100% comprehension was obtained in 27 items of the questionnaire. Similarly, [Ramada-Rodilla, Serra-Pujadas and Delclós-Clanchet \(2013\)](#) mentioned that an item should be revised if 15% of the participants encountered difficulties. Particularly in item 10, 97% of understanding was obtained, therefore, the committee decided not to make any changes. The final version of the BESAQ in Spanish was used for the evaluation of the psychometric properties.

### *Data analysis*

Multivariate outliers were identified using IBM SPSS version 19.0 software ([IBM Corporation, 2010](#)) using the Mahalanobis distance test ([Tabachnick & Fidell, 2013](#)) with a significance level of  $p < .005$ .

Multivariate normality analyses were performed using the FACTOR software version 11.05.01 ([Ferrando & Lorenzo-Seva, 2017](#)). According to [Bollen \(1989\)](#), multivariate normality exists if the Mardia coefficient ([Mardia, 1970](#)) is less than  $p(p+2)$ , where  $p$  is the number of variables observed.

The EFA was performed with the Mplus version 8.7 software ([Muthén & Muthén, 2017](#)) with the robust maximum likelihood estimation method (MLR) and oblique rotation (oblimin), following the recommendations of [Worthington and Whittaker \(2006\)](#). The number of factors was determined by Horn's parallel analysis ([Horn, 1965](#)). For item retention, factor loadings greater than .40 were considered for each item, items with cross-loadings with a difference of less than .15 were eliminated, and items with cross-loadings with a difference greater than or equal to .15 were retained in the factor with the highest load. In addition, the Kaiser-Meyer-Olkin (KMO) sample adequacy test was calculated, which requires a score greater than .60 to be considered a good factor analysis ([Tabachnick & Fidell, 2001](#)); and if Bartlett's sphericity test is significant ( $p < .05$ ), it can be confirmed that the factorial structure is adequate ([Hair, Anderson, Tatham, & Black, 1995](#)).

The CFA was performed with the MPlus version 8.7 software ([Muthén & Muthén, 2017](#)). To assess the fit of the factorial structure data, two absolute fit indices were used: a) the Satorra-Bentler scaled chi-square (S-B  $\chi^2/df$ ), where values less than 2 indicate good fit and values



**Table 1**  
Factor loadings for the BESAQ.

Item	Content	Loading
<i>Factor 1. Preocupaciones durante las relaciones sexuales</i>		
1	Durante las relaciones sexuales, estoy pensando que mi pareja pondrá atención en alguna parte de mi cuerpo y perderá el deseo sexual.	.690
2	Durante las relaciones sexuales, me preocupa que mi pareja encuentre aspectos desagradables de mi cuerpo.	.779
4	Durante las relaciones sexuales, algo con relación a cómo se ve mi cuerpo me hace sentir avergonzado.	.763
8	Cuando tenemos relaciones sexuales, me preocupa que mi pareja considere mi cuerpo desagradable.	.825
9	Durante las relaciones sexuales, me preocupa que mi pareja piense que el tamaño o la apariencia de mis órganos sexuales sean inadecuados o poco atractivos.	.634
14	Prefiero dejarme ciertas prendas puestas durante las relaciones sexuales.	.533
15	Estoy inseguro(a) de mi cuerpo durante las relaciones sexuales.	.786
16	Durante las relaciones sexuales, me preocupa que mi pareja encuentre desagradable la apariencia u olor de mis genitales.	.581
17	Durante las relaciones sexuales, trato de esconder ciertas áreas de mi cuerpo.	.803
18	Durante las relaciones sexuales, me la paso pensando qué partes de mi cuerpo son poco atractivas para ser sexy.	.833
19	Hay partes de mi cuerpo que no quiero que mi pareja vea cuando estamos teniendo relaciones sexuales.	.822
20	Durante las relaciones sexuales, me preocupa lo que mi pareja piense acerca de la apariencia de mi cuerpo.	.808
21	Durante las relaciones sexuales, me preocupa que mi pareja pierda el deseo sexual cuando toca y siente algunas partes de mi cuerpo.	.768
22	Durante las relaciones sexuales, es difícil para mí evitar pensar en mi peso.	.668
26	Durante las relaciones sexuales, hay ciertas poses o posiciones que evito debido a la manera en que mi pareja vería mi cuerpo.	.695
27	Durante las relaciones sexuales, me distraen los pensamientos de cómo se ven ciertas partes de mi cuerpo.	.791
<i>Factor 2. Conductas durante las relaciones sexuales</i>		
7	Estoy cómodo(a) cuando mi pareja mira mis genitales durante las relaciones sexuales.	.610
13	Espero que mi pareja se excite al verme sin ropa.	.455
24	Generalmente, estoy cómodo(a) al tener partes de mi cuerpo a la vista de mi pareja durante las relaciones sexuales.	.694
25	Durante las relaciones sexuales, disfruto que mi pareja mire mi cuerpo.	.836
28	Antes o después de tener relaciones sexuales, estoy cómodo(a) caminando desnudo(a) a la vista de mi pareja.	.798

between two and three indicate an acceptable fit (Schermelleh-Engel, Moosbrugger, & Müller, 2003); and b) the standardized root mean square residual (SRMR), values less than .05 indicate a good fit and values between .05 and .10 are ac-

ceptable (Hu & Bentler, 1995). Similarly, two comparative fit indices were used: the comparative fit index (CFI) and the Tucker-Lewis index (TLI), values equal to or greater than .90 are interpreted as an acceptable fit (Bentler, 1990;

Bentler & Bonett, 1980). Finally, the parsimony fit index was examined: the root mean square error of approximation (RMSEA), for which values between .05 and .08 indicate an adequate fit (Browne & Cudeck, 1992).

Invariance analysis was performed using multigroup confirmatory factor analysis (MG-CFA) including examination of configural invariance, metric invariance, scalar invariance, and strict invariance. The values  $\Delta\text{RMSEA} \leq .015$ ,  $\Delta\text{CFI} \leq .01$  and  $\Delta\text{TLI} \leq .01$  (Cheung & Rensvold, 2002) were considered as signs of invariance.

Bivariate correlations between the BESAQ, the BES, and the NSSS-S were evaluated to obtain convergent and divergent validity. Additionally, the average variance extracted (AVE) was obtained from the sum of the factor loadings; values greater than .50 are considered adequate (Fornell & Larcker, 1981).

The internal consistency of the BESAQ was evaluated with the omega coefficient ( $\omega$ ) of McDonald (1999) using the FACTOR version 11 software (Ferrando & Lorenzo-Seva, 2017). According to Cicchetti (1994), values of  $\omega$  greater than .90 are considered excellent.

For temporal stability, Pearson ( $r$ ) and intraclass correlation coefficients (ICC) were used. According to Guilford (1956)  $r$  values are interpreted as: low (.20 to .39), moderate (.40 to .69), high (.70 to .89) and very high (.90 to 1.00). For the ICC values greater than .81 are considered almost perfect (Landis & Koch, 1977).

## Results

### *Preliminary analysis*

Initially, the sample consisted of 1005 university students; however, when analyzing the data with the Mahalanobis distance test (Tabachnick & Fidell, 2013), eight outliers were identi-

fied and eliminated.

Multivariate normality tests indicated that the data are not normally distributed in any of the samples (Sample 1 skewness = 154.17, kurtosis = 1025.70,  $p < .001$ ; Sample 2 skewness = 145.97, kurtosis = 1000.24,  $p < .001$ ; Sample 3 skewness = 140.80, kurtosis = 974.52,  $p < .001$ ). Therefore, in subsequent analyzes the MLR estimation method was used.

### *Exploratory Factor Analysis*

Horn's parallel analysis (Horn, 1965) suggested the presence of two factors. Therefore, the EFA was forced to two factors that explain 49.85% of the variance. The KMO tests (KMO = .958) and Bartlett's sphericity ( $\chi^2 = 5820.689$ ;  $df = 378$ ;  $p < .001$ ) demonstrated a clear adequacy of the data for this type of analysis. Factor 1 includes items 1, 2, 4, 8, 9, 14-22, 26, 27 and it is called *concerns during sexual intercourse*. Factor 2 includes items 7, 13, 24, 25, 28 and it is called *behaviors during sexual relations* (items 3, 5, 6, 10, 11, 12 and 23 were eliminated; Table 1).

### *Confirmatory Factor Analysis*

In Sample 2, the CFA was performed evaluating the fit of two models: one-dimensional model (Hangen & Cash, 1991) and two-factor model (F1 = items 1, 2, 4, 8, 9, 14-22, 26, 27; F2 = items 7, 13, 24, 25, 28). Table 2 shows that the goodness and fit indices were adequate only for the bifactorial model, in which the item-total correlations were .35 to .85 and the items loaded significantly on their respective factor ( $p < .001$ ) and ranged from .51 to .90; therefore, subsequent analyzes were performed using the bifactorial model.

**Table 2**

Goodness of fit indices for the BESAQ.

Models	S-B $\chi^2$	df	S-B $\chi^2/df$	p	RMSEA (95% CI)	SRMR	CFI	TLI	$\Delta$					
									S-B $\chi^2$	df	RMSEA	CFI	TLI	
S <sub>2</sub> -CFA one-dimensional (n = 335)	1490.562	350	4.26	< .001	.099 (.093, .104)	.089	.792	.776						
CFA bifactor (n = 335)	467.171	188	2.48	< .001	.067 (.059, .074)	.049	.931	.922						
S <sub>3</sub> -MG-CFA														
<i>By sex</i> (n = 329)														
Females (n = 242)	324.547	188	1.73	< .001	.055 (.045, .065)	.041	.956	.951						
Males (n = 87)	316.621	188	1.68	< .001	.089 (.071, .105)	.074	.883	.870						
<i>By BMI</i> (n = 318)														
Normal weight (n = 184)	318.025	188	1.69	< .001	.061 (.049, .073)	.048	.938	.930						
Excess weight (n = 134)	252.991	188	1.35	.0011	.051 (.033, .066)	.049	.966	.962						
Configural invariance	571.108	376	1.52	< .001	.057 (.047, .066)	.048	.951	.946						
Metric invariance	593.197	395	1.50	< .001	.056 (.047, .065)	.063	.950	.947	-22.089	-19	.001	.001	-.001	
Scalar invariance	636.237	414	1.54	< .001	.058 (.049, .067)	.066	.944	.944	-43.04	-19	-.002	.006	.003	

**Note.** S-B $\chi^2$  = Satorra-Bentler scaled-chi square; *df* = degrees freedom; *p* = significance; RMSEA = root mean square error of approximation; CI = confidence interval; SRMR = root mean square residual; CFI = comparative fit index; TLI = Tucker-Lewis index;  $\Delta$  = incremental value; S<sub>2</sub> = sample two; S<sub>3</sub> = sample three; CFA = confirmatory factor analysis, MG-CFA = multi-group confirmatory factor analysis.

### *Invariance analysis by sex*

In Sample 3, the fit of the bifactorial model for women and men was evaluated. Contrary to what was expected, the bifactorial model only presented acceptable indices for the group of women (Table 2); therefore, the analysis of invariance was not performed.

### *Invariance analysis by BMI*

To evaluate invariance by BMI, underweight participants were excluded (n = 11). Therefore, Sample 3 was divided into two groups: normal weight and excess weight (including overweight

and obesity). Table 2 shows that the model was acceptable for both groups. In addition, the changes between  $\Delta$ RMSEA,  $\Delta$ CFI and  $\Delta$ TLI are within the suggested values, which indicates that the BESAQ is invariant by BMI, that is, the questionnaire can be applied regardless of weight.

### *Convergent validity*

BESAQ scores were moderately positively associated (*p* = .0001) with Physical Condition and Weight Concern-BES (*r* = -.39 men and -.49 women), and Physical and Sexual Attractiveness-BES (*r* = -.38 men and -.48 women), and with the total BES score (*r* = -.39 men and -.50



women, respectively). Also, the AVE was .75.

### *Discriminant validity*

BESAQ scores were moderately negatively associated ( $p = .0001$ ) with Ego-Centered-NS-SS-S ( $r = -.48$  men and  $-.47$  women), with Partner- and Sexual Activity-centered-NSSS-S ( $r = -.42$  men and  $-.44$  women), and with the total score of the NSSS-S ( $r = -.47$  men and  $-.48$  women).

### *Internal consistency*

The 21 items of the BESAQ had excellent internal consistency for the entire sample, for men and for women ( $\omega = .91, .91$  and  $.92$ , respectively), for Sample 1 ( $\omega = .92, .91$  and  $.91$ , for men, women and total, respectively), Sample 2 ( $\omega = .90, .92$  and  $.91$ , for men, women and total, respectively) and Sample 3 ( $\omega = .90, .92$  and  $.91$ , for men, women and total, respectively).

### *Temporal stability analysis*

Temporal stability analysis showed a Pearson correlation of .82 (.90 for men and .80 for women); ICC values of .90 for the total sample ( $n = 109$ ; 95% CI = .85, .93;  $p < .001$ ), .93 for men (95% CI = .81, .97;  $p < .001$ ), and .89 for women (95% CI = .83, .93;  $p < .001$ ).

## **Discussion**

The purpose of this study was to evaluate the psychometric properties of the Spanish version of the BESAQ in Mexican university students. Ergo,

a strict process of translation and adaptation of the BESAQ into Spanish was carried out to guarantee that it retains the semantic, idiomatic, conceptual, and experiential equivalence of the original questionnaire.

According to Swami and Barron (2019), the factorial structure of any instrument must be analyzed each time it is used in different contexts or populations. Finding no evidence of the factorial structure of the BESAQ in Mexico, the EFA was performed following the CFA. Our results support the bifactorial structure of the BESAQ for both men and women. This is consistent with the study by Nowosielski et al. (2019), where they also found a two-factor structure, although it was exclusively for women.

As far as we know, this is the first study that focuses on evaluating the invariance of the BESAQ by sex and BMI. However, only metric, scalar and strict invariance was demonstrated for BMI, because the male model did not obtain acceptable goodness and fit indices. This result may be because conscious or anxious attention to body exposure is not directed at the same physical characteristics, that is, while men pay more attention to their weight, musculature, waist, chest, genitals, hair, arms, and shoulders, women are more aware of their weight, waist, hips, thighs, and buttocks (Cash et al., 2004). However, in the study by La Rocque and Cioe (2011), it is showed that it is mainly women who tend to hide certain aspects of their appearance during sexual intercourse compared to men. Similarly, the study by Brennan et al. (2010) showed that women experience a negative perception of their body image during sexual intercourse compared to men. In addition, the perception that women have about their body influences the development of sexual dysfunctions (Jiménez-Ortiz, Sánchez-Cardona, & Pérez-Pedrogo, 2020). Therefore, it has been suggested that in future research the differences

by sex be analyzed to have a more comprehensive vision (Brennan et al., 2010).

In relation to the convergent validity, our results show the positive association between the BESAQ and the BES. This is consistent with the study by Brennan et al. (2010), where it is mentioned that people who have low body esteem will have a negative perception of their body during sexual intercourse. In addition, Faith and Schare (1993) mention that those who have a negative perception are more likely to avoid sexual intercourse compared to those who perceive their body positively. Similarly, Nowosielski et al. (2019) showed that the greater the anxiety and avoidance of body exposure during sexual intercourse is, the lower the body esteem is perceived.

For divergent validity, unexpected results were obtained since there was a positive association with the NSSS-S. In the study by Holt and Lyness (2007) it is noted that there is a positive link between body image and sexual satisfaction for university students of both sexes, finding no differences by sex, so the development of new research would help to understand that the problems related to body image are not exclusively for women. Likewise, Penhollow and Young (2008) emphasize that research regarding the association between body image and sexual satisfaction for men and women has been a poorly studied area.

In general, studies have used Cronbach's alpha coefficient to determine the internal consistency of the BESAQ (Cash et al., 2004; Creanga et al., 2014; Dinc & Beji, 2017; Nowosielski et al., 2019). However, some authors have pointed out that this coefficient can be a negative estimator of reliability because it is affected by the number of items, the response options, and the variance. Therefore, it has been suggested using McDonald's (1999) omega coefficient because it presents greater sensitivity, that is, it allows a more precise evaluation of consistency compared to other es-

timators when using Likert-type scales (Domínguez-Lara & Merino-Soto, 2015; Sijtsma, 2009). Our findings confirm that the 21-item structure of the BESAQ has excellent internal consistency for the complete sample, both men and women.

Although the most used method to evaluate temporal stability has been Pearson's correlation, Weir (2005) suggests incorporating the ICC to obtain more precise results that is the reason why it has been included in the present study. Our results show that BESAQ has excellent temporal stability, in agreement with the studies of Dinc and Beji (2017) and Nowosielski et al. (2019).

From the studies that have validated the BESAQ, only the study by Cash et al. (2004) was aimed at university students, both men and women, for which our study represents a great contribution since most of the research on body image experiences in the sexual area has been directed at women.

It is concluded that the BESAQ is a valid and reliable two-dimensional instrument to evaluate the body exposure during sexual intercourse in Mexican university students.

### *Limitations*

This study has some limitations that can be taken up in the future. In the first place, although the sample size was large, it was not sufficiently representative of all entities in Mexico, which could make it difficult to generalize the results. Future studies could include more states.

Similarly, our study included participants between 18 and 35 years old, so it would be important to include adolescents and older adults to extend the age range for BESAQ validation in Mexico.

On the other hand, although homosexual or bisexual women and men participated, it was

not possible to perform the invariance analysis by sexual orientation since the sample was not representative. Therefore, future studies could expand the participation of people with different sexual orientations.

Finally, this study is cross-sectional, which is why it is suggested that subsequent studies be longitudinal to obtain more evidence of body image experiences in the sexual area at different times.

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