

ARTÍCULO ORIGINAL

Validity, Reliability, and Invariance of the Double Sexual Standard in a Colombian and Mexican Sample

Fecha de recepción:
4 de febrero de 2025.
Fecha de aprobación:
7 de octubre de 2025.

Validez, confiabilidad e invariancia del doble estándar sexual en una muestra colombiana y mexicana / Validade, Confiabilidade e Invariância do Duplo Padrão Sexual em uma Amostra Colombiana e Mexicana

Jorge Arturo Martínez Gómez¹, Libia Yanelli Yanez Peñúñuri², Yolima Bolívar Suárez¹, Claudia Patricia Navarro Roldán¹

ABSTRACT

Objective: To analyze the validity, reliability and invariance of the Double Sexual Standard questionnaire in a sample of Colombian and Mexican adolescents and young adults.

Methods: The participants were 1,906 individuals, of whom 795 were men (41,7%) and 1111 were women (58,2%), aged between 15 and 28 (M = 20,16; SD = 2,28). The 61,1% of the sample were Colombian and 38,8% were Mexican. The Sexual Double Standard Scale was used, which allows for the evaluation of more permissive acceptance when judging the sexual behavior of men than that of women.

Results: Although the original questionnaire has a unidimensional structure, exploratory factor analysis yielded two factors, which were named: factor 1 (condescending sexual behavior toward men) and factor 2 (strict sexual behavior toward women), explaining 51,7% of the variance. This new version has adequate reliability. Furthermore, confirmatory factor analysis was used to verify this new version, and the fit indices were adequate (>0,908). The Differential Functioning (DIF) of the 10 items (DIF) was evaluated to identify whether the probability of responding differently to the double standard sexual behavior items in the Mexican and Colombian populations was concentrated. Item 8 showed a problematic pattern, with a significant uniform and non-uniform DIF in favor of Mexico. Similarly, item 3 showed non-uniform DIF, suggesting that it discriminates differently between the two countries. Likewise, statistically significant differences were found in condescending sexual behavior toward men and strict sexual behavior toward women, with Colombian men scoring higher than Mexican men.

Conclusions: The results of this research provide a valid and standardized measurement tool for the study of sexual double standards and the development of promotion and prevention programs for related issues such as intimate partner violence, sexism, and gender studies in sex education.

Key words: Sexual Double Standard; Validity; Reliability; Factor Structure; Invariance.

RESUMEN

Objetivo: Analizar la validez, fiabilidad e invarianza del cuestionario de Doble Estándar Sexual en una muestra de adolescentes y adultos jóvenes colombianos y mexicanos.

Métodos: Los participantes fueron 1.906 personas de las cuales 795 corresponden a hombres (41,7%) y 1111 mujeres (58,2%), con edades entre 15 y 28 años (M 20,16; DS 2,28). El 61,1% de la muestra fueron colombianos y el 38,8% mexicanos. Se utilizó la Escala de Doble Estándar Sexual, la cual permite evaluar la aceptación más permisiva a la hora de juzgar la conducta sexual de los varones que de las mujeres.

Forma de citar este artículo:

Martínez Gómez JA, Yanez Peñúñuri LY, Bolívar Suárez Y, Navarro Roldán CP. Validity, Reliability, and Invariance of the Double Sexual Standard in a Colombian and Mexican Sample. Med UPB. 2026;45(1):37-48
DOI:10.18566/medupb.v45n1.a06

1. Universidad Pedagógica y Tecnológica de Colombia. Tunja, Colombia.
2. Universidad de Sonora. México.

Dirección de correspondencia:
Yolima Bolívar Suárez.
Correo electrónico: yolima.bolivar@uptc.edu.co

Resultados: Aunque el cuestionario original presenta una estructura unidimensional, al realizar el análisis factorial exploratorio se obtuvieron dos factores, los cuales se denominaron: factor 1 (Conducta sexual condescendiente hacia el hombre) y factor 2 (Conducta sexual estricta hacia la mujer) que explica un 51,7% de la varianza. Esta nueva versión presenta una adecuada confiabilidad, además, se utilizó el análisis factorial confirmatorio para comprobar esta nueva versión, los índices de ajuste fueron adecuados ($>0,908$). Se evaluó el Funcionamiento Diferencial (DIF) de los 10 ítem (DIF), con el objetivo de identificar si, la probabilidad de responder de forma diferentes los reactivos del doble estándar sexual en población mexicana y colombiana, se encontró que el ítem 8 evidenció un patrón problemático, con un DIF uniforme y no uniforme significativo a favor de México. De igual forma, el ítem 3 mostró DIF no uniforme, sugiriendo que discrimina de manera diferente entre los dos países. Así mismo, se encontraron diferencias estadísticamente significativas en conducta sexual condescendiente hacia el hombre y estricta hacia la mujer, presentando puntajes más altos los hombres Colombianos en comparación con los hombres Mexicanos.

Conclusiones: Los resultados de esta investigación permiten contar con un instrumento de medida válido y estandarizado para el estudio del doble estándar sexual y el desarrollo de programas de promoción y prevención de problemáticas relacionadas como la violencia de pareja, el sexismo y estudios de género en educación sexual.

Palabras clave: Doble estándar sexual; Validez; Confiabilidad; Estructura factorial; Invarianza.

RESUMO

Objetivo: Analisar a validade, a confiabilidade e a invariância do Questionário de Duplo Padrão Sexual em uma amostra de adolescentes e jovens adultos colombianos e mexicanos.

Métodos: Os participantes foram 1.906 indivíduos, dos quais 795 eram homens (41,7%) e 1.111 eram mulheres (58,2%), com idades entre 15 e 28 anos (M 20,16; DP 2,28). 61,1% da amostra eram colombianos e 38,8% mexicanos. Foi utilizada a Escala de Duplo Padrão Sexual, que avalia a maior permissividade em relação ao comportamento sexual masculino comparado ao feminino.

Resultados: Embora o questionário original apresente uma estrutura unidimensional, a análise fatorial exploratória resultou em dois fatores: Fator 1 (Comportamento Sexual Condescendente em Relação aos Homens) e Fator 2 (Comportamento Sexual Rigoroso em Relação às Mulheres), que explicam 51,7% da variância. Esta nova versão demonstra confiabilidade adequada. A análise fatorial confirmatória foi utilizada para verificar esta nova versão, e os índices de ajuste foram adequados ($>0,908$). O Funcionamento Diferencial do Item (FDI) dos 10 itens foi avaliado para identificar se a probabilidade de resposta diferenciada aos itens sobre o duplo padrão sexual difere entre as populações mexicana e colombiana. O item 8 apresentou um padrão problemático, com FDI uniforme e não uniforme significativo favorecendo o México. Da mesma forma, o item 3 apresentou FDI não uniforme, sugerindo que discrimina de forma diferente entre os dois países. Igualmente, diferenças estatisticamente significativas foram encontradas no comportamento sexual condescendente em relação aos homens e no comportamento rígido em relação às mulheres, com os homens colombianos apresentando pontuações mais altas em comparação aos homens mexicanos.

Conclusões: Os resultados desta pesquisa fornecem um instrumento de mensuração válido e padronizado para o estudo do duplo padrão sexual e para o desenvolvimento de programas de promoção e prevenção de problemas relacionados, como violência doméstica, sexismo e estudos de gênero na educação sexual.

Palavras-chave: Duplo padrão sexual; Validade; Confiabilidade; Estrutura fatorial; Invariância.

INTRODUCTION

Traditionally, there have been divergent expectations about how men and women should behave in the sexual¹⁻³. On the one hand, men are expected to be active and to initiate and guide sexual activity. On the other hand, women are expected to be reserved and unassertive, acting passively in sexual encounters. Accordingly, while men are encouraged to engage in sexual practices, women are pressured to abstain from such behaviors until marriage⁴⁻⁵.

This delineation of sexual roles for men and women has led to greater sexual freedom for men in terms of premarital sex, the possibility of having multiple sexual partners, and the onset of sexual activity at an early age⁶. As a result, men enjoy social approval for being active in their sexual relationships, while women are rejected for exhibiting the same behaviors⁷. This act of evaluating sexual behaviors as moral or immoral based on the gender of the person performing them is known as sexual double standards or sexual double morality⁸ and is characterized by men being evaluated more positively or less negatively than women for similar sexual histories⁹. These standards for sex and romance reflect a social dominance orientation in which men must sexually subjugate women, establishing a hierarchical relationship between the two sexes¹⁰.

The study of the double standard in sex is highly relevant to individuals sexual health in order to avoid the risk of contracting sexually transmitted infections, sexual violence, unplanned pregnancies, and risky sexual behaviors¹¹. Likewise, some authors report that attitudes favorable to sexual double standards encourage risky sexual behaviors such as having a greater number of sexual partners¹², less use of contraceptives^{13,14}, an increase in sexually transmitted infections¹⁵ and difficulty in making decisions about sexual relationships¹⁶. In this regard, the World Health Organization¹⁷ indicates that sexual and reproductive health is essential for overall health and well-being, as well as for the development of personal relationships.

With regard to the conceptualization and measurement of the sexual double standard, various measurement instruments have been used, such as the Sexual Double Standard Scale (SDSS)¹⁸; the Attitudes Toward Dating and Relationships created by Ward and Rivadeneyra (1999)¹⁹ and abbreviated by Zurbriggen and Morgan (2006)²⁰, the Sexual Double Standard Evaluation²¹, the Sexual Attitude Questionnaire²² and the Haavio-Mannila & Kontula Scale (2003)²³. However, one of the most widely used measures for assessing this construct is the instrument designed by Caron, Davis, Halteman,

and Stickle(1993) called the Double Standard Scale. This scale consists of 10 items that assess acceptance of the double standard in sexuality using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) to indicate the degree of agreement with the statements presented. The instrument's rating indicates that the higher the score, the greater the acceptance of the sexual double standard. This questionnaire has adequate psychometric properties in terms of reliability and validity based on an unifactorial internal structure. Likewise, adaptations and validations have been carried out in Brazil²⁵, Spain^{3,8,26}, the United States²⁷, Peru^{25,28} and El Salvador²⁹, in which adequate internal consistency, structural validity, and convergent validity have been reported.

Reporting evidence on the reliability and validity of the measurement of sexual double standards allows for the objective and clear collection of information on the phenomenon⁸ and considering that in Mexico and Colombia there are no studies evaluating the reliability and validity of the Sexual Double Standard Scale by Caron *et al.* (1993), the objective of this study was to evaluate the validity and reliability of the Sexual Double Standard Scale, based on the adaptation by Sierra and Gutiérrez-Quintanilla (2007) in Colombian and Mexican adolescents and young adults.

METHOD

Design

This is a non-experimental, cross-sectional study with a psychometric approach, using factor analysis to determine the dimensionality of the Sexual Double Standard questionnaire.

Participants

The method used to select participants was non-probabilistic convenience sampling. Thus, the sample consisted of a total of 1906 people, of whom 795 were men (41,7%) and 1111 were women (58,2%), aged between 15 and 28 years old (M 20,16; SD 2,28). Regarding origin, 1165 (61,1%) of the participants were Colombian (46,1% men and 53,8% women) aged between 15 and 28 years, and 741 (38,8%) were Mexican (34,6% men and 65,3% women) aged between 17 and 28. Regarding socioeconomic status, 77,8% reported belonging to the middle class, 14,8% to the upper class, and 7,3% to the lower class. Regarding the analysis of age differences between men and women, carried out using Student's t-test,

statistically significant differences were found, with men ($M = 20,19$; $SD = 2,5$) being older than women ($M = 19,8$; $SD = 2,1$) ($t = 3,01$; $p = 0,003$; $95\% \text{ CI } 0,112-0,530$).

The analysis based on gender with respect to country of origin revealed significant differences, with a greater number of Colombian women participating in the study ($X^2 [1, N 1906] = 21,902$; $p = 0,000$). In addition, the homogeneity of the participants was analyzed according to gender, and a significant difference was found, with women being more frequent in the expected sample compared to men ($X^2 [1, N 1906] = 52,390$; $p = 0,000$). Similarly, significant differences were found between participants and their place of origin, with the sample from Colombia being the most frequent ($X^2 [1, N 1906] = 94,321$; $p = 0,000$).

Instrument

- **An (ad hoc) sociodemographic form.** This instrument was created for the collection and analysis of variables that show evidence in studies of their relationship with double standards in sexual behavior, designing categories based on closed-ended questions with several alternatives, such as sociodemographic information (gender, age, marital status, economic status, level of education, place of origin); history of romantic relationships; sexism and feminism.
- **Sexual Double Standard Scale** (EDM; Caron *et al.*, 1993). (Salvadoran adaptation of Sierra & Gutiérrez-Quintanilla, 2007). Designed to assess the degree of acceptance of a more permissive morality when judging the sexual behavior of men than that of women. It consists of 10 items that make up a single factor, with response options given on a 5-point Likert scale, from 1 (strongly disagree) to 5 (strongly agree). In the original version, an alpha coefficient of 0,72 was obtained, and the total score for the instrument is obtained by adding up the scores for each of the 10 items (including inverse negative items), with a possible score range of 10 to 50 points²⁴.

The authors of the Salvadoran adaptation obtained an internal consistency of 0,73 in a first study, demonstrating the stability of the structure in a second sample of 1349 students, with a Cronbach's alpha of 0,78³. For this research, reliability was analyzed using Cronbach's alpha, and the result was: $\alpha = 0,809$.

Procedure and Data Analysis

The forms were administered en masse in the classrooms of the educational institutions that participated in the study. In order to gain access to educational insti-

tutions, the administrators were contacted to request authorization to administer the protocols. Participants were given the following information verbally: a) the objective and scope of the research; b) the possibility of not participating in the study; c) anonymity, custody, and confidentiality of the information. Finally, participants were asked to sign an informed consent form. If the participant was a minor, parental authorization was required.

After collecting the information, a database was designed and organized in the SPSS-22, AMOS program. To achieve the objectives, exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were used. The EFA procedure followed three steps of analysis: (a) considering Kaiser's criterion³⁰, where the maximum number of factors extracted must include eigenvalues greater than 1; (b) following Harman³¹, under the criterion of explaining at least 3% of variance per factor; and (c) explaining the existence of each factor based on the theory that supports the instrument³². For CFA, the maximum likelihood method was followed, under the assumption of a multivariate normal distribution and robust method indicators. In this regard, the following tasks were carried out: (a) establishment of the scale of common factors; (b) verification of the identified theoretical model containing the relationship between the observed variables and the factors; and (c) identification of parameters to be estimated (variances of error terms, regression coefficients between observed variables, common factors, and covariance between these factors). In addition, Cronbach's alpha test was used to evaluate the internal consistency of the instrument. For each item of the Double Standard and Sexual instrument, the Differential Item Functioning (DIF) was evaluated using an ordinal logistic regression approach, following the recommendations for cross-cultural psychometric testing. Three nested models were estimated: (a) Model 1: Item-Trait (total score of the instrument without including the item evaluated); (b) Model 2: Item-Trait + Country, whose significant improvement over Model 1 indicates the presence of uniform DIF; (c) Model 3: Item-Trait + Country + Trait×Country, whose significant improvement over Model 2 indicates the presence of non-uniform DIF. The likelihood ratio statistic (χ^2) was used to compare models. In addition, configural, metric, scalar, and strict invariance were calculated in the JASP 0.19.3 program. Finally, differences were compared according to country and gender (male and female) using the student's t-test.

Ethical considerations

This study was endorsed by the Bioethics Committees of the University of Sonora (Mexico) and Uptc

(Colombia). It complied with the provisions of Resolution 008430 of 1993 (which establishes the scientific, technical, and administrative standards for health research in Colombia). the level of risk for this research was low, and the ethical principles and standards stipulated by Law 1090 of 2006 were considered, particularly those relating to the confidentiality of the data provided by the participants and their informed consent, as described in the procedure.

RESULTS

Exploratory factor analysis

Exploratory factor analysis (EFA) was performed using the principal component method (PCA) with orthogonal rotation (varimax) with the 10 items of the instrument. The Kaiser-Meyer-Olkin (KMO) index was appropriate (0,901) and Bartlett's sphericity test was ($X^{(2)} [5425,281]=45; p 0,000$), indicating the appropriateness of performing the EFA of the Double Sexual Standard Questionnaire.

Although the original questionnaire has a unidimensional structure, exploratory factor analysis yielded two factors, which were named: factor 1 (condescending

sexual behavior toward men) and factor 2 (strict sexual behavior toward women), explaining 51,7% of the variance. Table 1 shows the factor loadings after rotation. The first factor of condescending sexual behavior toward men explained 37.2% of the variance, and the second factor of strict sexual behavior toward women explained 14,5% of the variance. In addition, Table 1 shows Cronbach's alpha coefficients, means, and standard deviations. The internal consistency of the instrument was calculated using Cronbach's alpha coefficient, which was 0,778. Likewise, Cronbach's alpha coefficient for Factor 1 (condescending sexual behavior toward men) was 0,837, while for Factor 2 (strict sexual behavior toward women) it was 0,689. The means of the questionnaire factors ranged from 9,3 to 11 with a standard deviation between 2,9 and 4,3 (see Table 1).

Confirmatory factor analysis

Figure 1 shows the results of the confirmatory factor analysis of the original unidimensional model of the double standard in sexuality questionnaire proposed by the authors. It can be seen that the incremental fit indices were above 0,908, the parsimony index (RMSEA) was 0.076, and the absolute fit indices were acceptable for the model (Figure 1).

Table 1. Factor structure with varimax rotation of the Double Standard in Sexuality Questionnaire in the Colombian and Mexican populations (n=1906)

	Factors	
	Condescending sexual behavior toward men	Strict sexual behavior towards women
In sex, men should take the dominant role and women the passive role	0,770	
It is important for a man to have multiple sexual encounters to gain experience	0,756	
It is important for men to be sexually experienced in order to teach women	0,731	
It is the man's decision to initiate sex.	0,721	
A "good" woman would never have a one-night stand, but a man is expected to do so.	0,692	
It is worse for a woman to be promiscuous than for a man to be promiscuous.	0,672	
A woman is expected to be less sexually experienced than her partner.		0,453
A woman should never appear to be ready for a sexual encounter.		0,684
A woman who is sexually active is less likely to be desired as a partner	0,453	0,588
It is acceptable for a woman to carry condoms		-0,584
Variance of each factor	37,2	14,5
Total variance	51,7%	12 (34,28%)
Cronbach's alpha	0,837	0,689
Total Reliability	0,778	
Mean (SD)	9,3 (2,9)	11 (4,3)

Figure 1. Confirmatory factor analysis of the unidirectionality of the double sexual standard. One factor model (10 items). Note: CFI: Comparative fit index; GFI: Goodness-of-fit index; RMR: Root mean square residual; RMSEA: Root mean square error of approximation; NFI: Normed fit index; IFI: Incremental fit index; TLI: Tucker-Lewis index AIC: Akaike's information criteria.

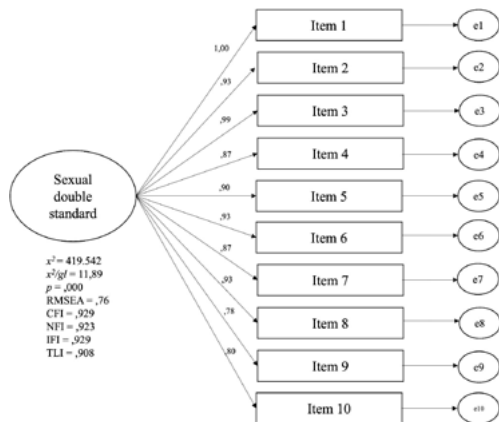
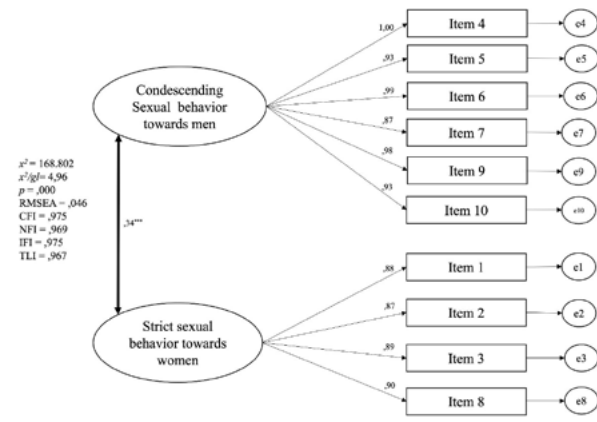


Figure 2. Confirmatory factor analysis of the two-factor proposal of the sexual double standard questionnaire. Note: CFI: Comparative fit index; GFI: Goodness-of-fit index; RMR: Root mean square residual; RMSEA: Root mean square error of approximation; NFI: Normed fit index; IFI: Incremental fit index; TLI: Tucker-Lewis index; AIC: Akaike's information criteria.



Subsequently, a confirmatory factor analysis was performed on a second two-factor model consisting of condescending sexual behavior toward men and strict sexual behavior toward women, resulting from the exploratory factor analysis. It was observed that the model's goodness of fit improved. The incremental fit indices were greater than 0,967, and the parsimony index (RMSEA) was 0.046 (Figure 2).

Differential Item Functioning Analysis

An ordinal logistic regression approach was used to evaluate Differential Item Functioning (DIF), with the aim of identifying whether the sexual double standard in the Colombian and Mexican populations has a different probability of responding in a specific category of an item. For each item, three nested models were estimated: (1) Model 1 (base): Item-Trait (total score of the instrument without including the item evaluated); (2) Model 2: Item-Trait + Country; (3) Model 3: Item-Trait + Country + Trait×Country). The results are presented in Table 2.

The analysis showed that all items presented evidence of uniform DIF ($p < 0,05$), of which 9 of the 10 items presented uniform DIF in favor of Colombia, indicating that Colombian participants tended to give higher scores than Mexican participants on those items, at the same level of latent trait. However, item 8 showed a problematic pattern, with significant uniform and non-uniform DIF in favor of Mexico. Likewise, item 3 showed non-uniform DIF, suggesting that it discriminates differently between the two countries.

When analyzing the total scores by factor, it was observed that in the factor Condescending behaviors toward men, Colombia obtained a slightly higher mean ($M 11,29, SD 4,32$) than Mexico ($M 10,57, SD 4,34$), consistent with the findings of uniform DIF. However, in the factor Restrictive behaviors toward women, the opposite occurred: Mexico obtained a higher mean ($M 10,46, SD 2,71$) than Colombia ($M 8,72, SD 2,88$). This apparent contradiction can be explained by the fact that item 8, which belongs to this factor, showed a very strong bias in favor of Mexico and, as one of only four items, had a disproportionate effect on the total mean of the factor. Item 3, although with less weight, also contributed to this effect due to its non-uniform DIF.

Thus, the results suggest that items 3 and 8 introduce significant bias and compromise the cross-cultural comparability of the instrument. For this reason, the decision was made to propose three analyses of measurement invariance: a two-factor analysis with all 10 items (6 items for condescending behavior toward men and 4 items for restrictive behavior toward women); the second unifactorial analysis is calculated with 8 items, eliminating items 3 and 8; and finally, a third bifactorial analysis with 8 items, grouped as follows: 6 for condescending behavior toward men and 2 for restrictive behavior toward women (Table 3).

Table 3 shows the multigroup invariance of the instrument by country, considering three configurations: (a) a two-factor model with the 10 original items (6 for condescending behaviors toward men and 4 for restrictive behaviors toward women); (b) a unifactorial model with

Table 2. Results of the Differential Item Functioning (DIF) analysis between Colombia and Mexico.

Item	Uniform χ^2	Uniform p	Uniform direction	Non-uniform χ^2	Non-uniform p	Non-uniform direction	Country coefficient	Interaction coefficient
A woman is expected to be less sexually experienced than her partner	15,23	<0,001	Colombia >Mexico	3,38	0,0659	Slope> Mexico	-0,355	0,177
A woman who is sexually active is less likely to be desired as a partner	50,73	<0,001	Colombia >Mexico	0,96	0,3275	Slope> Mexico	-0,648	0,094
A woman should never appear to be ready for a sexual encounter	47,48	<0,001	Colombia >Mexico	14,63	<0,001	Slope> Mexico	-0,594	0,345
It is important for men to be sexually experienced in order to teach women	61,1	<0,001	Colombia >Mexico	1,13	0,2876	Slope> Mexico	-0,753	0,111
A "good" woman would never have a one-night stand, but a man is expected to do so	13,4	<0,001	Colombia >Mexico	1,59	0,2068	Slope> Colombia	-0,363	-0,138
It is important for a man to have multiple sexual encounters to gain experience	37,87	<0,001	Colombia >Mexico	1,99	0,1586	Slope> Mexico	-0,631	0,167
In sex, the man should take the dominant role and the woman the passive role	47,18	<0,001	Colombia >Mexico	0,94	0,3325	Slope> Mexico	-0,673	0,108
It is acceptable for a woman to carry condoms	1124,81	<0,001	Mexico>Colombia	184,04	<0,001	Slope> Colombia	3,522	-1,239
It is worse for a woman to be promiscuous than for a man to be promiscuous.	41,4	<0,001	Colombia >Mexico	2,2	0,1341	Slope> Mexico	-0,595	0,151
It is the man's decision to initiate sex	48,21	<0,001	Colombia >Mexico	2,07	0,1505	Slope> Mexico	-0,688	0,159

Note. χ^2 : Chi-square likelihood ratio; p: significance level. Uniform direction indicates the group favored in response probability; non-uniform direction reflects the country with the highest latent trait slope.

Table 3. Analysis of the invariance of the configurational, metric, scalar, strict, and structural measures by country (Colombia-Mexico).

Group Models	χ^2	$\Delta\chi^2$	gl	Δgl	p	CFI	ΔCFI	SRMR	$\Delta SRMR$	RMSEA	(90 % CI)	$\Delta RMSEA$	Comparison model
Bifactorial model (6 items for condescending behavior toward men and 4 for restrictive behavior toward women)													
M1=configural	263,194		68		<0,001	0,964	-	0,034	-	0,055	(0,04, 0,06)		-
M2=metric	340,291	77	76	8	<0,001	0,952	0,012	0,067	0,033	0,061	(0,05, 0,06)	0,006	M1
M3=salar	1466,490	1126,19	84	8	<0,001	0,746	0,206	0,217	0,15	0,132	(,12-,13)	0,071	M2
M4=strict	1780,889	314,39	94	10	<0,001	0,691	0,055	0,199	0,018	0,138	(,13-,14)	0,006	M3
M5=structural	1801,927	21,038	99	5	<0,001	0,688	0,003	0,200	0,001	0,135	(,13 -,014)	0,003	M4
Unifactorial model with 8 items													
M1=configural	346.279		40		<0,001	0,938		0,045		0,09	(0,08, 0,09)		
M2=metric	349.287	3,008	47	7	<0,001	0,939	0,001	0,046	0,001	0,083	(0,07-0,09)	0,007	M1
M3=salar	361.116	11.829	54	7	<0,001	0,938	0,001	0,043	0,003	0,078	(0,07-0,08)	0,005	M2
M4=strict	393.376	32.260	62	8	<0,001	0,933	0,005	0,045	0,002	0,075	(0,06-0,08)	0,003	M3
M5=structural	406.744	13.368	64	2	<0,001	0,931	0,002	0,052	0,007	0,075	(0,06-0,08)	0	M4
Bifactorial model (6 items for condescending behavior toward men and 2 for restrictive behavior toward women)													
M1=configural	174.904		38		<0,001	0,972		0,029		0,062	(0,05-0,07)		
M2=metric	178.596	3692	44	6	<0,001	0,973	0,001	0,031	0,002	0,057	(0,04-0,06)	0,005	M1
M3=salar	192.636	14.040	50	6	<0,001	0,971	0,002	0,030	0,001	0,055	(0,04-0,06)	0,002	M2
M4=strict	226.520	33.884	58	8	<0,001	0,966	0,005	0,033	0,003	0,056	(0,04, 0,06)	0,001	M3
M5=structural	240.867	14.347	63	5	<0,001	0,964	0,002	0,042	0,009	0,055	(0,04, 0,06)	0,001	M4

8 items, eliminating items 3 and 8 previously identified as problematic in the DIF analysis; and (c) a two-factor model with 8 items, consisting of 6 indicators for the factor of condescending behaviors toward men and 2 indicators for the factor of restrictive behaviors toward women.

In the 10-item bifactorial model, the configural fit was adequate (CFI 0,964; RMSEA 0,055; SRMR 0,034), suggesting that the two-dimensional factor structure is replicated in both countries. However, when imposing metric invariance restrictions (equalizing factor loadings), the fit worsened significantly ($\Delta\chi^2$ 77, <0,001; Δ CFI 0,012), leading to the rejection of total metric invariance. Subsequently, tests of scalar and strict invariance showed a considerable deterioration in fit (CFI 0,746 and 0,691, respectively; RMSEA >0,13), indicating that neither the intercepts nor the residuals are equivalent between countries. Therefore, this model is not suitable for comparing scores between groups.

The 8-item unifactorial model, after removing items 3 and 8, achieved invariance at the metric, scalar, and strict levels, given that the changes in the fit indices were minimal (Δ CFI \leq 0,005; Δ RMSEA \leq 0,007). However, the configural fit was marginal (CFI 0,938; RMSEA 0,090), indicating that the representation of a single factor is not optimal. Although this model meets the criteria for formal invariance, its overall fit limits the robustness of the conclusions and should therefore be interpreted with caution.

Finally, the two-factor model with eight items (six items for condescending behavior toward men and two for restrictive behavior toward women) showed the best overall performance. The configurational model showed good fit (CFI 0,972; RMSEA 0,062; SRMR 0,029), and all levels of metric, scalar, strict, and structural invariance were accepted, as changes in fit indices were below the recommended thresholds (Δ CFI \leq 0,005; Δ RMSEA \leq 0,005; Δ SRMR \leq 0,009). This indicates that the two-factor structure is equivalent between Colombia and Mexico, that the factor loadings are stable, that the intercepts are comparable, and that both the errors and the variances and covariances of the factors can be considered equivalent.

The results confirm that the original 10-item version does not achieve invariance beyond the configurational level, and that the 8-item unifactorial model, although invariant, has limitations in its absolute fit. In contrast, the two-factor model with 8 items (eliminating items 3 and 8) is the most appropriate, as it combines good absolute fit with full metric, scalar, strict, and structural invariance, which supports its use for cross-cultural comparisons between Colombia and Mexico.

Taking into account the DIF and the measure of invariance, it is proposed to perform the confirmatory factor analysis with 8 items, eliminating items 3 and 8. The two-factor model showed adequate fit to the data according to the criteria of Hu and Bentler (1999), $\chi^2(19)$ 130,36, $p < 0,001$, CFI 0,978, TLI 0,967, IFI 0,978, RMSEA 0,056 (90%CI 0,047-0,065], p -close 0,137, and SRMR 0,026. All factor loadings were high and significant ($p < 0,001$), ranging from 0,814 to 0,885 for the factor of condescending behaviors toward men, and from 1,000 to 1,034 for the factor of restrictive behaviors toward women, with coefficients of determination (R^2) between 0,40 and 0,53, which indicates adequate convergent validity. The composite reliability (ω) and internal consistency (α) were satisfactory for both the total scale (α 0,85; ω 0,86) and the condescending behaviors subscale (α 0,84; ω 0,84), although the restrictive behaviors subscale showed moderate consistency (α/ω 0,66). The positive and significant correlation between the factors (φ , 40, $p < ,001$) suggests that although they share a common conceptual basis, they represent distinguishable dimensions of the construct, thus supporting the discriminant validity of the instrument as a whole.

Analysis of differences

To analyze gender differences in the double standard among young Colombians and Mexicans, Student's t -tests and Cohen's d tests were performed to calculate the effect size, revealing statistically significant differences in the sexual double standard for the two factors and the total questionnaire. In addition, men reported a higher double standard than women in both factors and in the total sexual double standard. When comparing the sexual double standard by country, a higher double standard was found in the Colombian population (Table 4).

Furthermore, Student's t -tests and Cohen's d were performed to measure effect size, comparing differences between double standards regarding sex among Colombian and Mexican men and women who self-identified as feminist versus non-feminist. Statistically significant differences were found in the two factors and the total instrument. For example, the group that identified as non-feminist had higher average scores ($M=11,2$; $SD=4,3$) than the group that identified as feminist (M 9,7; SD 3,8) in condescending sexual behavior toward men. Likewise, young Colombians and Mexicans who did not consider themselves feminists scored significantly higher in strict sexual behavior toward women. Similarly, in the overall sexual double standard, significantly higher scores were found in people who did not consider themselves feminists (Table 5).

Table 4. Differences by sex in sexual double standards in a sample of young Colombian and Mexican adults

Factor	Gender	N	Mean	SD	t	95 % CI		Cohen's d
						Lower Upper	Lower Upper	
Comparison of sexual double standards by gender								
Strict sexual behavior toward women (4 items)	Male	795	10,0	2,9	8,41	0,86501	1,39117	0,39
	Female	1111	8,9	2,8				
Strict sexual behavior towards women (2 items)	Men	795	4,7	1,8	12,64***	,86567	1,18345	0,59
	Women	1111	3,7	1,6				
Sexually accommodating behavior toward men (6 items)	Men	795	12,8	4,6	16,856	2,79705	3,53364	0,80
	Female	1111	9,6	3,5				
Total double standard (10 items)	Men	795	22,8	6,6	15,65	3,75539	4,83149	0,71
	Women	1111	18,6	5,3				
Total double standard regarding sex (8 items)	Men	795	17,6	5,8	17,38 ***	3,71063	4,65459	0,81
	Female	1111	13,4	4,5				
Comparison of double standards regarding sexuality by country								
Factor	Country	N	Mean	SD	t	Lower Upper	Lower Upper	Cohen's d
Condescending sexual behavior toward men (6 items)	Colombia	1165	11,2	4,3	3,527***	,32038	1,12294	0,16
	Mexico	741	10,5	4,3				
Strict sexual behavior towards women (2 items)	Colombia	1165	4,2	1,8	2,794**	,07100	,40521	0,13
	Mexico	741	4,0	1,7				
Total sexual double standard (8 items)	Colombia	1165	15,5	5,5	3,672***	,44715	1,47238	0,17
	Mexico	741	14,5	5,5				

Note. M: Mean; SD: Standard deviation; n: Number of participants; t: Student's t-value; Cohen's d: Effect size. * $p \leq 0,05$. ** $p \leq 0,01$. *** $p \leq 0,001$.

Table 5. Differences in sexual double standards among young Colombian and Mexican adults who self-identify as feminist versus non-feminist.

Factor	Considers herself a feminist	N	Mean	SD	t	95 % CI		Cohen's d
						Lower Upper	Lower Upper	
Comparison of double standards as feminist versus non-feminist								
Condescending sexual behavior toward men (6 items)	Yes	385	9,7	3,8	6,159***	-1,98353	-1,02532	-0,357
	No	1354	11,2	4,3				
Strict sexual behavior towards women (2 items)	Yes	385	3,8	1,7	3,791***	-,60143	-,19129	-0,220
	No	1354	4,2	1,8				
Total double standard (8 items)	Yes	385	13,5	5,0	6,051***	-2,51693	-1,28463	-0,351
	No	1354	15,4	5,5				

Note. M: Mean; SD: Standard deviation; n: Number of participants; t: Student's t-value; Cohen's d: Effect size. * $p \leq 0,05$. ** $p \leq 0,01$. *** $p \leq 0,001$. Of the total sample, 8,8% of the population (n=167) does not know what feminism is.

DISCUSSION

The objective of this study was to evaluate the validity, reliability, and invariance of the Double Standard Sexuality Scale, based on the adaptation by Sierra and Gutiérrez-Quintanilla (2007) in Colombian and Mexican adolescents and young adults.

Regarding construct validity, the results of the exploratory factor analysis (EFA) revealed a two-factor structure, composed of a factor of condescending sexual behavior toward men and another of strict sexual behavior toward women, which together explained 51,7% of the variance. Subsequently, when conducting the confirmatory factor analysis, the original model of the double standard questionnaire was analyzed, as in the adaptations and validations in Brazil²; Spain³, the United States²⁷, Peru^{25,28} and El Salvador²⁹, and the two-factor model obtained from the exploratory factor analysis in the present study. Both models obtained adequate goodness of fit. However, in the two-factor model, the goodness of fit indices (CFI 0,978, TLI 0,967, RMSEA 0,056) significantly improved over the unidimensional model (CFI 0,908, RMSEA 0,076), suggesting that the conceptualization of DSS as a two-dimensional construct is more appropriate in cultural contexts such as Colombia and Mexico. This result coincides with recent findings in other cultural adaptations that have also questioned the original unidimensionality of the instrument^{34,35}.

With regard to reliability, the total internal consistency of the instrument with 10 items (α 0,778) was adequate and comparable to that reported in the Salvadoran and Brazilian versions^{25,33}. However, moderate reliability was observed for the factor of *strict sexual behavior toward women with 4 items* (α 0,689).

A critical finding was the identification of differential item functioning (DIF) in items 3 and 8, which compromised the cross-cultural comparability of the scores. Nine of the ten items showed uniform DIF in favor of Colombia, while item 8 (“It is acceptable for a woman to carry her own condoms”) showed significant DIF in favor of Mexico. After eliminating these items, three invariance models were evaluated, with the two-factor model of eight items (six items for condescension toward men and two for restrictiveness toward women) demonstrating configural, metric, scalar, and strict invariance between both countries (Δ CFI \leq 0,005; Δ RMSEA \leq 0,005). This confirms that the factorial structure of the instrument is equivalent in both samples, allowing for valid cross-cultural comparisons³⁶.

Regarding group differences, the results showed that men score significantly higher than women on both factors and on the total DSS score, with effect sizes ranging from moderate to large (d 0,39 to 0,81). This

finding is consistently reported in international literature¹⁴ and reflects the persistence of traditional gender norms that assign different sexual expectations based on gender^{6,8}. In addition, significant differences were observed between countries, with higher scores in the Colombian sample on both factors, which may be related to cultural and socio-normative differences that have yet to be explored in depth.

Finally, young people who did not identify as feminists showed significantly higher scores on DSS than those who did identify with feminism. This reinforces the idea that identification with movements that promote gender equality—such as fourth-wave feminism—is associated with less adherence to traditional sexual stereotypes⁴⁰. Authors such as Gómez-Berrocal *et al.* (2021) have pointed out that women, in particular, show greater flexibility in sexual norms in contexts of greater gender awareness.

In conclusion, this study provides solid evidence of the cross-cultural validity of a two-factor, 8-item reduced version of the Sexual Double Standard Scale for use in Colombian and Mexican populations. The findings reflect the influence of gender, culture, and feminist identification in the perpetuation of sexual double standards, underscoring the need to continue investigating these constructs in diverse cultural contexts^{38–40}.

In light of the results obtained and in line with the objectives set, this study concludes that the Sexual Double Standard Scale (DSS) in its adapted and reduced 8-item version, has adequate psychometric properties for use in young populations in Colombia and Mexico. A two-factor structure (condescending behavior toward men and restrictive behavior toward women) is confirmed, which proved to be a better fit than the original one-dimensional model.

The evidence of metric, scalar, and strict invariance between both countries allows for valid cross-cultural comparisons, overcoming the measurement limitations identified through differential item functioning (DIF) analysis. The elimination of items 3 and 8 (which showed country-dependent bias) was crucial to ensuring the equivalence of the instrument. In terms of group differences, it is confirmed that men adhere more to the double standard than women, in line with international reports. Significant differences were also observed between countries, with higher scores in Colombia, suggesting the influence of cultural and normative factors specific to each context. Likewise, identification with feminism was associated with lower acceptance of the double standard, reinforcing the role of social movements in transforming traditional sexual norms. These findings demonstrate the usefulness of the DSS for investigating gender inequalities in the sexual sphere and designing

locally valid, evidence-based sexual and reproductive health interventions. Future research is recommended to explore the reasons behind the cultural differences found and to develop additional items to strengthen the reliability of the subscale on restrictive behavior toward women.

The main limitations of the study are the reliance on self-report measures, which may introduce social desirability bias, and the sample, which consisted mainly of young university students from urban settings in Colombia and Mexico, limiting the generalizability of the findings to populations with lower educational levels, from rural contexts, or from other age groups. Furthermore, the non-probability sampling used prevents the data from being nationally representative. It is suggested that future research evaluate psychometric properties such as criterion validity, reproducibility, sensitivity, and floor-ceiling effects; expand the diversity of the sample to include participants from different educational levels, socioeconomic contexts, rural areas, and older age groups.

Qualitative methodologies (e.g., in-depth interviews or focus groups) or experimental designs that minimize social desirability bias and allow for a more nuanced understanding of how these standards are expressed and negotiated in everyday life, as well as conducting longitudinal studies to examine the stability of double standards in sexual attitudes over time and how they are influenced by broader social changes, such as feminist movements.

In this regard, validating the proposed 8-item scale in other Latin American countries could contribute to further strengthening the evidence of its cross-cultural validity and usefulness for making regional comparisons and exploring the relationship between sexual double standards and sexual health (e.g., consistent condom use, number of sexual partners, sexual victimization) using designs that allow for establishing causal associations.

CONFLICTS OF INTEREST

The authors declared no conflicts of interest.

REFERENCES

1. Harsey SJ, Zurbriggen EL. Men and women's self-objectification, objectification of women, and sexist beliefs. *Self Identity*. 2021;20(7):861–8.
2. Xue J, Lin K. Chinese university students' attitudes toward rape myth acceptance: The role of gender, sexual stereotypes, and adversarial sexual beliefs. *J Interpers Violence*. 2022;37(5–6):2467–86.
3. Sierra JC, Gutiérrez-Quintanilla R. Psychometric study of the Salvadoran version of the Double Standard Scale. *Cuad Med Psicosom Psiquiatr Enlace*. 2007;(82):22–30.
4. Huang Y, Davies PG, Sibley CG, Osborne D. Benevolent sexism, attitudes toward motherhood, and reproductive rights: A multi-study longitudinal examination of gender equality. *Pers Soc Psychol Bull*. 2023;49(4):621–36.
5. Bermúdez MP, Ramiro MT, Teva I, Ramiro-Sánchez T, Buela-Casal G. Sexual behavior and human immunodeficiency virus testing among young university students in Cuzco (Peru). *Gac Sanit*. 2018;32(3):223–9.
6. Álvarez-Muelas A, Gómez-Berrocal C, Sierra JC. Study of sexual satisfaction in different typologies of adherence to the sexual double standard. *Front Psychol*. 2021;11:609571.
7. Chmielewski JF, Perdue LA, Bockrath CR. Gender differences in sexual attitudes: The enduring power of the double standard. *Arch Sex Behav*. 2023;52(1):287–301.
8. Gómez-Berrocal MDC, Vallejo-Medina P, Moyano N, Sierra JC. Sexual double standard: A psychometric study from a macropsychological perspective among the Spanish heterosexual population. *Front Psychol*. 2019;10:1907.
9. Delgado Amaro H, Alvarez MJ, Ferreira JA. Portuguese college students' perceptions about the social sexual double standard: Developing a comprehensive model for the social SDS. *Sex Cult*. 2021;25(2):733–55.
10. Moyano N, Monge FS, Sierra JC. Predictors of sexual aggression in adolescents: Gender dominance vs. rape supportive attitudes. *Eur J Psychol Appl Leg Context*. 2017;9(1):25–31.
11. Álvarez-Muelas A, Gómez-Berrocal C, Sierra JC. Relationship between sexual double standards and sexual functioning and risky sexual behaviors: systematic review. *Rev Iberoam Psicol Salud*. 2020;11(2):103–16.
12. Endendijk JJ, Deković M, Vossen H, van Baar AL, Reitz E. Sexual double standards: Contributions of sexual socialization by parents, peers, and the media. *Arch Sex Behav*. 2022;51(3):1721–40.
13. Souto Pereira S, Swainston K, Becker S. The discursive construction of low-risk to sexually transmitted diseases between women who are sexually active with women. *Cult Health Sex*. 2019;21(11):1309–21.
14. Zaikman Y, Marks MJ. Promoting theory-based perspectives in sexual double standard research. *Sex Roles*. 2017;76(5–7):407–20.
15. Marks MJ, Busch TM, Wu A. The relationship between the sexual double standard and women's sexual health and comfort. *Int J Sex Health*. 2022;34(3):409–23.

16. Kelly M, Inoue K, Barratt A, Bateson D, Rutherford A, Richters J. Performing (heterosexual) femininity: Female agency and role in sexual life and contraceptive use – a qualitative study in Australia. *Cult Health Sex.* 2017;19(2):240–55.
17. World Health Organization. Sexual health [Internet]. Geneva: WHO; 2020 [cited 2025 Sep 17]. Available from: <https://www.who.int/es/health-topics/sexual-health>
18. Muehlenhard CL, Quackenbush DM. The sexual double standard scale. In: Fisher TD, Davis CM, Yarber WL, Bauserman R, editors. *Handbook of sexuality-related measures*. 2nd ed. Philadelphia: Taylor & Francis; 2011. p. 199–200.
19. Ward LM, Rivadeneyra R. Contributions of entertainment television to adolescents' sexual attitudes and expectations: The role of viewing amount versus viewer involvement. *J Sex Res.* 1999;36(3):237–49.
20. Zurbriggen EL, Morgan EM. Who wants to marry a millionaire? Reality dating television programs, attitudes toward sex, and sexual behaviors. *Sex Roles.* 2006;54(1–2):1–17.
21. Milhausen RR, Herold ES. Reconceptualizing the sexual double standard. *J Psychol Human Sex.* 2002;13(2):63–83.
22. Kang HY. A study on the characteristics of sexual knowledge, attitudes, behaviors and variables forecasting sexual intercourse of university students [dissertation]. Seoul: Sungkonghoe University; 2007.
23. Haavio-Mannila E, Kontula O. Single and double sexual standards in Finland, Estonia, and St. Petersburg. *J Sex Res.* 2003;40(1):36–49.
24. Caron SL, Davis CM, Halteman WA, Stickle M. Predictors of condom-related behaviors among first-year college students. *J Sex Res.* 1993;30(3):252–9.
25. Sierra JC, Costa N, Ortega V. A validation study of the Double Standard Scale and the Rape Supportive Attitude Scale in Brazilian women. *Int J Psychol Res.* 2009;2(2):90–8.
26. Ubillos S, Goiburu E, Puente A, Pizarro J. Adaptation and validation of the Double Standard Scale in Basque adolescents. *Rev Psicol Soc.* 2016;31(2):368–97.
27. Greene K, Faulkner SL. Gender, belief in the sexual double standard, and sexual talk in heterosexual dating relationships. *Sex Roles.* 2005;53(3–4):239–51.
28. Monge F, Sierra JC, Salinas JM. Factorial and metric equivalence of Double Standard Scale by gender and age. *Suma Psicol.* 2013;20(1):7–14.
29. Sierra JC, Santos-Iglesias P, Gutiérrez-Quintanilla JR. Validation of the Intimate Partner Abuse Index in women in El Salvador. *Rev Mex Psicol.* 2010;27(1):5–14.
30. Kaiser HF. An index of factorial simplicity. *Psychometrika.* 1974;39(1):31–6.
31. Harman HH. *Modern factor analysis*. 2nd ed. Chicago: University of Chicago Press; 1967.
32. Pasquali L. *TEP – Psychological examination techniques: the fundamentals*. São Paulo: Vetor Editora; 2020.
33. Sierra JC, Santos-Iglesias P, Gutiérrez-Quintanilla R, Bermúdez MP, Buela-Casal G. Factors associated with rape-supportive attitudes: Sociodemographic variables, aggressive personality and sexist attitudes. *Span J Psychol.* 2010;13(1):202–9.
34. Vasilenko SA, Espinosa-Hernández G. Multidimensional profiles of religiosity among adolescents: Associations with sexual behaviors and romantic relationships. *J Res Adolesc.* 2019;29(2):414–28.
35. Olivera MP, Salinas-Oñate N, Silva A, Manríquez-Robles D, Neira-Pérez I. Gender norms and health risk behaviors: A systematic review in Latin American men. *Psykhē.* 2023;32(1):1–18.
36. Cheung GW, Rensvold RB. Evaluating goodness-of-fit indexes for testing measurement invariance. *Struct Equ Modeling.* 2002;9(2):233–55.
37. Rojas OL, Castrejón-Caballero JL. The onset of sexual activity in Mexico: An analysis of changes over time and social differences. *Rev Latinoam Poblac.* 2020;14(27):77–114.
38. Marques AS, de Oliveira JM, Nogueira C. Sexual double standard in friends with benefits relationships: A literature review. *Womens Stud Int Forum.* 2024;105:102940.
39. Sánchez-Fuentes MDM, Moyano N, Gómez-Berrocal C, Sierra JC. Invariance of the Sexual Double Standard Scale: A cross-cultural study. *Int J Environ Res Public Health.* 2020;17(5):1707.
40. Asensi-Rodríguez C, Martínez-Rolán X. Feminism in the digital age: Mobilization, resistance, and the anti-feminist backlash on social media. An approach to the fourth wave. *Gender on Digital. J Digit Feminism.* 2024;2:95–116.