

ORGASM

Sexual Inhibition is a Vulnerability Factor for Orgasm Problems in Women



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ABSTRACT

Background: The differential role of psychological traits in the etiology and maintenance of female orgasm difficulties is yet to be consistently established.

Aim: To investigate the contribution of different psychological trait features (personality, sexual inhibition and excitation, and sexual beliefs) to predict female orgasm and to assess the degree to which these dispositional factors moderate the association between sexual activity and orgasm occurrence in a large community sample of Portuguese women.

Methods: 1,002 women (18–72 years, mean age = 26.27, SD = 8.74) completed questionnaires assessing personality traits (NEO-Five Factor Inventory), sexual inhibition and sexual excitation (Sexual Inhibition/Sexual Excitation Scales—Short Form [SIS/SES]), sexual beliefs (Sexual Dysfunctional Beliefs Questionnaire), sexual behavior (frequency of sexual activities and frequency of orgasm occurrence), and social desirability (Socially Desirable Response Set). Hierarchical multiple regression and moderation analyses were conducted while controlling for the effect of covariates such as social desirability, sociodemographic and medical characteristics, and relationship factors.

Outcomes: The main outcome measurement was orgasm frequency as predicted and moderated by personality, SIS/SES dimensions, and sexual beliefs.

Results: Results of the hierarchical multiple regression analysis indicated a significant predictive role for sexual inhibition (associated with fear of performance failure [SIS1] and related to the threat of performance consequences) and body image beliefs in female orgasm occurrence. The significant predictive effect of extraversion and of sexual excitation on orgasm frequency ceased to be significant with the insertion of all trait predictors in the final model. Furthermore, SIS1 significantly moderated the relation between sexual activity and orgasm occurrence.

Clinical Implications: Attention should be given to individual factors impairing orgasmic response in women, particularly sexual inhibition processes. The development of clinical strategies to address and regulate them is recommended.

Strengths and Limitations: Although this study investigated a large community sample, this sample was composed of heterosexual, relatively young women and thus generalization of the present results demands some caution. Social desirability was controlled for in the analyses and questionnaires were not collected face to face, which constitutes a strength of this study because social desirability is lower in self-administered online questionnaires compared with paper-and-pencil questionnaires, particularly for more sensitive sexual issues.

Conclusion: SIS1 was found to be a vulnerability factor for female orgasmic difficulties. Future research should test these findings with different samples, particularly clinical samples of women with orgasmic problems, preferably with the use of longitudinal designs. **Tavares IM, Laan ETM, Nobre PJ. Sexual Inhibition is a Vulnerability Factor for Orgasm Problems in Women. J Sex Med 2018;15:361–372.**

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INTRODUCTION

Orgasm difficulties are among the most common sexual problems in women. Various studies have indicated prevalences ranging from 18% to 61% in the general population.^{1–5} In a representative sample of Portuguese women, orgasm difficulties

were the second most common sexual problem, with 16.8% of women reporting difficulties in reaching orgasm most of the time. Moreover, 19.4% of women experienced difficulties reaching orgasm approximately half the time.⁶

An orgasm is a multidetermined psychophysiologic process involving biological, physiologic, and anatomic factors and psychological, affective, interpersonal, and contextual ones.^{7,8} Despite the central contribution of type of sexual activity to the experience of orgasm in women,^{8–10} research has shown that psychological factors also can play an important role in the development and maintenance of female orgasmic problems.^{11–14} Among these factors are psychological traits, described as global predispositions, responsible for guiding human behavior and consistent across time.¹⁵

Difficulties in reaching orgasm have been associated with various personality traits, such as self-blame attributions, control needs, repressed emotions, greater dependency, apprehensiveness, negativity,^{8,16,17} emotional instability, and not being open to new experiences.¹⁸ For the main dimensions of personality as described in the Five-Factor Model,^{19,20} studies have indicated that, in women, problems with orgasm are strongly and positively correlated with neuroticism (ie, the absence of emotional stability and the presence of negative affect) and strongly and negatively correlated with extraversion (ie, the ability to socialize and the presence of positive affect).^{18,21} Accordingly, as suggested by Nobre's Cognitive-Emotional Model of Sexual Dysfunction, personality traits such as neuroticism and extraversion can act as vulnerability factors for the development and maintenance of sexual dysfunctions.^{22,23} More recently, using a longitudinal methodology, a relation between personality traits (including nervousness, aggressiveness, depressiveness, irritability, sociability, and openness) and orgasmic difficulties was demonstrated.¹¹ Overall, these results support the importance of personality traits in the regulation of female orgasmic function, although a diversity of findings has been suggested. The heterogeneity in results could be due to the various methodologies, sample constitution, and personality factors involved in the different studies,^{24–26} which hamper firm conclusions about the association between personality traits and female orgasmic function.

Another factor that might predispose women to experience orgasm problems is their individual tendency to inhibitory control. Various investigators have proposed the idea that the fear of losing control of one's behavior is a key factor in orgasm difficulties in women.^{27–29} The broad construct of inhibitory control was found to be a significant predictor of female orgasmic difficulties,¹⁶ and its relation to the female sexual response can be better understood in the context of the dual control model of Bancroft et al.³⁰ This model offers an explanation for the individual variability in the propensity for excitation and inhibition of sexual response. According to the dual control model, human sexual response depends on the interaction between cognitive and physiologic dimensions based on central inhibitory and excitatory mechanisms that act automatically and without

voluntary control and that can block or facilitate sexual response.^{31,32}

In fact, recent studies have addressed the role of sexual excitation and sexual inhibition in female sexual function and dysfunction. Findings have indicated that sexual inhibition and, more specifically, the dimension of inhibition associated with fear of performance failure (SIS1) are significant predictors of various dimensions of female sexual functioning (eg, sexual desire, arousal, orgasm, pain, and sexual satisfaction).^{14,33,34} Nevertheless, no study has examined whether women with different propensities for sexual inhibition differ in their orgasmic functioning despite the contribution of the different sexual activities they engage in. Based on the previously discussed findings, it seems plausible that the individual variability in these specific mechanisms could contribute to explain individual differences in the probability of experiencing sexual problems,³⁰ including orgasmic problems, above and beyond the focus of sexual stimulation. More precisely, this type of sexual inhibition mechanism, SIS1, could moderate the relation between engaging in sexual activity (solitary or partnered and regardless of the type of genital stimulation used) and female orgasm occurrence.

For the role of cognitive variables in sexual functioning, there is consistent evidence supporting their contribution to the development and maintenance of sexual dysfunctions.^{12,13,35–37} In particular, sexual beliefs have been described as vulnerability factors for sexual difficulties, with data indicating that women with sexual dysfunction present higher age-related beliefs and self–body image beliefs than women without sexual problems.¹² The presence of these dysfunctional beliefs would make these women more vulnerable to activate incompetence self-schemas when experiencing an unsuccessful sexual situation.¹³ The activation of these self-critical schemas would elicit a system composed of negative automatic thoughts, which would prevent these women from focusing on erotic stimuli (lack of erotic thoughts) and promote negative emotions (sadness, disillusion, guilt, lack of pleasure, and satisfaction), thus impairing their sexual response.^{36,37} For female orgasm in particular, data indicate that self–body image beliefs seem to play a central role in these difficulties.¹³ Nevertheless, only 1 study has investigated the role of sexual beliefs in female orgasmic functioning to date, indicating these results are in need of replication.

Overall, these findings highlight the importance of different psychological trait features for female sexual function in general, but studies exploring the relative influence of these variables on female orgasmic function are scarce. Moreover, no studies to date in the English-language literature that we researched have investigated the extent to which these psychological trait factors moderate the relation between sexual activity and orgasm occurrence.

AIMS

The goal of this study was to assess the extent to which psychological dispositional characteristics (personality, sexual

inhibition and excitation) and sexual beliefs predict orgasm occurrence in women. Also, using an existing dataset,³⁵ we examined whether these factors play a moderating role in the relation between sexual activity and orgasm occurrence.

To the best of our knowledge, this is the first study investigating these moderating hypotheses with regard to female orgasm. Based on previous findings on the influence of sexual beliefs and dispositional factors on female sexual problems, we hypothesized that personality dimensions would significantly predict female orgasm occurrence (ie, that the dimension of extraversion would be a positive predictor of orgasmic frequency and that neuroticism would be a negative predictor of orgasmic frequency). We also expected sexual inhibition and sexual beliefs (namely, sexual beliefs about self–body image) to be significant negative predictors of female orgasmic frequency.

Moreover, we anticipated the effect of sexual activity on orgasm occurrence would be moderated by these trait variables, in such a way that the previously reported negative predictors of female orgasm would decrease the impact of sexual activity on orgasm occurrence, whereas the positive predictors of female orgasm would increase the impact of sexual activity on orgasm occurrence.

METHODS

Participants

The initial sample consisted of a community sample of 2,250 participants. 1,248 participants were eliminated from the sample: 7 because they identified as male and 1,241 because they did not complete the entire questionnaire protocol. These participants were not included in the final sample, which was composed of 1,002 Portuguese women (mean age = 26.27, SD = 8.74, range = 18–72) recruited online. Eligibility criteria included identifying as woman and being at least 18 years old, heterosexual, and sexually active. All women were native Portuguese. Most women who participated in this study were premenopausal (92.4%). Most had at least 15 years of education (67.2%). The main sociodemographic characteristics of the sample are presented in Table 1.

Measures

Demographics Questionnaire

A demographics questionnaire was used to assess relevant demographic information, such as age, gender, self-labeled sexual orientation, educational level, and medical history (including questions about medical problems or complaints and medication), relationship issues (relationship status, duration, and relationship satisfaction), and other aspects of sexual health and behavior.

Frequency of Sexual Activities and Frequency of Orgasm Occurrence

Participants were asked how often they practiced each of 10 sexual activities: masturbation (focus on the clitoris),

Table 1. Sociodemographic characteristics of sample (N = 1,002)

Variable	
Age (y)	
Mean	26.27
Range	18–72
SD	8.74
Educational level, n (%)	
7–9 y	10 (1)
10–12 y	241 (24.2)
13–15 y	418 (42)
≥16 y	327 (32.8)
Relationship status, n (%)	
Single	232 (23.2)
Dating	584 (58.5)
Married or civil union	152 (15.2)
Separated or divorced	27 (2.7)
Widowed	3 (0.3)
Relationship duration (y) (n = 730)	
Mean	4.8
Range	0.08–46
SD	6.02

masturbation (focus on penetration of the vagina), partner manually stimulating you (focus on the clitoris), partner manually stimulating you (focus on penetration of the vagina), receiving oral sex, penis-in-vagina intercourse (without additional clitoris stimulation for orgasm), penis-in-vagina intercourse (with additional glans clitoris stimulation for orgasm), penis-in-anus intercourse, partner inserting a finger in your anus, and partner orally stimulating your anus. Answers were assessed on a 7-point Likert-rating scale (1 = never to 7 = always). In addition, information on what was meant by clitoral stimulation was added (it was explicitly specified that, “For questions related to stimulation of the clitoris, we are referring to the glans clitoris, positioned above the urethra and vaginal entrance”), including an anatomic picture to help the respondents distinguish the different parts of the vulva. Participants also reported on the frequency with which they usually had an orgasm with each sexual activity, also on a 7-point Likert-rating scale (1 = never to 7 = always). This last question was used as a measure of orgasm consistency, because it assesses the extent to which women usually experienced an orgasm with each sexual activity they engaged in.

NEO-Five Factor Inventory

The NEO-Five Factor Inventory (NEO-FFI) is a shortened version of the NEO Personality Inventory–Revised (NEO-PI-R).¹⁹ The NEO-FFI assesses the dimensions of the Five-Factor Model of personality as proposed by McCrae and Costa.¹⁵ The reliability of the NEO-FFI has been demonstrated, with values of internal consistency ranging from 0.68 to 0.86 for the original

version.¹⁹ Also, 2-week retest reliability is uniformly high, ranging from 0.86 to 0.90 for the 5 dimensions.³⁸ The NEO-FFI has been translated into several different languages and shown validity and applicability in different contexts; it is one of the most widely used measures of the Five-Factor Model.³⁹ The Portuguese version of the questionnaire presents adequate internal consistency: conscientiousness ($\alpha = 0.81$), neuroticism ($\alpha = 0.81$), extraversion ($\alpha = 0.75$), agreeableness ($\alpha = 0.72$), and openness to experience ($\alpha = 0.71$).⁴⁰ In the present study, the α values indicated good internal consistency for each of the 5 factors (0.70–0.88).

Sexual Inhibition/Sexual Excitation Scales—Short Form

The Sexual Inhibition/Sexual Excitation Scales—Short Form (SIS/SES-SF)^{31,32} measure individual proneness to sexual inhibition and to sexual excitation. These scales feature 1 sexual excitation factor (SES) and 2 inhibition-related factors: 1 related to the threat of performance failure (SIS1) and 1 related to the threat of performance consequences (SIS2). The SIS/SES-SF⁴¹ was designed by selecting items that represent the 3-factor structure equally well for women and men, containing 14-items rated in a 4-point Likert-rating scale (from 1 = strongly agree to 4 = strongly disagree). This short form exhibits reliability and convergent and discriminant validity that largely resemble the original version. Also, women's short form test-retest coefficients are adequate for all 3 factors (SES, $r = 0.61$; SIS1, $r = 0.61$; SIS2, $r = 0.63$).⁴¹ The Portuguese version of the SIS/SES⁴² replicated the original factor structure of the questionnaire and demonstrated acceptable internal consistency (0.74–0.92) and acceptable test-retest reliability of the subscales (for SES and SIS1, $r = 0.65$, $P < .05$; for SIS2, $r = 0.72$, $P < .01$). In the present study, the α values indicated adequate internal consistency for each of the 3 subscales (0.62–0.78).

Sexual Dysfunctional Beliefs Questionnaire

The female version of the Sexual Dysfunctional Beliefs Questionnaire (SDBQ)⁴³ is a 40-item self-reported measure that assesses specific sexual beliefs and stereotypes, commonly referred in the clinical literature as constituting predisposing factors to the development of various sexual dysfunctions. Participants are asked to identify the level of agreement with the 40 statements regarding diverse sexual beliefs on a 5-point Likert-rating scale (1 = completely disagree to 5 = completely agree). This scale is composed of 6 factors: sexual conservatism (eg, "Masturbation is wrong and sinful"), sexual desire and pleasure as a sin (eg, "Experiencing pleasure during sexual activities is not acceptable in a virtuous woman"), age-related beliefs (eg, "As women age the pleasure they get from sex decreases"), body image beliefs (eg, "An ugly woman is not capable of sexually satisfying her partner"), affection primacy (eg, "Sex without love is like food without flavor"), and motherhood primacy (eg, "Sex is meant only for procreation"). The questionnaire presents good internal consistency ($\alpha = 0.81$) and test-retest reliability ($r = 0.80$).

Moreover, the scale showed good discriminant validity between a clinical group and a community group without sexual problems.⁴³ In the present study, this scale showed acceptable internal consistency (Cronbach $\alpha = 0.79$), with the dimensions of sexual conservatism, sexual desire and pleasure as a sin, and age-related beliefs presenting the best internal consistency (Cronbach $\alpha > 0.60$). However, the dimensions of body image beliefs (Cronbach $\alpha = 0.35$), affection primacy (Cronbach $\alpha = 0.50$), and motherhood primacy (Cronbach $\alpha = 0.36$) showed weak internal consistency; of note, these 3 subscales are composed of a small number of items (body image beliefs, 4 items; affection primacy beliefs, 6 items; and motherhood primacy beliefs, 4 items).

Socially Desirable Response Set

The 5-item short form of the Marlowe-Crowne Social Desirability Scale (SDRS-5)⁴⁴ was used for identifying socially desirable responses that could compromise the validity of the self-reported measures, especially the misrepresentation and/or distortion of sexual behaviors and preferences. The questionnaire presents acceptable test-retest reliability ($r = 0.75$) and internal consistency (2 studies were conducted, with $\alpha = 0.66$ and $\alpha = 0.68$).⁴⁴ In this study, this scale yielded a Cronbach α value equal to 0.57.

Procedure

All procedures of the study were reviewed and approved by the institutional ethics committee at the first author's university. The electronic questionnaire was developed using an online survey application (LimeSurvey; <https://www.limesurvey.org>). Pilot testing was carried out to examine the clarity and adequacy of the instructions, to identify possible technical errors, and to estimate the total response time (estimated at 20–30 minutes). Data confidentiality and anonymity were guaranteed, because no personal information that could identify the respondents was collected and respondents' IP addresses were not recorded. Participants were recruited through passive advertisement using various networks of electronic contacts and mailing lists (eg, institutional mailing lists, Google+, institutional Facebook page of the Research Group). To reach a wider population, including older women, Portuguese senior universities and eldercare institutions were contacted. Recruitment materials described the study purpose as "to assess the relationship between various psychosocial factors and women's sexual health" and asked for participation of women who met the described inclusion criteria, including a link to the online questionnaire. When participants accessed the link of the questionnaire, information about the aim and procedures of the study was presented, which included an informed consent form. After this step, and having agreed to these terms, participants had access to the survey questions. Thus, participation in the present study was voluntary. Individuals were not paid for their participation. The present data were collected as part of a larger research project on women's

Table 2. Orgasm frequency means for each item, arranged according to orgasm likelihood (from higher to lower)*

Sexual activity	Mean orgasm frequency	SD	n
Masturbation (focus on clitoris)	5.76	1.87	835
Penis-in-vagina intercourse (with additional clitoris stimulation for orgasm)	5.32	1.88	891
Partner manually stimulating you (focus on clitoris)	4.66	2.05	928
Receiving oral sex	4.48	2.12	889
Penis-in-vagina intercourse (without additional clitoris stimulation for orgasm)	3.81	2.02	903
Masturbation (focus on penetration of vagina)	3.77	2.17	596
Partner manually stimulating you (focus on penetration of vagina)	3.62	2.06	909
Penis-in-anus intercourse	2.91	2.14	313
Partner inserting a finger in your anus	2.65	1.97	399
Partner orally stimulating your anus	2.56	1.92	207

*Number differs depending on whether participants reported ever engaging in this activity. All items were rated using a 7-point Likert scale (1 = never to 7 = always); higher scores reflect greater orgasm likelihood.

sexual health, for which data collection was conducted from October 2015 through March 2016 (6 months).

Statistical Analysis

To perform the subsequent statistical analyses, 1 orgasm frequency composite score was calculated, consisting of the mean orgasm score of all 10 different sexual activities (Cronbach $\alpha = 0.76$). Similarly, 1 sexual activity frequency composite score was calculated consisting of the mean frequency of engaging in the listed sexual activities (Cronbach $\alpha = 0.69$).

To examine the potential contribution of sociodemographic, medical, and relational factors to female orgasm, an initial multiple regression analysis was performed, with orgasm frequency being selected as the dependent variable and the potential covariates being selected as the independent variables, including social desirability, sociodemographic characteristics (age, education level, and relationship status), relationship satisfaction, psychopathology (such as depression or anxiety), menopause status, urologic problems, gynecologic problems, current use of antidepressants, antihypertensives, neuroleptics, hormonal therapy, and having been subject to any previous genital surgery.

Afterward, to determine the contribution of the different predictors (personality traits, sexual inhibition and excitation, and sexual beliefs) to orgasm occurrence, a hierarchical multiple regression analysis was conducted. In this analysis, the effects of the significant covariates of orgasm were controlled for, according to the hierarchical method. After controlling for the covariates, 3 steps were performed: in the 1st step personality dimensions were introduced; in the 2nd step sexual inhibition and sexual excitation factors were introduced; and in the 3rd step sexual beliefs were introduced. This order was defined based on decreasing stability and broadness of the constructs, in such a way that the 1st variables to be introduced were considered most stable and less directly involved in the determination of sexual response. Accordingly, because personality traits broadly influence one's behavior, are generally stable over time, and are greatly

determined by a person's genetics rather than the effects of one's environment,⁴⁵ they were introduced in the 1st step. Propensity for sexual inhibition and sexual excitation also are considered to depend on central mechanisms in the brain (eg, ³⁰) but are specifically related to sexual behavior; thus, they were introduced in the 2nd step. Sexual beliefs are the most sexually related of these dispositional features, containing rules that define the way subjects ascribe meaning to sexual events and being the result of learning processes and life experiences⁴⁶; therefore, they were introduced in the 3rd step.

All assumptions were verified for these analyses: there were no significant outliers in the data; independence of residuals was supported by the Durbin-Watson test; homoscedasticity of the data was verified; predictors showed no multicollinearity, with correlation coefficients among all independent variables being smaller than 0.08, all tolerance values less than 0.01, and all variance inflation factors less than 2.5; and residuals were normally distributed.

To examine the moderator roles of the discussed dispositional variables on the occurrence of female orgasm in response to sexual activity, linear regressions were performed to verify the assumptions suggested by Baron and Kenny.⁴⁷ The same covariates whose effects were controlled for in the hierarchical multiple regression analyses also were controlled for in the moderation analyses. The regression's simple slopes graphic was analyzed as a moderating post hoc probing technique.

For all analyses, a *P* value less than .05 was considered statistically significant. All statistical analyses were performed with SPSS 21 (IBM Corp, Armonk, NY, USA).

RESULTS

Women's Orgasm Frequencies

Descriptive statistics on orgasm frequencies experienced in response to the different sexual activities in which women report engaging are presented in [Table 2](#).

Table 3. Sociodemographic, medical, and relational factors as orgasm frequency predictors (n = 557)

Predictor variables	B	SE B	β	t	P value
Social desirability	-0.012	0.078	-0.007	-0.152	.879
Age	0.029	0.011	0.220	2.714	.007*
Educational level	-0.024	0.063	-0.019	-0.377	.706
Relationship status	-0.224	0.163	-0.083	-1.370	.171
Relationship satisfaction	0.156	0.042	0.162	3.706	.001†
Depression	-0.138	0.148	-0.048	-0.929	.353
Anxiety	0.093	0.103	0.041	0.902	.367
Menopause status	-0.281	0.187	-0.081	-1.500	.134
Previous genital surgery	0.283	0.272	0.045	1.042	.298
Gynecologic problems	-0.013	0.139	-0.004	-0.090	.928
Urologic problems	-0.171	0.185	-0.041	-0.926	.355
Antihypertensives	-0.325	0.356	-0.042	-0.913	.362
Antidepressants	-0.073	0.193	-0.019	-0.379	.705
Neuroleptics	0.317	0.456	0.030	0.695	.487
Hormonal therapy	0.085	0.098	0.039	0.862	.389

* $P < 0.01$; † $P < 0.001$.

Sociodemographic, Medical, and Relational Factors

A multiple regression analysis was conducted to examine the potential contribution of sociodemographic, medical, and relational factors to orgasm frequency, including women's age, educational level, menopause status, anxiety, depression, relationship status, relationship satisfaction, social desirability, having been subject to any previous genital surgery, urologic problems, gynecologic problems, and current use of antidepressants, antihypertensives, neuroleptics, and hormonal therapy. The analysis showed a significant model, accounting for 4.7% of the variance in orgasmic frequency ($R^2 = 0.047$, $F_{15, 541} = 1.783$, $P = 0.034$). According to the standardized regression coefficients, age ($\beta = 0.220$, $t_{541} = 2.714$, $P = .007$) and relationship satisfaction ($\beta = 0.162$, $t_{541} = 3.706$, $P < .001$) were the only significant predictors of orgasm frequency (Table 3). Therefore, these 2 variables were included as covariates in the subsequent analyses.

Predictive Role of Dispositional Characteristics

To evaluate the role of the proposed dispositional variables in predicting orgasm occurrence, a hierarchical multiple regression analysis was carried out, with the dispositional dimensions (assessed with the NEO-FFI, SIS/SES-SF, and SDBQ) as the predictor variables and orgasm frequency as the dependent variable, while controlling for the effect of age and relationship satisfaction. After inserting the covariates, 3 steps were performed: personality predictors were introduced in the 1st step, the SIS/SES dimensions were introduced in the 2nd step, and sexual beliefs were introduced in the 3rd and final step.

This analysis resulted in a significant model explaining 12% of the variance in orgasm frequency ($R^2 = 0.120$, $F_{16, 480} = 4.081$, $P < .001$). The amount of variance accounted for by the 1st model (with the control variables as predictors) was 1.5%

($R^2 = 0.015$). With insertion of the personality variables as predictors in the 2nd model, the amount of added explained variance was 3.5% ($\Delta R^2 = 0.035$); the addition of the SIS/SES dimensions added an additional 5.5% ($\Delta R^2 = 0.055$); and the insertion of sexual beliefs added 1.6% ($\Delta R^2 = 0.016$) to the variance explained by the model. According to the standardized regression coefficients of model 2, extraversion was the only personality trait that significantly predicted orgasm frequency ($\beta = 0.115$, $t_{480} = 2.226$, $P = .026$). In model 3, sexual inhibition and sexual excitation factors were significant predictors of orgasm frequency (SIS1, $\beta = -0.124$, $t_{480} = -2.658$, $P = .008$; SIS2, $\beta = -0.137$, $t_{480} = -2.930$, $P = .004$; SES, $\beta = 0.102$, $t_{480} = 2.200$, $P = .028$), but upon their insertion in this step extraversion did not remain a significant predictor of orgasm frequency. In the final model including all predictors, the dimensions of body image beliefs ($\beta = 0.103$, $t_{480} = 2.160$, $P = .031$), SIS1 ($\beta = -0.117$, $t_{480} = -2.461$, $P = .014$), and SIS2 ($\beta = -0.135$, $t_{480} = -2.880$, $P = .004$) were significant predictors of orgasm frequency (Table 4).

Moderating Role of Dispositional Characteristics

To test the moderation hypotheses, a multiple hierarchical regression analysis was performed for each of the proposed moderator variables. In these analyses, and after controlling for the effect of the covariates (age and relationship satisfaction), 2 distinct steps were required, according to the conditions proposed by Baron and Kenny.⁴⁷ (i) The effect of the independent variable on the dependent variable was examined while controlling for the effect of the moderator variable. (ii) The effect of the interaction term (independent variable by moderator) on the dependent variable was tested, controlling for the independent variable and the moderator. For moderation to occur, the 2 effects must be significant.⁴⁷ In these analyses, frequency of

Table 4. Psychological dispositional features as orgasm frequency predictors*

Predictor variables	Model 1					Model 2					Model 3					Model 4				
	B	SE B	β	t	P	B	SE B	β	t	P	B	SE B	β	t	P	B	SE B	β	t	P
Age	0.008	0.006	0.056	1.227	.220	0.004	0.006	0.031	0.670	.503	0.011	0.006	0.079	1.730	.084	0.009	0.006	0.066	1.411	.159
Relationship satisfaction	0.115	0.044	0.118	2.594	.010 [†]	0.089	0.045	0.092	1.997	.046 [†]	0.100	0.044	0.103	2.277	.023 [†]	0.101	0.044	0.104	2.275	.023 [†]
Neuroticism						-0.103	-0.080	-0.068	-1.282	.200	-0.075	0.080	-0.049	-0.932	.352	-0.070	0.081	-0.046	-0.868	.386
Extraversion						0.240	0.108	0.115	2.226	.026 [†]	0.151	0.107	0.073	1.418	.157	0.154	0.108	0.074	1.427	.154
Openness to Experience						0.167	0.095	0.080	1.762	.079	0.048	0.096	0.023	0.500	.617	0.029	0.097	0.014	0.299	0.765
Agreeableness						-0.134	0.113	-0.058	-1.188	.236	-0.079	0.111	-0.034	-0.714	.475	-0.110	0.112	-0.047	-0.979	.328
Conscientiousness						0.111	0.091	0.059	1.228	.220	0.136	0.088	0.072	1.540	.124	0.157	0.090	0.083	1.751	.081
SES											0.034	0.015	0.102	2.200	.028 [†]	0.030	0.016	0.089	1.863	.063
SIS1											-0.059	0.022	-0.124	-2.658	.008 [‡]	-0.055	0.022	-0.117	-2.461	.014 [†]
SIS2											-0.060	0.021	-0.137	-2.930	.004 [‡]	-0.060	0.021	-0.135	-2.880	.004 [‡]
Sexual conservatism																-0.041	0.023	-0.100	-1.810	.071
Sexual desire and pleasure as a sin																-0.019	0.086	-0.011	-0.223	.824
Age related beliefs																0.013	0.020	0.031	0.634	.526
Body image beliefs																0.093	0.043	0.103	2.160	.031 [†]
Affection primacy																0.010	0.020	0.023	0.483	.629
Motherhood primacy																-0.016	0.027	-0.030	-0.596	.551

SES = Sexual Excitation Scale; SIS1 = sexual inhibition associated with fear of performance failure; SIS2 = sexual inhibition associated with threat of performance consequences.

*Model 2 includes NEO-Five Factor Inventory predictors, model 3 includes Sexual Inhibition/Sexual Excitation Scales–Short Form predictors, and model 4 includes Sexual Dysfunctional Beliefs Questionnaire predictors (n = 497).[†]P < .05; [‡]P < .01.

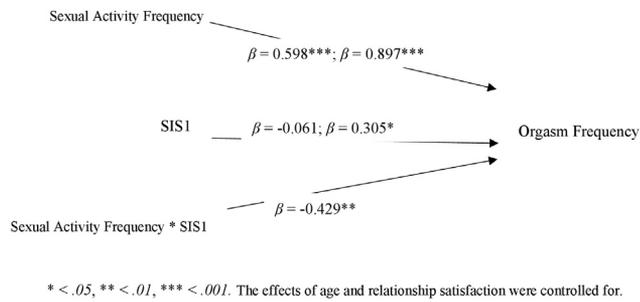


Figure 1. Standardized regression coefficients for SIS1 as moderator of the relation between sexual activity and orgasm occurrence ($n = 577$). SIS1 = sexual inhibition associated with fear of performance failure.

engaging in sexual activities was selected as the independent variable, orgasm frequency was defined as the dependent variable, and the variables that previously demonstrated a predictive role in orgasm frequency (SIS1, SIS2, and body image beliefs) were considered moderating variables.

Moderating Role of Sexual Inhibition Associated With Fear of Performance Failure (SIS1)

The SIS1 factor was examined as a moderator of the association between sexual activity frequency and orgasm frequency. Sexual activity frequency significantly predicted orgasm frequency while controlling for the effect of SIS1 ($\beta = 0.598$, $t_{572} = 17.853$, $P < .001$; $R^2 = 0.391$, $F_{4, 572} = 91.745$, $P < .001$). In addition, the interaction term between sexual activity frequency and SIS1 significantly predicted orgasm frequency while controlling for sexual activity frequency and SIS1 ($\beta = -0.429$, $t_{571} = -2.737$, $P = .006$; $R^2 = 0.399$, $F_{5, 571} = 75.727$, $P < .001$) and accounted for a significant increase in the variance of orgasm frequency ($\Delta R^2 = 0.008$, $P = .006$). Thus, SIS1 was a significant moderator of the relation between sexual activity frequency and orgasm frequency (Figure 1). The simple slopes graphic of the interaction was computed as a post hoc probing of the moderating effects. As depicted in Figure 2, the strongest positive association between sexual activity and orgasm occurred for women who reported low levels of SIS1. In contrast, the weakest association occurred for women who reported high levels of SIS1. Consistent with our hypothesis, the presence of a higher level of SIS1 decreased the impact of sexual activity on orgasm occurrence.

Moderating Role of Sexual Inhibition Associated with Threat of Performance Consequences (SIS2)

The SIS2 factor was examined as a moderator of the relation between sexual activity frequency and orgasm frequency. Although sexual activity frequency significantly predicted orgasm frequency while controlling for the effect of SIS2 ($\beta = 0.588$, $t_{573} = 17.484$, $P < .001$; $R^2 = 0.386$, $F_{4, 573} = 90.097$, $P < .001$), the interaction term between sexual activity frequency and SIS2 did not significantly predict orgasm frequency ($\beta = -0.097$, $t_{572} = -0.564$, $P = .573$; $R^2 = 0.386$,

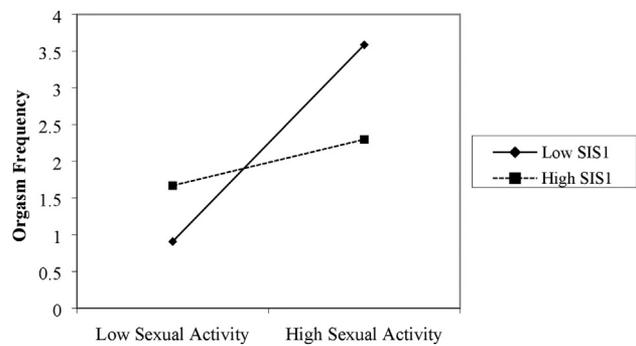


Figure 2. Simple slopes for the moderation effect of SIS1 on the relation between sexual activity and orgasm occurrence ($n = 577$). SIS1 = sexual inhibition associated with fear of performance failure.

$F_{5, 572} = 72.056$, $P < .001$) and did not significantly increase the variance in orgasm frequency ($\Delta R^2 < 0.001$, $P = .573$). Thus, the SIS2 dimension was not a significant moderator of the relation between sexual activity frequency and orgasm frequency.

Moderating Role of Body Image Beliefs

The dimension of body image beliefs also was examined as a moderator of the relation between sexual activity frequency and orgasm frequency. Sexual activity frequency significantly predicted orgasm frequency while controlling for body image beliefs ($\beta = 0.610$, $t_{580} = 18.649$, $P < .001$; $R^2 = 0.390$, $F_{4, 580} = 92.601$, $P < .001$). However, the interaction term between sexual activity frequency and body image beliefs did not significantly predict orgasm frequency while controlling for sexual activity frequency and body image beliefs ($\beta = 0.107$, $t_{580} = 0.438$, $P = .662$; $R^2 = 0.390$, $F_{5, 579} = 74.016$, $P < .001$) and did not explain a statistically significant increase in the variance of orgasm frequency ($\Delta R^2 < 0.001$, $P = .662$). Thus, body image beliefs dimension was not a significant moderator of the relation between sexual activity frequency and orgasm frequency.

DISCUSSION

The aim of the present study was to investigate the differential role of psychological dispositional features in predicting female orgasm and to assess whether these psychological traits moderated the relation between sexual activity and orgasm occurrence. A large community sample of Portuguese women 18 to 72 years old was examined. We analyzed major dispositional characteristics that have been suggested in the previous literature as playing a significant role in female sexual functioning, such as personality, propensity for sexual excitation or sexual inhibition, and sexual beliefs. Although a considerable amount of empirical data has examined the association between some of these factors and various dimensions of sexual function in women, the differential role of psychological traits in the etiology and maintenance of female orgasm difficulties is yet to be consistently established.

The results of this study indicate that personality does not play a central role on the regulation of female orgasm. When analyzed

individually, personality traits showed a small contribution to orgasm occurrence, with extraversion being its single significant predictor. When considering only the predictive role of personality, the dimension of extraversion was implicated in female orgasm occurrence, in such a way that women who scored higher in extraversion were more likely to experience orgasm more frequently. This finding is consistent with that reported by Harris et al¹⁸ in a study in which orgasm infrequency was found to be significantly associated with introversion. However, the personality dimension of neuroticism, which was believed to significantly contribute to the occurrence of female sexual response based on previous literature,^{11,13,16,18} did not predict orgasm frequency in the present study. Overall, these data provide us with some insight into the role of personality traits in female orgasmic function, denoting that this contribution is of a small size, because the variance explained by personality factors was very low (3.5%). When the role of personality was analyzed together with the other dispositional characteristics, it did not demonstrate a significant effect on orgasmic frequency. These results denote that the contribution of personality to orgasm occurrence in women might not be of a central nature.

As found for female sexual dysfunctions in general,^{14,33} sexual inhibitory processes also seem to play a significant role in predicting female orgasm. The hypothesis that anticipated the individual tendency for sexual inhibition to be a significant predictor of female orgasm occurrence was supported by the present results. More specifically, we found that sexual inhibition related to the threat of performance consequences (SIS2) and sexual inhibition associated with fear of performance failure (SIS1) negatively predicted female orgasm. The subscale that measured the SIS2 dimension consisted of items measuring the likelihood of sexual inhibition when facing the risk of getting caught in a sexual situation or of contracting a sexually transmitted infection and the dimension of SIS1 was measured through items assessing the likelihood of inhibiting sexual response from distraction or focusing on sexual performance. The probability with which women experience orgasm seems to be notably influenced by worries and concerns about the consequences of the sexual behavior they engage in (such as getting pregnant, experiencing pain, or being caught during the act) and by worrying about their sexual performance, which reinforces the importance of sexual inhibition as a factor associated with lower levels of female orgasmic functioning, as found in previous research.^{14,16,33}

However, for sexual excitation, results indicated that the individual propensity for sexual excitation was positively but not consistently associated with female orgasm occurrence. When the inhibition and excitation dimensions were analyzed as orgasm predictors, sexual excitation was found to positively predict orgasm frequency. However, when taking into account all the analyzed psychological dispositional characteristics, sexual excitation, that is, the ease by which women get aroused by social and relational sexual activities (such as fantasies, sexual cues, or

sexually explicit materials), did not significantly enhance the likelihood with which they experience an orgasm.

Overall, these data indicate that the frequency with which women experience an orgasm is greatly influenced by the tendency to inhibit their sexual response (owing to worries about possible consequences of sexual activity or fear of performance failure), but not by the ease with which they get sexually excited. In other words, when it comes to female orgasm, these results denote that the presence of sexual inhibition processes might be more relevant than the absence of sexual excitation processes. The individually achieved balance of these characteristics could be related to central inhibitory and excitatory mechanisms that can block or facilitate sexual response, depending on the interaction between cognitive and physiologic mechanisms, as previously discussed.³⁰ Future investigations should be developed to further our understanding of the idiosyncratic processes of sexual inhibition and sexual excitation in women.

To date, the investigation on the role of sexual beliefs specifically in orgasmic response is still scarce, with results indicating that inadequate beliefs concerning self–body image could play a central role in orgasm difficulties in women. This hypothesis was suggested by results from a comparative study between a clinical sample of women with orgasm problems and a healthy control group.¹³ Nevertheless, no additional studies have examined this association in greater extent until the present study. Based on these results, we hypothesized that sexual beliefs, specifically body image beliefs, would be significant predictors of women's orgasmic response, which was supported by the present results. However, we found that body image beliefs were not negative predictors of orgasm occurrence, as expected, but positive predictors of orgasm occurrence. In other words, these data indicate that women who strongly believe that a positive body image is a fundamental aspect of sexual function and satisfaction are likely to experience orgasm more frequently. The subscale of the SDBQ measuring body image beliefs consists of items characterized by the idea of body image as a central aspect of female sexuality (eg, “Women who are not physically attractive can't be sexually satisfied,” “An ugly woman is not capable of sexually satisfying her partner”).

Some aspects need to be discussed to understand these results. Most women in this sample were sexually functional according to self-report. Only 23.9% of participants reported having experienced orgasm difficulties in the past 6 months that caused them significant distress and, of these women, half (53.4%) were satisfied or very satisfied with their body image. This is consistent with the non-clinical nature of this sample and suggests that body image beliefs would only represent a vulnerability factor for orgasmic problems when interacting with women's appraisal of their body image. Although women might strongly believe that a positive body image is a fundamental aspect of a satisfactory sexual life, this demanding belief would interfere negatively with their sexual function only if they were dissatisfied with their body image. If women consider themselves less than an “ideal” woman

in physical appearance, then holding rigid beliefs about the importance of body image together with a negative self-concept would make them more susceptible to developing sexual difficulties, as proposed by previous studies.^{13,48} In contrast, as suggested by the present results, if women hold a positive self–body image, as is the case with the present sample, then the presence of rigid beliefs about body image would not negatively interfere with their sexual functioning, but rather enhance a positive sexual response, including orgasm occurrence.

Individuals with sexual dysfunction are likely to differ from individuals without sexual dysfunction in the cognitive pattern presented during sexual activities³⁷; hence, this relation might be different for women who present clinically significant orgasm problems. Future studies using clinical samples of women with orgasm disorders should be conducted to clarify these findings. Nevertheless, it should be noted that the effect of body image beliefs on orgasm frequency is of a modest weight. Moreover, and although the body image beliefs subscale is composed of a small number of items, this dimension presented a weak internal consistency, which demands caution when interpreting this result.

To accomplish one of the main goals of this study, the effect of sexual activity frequency on orgasm frequency as moderated by the previously debated trait variables was investigated. Our aim was to understand whether this relation is similar in women with different levels of such dispositional features. Of all the variables tested, only sexual inhibition was related to fear of performance failure (SIS1) and significantly moderated the relation between sexual activity and female orgasm. This type of sexual inhibition mechanism relates to the ease with which women lose arousal by distraction or focusing on their sexual performance. As expected, we found that women who engage in sexual activities more frequently experience higher orgasm frequencies, but that this relation is different for women who report different levels of SIS1.

According to our findings, women higher on this type of sexual inhibition need a greater frequency of sexual activity to experience orgasm compared with women with lower levels of SIS1. This combined effect has a negative impact on orgasm likelihood, so that we can think of SIS1 as a factor that weakens or diminishes the association between frequency of sexual activity and frequency of orgasm. Considering this relation, individual proneness to sexual inhibition, considered a dispositional characteristic, might represent a vulnerability factor for the development of orgasmic difficulties in women. These findings imply that attention should be given to these individual factors, particularly sexual inhibition processes, with a pending necessity of developing clinical strategies to address and regulate them. Future studies should consider the present findings with the aim of establishing in a clearer way the particular contribution of the analyzed factors to the development and maintenance of female orgasmic dysfunction, namely with a longitudinal approach and using clinical samples.

Limitations

The findings of this study should be considered with some inherent limitations. The data were collected using self-reports of women who were not randomly selected for the research. Also, the use of an online methodology could have limited the participation of a number of women. To manage this limitation, a wide variety of recruitment sources were used, and various eldercare institutions were contacted, but the final sample consisted of a relatively young sample with a high educational level. Also, all women who participated in this study self-identified as heterosexual, and thus generalization of the present results to non-heterosexual samples should be made with caution. The extension of the present investigation to non-heterosexual samples is encouraged, because it might provide valuable results, as advanced by recent research.⁴⁹

The use of this methodology was nonetheless beneficial in many ways, the principal advantage being the fact that the data were not collected face to face. Social desirability is lower in self-administered online questionnaires compared with traditional paper-and-pencil questionnaires, particularly for more sensitive sexual issues.⁵⁰ Moreover, it is recognized that the retrospective character of self-report measures could incite inaccurate or socially desirable answers, particularly given the sensitive character of sex surveys and studies. Although this reporting bias has not been found to seriously affect population estimates of reported sexual problems,⁵¹ and to overcome this issue, a measure of social desirability was included in the assessment.

CONCLUSIONS

Although some previous studies have identified psychosocial factors associated with the report of female orgasmic problems, few studies have explored the differential contribution of sexual activity and psychological trait features to orgasm occurrence. A moderate contribution of dispositional characteristics to predict the probability of experiencing orgasm has been demonstrated. Among all analyzed psychological trait factors, sexual inhibition processes have demonstrated paramount importance. Overall, it seems that women's individual proneness to inhibit sexual response owing to distraction or focus on their sexual performance contribute in a negative manner to orgasm experience, regardless of the type of sexual activity women engage in.

As far as we know, this is the 1st study reporting a moderator role of SIS1 in the relation between sexual activity and orgasm experience in women. Our results indicate that sexual inhibition could constitute an important clinical target when considering female orgasm difficulties, reinforcing the necessity of developing clinical strategies to address and regulate this dimension.

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