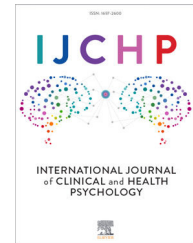




International Journal of Clinical and Health Psychology

www.elsevier.es/ijchp



ORIGINAL ARTICLE

Study of Sexual Concordance in Men and Women with Different Typologies of Adherence to the Sexual Double Standard



Ana Álvarez-Muelas^a, Juan Carlos Sierra^{a,*}, Carmen Gómez-Berrocal^a,
Ana I. Arcos-Romero^b, Cristóbal Calvillo^a, Reina Granados^c

^a Centro de Investigación Mente, Cerebro y Comportamiento (CIMCYC), Universidad de Granada, Spain

^b Departamento de Psicología, Universidad Loyola, Spain

^c Departamento de Enfermería, Facultad de Ciencias de la Salud, Universidad de Granada, Spain

Received 10 December 2021; accepted 31 December 2021

Available online 23 February 2022

KEYWORDS

Sexual concordance
Genital response
Subjective sexual
arousal
Sexual double
standard
Ex post facto study

Abstract

Background/Objective: Sexual concordance (i.e., relationship between genital response and subjective sexual arousal) is higher in men than in women. Among the factors that could explain this difference would be the sexual double standard (SDS). Sexual concordance is examined by SDS typologies of adherence (egalitarian, man-favorable, and woman-favorable). **Method:** During exposure to a film with sexual content, genital response (penile circumference/vaginal pulse amplitude) and self-reported sexual arousal were recorded in 104 young adults (42 men and 62 women), distributed into SDS typologies of adherence on the basis of their scores on the Sexual Double Standard Scale. **Results:** Sexual concordance was obtained in men and women with egalitarian and man-favorable typology. Subjective sexual arousal explained a significant percentage of the variance in genital response in the egalitarian typology (men: $R^2 = .32$, $p < .01$; women: $R^2 = .19$, $p < .05$) and man-favorable typology (men: $R^2 = .21$, $p < .05$; women: $R^2 = .23$, $p < .05$). **Conclusions:** Agreement between genital responsiveness and subjective sexual arousal depends on DES adherence typology.

© 2022 The Author(s). Published by Elsevier España, S.L.U. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

PALABRAS CLAVE

Concordancia sexual;
Respuesta genital;
Excitación sexual
subjettiva;

Resumen

Antecedentes/Objetivo: La concordancia sexual (i.e., relación entre respuesta genital y excitación sexual subjetiva) parece ser mayor en hombres que en mujeres. Entre los factores que podrían explicar dicha diferencia estaría el doble estándar sexual (DES). Se examina la concordancia sexual en función de la tipología de adhesión al DES (igualitaria, favorable al hombre y

* Corresponding author: Facultad de Psicología, Universidad de Granada, 18011 Campus Universitario de Cartuja s/n. Granada, España.
E-mail address: jcsierra@ugr.es (J.C. Sierra).

Doble estándar sexual;
Estudio ex post facto

favorable a la mujer). *Método:* Durante la exposición a un filme de contenido sexual, se registró la respuesta genital (circunferencia peniana/amplitud del pulso vaginal) y la excitación sexual autoinformada de 104 adultos jóvenes (42 hombres y 62 mujeres), distribuidos en las tipologías de adhesión al DES a partir de sus puntuaciones en la Sexual Double Standard Scale. *Resultados:* Se obtuvo concordancia sexual en hombres y mujeres con tipología igualitaria y favorable al hombre. La excitación sexual subjetiva explicó un porcentaje significativo de la varianza de la respuesta genital en la tipología igualitaria (hombres: $R^2 = 0,32$, $p < 0,01$; mujeres: $R^2 = 0,19$, $p < 0,05$) y en la favorable al hombre (hombres: $R^2 = 0,21$, $p < 0,05$; mujeres: $R^2 = 0,23$, $p < 0,05$). *Conclusiones:* El acuerdo entre la respuesta genital y la excitación sexual subjetiva depende de la tipología de adhesión al DES.

© 2022 The Author(s). Published by Elsevier España, S.L.U. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Sexual arousal is a combination of physiological, psychological and behavioural processes (Laan & Everaerd, 1995; Rosen & Beck, 1988). According to Janssen (2011), this is “an emotional/motivational state that can be triggered by internal and external stimuli and that can be inferred from central (including verbal), peripheral (including genital), and behavioural (including action tendencies and motor preparation) responses” (p. 710). According to this definition, objective sexual arousal refers to physiological reactions, of which genital response is the most specific. Among others, its evaluation has been based on phallometry and vagionometry (Chivers et al., 2010). Plethysmography is frequently used in men because it allows the assessment of penile changes (Zuckerman, 1971). Photoplethysmograph is often applied in women and is based on the modification of vaginal epithelium opacity, which enables changes in vaginal pulse amplitude to be detected (Sintchak & Geer, 1975). Moreover, subjective sexual arousal implies the affective-cognitive evaluation made of an individual about his/her own sexual arousal (Sierra et al., 2017); that is, about sexual arousal sensations and/or the sexual response perception. It tends to be evaluated by means of self-reports, such as Likert-type scales (Chivers et al., 2010; Huberman et al., 2013).

Sexual concordance refers to the concordance between objective and subjective sexual arousals. According to linear regression models of sexual response (see Connaughton et al., 2016; Ferenidou et al., 2016), the relation between the physiological manifestation (genital) and the subjective experience perception of sexual arousal is expected to occur in a coordinated manner, and in such a way that both measures coincide in the degree of intensity (Suschinsky et al., 2020). However, this concordance is not always reached, and this is a matter of debate in the research and clinical areas (Chivers et al., 2010; Clifton et al., 2015; Sierra et al., 2019).

Lack of sexual concordance may be associated with sexual functioning. Men with erection problems display less interoceptive awareness; that is, they are less capable of detecting physiological signs (Cranston-Cuevas et al., 1993). In women, more concordance is found in sexually functional signs (Meston, 2006; Meston et al., 2010; Sarin et al., 2016). However, these are not conclusive results because some studies have not found this relation (Brotto et al., 2016; Suschinsky et al., 2019; Velten & Brotto, 2017). Therefore, more research is necessary.

Gender differences have been found in sexual concordance. Men reach a higher degree of concordance than

women (see Chivers & Brotto, 2017; Chivers et al., 2010). In the meta-analysis by Chivers et al. (2010), the correlation found between genital response and the self-reported measure was .66 in men and .26 in women. Besides, the bibliography indicates the diversity of results in studies about women’s sexual concordance: positive relations, negative relations or no relation between physiological and self-reported arousal (Boyer et al., 2012; Brotto et al., 2016; Chivers et al., 2010; Clifton et al., 2015; Huberman et al., 2017).

A stable sexual concordance pattern in men is assumed and research focuses more on sexual concordance in women to seek possible explanations for these differences and the diversity of the results obtained with them. It has been argued that greater sexual concordance in men might be due to their more external sexual organs, to higher masturbation frequency and to more interoceptive awareness (see Chivers et al., 2010). In line with the results obtained for women, it has been proposed that their sexual response might be automatic so as to prepare their genital organs and to avoid lesions during sexual interactions (Laan & Janssen, 2007; Suschinsky & Lalumière, 2011). Likewise, it is considered that women’s sexual arousal presents less specificity by showing sexual arousal to signs that do not correspond to their sexual preferences (see Lalumière et al., 2020). The socio-cultural role and cultural moderators have been considered in relation to these differences (Niineste, 2021).

From this last perspective, one of the possible explanations for the differences in sexual concordance between men and women could lie in differences in gender social norms (Suschinsky et al., 2020). The women who adhere to conventional gender roles tend to better express feeling less comfortable with their body during sexual activity (Curtin et al., 2011), less sexual autonomy and sexual esteem, and more negative affect and avoidance motives for sexual activity (Emmerink et al., 2016).

In women, the interiorisation of traditional gender norms could make them less aware of their own sexual arousal. However in men, the awareness of their excitation could be more convenient as they enjoy more sexual freedom (Fisher, 2013).

In the gender roles context of sexual behaviours, the attitude taken of the sexual double standard (SDS) stands out, which involves evaluating sexual behaviour using different criteria depending on if a man or a women performs this behaviour (Milhausen & Herold, 2001). The SDS is related to

sexual functioning and involves more sexual freedom for men than for women (Álvarez-Muelas et al., 2020). Adherence to this attitude has been associated negatively with sexual desire and orgasm experience in women (Jackson & Cram, 2003; Kelly et al., 2017), and with sexual satisfaction in both men and women (Haavio-Mannila & Kontula, 2003; Santos-Iglesias et al., 2009). However to date, the possible relation of the SDS to sexual arousal has not yet been examined. Recently, Álvarez-Muelas et al. (2021b) proposed different typologies of adherence to the SDS, namely egalitarian, man-favorable and woman-favorable. By doing so, these authors observed that those men who defend a gender egalitarian stance for sexual freedom feel more sexually satisfied than those men with a man-favorable typology (Álvarez-Muelas et al., 2021a).

Thus by considering the possible role that gender norms play in sexual arousal (Suschinsky et al., 2020), and the fact that studies about the relation of SDS to sexual arousal are lacking, the present research work is proposed. Its aim is to examine the sexual concordance of young men and women with different SDS typologies of adherence in relation to the sexual freedom area (egalitarian, man-favorable, woman-favorable). As former research is lacking, the following research questions are put forward: (1) does sexual concordance vary according to SDS typologies of adherence?, and (2) are these possible variations in sexual concordance in SDS typologies of adherence similar or different between men and women?

Method

Participants

The sample comprised 104 heterosexual young adults (42 men and 62 women) whose age range was 18-29 years ($M = 21.02$; $SD = 2.66$). All the participants reported having had previous sexual experience. The exclusion criteria were: (a) having medical problems, sexual dysfunction and/or psychological disorders; (b) taking medication that could interfere with sexual functioning; (c) drugs and/or alcohol use; and (d) a history of sexual abuse.

According to the Index of Double Standard for Sexual Freedom scores (IDS-SF; Sierra et al., 2018), the sample was distributed by differentiating men and women into the SDS adherence types (egalitarian, man-favorable, and woman-favorable; see the Instruments section). Finally, the male sample was formed by 18 men in the egalitarian typology, 14 in the man-favorable-typology and 10 in the woman-favorable typology. The female sample was made up of 24 women in the egalitarian typology, 14 in the man-favorable typology and 24 in the woman-favorable typology. Table 1 presents the sample's socio-demographic characteristics distributed into the SDS adherence types in men and women.

Instruments

- The Socio-demographic and Sexual History Questionnaire. It was designed to assess sex, age, nationality, sexual orientation, age of first sexual experience, relation status, medical/psychological/sexual problems,

Table 1 The participants sample's socio-demographic characteristics distributed into the SDS adherence types.

	Total		Men			Women			F (d.f.)	p
	M (SD)	n (%)	SDS adherence types			SDS adherence types				
			Egalitarian (n = 18; IDS score = 0)	Man-favorable (n = 14; IDS range = +1 to +12; M = 1.57, SD = 0.65)	Woman-favorable (n = 10; IDS range = -1 to -12; M = -1.9, SD = 1.2)	Egalitarian (n = 24; IDS score = 0)	Man-favorable (n = 14; IDS range = +1 to +12; M = 1.07, SD = 0.28)	Woman-favorable (n = 24; IDS range = -1 to -12; M = -1.71, SD = 0.81)		
Age	21.02 (2.66)	21.78 (3.19)	21.86 (2.18)	22.2 (2.86)	19.71 (1.54)	20.54 (2.87)	0.76 (2, 59)	.468		
Age of first sexual relation	16.28 (1.85)	16.06 (2.49)	17.86 (1.92)	16.11 (2.31)	15.77 (0.93)	16.26 (1.57)	0.71 (2, 57)	.495		
In a partner relationship	n (%) 55 (52.9)	n (%) 8 (44.4)	n (%) 7 (50)	n (%) 6 (60)	n (%) 10 (71.4)	n (%) 11 (45.8)	χ^2 1.97	p .373		

Note. SDS: sexual double standard; IDS: Index of Double Standard.

- pharmacological treatments, drugs/alcohol use, and sexual victimisation history.
- The Spanish version of the Sexual Double Standard Scale (SDSS; [Muehlenhard & Quackenbush, 2011](#); [Sierra et al., 2018](#)). It assesses the SDS by 16 items answered on a four-point Likert-type scale from 0 (*strongly disagree*) to 3 (*strongly agree*). Items are pairs of parallel items: one refers to the sexual behaviour attributed to men, and the other to the sexual behaviour attributed to women. The scale is composed of two factors, Acceptance of sexual freedom and Acceptance of sexual shyness. They allow the Index of Double Standard for Sexual Freedom (IDS-SF) and the Index of Double Standard for Sexual Shyness (IDS-SS) to be respectively obtained. Only the first index is considered in this study. The IDS-SF represents a bipolar measurement (between -12 and +12) that allows the SDS adherence types to be acquired. The egalitarian typology derives from the scores that equal zero in the index, and from the zero results in the subtractions between the pairs of items in the index. It represents people who defend the same sexual freedom criterion for men and women. The man-favorable typology is based on the positive scores in the index (between +1 and +12) and defends more sexual freedom for man than for woman. Finally, the woman-favorable typology is obtained from the negative scores in the index (between -1 and -12) and defends more sexual freedom for woman than for men. [Sierra et al. \(2018\)](#) observed the scale's suitably evidenced internal consistency (Cronbach's ordinal alpha. 84 for Acceptance of sexual freedom). In this study, Cronbach's alpha was .75 in men and women, respectively.
 - The Spanish version of the Sexual Inhibition/Sexual Excitation Scales-Short Form (SIS/SES-SF; [Carpenter et al., 2011](#)) of [Moyano and Sierra \(2014\)](#). It evaluates the propensity for sexually excited or inhibited. Its 14 items, answered on a four-point Likert-type scale from 1 (*strongly agree*) to 4 (*strongly disagree*), are distributed on three subscales: Sexual excitation (SES); Inhibition due to the threat of performance failure (SIS1); Inhibition due to the threat of performance consequences (SIS2). Cronbach's alpha coefficients range between .60 and .72. In this sample, the range of Cronbach's alphas was between .55 and .74.
 - The Spanish version of the Rating of Sexual Arousal (RSA) and the Rating of Genital Sensations (RGS) ([Mosher, 2011](#); [Sierra et al., 2017](#)). The RSA assesses subjective sexual arousal by five items: (1) overall level of sexual arousal; (2) intensity of genital sensations; (3) sensation of warmth experienced; (4) non-genital physical sensations; (5) level of sexual concentration. Items are answered on a seven-point Likert-type scale from 1 (*no sexual arousal at all*) to 7 (*extremely sexually aroused*). The RGS evaluates the level of genital sensation through a checklist scale from 1 (*no genital sensations*) to 11 (*multiple orgasm*). The RSA has adequate reliability, with Cronbach's alpha of .90 ([Sierra et al., 2017](#)). In this study, Cronbach's alpha was .89 in men and .90 in women.
 - Penile plethysmograph is an indium/gallium ring that measures changes in penile circumference when an erection occurs ([Zuckerman, 1971](#)).
 - Vaginal photoplethysmography is a device that records vaginal pulse amplitude ([Sintchak & Geer, 1975](#)).
 - The Biopac MP 150 polygraph (Biopac Systems Inc., Goleta, CA, USA) is used by the AcqKnowledge software 5.0 for psychophysiological data acquisition and processing.
 - Visual stimuli. Two 3-minute neutral content films (nature documentary) and two 3-minute sexual films (heterosexual intercourse scenes in a couple: 90 seconds of oral sex and 90 seconds of vaginal sex). In each one, sexual films represent the man's active role and the woman's active role during a sexual relation for the purpose of eliminating the sexual preferences that might be associated with each SDS typology. Both sexual films demonstrate the ability to induce sexual activation ([Álvarez-Muelas, Granados et al., 2021](#)).

Procedure

The study was previously approved by the Human Research Ethics Committee of the University of Granada (Reg. number 893). Young adults were invited to participate in this study through the dissemination methods of the University of Granada and the Higher Education institutions of this city, such as flyers and posters placed in various locations, sending emails, and postings on social networks. Participation was voluntary and without compensation. Firstly, the participants answered an online questionnaire, which was used as screening. It included informed consent with the study objective. The Socio-Demographic and Sexual History Questionnaire was employed to ensure the inclusion and exclusion criteria. The Spanish version of the SDSS was included to ensure variability in the SDS scores and distribution into the three SDS adherence types (egalitarian, man-favorable, and woman-favorable). Eligible participants were contacted and appointed in the Human Sexuality Laboratory located in the Mind, Brain and Behaviour Research Centre of the University of Granada. They were asked to abstain from caffeine, alcohol, and dyadic and solitary sexual activity, 24 hours before the experimental session to minimise any possible physiological sources that might vary responses. Women were not evaluated during menstruation. In the laboratory, the participants signed informed consent, and their data anonymity and confidentiality were guaranteed. After explaining the experiment and placing the devices to record genital response, the male or female researcher (to coincide with the participant's gender) left the room. Then when the device was placed and recording, a 5-minute adaptation period was allowed. The experiment was carried out in a soundproof room under the same temperature, light and humidity conditions in all cases. The participants were seated comfortably at a distance of 100 cm from the monitor. The experimental task consisted in viewing four videos shown on a 24-inch LCD monitor. Their genital response was recorded, and all the participants were shown two film sequences: (a) neutral video 1 and sexual video 1; (b) neutral video 2 and sexual video 2. The presenting of sequences was counterbalanced to control the possible effects of the order in which stimuli were shown ([Granados et al., 2021](#)) bearing in mind that the number of men and women in each SDS adherence typology was the same. Finally at the end of each sexual video, the participants answered the Rating of

Sexual Arousal (RSA) and Rating of Genital Sensations (RGS) scales in the paper-and-pencil format.

Data analysis

In line with previous laboratory studies (Arcos-Romero et al., 2019; Granados et al., 2021; Soler et al., 2021), genital responses were defined in terms of the differences between scores from the sexual stimulus and the baseline stimulus. Firstly, the concordance between genital response and the subjective sexual measurement was examined by partial correlations separately in men and women by controlling for propensity for sexually excited (SES) and sexually inhibited (SIS1 and SIS2). Secondly, the explanatory capacity of subjective sexual arousal (i.e., RSA and RGS) on genital response was examined by multiple linear regression.

Results

For both men and women, genital response and the subjective sexual arousal measure (RSA and RGS) correlated (see Table 2).

The extent to which genital response was explained by RSA and RGS when considering the previous correlations with a significance level of $p \leq .10$ was studied (Kim & Choi, 2021). In the egalitarian SDS typology for men, RGS explained 32% of variance for genital response ($F_{(1, 15)} = 8.62$; $p < .01$). In the man-favorable SDS typology, RSA explained 21% of variance for genital response ($F_{(1, 12)} = 4.52$; $p < .05$) (see Table 3). In the

egalitarian SDS typology for women, RGS accounted for 19% of variance for genital response ($F_{(1, 21)} = 6.06$; $p < .05$). In the man-favorable SDS typology, RGS explained 23% of variance for genital response ($F_{(1, 12)} = 4.8$; $p < .05$) (see Table 4).

Discussion

The objective of this study is to examine the relation of sexual arousal to the SDS to seek a possible explanation of the differences in sexual concordance between men and women. For this purpose, genital response and subjective sexual arousal were recorded when a sample of young people, with different SDS typologies of adherence (egalitarian, man-favorable, and woman-favorable), watched films with explicit sexual content. To date, no relation has been studied between sexual arousal and SDS that takes into account the typologies that can be obtained with the Spanish version of the SDSS by Sierra et al. (2018).

In an attempt to answer the two posed research questions, the results obtained with this study show that sexual concordance varies depending on the SDS adherence typology, and a positive association appears between genital response and subjective sexual arousal in the egalitarian and man-favorable typologies for both men and women.

The results obtained with men contradict the generalised assumption of a stable sexual concordance pattern for men and show possible implications for gender norms about sexual arousal (Suschinsky et al., 2020). Traditionally, men enjoy more sexual freedom than women (Endendijk et al., 2020), which could imply them feeling at ease with

Table 2 Correlations between genital response and subjective sexual arousal (RSA and RGS, when controlling propensity for sexually excited (SES) and inhibited (SIS1 and SIS2)).

	Genital response of men (penile circumference)					
	SDS adherence types					
	Egalitarian		Man-favorable		Woman-favorable	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
RSA	.225	.439	.550	.080 [†]	.121	.796
RGS	.550	.042*	.213	.530	.343	.452
	Genital response of women (vaginal pulse amplitude)					
	SDS adherence types					
	Egalitarian		Man-favorable		Woman-favorable	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
RSA	.447	.048*	.548	.081 [†]	.354	.115
RGS	.434	.056 [†]	.645	.032*	-.004	.985

Note. SDS: sexual double standard; RSA: Rating of Sexual Arousal; RGS: Rating of Genital Sensations; SES: propensity of sexually excited; SIS1: propensity of sexually inhibited due to the threat of performance failure; SIS2: propensity of sexually inhibited due to the threat of performance consequences.

[†] $p < .10$;

* $p < .05$.

Table 3 Multiple regression analysis: subjective sexual arousal (RSA and RGS) as a predictor of penile circumference.

SDS adherence types	Predictors	<i>B</i>	<i>SE</i>	β	95% <i>CI</i>	<i>t</i>	<i>R</i> ²
Egalitarian	RSA	3.14	1.07	.60	0.86, 5.41	2.94**	.32
Man-favorable	RGS	0.77	0.36	.52	-0.02, 1.55	2.13*	.21

Note. SDS: sexual double standard; RSA: Rating of Sexual Arousal; RGS: Rating of Genital Sensations.

* $p < .05$.

** $p < .01$.

Table 4 Multiple regression analysis: subjective sexual arousal (RSA and RGS) as a predictor of vaginal pulse amplitude.

SDS adherence types	Predictors	<i>B</i>	<i>SE</i>	β	95% <i>CI</i>	<i>t</i>	<i>R</i> ²
Egalitarian	RGS	0.01	0.01	.47	0.00, 0.02	2.46*	.19
Man-favorable	RGS	0.01	0.01	.54	0.00, 0.02	2.21*	.23

Note. SDS: sexual double standard; RSA: Rating of Sexual Arousal; RGS: Rating of Genital Sensations.

* $p < .05$.

evaluating the sexual arousal experience (Fisher, 2013). Our results back this assumption by showing that sexual concordance in the SDS adherence types ensures sexual freedom for men (i.e., egalitarian and man-favorable), but not in the woman-favorable typology, which confers more sexual freedom to women than to men.

Moreover, for the men with the egalitarian and man-favorable SDS adherence typologies, the subjective sexual arousal measures come over as being capable of explaining genital response (i.e., erection measured according to change in penile circumference). In the egalitarian typology, a positive association is observed with the genital sensations rating (i.e., RGS), which explains 32% of penile erection. This fact coincides with the interoceptive awareness hypothesis in men, which suggests that being aware of body sensations, such as penile erection state, could increase sexual concordance in men (Chivers et al., 2010). In the man-favorable typology, genital response is associated with the sexual arousal rating (i.e., RSA), which is considered with different dimensions (overall level of sexual arousal, genital and non-genital sensations, sensation of warmth, sexual concentration), and accounts for 21% of erection. Future research could consider if the interiorisation of the gender role for sexual freedom in men (equality standard vs. more privileges for men) could imply differences in evaluating sexual arousal from an evaluation that centres more on genital sensations to another more global one of experienced sensations.

For women, sexual concordance appears in the same SDS adherence types as they do for men (i.e., egalitarian and man-favorable), which are typologies in which subjective sexual arousal, and specifically the RGS, explains a high percentage of the variance of genital response (i.e., vaginal pulse amplitude), with 19% in egalitarian and 23% in man-favorable. These results contradict the lack of sexual concordance in women found by previous studies (Boyer et al. 2012; Chivers et al., 2010; Clifton et al., 2015; Granados et al., 2021; Sierra et al., 2019), and provides evidence for the possible role of social moderators about women's sexual arousal (Niineste, 2021; Suschinsky et al., 2020). As only concordance was found in the RGS measure, it

supports the proposal that interoceptive awareness of genital sensations could be a relevant factor in women's sexual concordance (Velten et al., 2018), but with different motivations according to the SDS adherence typology, which we go on to explain.

On the one hand, for the women with the egalitarian typology, the gender equality standard for sexual behaviours could mean that they pay more attention to their genital sensations. In line with this, Brotto et al. (2016) point out that the mindfulness-based sexual therapy, which encourages paying attention to experience and leaving negative thoughts to one side, leads to more sexual concordance in women. Likewise, Suschinsky et al. (2020) state that more sexual concordance appears in women under a bogus pipeline condition because it can favour the truthfulness of their responses by reducing the likelihood of responding in accordance with gender norms standards, and implies paying more attention to, and feeling agreeable with, their body sensations.

On the other hand, the sexual concordance finding in women with a man-favorable adherence typology seems to contradict the premise that traditional gender norms would involve being less aware of sexual arousal in women (Suschinsky et al., 2020). This result could have several interpretations. The presence of an SDS for women that favours men has been associated with less sexual autonomy (Emmerink et al., 2016) and with greater victimisation of sexual coercion (Endendijk et al., 2020; Vilchez-Jaén et al., 2022). In this way, paying attention to genital sensations could be related to women monitoring their body sensations more to ensure their well-being during sexual relations to a certain extent. In turn, women adhering to the SDS that favours men implies that women show greater orientation towards men's pleasure and sexual satisfaction during sexual relations (Kelly et al., 2017). There are reports of men believing that when women have an orgasm during sexual relations, it is an achievement of their masculinity (Chadwick & van Anders, 2017). For women, Arcos-Romero et al. (2019) report that the RGS is associated with the sensorial dimension of the subjective orgasm experience in sexual relations. Accordingly,

the attention paid to genital sensations may also lie in having an orgasm in order to encourage men's sexual satisfaction during sexual relations (Sánchez-Fuentes et al., 2021; Sánchez-Fuentes & Santos-Iglesias, 2016).

This study has its limitations that must be taken into account when generalising its results to the general population. An incidental sample formed exclusively of heterosexual young adults was used. Research into the role of the SDS in sexual arousal with different samples is necessary, samples that should include other sexual orientations and minorities (Calvillo et al., 2020). Another of its limitations is lack of variability in the participants' SDS scores (see Table 1), which could minimise the effect of the SDS on sexual concordance. As this study evaluated the sexual arousal caused by viewing sexual relations, it might be relevant to examine the association of the SDS with the sexual arousal experienced with other sexual behaviours that can be influenced by this attitude, such as solitary masturbation (Cervilla et al., 2021, 2022; Sierra et al., 2022). Finally, given the relevance of cross-cultural studies in Clinical Psychology and Health today in general (see Bibi et al., 2020; Lee et al., 2021), and in the SDS domain in particular (Álvarez-Muelas et al., 2022; Sánchez-Fuentes et al., 2020), research works of this type that examine sexual concordance would be interesting.

To conclude, this study evidences the relation between the SDS and sexual arousal by means of a sexual concordance analysis in the different typologies of adherence to SDS for sexual freedom. The concordance between genital response and subjective sexual arousal is seen to depend on the SDS adherence typology. Therefore, to answer the posed research questions, two typologies present sexual concordance in both men and women: egalitarian and man-favorable. In both typologies, subjective sexual arousal is capable of explaining genital response. These results are useful for the clinical and research domains because they back the evaluation of sexual arousal based on self-report measures, but typologies of adherence to SDS must be taken into account when considering their validity. The importance of the interiorisation of gender roles is stressed, specifically of SDS, for the concordance between objective (genital response) and subjective (self-reported) measures of sexual arousal. We contemplate the importance of considering adherence to SDS in the sexual concordance and sexual functioning relation, as well as its evaluation in sexual therapy, to better understand the sexual arousal experience according to gender standards.

Funding

This study has been funded by the Ministerio de Economía y Competitividad through the Research Project PSI2014-58035-R and de Bursary FPU 16/04429 for University Professor Training as part of the first author's thesis (Psychological Doctoral Programme B13 56 1; RD 99/2011).

References

- Álvarez-Muelas, A., Gómez-Berrocal, C., Osorio, D., Noe-Grijalva, H. M., & Sierra, J. C. (2022). *Sexual double standard: A cross-cultural comparison of young Spanish, Peruvian, and Ecuadorian people*. Manuscript submitted for publication.
- Álvarez-Muelas, A., Gómez-Berrocal, C., & Sierra, J. C. (2020). Relationship of sexual double standard with sexual functioning and sexual risk behaviors: A systematic review. *Revista Iberoamericana de Psicología y Salud*, 11, 103-116. <https://doi.org/10.23923/j.rips.2020.02.038>.
- Álvarez-Muelas, A., Gómez-Berrocal, C., & Sierra, J. C. (2021a). Study of sexual satisfaction in different typologies of adherence to the sexual double standard. *Frontiers in Psychology*, 11. <https://doi.org/10.3389/fpsyg.2020.609571> Article 609571.
- Álvarez-Muelas, A., Gómez-Berrocal, C., & Sierra, J. C. (2021b). Typologies of sexual double standard adherence in Spanish population. *The European Journal of Psychology Applied to Legal Context*, 13, 1-7. <https://doi.org/10.5093/ejpalc2021a1>.
- Álvarez-Muelas, A., Granados, R., Arcos-Romero, A. I., Calvillo, C., Cervilla, O., Muñoz-García, L. E., ... Sierra, J. C. (2021, September 9-12). *Validation of clips for sexual activation of young people with different adherence typologies of sexual double standard* [Poster Session]. 25th Congress of the World Association for Sexual Health. Cape Town, South Africa.
- Arcos-Romero, A. I., Granados, R., & Sierra, J. C. (2019). Relationship between orgasm experience and sexual excitation: Validation of the model of the subjective orgasm experience. *International Journal of Impotence Research*, 31, 282-287. <https://doi.org/10.1038/s41443-018-0095-6>.
- Bibi, A., Lin, M., & Margraf, J. (2020). Salutogenic constructs across Pakistan and Germany: A cross sectional study. *International Journal of Clinical and Health Psychology*, 20, 1-9. <https://doi.org/10.1016/j.ijchp.2019.10.001>.
- Boyer, S. C., Pukall, C. F., & Holden, R. R. (2012). The relationship between female sexual arousal and response bias in women with and without provoked vestibulodynia. *Journal of Sex Research*, 49, 519-532. <https://doi.org/10.1080/00224499.2011.604747>.
- Brotto, L. A., Chivers, M. L., Millman, R. D., & Albert, A. (2016). Mindfulness-based sex therapy improves genital-subjective arousal concordance in women with sexual desire/arousal difficulties. *Archives of Sexual Behavior*, 45, 1907-1921. <https://doi.org/10.1007/s10508-015-0689-8>.
- Calvillo, C., Sánchez-Fuentes, M. M., Parrón-Carreño, T., & Sierra, J. C. (2020). Validation of the Interpersonal Exchange Model of Sexual Satisfaction Questionnaire in adults with a same-sex partner. *International Journal of Clinical and Health Psychology*, 20, 140-150. <https://doi.org/10.1016/j.ijchp.2019.07.005>.
- Carpenter, D. L., Janssen, E., Graham, C. A., Vorst, H., & Wicherts, J. (2011). The Sexual Inhibition/Sexual Excitation Scales-Short Form (SIS/SES-SF). In T. D. Fisher, C. M. Davis, W. L. Yarber, S. L. Davis (Eds.), *Handbook of sexuality-related measures* (pp. 236-239). Routledge.
- Cervilla, O., Vallejo-Medina, P., Gómez-Berrocal, C., de la Torre, D., & Sierra, J. C. (2022). Validation of the Orgasm Rating Scale in the context of masturbation. *Psicothema*, 34, 151-159. <https://doi.org/10.7334/psicothema2021.223>.
- Cervilla, O., Vallejo-Medina, P., Gómez-Berrocal, C., & Sierra, J. C. (2021). Development of the Spanish short version of Negative Attitudes Toward Masturbation Inventory. *International Journal of Clinical and Health Psychology*, 21. <https://doi.org/10.1016/j.ijchp.2021.100222> Article 100222.
- Chadwick, S. B., & van Anders, S. M. (2017). Do women's orgasms function as a masculinity achievement for men? *Journal of Sex Research*, 54, 1141-1152. <https://doi.org/10.1080/00224499.2017.1283484>.
- Chivers, M. L., & Brotto, L. (2017). Controversies of women's sexual arousal and desire. *European Psychologist*, 22, 6-26. <https://doi.org/10.1027/1016-9040/a000274>.
- Chivers, M. L., Seto, M. C., Lalumière, M. L., Laan, E., & Grimbos, T. (2010). Agreement of self-reported and genital

- measures of sexual arousal in men and women: A meta-analysis. *Archives of Sexual Behavior*, 39, 5-56. <https://doi.org/10.1007/s10508-009-9556-9>.
- Clifton, J., Seehuus, M., & Rellini, A. H. (2015). Testing cognitive predictors of individual differences in the sexual psychophysiological responses of sexually functional women. *Psychophysiology*, 52, 957-968. <https://doi.org/10.1111/psyp.12423>.
- Connaughton, C., McCabe, M., & Karantzas, G. (2016). Conceptualization of the sexual response models in men: Are there differences between sexually functional and dysfunctional men? *Journal of Sexual Medicine*, 13, 453-463. <https://doi.org/10.1016/j.jsxm.2015.12.032>.
- Cranston-Cuevas, M. A., Barlow, D. H., Mitchell, W., & Athanasiou, R. (1993). Differential effects of a misattribution manipulation on sexually functional and dysfunctional men. *Journal of Abnormal Psychology*, 102, 525-533. <https://doi.org/10.1037/0021-843x.102.4.525>.
- Curtin, N., Ward, L. M., Merriwether, A., & Caruthers, A. (2011). Femininity ideology and sexual health in young women: A focus on sexual knowledge, agency, and embodiment. *International Journal of Sexual Health*, 23, 48-62. <https://doi.org/10.1080/19317611.2010.524694>.
- Emmerink, P. M. J., van den Eijnden, R. J. J. M., Vanwesenbeeck, I., & ter Bogt, T. F. M. (2016). The relationship between endorsement of the sexual double standard and sexual cognitions and emotions. *Sex Roles*, 75, 363-376. <https://doi.org/10.1007/s11199-016-0616-z>.
- Endendijk, J. J., van Baar, A. L., & Deković, M. (2020). He is a stud, she is a slut! A meta-analysis on the continued existence of sexual double standards. *Personality and Social Psychology Review*, 24, 163-190. <https://doi.org/10.1177/1088868319891310>.
- Ferenidou, F., Kirana, P. S., Fokas, K., Hatzichristou, D., & Athanasiadis, L. (2016). Sexual response models: Toward a more flexible pattern of women's sexuality. *Journal of Sexual Medicine*, 13, 1369-1376. <https://doi.org/10.1016/j.jsxm.2016.07.008>.
- Fisher, T. D. (2013). Gender roles and pressure to be truthful: The bogus pipeline modifies gender differences in sexual but not non-sexual behavior. *Sex Roles*, 68, 401-414. <https://doi.org/10.1007/s11199-013-0266-3>.
- Granados, R., Carvalho, J., & Sierra, J. C. (2021). Preliminary evidence on how the dual control model predicts female sexual response to bogus negative feedback. *Psychological Reports*, 124, 502-520. <https://doi.org/10.1177/0033294120907310>.
- Haavio-Mannila, E., & Kontula, O. (2003). Single and double sexual standards in Finland, Estonia and St. Petersburg. *The Journal of Sex Research*, 40, 36-49. <https://doi.org/10.1080/00224490309552165>.
- Huberman, J. S., Dawson, S. J., & Chivers, M. L. (2017). Examining the time course of genital and subjective sexual responses in women and men with concurrent plethysmography and thermography. *Biological Psychology*, 129, 359-369. <https://doi.org/10.1016/j.biopsycho.2017.09.006>.
- Huberman, J. S., Suschinsky, K. D., Lalumière, M. L., & Chivers, M. L. (2013). Relationship between impression management and three measures of women's self-reported sexual arousal. *Canadian Journal of Behavioural Science*, 45, 259-273. <https://doi.org/10.1037/a0033397>.
- Jackson, S. M., & Cram, F. (2003). Disrupting the sexual double standard: Young women's talk about heterosexuality. *British Journal of Social Psychology*, 42, 113-127. doi:10.1348/014466603763276153.
- Janssen, E. (2011). Sexual arousal in men: A review and conceptual analysis. *Hormones and Behavior*, 59, 708-716.
- Kelly, M., Inoue, K., Barrat, A., Bateson, D., Rutherford, A., & Ritchers, J. (2017). Performing (heterosexual) femininity: Female agency and role in sexual life and contraceptive use—a qualitative study in Australia. *Culture, Health & Sexuality*, 19, 240-255. <https://doi.org/10.1080/13691058.2016>.
- Kim, J. H., & Choi, I. (2021). Choosing the level of significance: A decision-theoretic approach. *ABACUS. A Journal of Accounting, Finance and Business Studies*, 57, 27-71. <https://doi.org/10.1111/abac.12172>.
- Laan, E., & Everaerd, W. (1995). Determinants of female sexual arousal: Psychophysiological theory and data. *Annual Review of Sex Research*, 6, 32-76. <https://doi.org/10.1080/10532528.1995.10559901>.
- Laan, E., & Janssen, E. (2007). How do men and women feel? Determinants of subjective experience of sexual arousal. In E. Janssen (Ed.), *The psychophysiology of sex* (pp. 278–290). Indiana University Press.
- Lalumière, M. L., Sawatsky, M. L., Dawson, S. J., & Suschinsky, K. D. (2020). The empirical status of the preparation hypothesis: Explicating women's genital responses to sexual stimuli in the laboratory. *Archives of Sexual Behavior*. <https://doi.org/10.1007/s10508-019-01599-5>.
- Lee, E., Greenblatt, A., & Hu, R. (2021). A knowledge synthesis of cross-cultural psychotherapy research: A critical review. *Journal of Cross-Cultural Psychology*, 52, 511-532. <https://doi.org/10.1177/00220221211028911>.
- Meston, C. M. (2006). The effects of state and trait self-focused attention on sexual arousal in sexually functional and dysfunctional women. *Behaviour Research and Therapy*, 44, 515-532. <https://doi.org/10.1016/j.brat.2005.03.009>.
- Meston, C. M., Rellini, A. H., & McCall, K. (2010). The sensitivity of continuous laboratory measures of physiological and subjective sexual arousal for diagnosing women with sexual arousal disorder. *Journal of Sexual Medicine*, 7, 938-950. <https://doi.org/10.1111/j.1743-6109.2009.01548.x>.
- Milhausen, R. R., & Herold, E. S. (2001). Reconceptualizing the sexual double standard. *Journal of Psychology and Human Sexuality*, 13, 63-83. https://doi.org/10.1300/J056v13n02_05.
- Mosher, D. L. (2011). Multiple indicators of subjective sexual arousal. In T. D. Fisher, C. M. Davis, W. L. Yarber, S. L. Davis (Eds.), *Handbook of Sexuality-Related Measures* (pp. 59–61). Routledge.
- Moyano, N., & Sierra, J. C. (2014). Validation of the Sexual Inhibition/Sexual Excitation Scales-Short Form (SIS/SES-SF). *Terapia Psicológica*, 32, 87-100.
- Muehlenhard, C. L., & Quackenbush, D. M. (2011). The Sexual Double Standard Scale. In T. D. Fisher, C. M. Davis, W. L. Yarber, R. Bauserman, G. E. Schree, S. L. David (Eds.), *Handbook of sexuality-related measures* (pp. 199–200). Routledge.
- Niineste, R. (2021). The sexual body as a meaningful home: Making sense of sexual concordance. *Open Philosophy*, 4, 269-283. <https://doi.org/10.1515/opphil-2020-0183>.
- Rosen, R., & Beck, J. (1988). *Patterns of sexual arousal: Psychophysiological processes and clinical applications*. Guilford Press.
- 9-12 September Sánchez-Fuentes, M. M., Calvillo, C., & Granados, R. (2021, September 9-12). El orgasmo desde el Modelo de Intercambio Interpersonal de Satisfacción Sexual. Coord., In J.C. Sierra *El orgasmo como indicador de salud sexual [Symposium]*. 25th Congress of the World Association for Sexual Health 9-12 September. Cape Town, South Africa.
- Sánchez-Fuentes, M. M., Moyano, N., Gómez-Berrocal, C., & Sierra, J. C. (2020). Invariance of the Sexual Double Standard Scale: A cross-cultural study. *International Journal of Environmental Research and Public Health*, 17. <https://doi.org/10.3390/ijerph17051569> Article 1569.
- Sánchez-Fuentes, M. M., & Santos-Iglesias, P. (2016). Sexual satisfaction in Spanish heterosexual couples: Testing the Interpersonal Exchange Model of Sexual Satisfaction. *Journal of Sex & Marital Therapy*, 42, 223-242. <https://doi.org/10.1080/0092623X.2015.1010675>.
- Santos-Iglesias, P., Sierra, J. C., García, M., Martínez, A., Sánchez, A., & Tapia, M. I. (2009). Index of Sexual Satisfaction (ISS): A study on the reliability and validity. *International*

- Journal of Psychology and Psychological Therapy*, 9, 259-273. [https://doi.org/10.1016/S0120-0534\(14\)70016-0](https://doi.org/10.1016/S0120-0534(14)70016-0).
- Sarin, S., Amsel, R., & Binik, Y. M. (2016). A streetcar named “derousal”? A psychophysiological examination of the desire–arousal distinction in sexually functional and dysfunctional women. *Journal of Sex Research*, 53, 711-729. <https://doi.org/10.1080/00224499.2015.1052360>.
- Sierra, J. C., Álvarez-Muelas, A., Arcos-Romero, A. I., Calvillo, C., Torres-Obregón, R., & Granados, R. (2019). Connection between subjective sexual arousal and genital response: Differences between men and women. *Revista Internacional de Andrología*, 17, 24-30. <https://doi.org/10.1016/j.androl.2017.12.004>.
- Sierra, J. C., Arcos-Romero, A. I., Granados, R., Sanchez-Fuentes, M. M., Calvillo, C., & Moyano, N. (2017). Ratings of Sexual Arousal and Ratings of Genial Sensations: Psychometric properties in Spanish sample. *Revista Internacional de Andrología*, 15, 99-107 doi:10.1016/10.1016/j.androl.2016.10.008.
- Sierra, J. C., Moyano, N., Vallejo-Medina, P., & Gómez-Berrocal, C. (2018). An abridge Spanish version of Sexual Double Standard Scale: Factorial structure, reliability and validity evidence. *International Journal of Clinical and Health Psychology*, 18, 69-80. <https://doi.org/10.1016/j.ijchp.2017.05.003>.
- Sierra, J. C., Santamaría, J., Cervilla, O., & Álvarez-Muelas, A. (2022). Masturbation in middle and late adulthood: Its relationship to orgasm. *International Journal of Impotence Research*. <https://doi.org/10.1016/j.androl.2020.10.003> Advance online publication.
- Sintchak, G., & Geer, J. H. (1975). A vaginal plethysmograph system. *Psychophysiology*, 12, 113-115. <https://doi.org/10.1111/j.1469-8986.1975.tb03074.x>.
- Soler, F., Granados, R., Arcos-Romero, A. I., Calvillo, C., Álvarez-Muelas, A., Sánchez-Fuentes, M. D. M., Moyano, N., & Sierra, J. C. (2021). Association between psychopathological dimensions and sexual functioning/sexual arousal in young adults. *International Journal of Environmental Research and Public Health*, 18. <https://doi.org/10.3390/ijerph1807358> Article 3584.
- Suschinsky, K. D., Fisher, T. D., Maunder, L., Hollenstein, T., & Chivers, M. L. (2020). Use of the bogus pipeline increases sexual concordance in women but not men. *Archives of Sexual Behavior*, 49, 1517-1532. <https://doi.org/10.1007/s10508-020-01737-4>.
- Suschinsky, K. D., Huberman, J. S., Maunder, L., Brotto, L. A., Hollenstein, T., & Chivers, M. L. (2019). The relationship between sexual functioning and sexual concordance in women. *Journal of Sex & Marital Therapy*, 45, 230-246. <https://doi.org/10.1080/0092623X.2018.1518881>.
- Suschinsky, K. D., & Lalumière, M. L. (2011). Prepared for anything? An investigation of female genital arousal in response to rape cues. *Psychological Science*, 22, 159-165. <https://doi.org/10.1177/0956797610394660>.
- Velten, J., & Brotto, L. A. (2017). Interoception and sexual response in women with low sexual desire. *PLoS ONE*, 12. <https://doi.org/10.1371/journal.pone.0185979> Article e0185979.
- Velten, J., Chivers, M. L., & Brotto, L. A. (2018). Does repeated testing impact concordance between genital and self-reported sexual arousal in women? *Archives of Sexual Behavior*, 47, 651-660. <https://doi.org/10.1007/s10508-017-1076-4>.
- Vílchez-Jaén, C., Álvarez-Muelas, A., & Sierra, J. C. (2022). Analysis of sexual victimization/aggression through typologies of adherence to sexual double standard in general population. *Revista Iberoamericana de Psicología y Salud*, 13, 28-40. <https://doi.org/10.23923/j.rips.2022.01.052> Advance online publication.
- Zuckerman, M. (1971). Physiological measures of sexual arousal in the human. *Psychological Bulletin*, 75, 297-329. <https://doi.org/10.1037/h0030923>.