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# Psychometric properties of the Sexual Double Standard Scale (DSS) in Chilean university students: Differences according to sex, gender attitudes, and religiosity

Propiedades psicométricas de la Escala de Doble Estándar Sexual (DSS) en universitarios chilenos: diferencias según sexo, actitudes de género y religiosidad

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### Abstract.

Given the complete lack of instruments in Chile to measure the phenomenon of the sexual double standard (SDS), this study aimed to evaluate the psychometric properties of the sexual double standard scale (DSS). The sample contained 1036 university students from central and southern Chile. 61.1% ( $n = 633$ ) were women, the average age was 20.4 years, and 31.7% ( $n = 259$ ) identified as atheist or agnostic. The DSS demonstrated a unidimensional structure, excellent reliability, and evidence of convergent and discriminant validity: the higher the score in SDS, the greater the stereotypical attitudes about gender and the lower the transcendent attitudes. The religious participants obtained higher mean scores on the DSS and men obtained significantly higher SDS scores than women. In addition, the group of participants with extreme stereotypical attitudes obtained significantly higher scores on the DSS than the extreme transcendent attitudes group, in both men and women samples. Based on the evidence that links the SDS with sexual functioning and satisfaction, risky sexual practices, sexual aggression and victimization, and intimate partner violence, the DSS stands out as a contribution to the development of sex-affective education programs and the identification of individuals and groups at risk.

### Resumen.

Ante la ausencia de instrumentos en Chile para medir el fenómeno del Doble Estándar Sexual (SDS), el presente estudio tuvo como objetivo evaluar las propiedades psicométricas de la Escala de Doble Estándar Sexual (DSS). La muestra se compuso de 1036 personas universitarias del centro y sur de Chile. El 61.1% ( $n = 633$ ) fueron mujeres, la edad promedio fue de 20.4 años y un 31.7% ( $n = 259$ ) se identificó como ateo o agnóstico. Mediante análisis factorial confirmatorio, la DSS obtuvo una estructura unidimensional en la muestra de estudio, un  $\alpha$  Ordinal = .918, y evidencias de validez convergente y discriminante: a mayor puntuación en SDS, mayores actitudes estereotipadas sobre el género y menores actitudes trascendentes. Los participantes religiosos obtuvieron puntuaciones medias más altas en la DSS y los hombres obtuvieron puntajes de SDS significativamente mayores que los de las mujeres. Además, tanto en el caso de los hombres como en el de las mujeres, el grupo de participantes con actitudes estereotipadas extremas obtuvo puntuaciones significativamente más elevadas en DSS que el grupo participante con actitudes trascendentes extremas. Con base en la evidencia que asocia el SDS con el funcionamiento y satisfacción sexual, prácticas sexuales de riesgo, la agresión y victimización sexual, y la violencia en relaciones de pareja, la DSS se distingue como un aporte para el desarrollo de programas educativos sexoafectivos y la identificación de individuos y grupos de riesgo.

### Keywords.

Sexual Double Standard; Double Standard Scale; DSS; psychometric properties; Chile; University Students.

### Palabras Clave.

Doble Estándar Sexual; Escala de Doble Estándar; DSS; Propiedades psicométricas; Chile; Estudiantes universitarios.

## 1. Introduction

The sexual double standard (SDS) is the differentiated assessment made of sexual behaviors according to whether they are conducted by a man or a woman, such as casual sexual relations, the adoption of an active role in the sexual act, or maintaining multiple sexual partners (Fasula et al., 2014; Sierra et al., 2007; Sierra et al., 2018). At present, there is evidence of their study in European, Asian, and North American countries, in samples of adults and adolescents (Fugère et al., 2008; Guo, 2019; Haavio-Mannila & Kontula, 2003; Kim et al., 2019; Sierra et al., 2007; Ubillos et al., 2016), as well as in countries in Latin America such as Peru, El Salvador, Ecuador, and Brazil (Arcos & Dewitte, 2021; Monge et al., 2013; Sierra et al., 2009; Sierra et al., 2010; Sierra & Gutiérrez-Quintanilla, 2007).

According to the social role theory, biosocial theory, and in contrast to the evolutionary perspective that sustains the origin of this phenomenon in biological factors (Endendijk et al., 2020), the SDS emerges from the traditional structure of gender roles that establishes what is socially expected of men and women based on physical, biological, social, and ecological factors (Eagly & Wood, 1999; Zaikman et al., 2016). The role of men is defined around strength, endurance, and assertiveness (Petersen & Hyde, 2010; Rodríguez-Mosquera, 2011), and that of women around modesty, moderation, and obedience to authority due to their reproduction and lactation abilities (Eagly & Wood, 1999; Petersen & Hyde, 2010; Rodríguez-Mosquera, 2011). In this context, the behavior of men is usually associated with greater status and power, whereas that of women is associated with submission (Zaikman & Marks, 2017). In the matter of sexuality, this power confers more freedom and sexual agency on men. They are described as people with strong sexual needs, greater willingness for sex, and as people exempt from the responsibility to care for their sexual health (Ubillos et al., 2016; Zaikman et al., 2016). In the case of women, sexuality is usually more restricted, having to negotiate their relationships. In addition, they take responsibility for their sexual health, contraception, and reputation (Ubillos et al., 2016). Thus, the literature confirms that the traditional beliefs about gender are related to a greater approval of the SDS (Arcos & Dewitte, 2021; Gómez-Berrocal et al., 2019; Rudman et al., 2013; Ubillos et al., 2016; Zaikman & Marks, 2017), generating greater social penalties for women when they do not exhibit the expected sexual behavior (Zaikman & Marks, 2017). In addition, the SDS is associated with the deterioration in sexual functioning and satisfaction (Arcos & Dewitte, 2021; Greene & Faulkner, 2005; Haavio-Mannila & Kontula, 2003; Kim et al., 2019; Sierra et al., 2007; Sierra et al., 2009; Sierra et al., 2010; Thomas & Thurston, 2016), the development of risky sexual practices (Caron et al.,

1993; Crawford & Popp, 2003; Fasula et al., 2014; Kim et al., 2019; Muehlenhard & McCoy, 1991), sexual aggression and victimization (Álvarez-Muelas et al., 2021; Sierra et al., 2010), and intimate partner violence, as well as the inability to recognize the intimate partner violence (Kim et al., 2019; Ubillos et al., 2016).

Consistent with the biosocial theory, Endendijk et al. (2020), in their meta-analytical study, indicate gender and cultural context as the variables that moderate the expression of the SDS and the type of sexual behavior. We know that the incidence of the SDS is noteworthy in sociocultural contexts and groups with greater attachment to conservative social norms on gender and sexuality (Crawford & Popp, 2003; Fugère et al., 2008; Haavio-Mannila & Kontula, 2003; Kim et al., 2019). Religion, as an institution characterized by dictating conservative moral and value codes for the suitable development of the man and woman (Pérez et al., 2020; Pérez et al., 2022; Sciarano et al., 2021; Seguino, 2011) is identified as one of the variables of greatest influence on human behavior (Hood et al., 2018) and sexual expression (Arcos & Dewitte, 2021; Armstrong et al., 2021). In this respect, the biopsychosocial model of the sexual response identifies religion as one of the individual variables and cultural determinants in sexual functioning and satisfaction (Thomas & Thurston, 2016). As an example, the work carried out on an Ecuadorian sample by Arcos and Dewitte (2021), who established, in a society deeply influenced by Catholicism in the configuration of its cultural norms, a statistically significant relation in women between the SDS and measures of sexual conservatism and view of sexual desire and pleasure as sin.

On the other hand, although the phenomenon of the SDS may be present in both genders, a lower incidence among women could be expected because they are the ones who mainly suffer the negative side of this phenomenon. In addition, women accept to a lesser extent the social hierarchies that subordinate them (Lee et al., 2011), while men show greater agreement with the traditional gender roles (Pérez et al., 2021). The systematic review by Petersen and Hyde (2010), and the review by Fugère et al. (2008), which included studies with samples from all the continents, support this premise. However, Endendijk et al. (2020), in their meta-analytical study, found no differences by gender in the cognitions on SDS. The authors explain this outcome from the male and female control theory, indicating an equitable influence on SDS from the aspiration of control from both genders. Men's support for the SDS assumes the maintenance of their social dominance, and women's support for the SDS affords female sexuality greater value than the male, which makes it a valuable tool of domination.

In Chile, a deeply religious country (Elgueta-Rosas et al., 2019), traditional mandates, that guide women's sexuality, are based on the delay of their sexual initiation until a formal relationship, whereas men are encour-

aged to maintain broad sexual experience (Benavente & Vergara, 2006). However, we do not have a measurement of the SDS with evidence of validity for its use on the Chilean population that allows us to state its incidence. The most recent background in Chilean society concerning this issue is in the ninth National Youth Survey (Instituto Nacional de la Juventud [INJUV], 2019) and the Microstudy on Sexuality (Growth from Knowledge [GFK], 2019). Both analyze the sexual behavior of adolescents over 15 years in different regions of the country. The results show the gap narrowing in the average age of the onset of sexual relations, and the average number of sexual partners, with men beginning earlier and having more partners (GFK, 2019; INJUV, 2019). Although this information seems to reflect a transition in Chilean society from sexual behavior in accordance with the traditional SDS towards a more subtle SDS (Crawford & Popp, 2003; Gómez-Berrocal et al., 2019), it also confirms differences between sexes in the matter of sexuality. In addition, Chilean university students present a greater agreement with traditional gender attitudes (Pérez et al., 2021).

The implicit measures and the intrasubject designs offer greater guarantees to collect the implicit attitudes over explicit and social attitudes. However, they are not used as frequently (Endendijk et al., 2020; Gómez-Berrocal et al., 2019; Sakaluk & Milhausen, 2012; Sierra et al., 2018). The literature review by Sagebin-Bordini and Sperb (2013) highlights two self-report measurements for their greater use and psychometric evidence: the Sexual Double Standard Scale (SDSS) by Muehlenhard and Quackenbush (1998), and the Double Standard Scale (DSS), by Caron et al. (1993).

The SDSS (Muehlenhard & Quackenbush, 1998), developed with a sample of American university women (mainly European-Americans), consists of 26 items in a Likert-type format, evaluating the same sexual behaviors in men (10 items) and women (10 items) or comparing both genders in the same items (6 items). The authors reported a unifactorial structure with appropriate psychometric qualities and convergent validity with a measurement of condom use. In its Spanish adaptation, Sierra et al. (2018) obtained a 16-item bifactorial structure (Acceptance for sexual freedom and Acceptance for sexual shyness), correlating positively with the DSS (Caron et al., 1993) and Social Predominance.

On the other hand, the DSS (Caron et al., 1993) is a 10-item Likert scale designed with a sample of American university students. The DSS measures the agreement of the participants with assessments of sexual behaviors indicative of a sexual double standard. The original study had a unifactorial structure with suitable internal consistency, showing that women adhere less to the SDS than men. In addition, the DSS has evidence of validity for its use in populations in four other countries, mostly Latin American, in samples of adults, university

students, and adolescents. The unifactorial structure of the original instrument is consistent between the studies, although not always with the same number of items (see Table 1).

Both scales measure explicit attitudes to the SDS, although the DSS assesses the agreement with statements indicative of a traditional double standard, whereas the SDSS also measures the assessment of the participants on sexual behaviors of men and women. These approaches yield different results, because the DSS evaluates to a larger extent the social endorsement of the SDS, while the SDSS gives more space to an evaluation on a personal level (Endendijk et al., 2020; Gómez et al., 2019; Sierra et al., 2018).

In the absence of a measuring instrument to assess the SDS with evidence for use on the Chilean population, and considering: (1) the greater extension of the functioning of the DSS compared to the SDSS, because it shows evidence of its use in populations in 5 different countries; (2) the linguistic and cultural proximity of some of these countries as they are Latin American, which offers greater guarantees of its functioning in Chile; (3) the greater coherence in its structure among the different studies, which facilitates the comparison of the SDS in different realities; and (4) the smaller number of items, which makes it a scale of simpler application, we identified the DSS as a good alternative to replace the absence of instruments that measure this construct in Chile.

Based on the previous antecedents, we hypothesize that the DSS will obtain a unidimensional structure (Hypothesis 1) and high internal consistency (Hypothesis 2). On the other hand, we expect that the results of the DSS will correlate positively with the stereotypical attitudes on gender, and negatively with the transcendent ones (Hypothesis 3) and those who identify as religious, the men and women who identify with extreme stereotypical attitudes, and men, obtain significantly higher scores on the DSS than non-religious people (Hypothesis 4), men (Hypothesis 5) and women (Hypothesis 6) who identify with extreme transcendent attitudes, and women (Hypothesis 7). This measurement will allow us to compile precise information about the phenomenon, compare its incidence with other realities, and contribute to socio-affective education plans.

Therefore, the present study seeks to establish evidence of the reliability and validity of the DSS for its use on Chilean university students. The following are the specific objectives: (1) demonstrate evidence of validity based on the internal structure of the DSS; (2) provide evidence of the internal consistency of the DSS; (3) evaluate evidence of convergent validity based on the relation with gender role attitudes; (4) evaluate evidence of discriminant validity by comparing the DSS total score of those participants who identify with a reli-

Table 1

*Evidence of Validity and Reliability of the Sexual Double Standard (DSS) Scale*

Country (Authors)	Sample	Evidence of validity based on the internal structure	Reliability	Evidence of validity based on the relation with other constructs
US (Caron et al., 1993)	University students (N = 330)	Unifactorial	$\alpha = .72$	Significant correlation with Attitude to Condoms Scale
US (Greene & Faulkner, 2005)	University students (N = 1396)	Unifactorial	$\alpha = .87$	Significant correlation with Sexual Self-Revelation Scale, Dyadic Sexual Communication Scale, and Dyadic Sexual Negotiation Scale
Spain (Sierra et al., 2007)	University students (N = 400)	Unifactorial	Women $\alpha = .70$ Men $\alpha = .76$	Significant correlation with the factors Erotophilia, Erotophobia, and Homophobia of the Sexual Opinion Survey
Spain (Ubillos et al., 2016)	Adolescents (N = 2919)	Unifactorial (Elimination of items 2, 8, and 10)	$\alpha = .68$	Significant correlations with the original Double Standard Scale, the Ambivalent Sexism Inventory, and the Distorted Thoughts on the Woman and Violence Inventory
El Salvador (Sierra & Gutiérrez-Quintanilla, 2007)	University students (N1 = 398 and N2 = 1.224)	Unifactorial (Elimination of items 3 and 8)	N1 $\alpha = .73$ N2 $\alpha = .78$	Do not include evidence of this type
Brazil (Sierra et al., 2009)	Women (N1 = 300 and N2 = 500)	Unifactorial (Elimination of item 8)	$\alpha = .80$	Significant correlation with the Favorable Attitudes to Rape Scale
Peru (Sierra et al., 2010)	Women (N = 600)	Unifactorial (Elimination of item 8)	$\alpha = .79$	Significant correlation with the Favorable Attitudes to Rape Scale

gion and those who self-identify as atheists or agnostics, and between those who show the most stereotypical and transcendent attitudes differentiating by sex; (5) determine differences in the DSS total score based on sex.

## 2. Method

### 2.1 Design

Since we provide evidence of validity and reliability, an instrumental design was adopted for the study (Ato et al., 2013).

### 2.2 Participants

The study sample is made up of 1,036 university students from central and southern Chile, a sample size considered using statistical criteria. 61.1% ( $n = 633$ ) were women and 38.5% ( $n = 399$ ) men. The 4 remaining participants (.4%) did not respond to this item. The average age of the participants was 20.4 years ( $SD = 1.7$ ; age range between 18 and 25 years), and most were in the Faculty of Education, Social Sciences and Hu-

manities (44.6%;  $n = 461$ ) or the Faculty of Medicine (30.6%;  $n = 316$ ). Of all the participants who responded to the question “Do you identify with some religion?” ( $N = 816$ ), 31.7% ( $n = 259$ ) said atheist or agnostic, 31.7% ( $n = 407$ ) self-defined as Catholic or Christian, 11.4% ( $n = 93$ ) as Evangelical, and the remaining identified as other religions (17.6%,  $n = 57$ ). Table 2 contains the descriptive data of the sample in sociodemographic and study variables.

### 2.3 Instruments

#### 2.3.1 Ad hoc Sociodemographic Questionnaire

This is a brief questionnaire specifically designed for this study that collects data on variables such as sex, age, marital status, university faculty, ethnic group, and religious identity.

#### 2.3.2 Sexual Double Standard Scale (DSS)

For the measurement of the SDS, we used the DSS (Caron et al., 1993) in its adapted version for El Salvador population (Sierra & Gutiérrez-Quintanilla, 2007).

Table 2

Descriptive Information of the Sample

		Total		Women		Men	
		<i>n</i>	(%)	<i>n</i>	(%)	<i>n</i>	(%)
Marital status ( <i>N</i> <sub>Total</sub> = 1015; <i>N</i> <sub>Women</sub> = 620; <i>N</i> <sub>Men</sub> = 394)	Single	1007	99.2	617	99.5	389	98.7
	Married	6	.6	3	.5	3	.8
	Separated	2	.2	0	0	2	.5
Origin ( <i>N</i> <sub>Total</sub> = 1024; <i>N</i> <sub>Women</sub> = 631; <i>N</i> <sub>Men</sub> = 393)	Rural	138	13.5	85	13.5	53	13.5
	Urban	886	86.5	546	86.5	340	86.5
Ethnic group ( <i>N</i> <sub>Total</sub> = 150; <i>N</i> <sub>Women</sub> = 87; <i>N</i> <sub>Men</sub> = 63)	Mapuche	134	89.3	79	90.8	55	87.3
	Chilean	5	3.3	2	2.3	3	4.8
	Other	11	7.4	6	6.9	5	1.5
Faculty ( <i>N</i> <sub>Total</sub> = 1034; <i>N</i> <sub>Women</sub> = 632; <i>N</i> <sub>Men</sub> = 399)	Education, Social Sciences and Humanities	461	44.6	310	49.1	150	37.5
	Medicine	316	30.6	200	31.6	115	28.8
	Engineering and Sciences	109	10.5	42	6.6	67	16.8
	Legal and Business Sciences	99	9.6	57	9	42	10.5
	Dentistry	33	3.2	19	3	14	3.5
	Agricultural and Forestry Sciences	16	1.5	4	.6	11	2.8
Religion or Creed ( <i>N</i> <sub>Total</sub> = 816; <i>N</i> <sub>Women</sub> = 510; <i>N</i> <sub>Men</sub> = 303)	Catholic/Christian	407	39.3	275	54	132	43.6
	None or atheist/agnostic	259	31.7	141	27.7	115	37.9
	Evangelical	93	11.4	65	12.7	28	9.2
	Other	57	17.6	29	5.6	28	9.2
		Total		Women		Men	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
DSS ( <i>N</i> <sub>Total</sub> = 1032; <i>N</i> <sub>Women</sub> = 633; <i>N</i> <sub>Men</sub> = 339)		16.62	6.03	15.03	15.03	15.03	15.03
SA ( <i>N</i> <sub>Total</sub> = 991; <i>N</i> <sub>Women</sub> = 610; <i>N</i> <sub>Men</sub> = 381)		21.53	7.55	5.33	5.33	5.33	5.33
TA ( <i>N</i> <sub>Total</sub> = 1017; <i>N</i> <sub>Women</sub> = 624; <i>N</i> <sub>Men</sub> = 377)		22.88	2.77	19.17	19.17	19.17	19.17

Note. *M*=Mean; *SD*=Standard Deviation; *SA*=Stereotypical attitudes sub-scale; *TA*=Transcendent Attitudes sub-scale.

We revised the wording of the items, and it was not necessary to make any linguistic modifications for its adaptation to the Chilean context. The DSS is comprised of 10 items formulated with statements like “In sex, the man must take the dominant role and the woman the passive role”, to be evaluated on a Likert-type scale with five response alternatives from 1 (Strongly disagree) to 5 (Strongly agree). Item 8 is the only one written inversely. Higher scores indicate greater adherence to the traditional sexual double standard. Information on the psychometric properties of the scale in different countries and study samples is in Table 1.

### 2.3.3 Gender Role Attitudes Scale (GRAS)

As a measurement of attitudes to gender roles, we selected the Gender Role Attitudes Scale (GRAS; García-Cueto et al., 2015) because it is a recently developed instrument with evidence of reliability and validity for its use on Chilean university students (Pérez et al., 2021), considering male and female gender roles in the family, social and occupational spheres. This makes the GRAS a good candidate to measure attitudes on the current Chilean sociocultural scene. In addition, it is made up of two factors, measuring both types of atti-

tudes simultaneously: transcendent attitudes of 5 items such as “Should people be treated equally, regardless of their sex” (evaluation of the behavior transcending gender) and Stereotypical Attitudes of 12 items such as “In many important jobs, it is better to hire men than women” (evaluation of behavior adhering to traditional gender stereotypes). The higher the score, the greater the presence of both types of attitudes. In the study sample, an adequate internal consistency with an Ordinal  $\alpha$  of .805 was obtained for the factor Transcendent Attitudes and an Ordinal  $\alpha$  of .906 for the factor Stereotypical Attitudes.

### 2.4 Procedure

First, we conducted a pilot test with 50 university students, which allowed us to verify the correct understanding of the instructions, items, and language, and no changes were necessary. The researchers went to the classrooms during school hours and provided information on the characteristics of the study and its voluntary and anonymous nature. The participants formalized their willingness to participate by signing an informed consent approved by the Scientific Ethics Committee of the Universidad de La Frontera (Temuco, Chile), and

then they responded to the battery of instruments individually in pencil and paper format. The application took approximately 40 minutes, and there was no economic or any other type of compensation.

### 2.5 Data Analysis

We carried out a data imputation process for some of the instrument's items when the data loss was equal to or less than 10%, considering the mean of the participant in the factor where the item belonged. When the loss was greater than 10%, the data were rejected for this instrument or factor. Multivariate normality was verified by Mardia's coefficient, the analysis of the discriminant capacity of the items was done by means of corrected item-total correlation, and the reliability of the instrument was measured using three variants of the alpha coefficient: standardized Cronbach's alpha, McDonald's omega, and Ordinal alpha using a polychoric matrix (Elosua & Zumbo, 2008).

Then, the fit of the unidimensional structure of the DSS was tested on the study sample, using a confirmatory factor analysis (CFA). Due to the violation of multivariate normality, the robust option of the unweighted least squares estimator (ULSMV) on a polychoric matrix was used. This is an estimator for categorical variables that do not present a normal distribution (Li, 2014). Indices of fit included root mean square error of approximation (RMSEA), the comparative fit index (CFI), and the Tucker-Lewis index (TLI). For an optimal fit, CFI and TLI  $\geq .95$ , and RMSEA  $\leq .05$  were considered. For a reasonable fit, CFI and TLI  $\geq .90$ , and RMSEA  $< .08$  were contemplated (Hu & Bentler, 1999).

For the study of evidence of convergent validity, Pearson's  $r$  correlation coefficient between the total scale of the DSS and the factors on the GRAS was used. The analysis to demonstrate evidence of discriminant validity and the comparison of the sexes were done using the t-test for independent samples, and the effect size was calculated using Cohen's  $d$  for different sized groups. In both cases, Cohen's rules of interpretation (1988) were used, which establish that:  $r > .1$ , small;  $r > .3$ , medium; and  $r > .5$ , large and that  $d > .2$ , small;  $d > .5$ , medium; and  $d > .8$ , large.

The statistical packages used to carry out these analyses were IBM SPSS Statistics 21.0 to calculate the descriptive, correlational, and bivariate statistics, FACTOR 10.8.04 to estimate the standardized Cronbach's alpha and McDonald's omega, and MPlus 7 to perform the CFA. Ordinal alpha was calculated using Excel.

## 3. Results

### 3.1 Preliminary Analyses

The data presented skewness (Mardia's coefficient = 30.085,  $\chi^2 = 6576.067$ ,  $df = 220$ ,  $p < .001$ ) and kurtosis (Mardia's coefficient = 208.769,  $z = 92.215$ ,  $p < .001$ ),

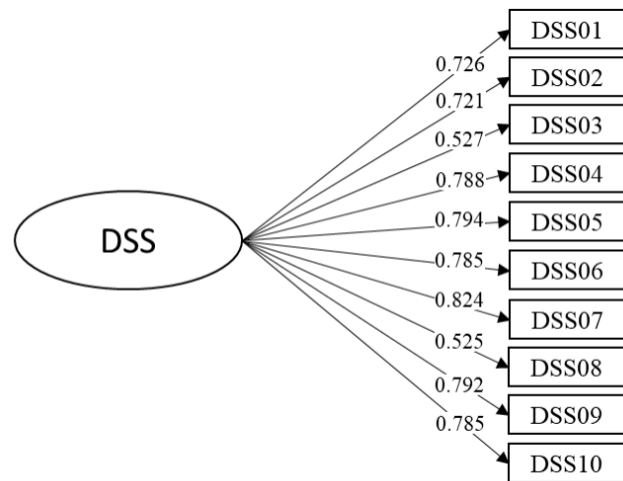
so the assumption of multivariate normality was not fulfilled. The values of the discrimination index of the items (corrected item-total correlation) were over .3 in all cases (see Table 3). Consequently, all the items on the scale were maintained.

### 3.2 Factor Structure

Using a CFA, an adequate fit of the DSS unifactorial structure was demonstrated (Figure 1). The fit indices were  $\chi^2 = 239.923$ ,  $df = 35$ ,  $p < .05$ ; RMSEA = .075 (90% CI [.066 .084]); CFI = .978; TLI = .972. Table 4 shows the factor loadings for each item, which ranged between .525 and .824 and their communalities. Hypothesis 1 is fulfilled.

Figure 1

Unifactorial structure of the DSS scale and factorial weights of the items



### 3.3 Internal Consistency

The reliability coefficients of the unifactorial structure of the DSS were higher than .9, standardized  $\alpha = .917$ , McDonald's omega = .919, and Ordinal  $\alpha = .918$ . As seen in Table 3, the Ordinal  $\alpha$  improves by .001 if items 3 and 8 are eliminated. However, the improvement margin is very small. All the items on the DSS were maintained. Hypothesis 2 is fulfilled.

### 3.4 Evidence of Convergent Validity

Consistent with hypothesis 3, the correlation between the DSS and the subscale of stereotypical attitudes regarding gender roles was positive, significant, and large ( $r = .650$ ;  $p \leq .001$ ), i.e., the greater the SDS, the greater the presence of stereotypical attitudes on gender roles. On the other hand, the association with the transcendent attitudes on gender roles subscale was negative, significant, and medium ( $r = -.405$ ;  $p \leq .001$ ), which implies that the greater the presence of differentiated evaluations on sexuality between men and women, the lower the score in evaluations on behavior transcending gender.

Table 3

*Descriptive Statistics and Analysis of Reliability for the Items of the DSS*

Item	M	SD	Skewness	Kurtosis	I-T Correlation	Ordinal Alpha if item discarded
1	1.85	1.000	1.022	.272	.592	.909
2	1.99	1.117	.878	-.269	.597	.909
3	2.21	1.329	.847	-.474	.359	.919
4	1.53	.776	1.622	2.856	.599	.905
5	1.47	.848	2.058	4.094	.597	.905
6	1.41	.772	2.173	4.838	.573	.906
7	1.49	.828	1.745	2.685	.640	.903
8	1.60	.931	1.860	3.457	.346	.919
9	1.69	1.004	1.375	1.039	.634	.905
10	1.36	.671	2.078	4.926	.587	.906

Note. M=Mean; SD=Standard Deviation; I-T Correlation=Corrected item-total correlation (discriminant index).

Table 4

*Factor Loadings and Communalities of the DSS's Items*

Item	FL	h <sup>2</sup>
1 It is expected that a woman will be less sexually experienced than her partner	.726	.527
2 A woman who is sexually active is less likely to be desired as a partner	.721	.520
3 A woman should never appear to be prepared for a sexual encounter	.527	.278
4 It is important for men to be experienced sexually to be able to teach the woman	.788	.621
5 A "nice" woman has never had a one-night stand, but a man is expected to have had one	.794	.630
6 It is important for a man to have multiple sexual encounters to gain experience	.785	.616
7 In sex, the man must take the dominant role and the woman the passive role	.824	.679
8 It is acceptable for a woman to carry her own condoms	.525	.276
9 It is worse for a woman to be promiscuous than for a man	.792	.627
10 It is the mans decision to initiate sex	.785	.616

Note. FL=Factor Loadings; h<sup>2</sup>=Communalities.

### 3.5 Evidence of Discriminant Validity

The groups were not equivalent in the variable sex, so we made a random selection of cases to maintain an equitable distribution of men and women in each group (50% men and 50% women in each group). Once the sample was balanced for sex and the equivalence of the resulting groups was verified for age, the analysis of mean differences was performed.

When comparing by religious identification, statistically significant differences were found between the participants who declared to be atheists or agnostics and those who identified with a religion, with a small effect size (Hypothesis 4). Those who identified with a religious group presented a higher average score in the DSS (see Table 5).

To compare the participants with extreme gender role attitudes, we selected the 4th quartile in the stereotypical and transcendent factors. Once the equivalence of the groups was verified for the age, we compared extreme attitudinal groups on the DSS total score for each sex. As seen in Table 5, and consistent with hypothesis 5 and 6, stereotypical extreme groups scored significantly higher on the total DSS score. The effect size absolute value was large in both cases.

### 3.6 Differences in Sexual Double Standard between Men and Women

The groups were not equivalent in terms of religion, which is why we made a random selection of cases to maintain an equitable distribution of atheists/agnostics and religious people in each group (50% of atheists/agnostics and 50% religious). Once the sample was balanced for religious identification and the equivalence of the resulting groups was verified for age, the analysis of mean differences was performed. The result of the t-test for independent samples yielded significant differences in the mean score on the DSS between women and men, with men scoring higher in SDS. The effect size was large (see Table 5), and, therefore, hypothesis 7 is fulfilled.

## 4. Discussion

In the absence of a scale with evidence of reliability and validity in Chile that assesses SDS, in this study the objective was to establish evidence of validity of the DSS for its use on Chilean university students, analyzing its factorial structure, internal consistency, evidence of convergent and discriminant validity, as well as exploring the differences in the SDS according to sex.

Table 5

Mean Differences in the Total Score of the DSS

	<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>	<i>d</i>
Religious identification							
Atheists/agnostics	230	15.98	6.05	-4.086	604	<.001	.339
Religious	375	18.08	6.24				
Gender attitudes (Men)							
Stereotypical extremes	181	22.60	5.25	13.28	272	<.001	1.69
Transcendent extremes	93	14.05	4.61				
Gender attitudes (Women)							
Stereotypical extremes	83	20.27	6.32	9.402	102.89	<.001	1.466
Transcendent extremes	292	13.36	4.15				
Sex							
Men	230	19.60	6.34	9.979	429	<.001	.892
Women	282	14.57	4.99				

Note. *n*=Sample size; *M*=Mean; *SD*=Standard Deviation; *t*=Student's *T* statistic; *df*=degrees of freedom; *p*=p-value; *d*=Cohen's *d*.

First of all, and according to the hypothesis, our findings were consistent with the unidimensional structure of the scale in the original study (Caron et al., 1993), and studies on its psychometric properties for its use in the US (Greene & Faulkner, 2005), Spain (Sierra et al., 2007; Ubillos et al., 2016), El Salvador (Sierra & Gutiérrez-Quintanilla, 2007), Brazil (Sierra et al., 2009), and Peru (Sierra et al., 2010), although we did not observe the unanimous difficulty identified on the low discriminative capacity of item 8, the only inverse item on the DSS, by studies in Spain in its version for adolescents, El Salvador, Brazil, and Peru, nor in any other item (see Table 1). On the other hand, although items 3 and 8 reached adequate skewness and kurtosis, and corrected item-total correlations and factor loadings over .5, we observed a slight improvement in the internal consistency of the scale with its elimination. However, the evidence indicated does not justify the suppression of these questions since the combined evaluation of all these indicators is positive. In addition, the scale obtained an excellent internal consistency, higher than that reported by the other studies, which ranged between .68 and .87 (Caron et al., 1993; Greene & Faulkner, 2005; Sierra et al., 2007; Sierra et al., 2009; Sierra & Gutiérrez-Quintanilla, 2007; Sierra et al., 2010; Ubillos et al., 2016). Nevertheless, we consider that the behavior of these items must be carefully observed in other study samples in Chile.

Moreover, and consistent with our hypothesis, the people participating with a high SDS present greater agreement with stereotypical attitudes towards gender, and less agreement with transcendent attitudes. In addition, both men and women with extreme scores in stereotypical attitudes present a more pronounced SDS than men and women with extreme transcendent attitudes. These findings are consistent with other studies that point to a relation between traditional beliefs and the approval of the SDS and report its expression as a form

of resistance to gender equality (Arcos & Dewitte, 2021; Gómez-Berrocal et al., 2019; Rudman et al., 2013; Ubillos et al., 2016; Zaikman & Marks, 2017). Also, those who identify as religious show higher scores in the SDS. This is an expected result according to the rigidity of religious institutions where gender roles apply, ingrained beliefs in texts and practices of the main religions, indicating female sexuality only as a means of reproduction (Pérez et al., 2022; Sciarano et al., 2021; Seguino, 2011). Indeed, both findings coincide with the perspective of biosocial theory, which argues the existence of moderating factors of the SDS according to local ecology, in this case, predominant cultural norms in Chilean society, to the detriment of the evolutionary theories that support the SDS in biological differences (Eagly & Wood, 1999; Endendijk et al., 2020; Ubillos et al., 2016; Zaikman & Marks, 2017; Zaikman et al., 2016). Thus, the SDS emerges as the expression of a traditional view of gender, mainly entrenched in religious institutions. Nevertheless, Endendijk et al. (2020) note that the division of roles may have an evolutionary origin, and biology greater relevance in reproductive sexual behaviors, proposing a hybrid model that combines both perspectives.

Men show a greater SDS than women, a result in the same line as the findings of the reviews by Fugère et al. (2008) and Petersen and Hyde (2010), and other more recent works (Guo, 2019; Sierra et al., 2018), in contrast to the results of the meta-analytical review by Endendijk et al. (2020). This leads us to think that the female control theory does not operate in the study sample, whereas the male control theory does: the men defend greater sexual freedom for themselves and support an SDS that benefits them, perpetuating their privilege, status, and social and sexual power (Gómez-Berrocal et al., 2019; Sierra et al., 2018; Rudman et al., 2013). However, it should be noted that a group of women with noticeably stereotypical gender attitudes also reported significant support for the SDS, compared to women



with extreme transcendent attitudes, despite the negative consequences that this phenomenon has for them. In addition, these differences are just as strong as in the group of men. In this small group of the sample, the female power theory could be operating. Rudman et al. (2013) offer an alternative explanation: by accepting the SDS, women are seeking to avoid the negative consequences that transgressions to traditional sexual norms entail, protecting themselves from the sexual stigma and the myths about rape that justify the violence towards them. However, other works have tried to shed light on these inconsistencies, alluding to higher levels of complexity in the phenomenon. Sakaluk and Milhausen (2012), in a Canadian sample, found a more pronounced SDS in men when the measurement used was about explicit attitudes, whereas when the measurement was implicit, the men demonstrated a neutral evaluation, and the women an inverse SDS. More recently, Álvarez-Muelas et al. (2021) analyzed the prevalence by gender of adherence to different typologies of the SDS in a Spanish sample. The prevalence of the typology that favors the man was greater among the men. By contrast, the women showed greater support for social changes in favor of egalitarian sexual behaviors through a noticeable preference for SDS typologies oriented to gender equality or favorable to their group. The authors interpret these results as a reaction against the lack of sexual power, empowerment of women, and their increasing concern and awareness of sexual violence.

This background shows the DSS as a measurement with evidence of reliability and validity, both convergent and discriminant, for use in Chile, which positions it as the first measurement to replace the absence of tools to assess the SDS in the Chilean sociocultural reality. The chance to study the SDS among Chilean young people is an opportunity in terms of sexual and affective education, since, as we commented previously, SDS is related to damaging trends such as social sanctions for the woman (Zaikman & Marks, 2017), the deterioration of sexual functioning and satisfaction (Arcos & Dewitte, 2021; Greene & Faulkner, 2005; Haavio-Mannila & Kontula, 2003; Kim et al., 2019; Sierra et al., 2009; Sierra et al., 2007; Sierra et al., 2010; Thomas & Thurston, 2016), risky sexual practices (Caron et al., 1993; Crawford & Popp, 2003; Fasula et al., 2014; Kim et al., 2019), sexual aggression and victimization (Álvarez-Muelas et al., 2021; Sierra et al., 2010) and intimate partner violence, and the inability to recognize the intimate partner violence (Kim et al., 2019; Ubillós et al., 2016). Thus, the DSS emerges as a useful tool to cultivate sex-affective education programs, promote sexual health, and identify individuals and groups at risk in various spheres.

This study is not without its limitations. First of all, the sample is comprised of university students with a defined age range and in two specific areas of the country. This selection could have influenced the results con-

sidering the evolutionary, cultural, and socio-economic characteristics of this group, being unable to extrapolate the results to populations with other characteristics. For this reason, it is recommended that future research extend such studies to more diverse samples, as Sagebin-Bordini and Sperb (2013) suggest. In addition, we must indicate that the nature of the statistical analyses used does not allow us to establish relations of causality. Another relevant limitation has to do with the nature of the DSS. As we commented previously, the implicit measures and intrasubject designs largely reflect people's attitudes on a personal level (Endendijk et al., 2020; Gómez-Berrocá, 2019; Sakaluk & Milhausen, 2012; Sierra et al., 2018). The DSS, although it fulfills a series of advantages over other measurements, such as the brevity and the extension of its use, is an explicit measurement that mainly represents the perception of the level of support for the SDS on the part of society at the expense of personal attitudes (Endendijk et al., 2020). This must be considered when interpreting the results. In addition, the DSS does not allow us to analyze the complexity that the phenomenon has demonstrated in other studies (Álvarez-Muelas et al., 2021; Sakaluk & Milhausen, 2012). Thus, using the DSS it is not possible to determine, for example, if an egalitarian attitude or support for an inverse SDS in favor of women is hidden behind the SDS. Consequently, the proposal is to delve more deeply into the aspects of this construct in future studies, taking implicit measurements as complementary to the DSS.

Finally, it is concluded that the DSS has obtained a unidimensional structure, excellent internal consistency in the study sample, and two types of evidence of validity for the use of its score on Chilean university students. These results position it as the first scale in Chile for the measurement of the SDS. In addition, it emerges as a potential work tool in education programs, given the extensive bibliography that associates this construct with harmful behaviors on the affective and sexual levels.

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