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THE RELATIONSHIP BETWEEN SEXUAL STIMULATION AND FEMALE ORGASM: THE MEDIATOR AND MODERATOR ROLES OF PSYCHOLOGICAL VARIABLES

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Resumo

O orgasmo feminino pode ser induzido através da estimulação erótica de várias regiões genitais e não genitais. Apesar do crescente interesse e debate acerca dos determinantes fisiológicos e anatómicos do orgasmo feminino, a investigação sobre os aspetos psicossociais que podem contribuir para a sua ocorrência é ainda pouco consistente (Leeners, Hengartner, Rössler, Ajdacic-Gross, & Angst, 2014). Assim, o presente estudo pretendeu avaliar a contribuição de diferentes tipos de estimulação sexual para a ocorrência de orgasmo feminino. Mais ainda, foi investigado o papel moderador das crenças sexuais e de algumas caraterísticas disposicionais (personalidade, inibição/excitação sexuais) na ocorrência de orgasmo feminino em resposta à estimulação sexual, bem como o papel mediador dos pensamentos automáticos e do afeto experienciados pelas mulheres durante a atividade sexual com parceiro. Um total de 1002 mulheres portuguesas, com idades compreendidas entre os 18 e os 72 anos, respondeu a uma bateria de questionários disponibilizados através de um *link* na internet, os quais avaliaram cada uma das dimensões anteriormente mencionadas.

Os resultados indicaram que o orgasmo feminino é experienciado mais frequentemente em resposta a atividades sexuais que envolvem estimulação clitoriana em comparação com a atividade coital *per se*. Adicionalmente, os pensamentos automáticos e o afeto positivo associados à atividade sexual com parceiro demonstraram mediar a relação entre a estimulação sexual e a ocorrência de orgasmo feminino. A dimensão da inibição sexual devida a ameaça de fracasso no desempenho sexual, SIS1, mostrou desempenhar um papel moderador na mesma relação. De um modo geral, foi demonstrada uma contribuição significativa de caraterísticas disposicionais, das crenças sexuais e de fatores cognitivo-afetivos para a experiência de orgasmo nas mulheres, independentemente do tipo de estimulação sexual em que estas se envolvam. Espera-se que estes resultados possam ter implicações para o desenvolvimento de estratégias cognitivas e emocionais que visem a promoção e, eventualmente, o tratamento de dificuldades de orgasmo feminino.

Palavras-chave: Sexologia; orgasmo feminino; frequência de orgasmo; personalidade; excitação sexual; inibição sexual; crenças sexuais disfuncionais; pensamentos automáticos; afeto

Abstract

Women's orgasm can be induced by erotic stimulation of various genital and non-genital sites. Despite the growing interest and debate about the physiological and anatomical determinants of female orgasm, research about the psychosocial aspects that may contribute to its occurrence is lacking (Leeners, Hengartner, Rössler, Ajdacic-Gross, & Angst, 2014). Thus, the present study was firstly aimed at assessing the contribution of different types of sexual stimulation in predicting the occurrence of female orgasm. Secondly, we investigated the moderating role of dispositional characteristics (personality, sexual inhibition/excitation) and sexual beliefs in the occurrence of female orgasm in response to sexual stimulation, as well as the mediator role of thoughts and affect reported during partnered sexual activity. A total of 1002 Portuguese women, aged 18-72 years, answered a set of questionnaires available through an internet link, which evaluated each of the previously mentioned variables.

Findings indicated that women's orgasm is more frequently experienced through sexual activities that involve clitoral stimulation compared to coital activity alone. These findings do not support theories that postulate the supremacy of the coitus in determining female orgasm. Additionally, automatic thoughts and positive affect reported by women during partnered sexual activity mediated the relationship between sexual stimulation and orgasm occurrence. The dimension of sexual inhibition associated with fear of performance failure, SIS1, was found to play a moderating role in the same relationship.

A significant contribution of dispositional characteristics, sexual beliefs and cognitive-emotional factors to predict the probability of experiencing orgasm has been demonstrated. Thus, it seems that these psychological individual factors play a significant role in predicting female orgasm regardless of the type of sexual stimulation. These findings may have implications for the development of cognitive and emotional strategies aimed at promoting female orgasm (e.g., CBT or mindfulness strategies) and, eventually, treating orgasm difficulties.

Keywords: Sexology; female orgasm; orgasm frequency; personality traits; sexual excitation; sexual inhibition; sexual dysfunctional beliefs; automatic thoughts; affect

Résumé

L'orgasme féminin peut être induit par la stimulation érotique de diverses régions génitales et non génitales. Malgré l'intérêt et le débat croissant sur les déterminants physiologiques et anatomiques de l'orgasme féminin, la recherche sur les aspects psychosociaux qui peuvent contribuer à son apparition est toujours pas cohérente (Leeners, Hengartner, Rössler, Ajdacic-Gross, & Angst, 2014). Ainsi, cette étude a comme objectif évaluer la contribution des différents types de stimulation sexuelle à l'apparition de l'orgasme féminin. Il y a aussi été étudié le rôle modérateur des croyances sexuelles et de certaines caractéristiques dispositionnels (personnalité, inhibition/excitation sexuelle) à l'occurrence de l'orgasme féminin en réponse à la stimulation sexuelle, et le rôle médiateur des pensées automatiques et de l'affection vécue par les femmes pendant l'activité sexuelle avec un partenaire. Un total de 1002 femmes portugaises, âgés de 18 à 72 ans, ont répondu à une batterie de questionnaires mis à disposition par un *link* sur l'Internet, qui a évalué chacune des dimensions précitées.

Les résultats indiquent que l'orgasme féminin vient plus souvent en réponse à l'activité sexuelle impliquant la stimulation clitoridienne par rapport à l'activité coïtale *per si*. Ces données contredisent les théories qui postulent la suprématie du coït dans la détermination de l'orgasme féminin. En outre, les pensées automatiques et l'affect positif, associées à une activité sexuelle avec un partenaire, ont eu un rôle médiateur dans la relation entre la stimulation sexuelle et l'occurrence de l'orgasme féminin. La dimension de l'inhibition sexuelle due à la menace de l'insuccès pendant la performance sexuelle, SIS1, a démontré avoir un rôle modérateur dans la même relation.

Dans l'ensemble, il a été démontré une contribution des caractéristiques dispositionnels, des croyances sexuelles et des facteurs cognitifs-affectifs pour l'expérience orgasme chez les femmes, quel que soit le type de stimulation sexuelle dans laquelle ils sont impliqués. Il est espéré que ces résultats ont des implications pour le développement des stratégies cognitives et émotionnelles pour la promotion et éventuellement le traitement des difficultés orgasmiques dans la population féminine.

Mots-clés: Sexologie; orgasme féminin; fréquence de l'orgasme; personnalité; excitation sexuelle; inhibition sexuelle; croyances sexuelles dysfonctionnelles; pensées automatiques; affection.

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Acronyms and abbreviations

% – Percent
B- Unstandardized Beta coefficient
β – Standardized Beta coefficient
<i>e.g.</i> – For example
et al. – And colleagues
F – F-ratio
M – Mean
Max – Maximum value
<i>Min</i> – Minimum value
n – Number of subjects
<i>p</i> – Statistical significance level (<i>p value</i>)
r – Pearson correlation coefficient
R^2 – Coefficient of determination
R^2_a – Adjusted coefficient of determination
SD – Standard deviation
SE B – Standard error for standardized regression coefficients
viz. – Namely
ΔR^2 Increase of the coefficient of determination

Introduction

I am sure that humans have sex not only with something between their legs, but definitively with something which is between their ears.

(Jannini, 2010)

The current paradigm of human sexuality is in accordance with the idea that sexual activity may serve the purposes of procreation (i.e., serving reproductive means) or recreation (i.e., seeking for pleasure) (Kinsey, Pomeroy, Martin, & Gebhard, 1948, 1953; Levin, 2002). The term "sex" or "sexual activity" refers, in a broad sense, to any mutually voluntary activity with another person that involves genital contact and sexual excitement or arousal, even if intercourse or orgasm do not occur (Laumann, Gagnon, Michael & Michaels, 1994).

The last decades have witnessed an increase in interest and research in the field of sexology. Nevertheless, there remain important issues about which understanding is incomplete, partly because their study has been hampered by the supremacy of some dominant perspectives in the field of sexology. One such issue is the female orgasm.

Orgasm difficulties are very common in the general population; recent studies have indicated prevalence percentages ranging from 18% to 61% (Abdo, Oliveira, Moreira, & Fittipaldi, 2004; Hassanin, Helmy, Fathalla, & Shahin, 2010; Ishak, Low, & Othman, 2010; Lau, Cheng, Wang, & Yang, 2006; Oksuz & Malhan, 2006; Ponholzer, Roehlich, Racz, Temml, & Madersbacher. 2005; Safarinejad, 2006; Stulhofer, Gregurovic, Pikic, & Galic, 2005). In a community based sample of Portuguese women, orgasm difficulties were the second most common sexual problem, with 16.8% of the women reporting difficulties in reaching orgasm most of the time, almost always or always. Moreover, 19.4% of women experienced difficulties in reaching orgasm in about half of the times (50%) (Peixoto & Nobre, 2015).

Despite the growing interest and debate about the physiological and anatomical determinants of female orgasm, research about the psychosocial aspects that may contribute to its occurrence is lacking. This study, which calls for a dynamic interaction between biological, psychological and social factors in the occurrence and experience of orgasm – biopsychosocial perspective – intends to contribute to a fuller understanding of this issue.

1. Definition of Orgasm

An orgasm is a multidetermined and complex psychophysiological process. Given the complexity of this human sexual response, various definitions have been proposed over time. Some of them lay emphasis on some particular processes, whether they are physiological (primarily biological perspective), psychological (primarily psychological perspective), or both (biopsychological perspective) (see the work of Levin, Wagner & Ottesen, 1981, and of Mah & Binik, 2001, in which the authors listed different definitions of orgasm according to authors from different areas of expertise). For instances, Kinsey et al. (1953) regarded orgasm as an explosive discharge of neuromuscular tension at the peak of sexual response. In a similar framing, Hite (1976) and Masters and Johnson (1966) considered orgasm as an intense and brief feeling followed by contractions. The latter, using primarily a biological approach, developed an emblematic work in the field of the physiology of sexual response. Based on the laboratorial observation of physiological and behavioral responses that occur during the sexual activity of 694 volunteers, Masters and Johnson proposed a human sexual response cycle composed of four phases: excitement, plateau, orgasm and resolution. For these authors, the shortest stage of this cycle would be the phase of orgasm, in which women would experience rhythmic contractions of uterine and vaginal muscles. Furthermore, Masters and Johnson (1966) showed evidence towards a similarity in physiology of the female orgasmic response regardless of stimulation being clitoral or vaginal and advanced with the idea that some women would be able to be multiorgasmic.

Despite the noted difficulties in defining the concept, a comprehensive and operational definition of the female orgasm would be the following: a variable, transient peak sensation of intense pleasure that creates an altered state of consciousness, usually accompanied by involuntary, rhythmic contractions of the pelvic striated circumvaginal musculature, often with concomitant uterine and anal contractions, and myotonia that resolves the sexually induced vasocongestion (sometimes only partially), generally with an induction of well-being and contentment (American Psychiatric Association, 2013; Meston, Levin, Sipski, Hull, & Heiman, 2004).

For all this, this psychophysiological event has been facetiously called *la petite mort* (the little death) or *la mort douce* (the sweet death).

2. Anatomical and Physiological Predictors of the Female Orgasm

2.1. Sexual stimulation.

Women's orgasm can be induced by erotic stimulation of various genital and non-genital sites. In literature, rare cases of "spontaneous orgasms", in which no obvious sexual stimulus can be determined (Polatin & Douglas, 1953) have been described. The clitoris and vagina (specially the anterior wall including Halban's fascia and urethra) are the most usual sites of stimulation, but stimulation of sites such as the paraurethral glans (also known as Skene's glands, located on the anterior vaginal wall, around the lower end of the urethra) (Levin, 2001), breast/nipple, or mons pubis (Kolodny et al., 1972; Masters & Johnson, 1966, p. 54), mental imagery or fantasy (Masters & Johnson, 1966; Whipple, Ogden, & Komisaruk, 1992) and hypnosis (Levin, 1992) have also been reported to induce orgasm.

Furthermore, the concept of the G-Spot has been popularized over the last decades. The G-Spot was named after Ernst Gräfenberg, a german gynecologist who first described its putative existence (Gräfenberg, 1950; Ladas, Whipple, & Perry, 1982). In this article, Gräfenberg (1950) describes the existence of a highly erogenous zone on the anterior wall of the vagina along the course of the urethra about a third of the way in from the introitus and below the base of the bladder. It is reported by the author that strong digital stimulation of this zone elicited a rapid and high level of sexual arousal which, if maintained, induced orgasm. However, the subsequent growing popularity of the concept has not been accompanied by data proving its actual existence. Laboratorial studies (Goldberg, Whipple, Fishkin, Waxman, Fink, & Weisber, 1983; Gräfenberg, 1950; Hoch, 1986) have not revealed consistent evidence for the existence of any anatomical structure in the anterior vaginal wall, with the exception of the paraurethral glands and spongy tissue around the urethra, whose stimulation could create sexually pleasant sensations. In a work in which Hines (2001) reviewed the literature published so far, the author concluded that it was not sufficiently robust to support the existence of the G-Spot. Thus, Levin (2003) considered it would be more appropriate to regard this area not as a specific spot, but rather as the "anterior wall erogenous complex".

Despite the diversity of erogenous zones, the clitoris is the most sensitive erogenous zone and the main anatomical structure accountable for obtaining sexual pleasure in women, which is justified by the presence of over eight thousand sensory nerve endings only at the surface of its external portion, the glans clitoris (Levin, 2011, 2012; Meston et al., 2004; O'Connell, Sanjeevan, & Hutson, 2005; Puppo, 2013; Salonia, Giraldi, Chivers, Georgidis, Levine, Maravilla, & McCarthy, 2007). The clitoris is a multiplanar structure which is largely internal in relation to its external visibility (Levin, 2002; O'Connell, 2005). All its components are composed of erectile tissue except the glans, which is a densely neural, nonerectile structure and the only external manifestation of the clitoris. The internal or not visible portion of the clitoris, also known as the "clitoral complex", is composed of erectile bodies (paired bulbs and paired corpora, which are continuous with the crura). Although the distal urethra and vagina are not erectile in character, they are intimately related structures, forming a tissue cluster with the clitoris (O'Connell et al., 2005).

Some authors have recently reported that women's orgasm consistency with a partner (i.e., the extent to which women normally experience an orgasm in a sexual interaction with a partner) is associated with a larger duration of penile-vaginal intercourse (PVI), but not of foreplay (Weiss & Brody, 2010). According to these authors, these results account for the supremacy of the vagina when compared to the clitoris in generating an orgasm. Brody and colleagues define PVI as the thrusting of the penis in the vagina without the additional stimulation of the glans of the clitoris. All these conclusions are based on studies of one group and, thus, do require independent replication. The first independent test of some of the hypotheses of Brody and colleagues was conducted by Anthony and Laan (2012), and did not result in a replication of their findings. Other authors have advanced the idea that it is the variety of sexual behavior that leads to a higher likelihood of experiencing orgasm, in such a way that the longer the duration of foreplay in which a woman is involved (leading to heightened arousal and thus increased enlargement of the clitoral complex), the higher the likelihood of experiencing orgasm, regardless of the type of sexual activity she is engaged in afterwards (Anthony & Laan, 2012; Hite, 1976). Hence, using a variety of sexual behavior (e.g., cunnilingus) before engaging in PVI should positively affect the likelihood of experiencing orgasm through PVI, even if there is no concurrent glans clitoris stimulation. It

is thus possible that women who use more sexual variety in their sexual interactions are the ones to have a higher number of orgasms through PVI without additional clitoral glans stimulation. Furthermore, non-coital partnered sexual activities may be more reliably linked to orgasms, since they are less dependent on sufficient arousal of the clitoral complex (Anthony & Laan, 2012). In other words, we can say that if coital sexual activity alone requires a sufficient level of arousal of the clitoral complex in such a way that it can elicit orgasm (because this is the primary responsible structure for its occurrence), non-coital sexual activities involve, in turn, a more direct stimulation of the clitoral complex, usually by stimulation of the glans clitoris, which will more likely initiate female orgasm.

2.2. Clitoral versus vaginal sensations.

Freud is considered the founding father of the concept of the 'vaginal orgasm' (Hite, 1976). He theorized that the clitoral orgasm was adolescent in nature and that, with puberty – when women began having sexual intercourse with men – women should transfer the locus of orgasm to the vagina (without additional stimulation of the glans clitoris), since vaginal orgasm was seen as a key step for obtaining a complete femininity (Freud, 1905; Hite, 1976; Marmor, 1954). Vaginal orgasm is defined as an orgasm obtained only through the movements of the penis in the vagina, without additional stimulation of the glans of the clitoris. The clitoral orgasm, in turn, is defined as an orgasm caused by the stimulation of the glans of the clitoris, positioned above the urethra and the vaginal entrance (Brody & Costa, 2009; Brody & Weiss, 2010, 2011; Weiss & Brody, 2010).

Several researchers hold that the vaginal orgasm is superior to the clitoral orgasm (e.g., Brody & Costa, 2009; Brody & Weiss, 2010, 2011). The frequency of the former, obtained through PVI, has been associated with greater physical and psychological health (viz., higher frequency of sexual desire and higher satisfaction with sex life, with partners, with friendships, with own mental health and with life in general) (Brody, 2010a, 2010b; Brody & Costa, 2008, 2009; Brody & Weiss, 2011; Costa & Brody, 2008; Tao & Brody, 2011). The associations between the same indices of physical and psychological health and sexual activities other than penile-vaginal intercourse without additional stimulation of the

glans clitoris (masturbation, partner masturbation, oral sex, anal sex, or any other sex that excludes penile-vaginal intercourse) have been reported as inconsistent or nonexistent.

This recent line of research has caused some strife and requires the discussion of a few concepts. First, it raises the question whether the separation between vaginal and clitoral sensations is valid. The distinction between vaginal and clitoral orgasm assumes that it is possible for women to localize differences in the source of their orgasmic feelings (if at all existent), which is highly questionable (Laan & Rellini, 2011; Levin, 2012). This raises a problem of "ambiguity" in the subjective report of these sensations, because during intercourse various genital and pelvic structures are stimulated simultaneously, making it highly unlikely, if not impossible, for women to relate the pelvic/erotic pleasure induced to any specific anatomical component (e.g., Levin, 2011b, 2012). This would be similar to expecting men to be able to differentiate between tip and shaft orgasmic feelings during sexual intercourse (Laan & Rellini, 2011). This double typology (clitoral orgasm vs. vaginal orgasm) would be more credible if supported by physiological and laboratorial evidence (see Levin, 2011b), and not evoked based on subjective reports. Secondly, the same concepts are based on wrong assumptions about female genital anatomy. The structure assumed as the clitoris by the authors in their definition of "vaginal orgasm" corresponds only to the external/visual portion of the clitoris (i.e., the glans clitoris). The fact that the clitoris is largely an internal structure in relation to its external visibility is ignored (Levin, 2002; O'Connell, 2005). The internal or not visible portion of the clitoris, also known as the clitoral complex, becomes at least ten times bigger than the actual glans clitoris per se when aroused, due to vasocongestion. Hence, a "vaginal" orgasm is always due to clitoral stimulation, even if the glans clitoris is not being directly stimulated (Laan & Rellini, 2011). Therefore, it seems that we are not facing various and distinct orgasms, but a single psychophysiological response, regardless of the type of stimulation that originates it. As such, concepts such as vaginal/clitoral/G-Spot orgasms seem to be incorrect terms; as "male orgasm" is the correct term, "female orgasm" also seems to be the appropriate term (Puppo & Puppo, 2015). As pointed out by Levin (2003), it is hard to imagine any type of sexual stimulation, including PVI, which does not involve the clitoris (as well as some other adjacent anatomical structures).

3. Psychological Predictors of the Female Orgasm

3.1.Personality.

Difficulties in reaching orgasm have been associated with more self-blame attributions, control needs, repressed emotions, greater dependency, apprehensiveness and negativity (Bridges, Critelli, & Loos, 1985; Davidson & Moore, 1994; Loos, Bridges, & Critelli, 1987; Mah & Binik, 2001). More recently, a significant association between infrequency of orgasm and personality characteristics such as introversion, emotional instability and not being open to new experiences was found (Harris, Cherkas, Kato, Heiman, & Spector, 2008). It is also known that individuals with some type of sexual dysfunction punctuate high scores in the dimension of neuroticism (Eysenk, 1971; Costa, Fagan, Piedmont, Pontic, & Wise, 1991; Nobre & Pinto-Gouveia, 2008a). In another study, using a longitudinal methodology, a moderate relationship between personality traits (including nervousness, aggressiveness, depressiveness, irritability, sociability, and openness) and orgasmic difficulties was demonstrated (Leeners, Hengartner, Rössler, Ajdacic-Gross, & Angst, 2014). Overall, these results support the importance of psychosocial factors in the regulation of female orgasmic function, although the various methodologies and personality factors involved in the different studies hamper firm conclusions about this relationship.

3.2. Sexual inhibition/sexual excitation.

Various authors have proposed the idea that the fear of losing control of one's own behavior is a key factor in orgasm difficulties in women (Adams, 1966; Fenichel, 1945; Shope, 1968, 1975). Bridges et al. (1985) investigated this relationship and found evidence which indicated that the broad construct of inhibitory control is a significant predictor of female orgasmic difficulties. In their dual control model, Bancroft and Janssen (Bancroft, 1999; Bancroft & Janssen, 2000; Janssen & Bancroft, 1997) offer an explanation for the individual variability in the propensity for both sexual excitation and inhibition of sexual response. Moreover, they developed a questionnaire to measure these concepts (Sexual Inhibition/Sexual Excitation Scales, SIS/SES). According to these authors, human sexual response depends on the interaction between cognitive and physiological mechanisms, being

based in central inhibitory and excitatory mechanisms that can either block or facilitate it. These mechanisms would act automatically and without voluntary control (Janssen, Vorst, Finn, & Bancroft, 2002a, 2002b). It seems, thus, relevant to consider the role of sexual inhibition mechanisms in the field of women's orgasm difficulties, since a level of sexual inhibition that is too low or too high can contribute to problems that will range from high-risk sexual behavior to sexual dysfunction (Bancroft, 1999; Janssen et al., 2002a, 2002b).

In fact, studies have emerged in recent years that address the role of sexual excitation and sexual inhibition on female sexual function and dysfunction. In a study in which Sanders, Graham and Milhausen (2008) explored self-reported predictors of sexual problems in heterosexual women (using the Sexual Excitation/Sexual Inhibition Inventory for Women; SESII-W) the sexual inhibition factor was the best predictor of sexual difficulties, both general and specific (desire, arousal, orgasm). Also Bloemendaal and Laan (2015), when comparing a group of women with sexual dysfunction with a group of women without symptoms of sexual dysfunction using SESII-W, found statistically significant differences in the factors of sexual inhibition and of sexual excitation, with the clinical group reporting greater sexual inhibition and lower sexual excitation. Finally, the dimension of inhibition associated with fear of performance failure (SIS1) was a significant predictor of aspects of sexual functioning such as sexual desire, arousal, pain and sexual satisfaction in a sample of women with anxiety disorders (Dettore, Pucciarelli, & Santarnecchi, 2013). Thus, it seems plausible that the individual variability in sexual inhibition and excitation mechanisms may contribute to explain individual differences in the probability of experiencing sexual problems (Bancroft, Graham, Janssen, & Sanders, 2009). More precisely, it is possible that this type of sexual inhibition mechanisms may mediate the relationship between sexual stimulation and orgasm occurrence.

3.3. Cognitive-emotional variables: sexual beliefs, automatic thoughts and affect during sexual activity.

A strong contribution of cognitive-emotional factors to the development and maintenance of sexual dysfunctions has been demonstrated. Recent research has shown that there are some common factors to the diverse sexual dysfunctions presented by women

(Nobre, 2006; Nobre & Pinto-Gouveia, 2006a, 2006b, 2008a, 2008b). Women with sexual dysfunction were found to report significantly more failure and disengagement thoughts, lack of erotic thoughts and sexual abuse thoughts relative to sexually healthy women (Nobre & Pinto-Gouveia, 2008b). Regarding female orgasmic disorder, self body-image beliefs seem to play a central role on these difficulties (Nobre & Pinto-Gouveia, 2008a). More specifically, there is evidence suggesting that sexual abuse thoughts (i.e., thoughts of being abused, disrespected and even violated by the sexual partner), failure and disengagement thoughts (i.e., thoughts of incapacity for sexual performance and lack of motivation to engage in sexual activity), partner's lack of affection (i.e., thoughts of not being treated with care and affection by the partner during sexual activity), sexual passivity and control (i.e., thoughts reflecting the idea that women must wait for the male's first step in order to not being seen as frivolous and also to prevent eventual emotional harm), and lack of erotic thoughts play a predictive role on female orgasm difficulties (Cuntim & Nobre, 2011). These results are consistent with the conclusions of Dove and Wiederman (2000) when studying cognitive interference in orgasmic response, that attentional focus on sexual performance and physical appearance interferes negatively with women's orgasmic response, and that it is in fact the best predictor of these difficulties (Meana & Nunink, 2006; Wiederman, 2000). In regard to the role of affect during sexual activity (state affect) in orgasmic difficulties, studies are still scarce. However, it is known that, in a broad sense, women with some sexual dysfunction present a higher frequency of negative emotions (sadness, disappointment, guilt) and less positive emotions (lack of pleasure and satisfaction) during sexual activity (Nobre & Pinto-Gouveia, 2008a, 2008b; Nobre & Pinto-Gouveia, 2006b).

3.4.Importance of having an orgasm.

Bancroft (2009) found that women vary considerably in the degree to which they consider orgasms important. Nevertheless, it is not known if women that consider orgasm as very important differ from women who give it little importance. A hypothesis recently advanced by Anthony and Laan (2012) is that, consistently with the phenomenon of cognitive dissonance (Festinger, 1959), women who have more difficulty in achieving an orgasm show a greater tendency to consider it as less important. According to this notion, the simultaneity

of holding conflicting values or characteristics would cause discomfort which, in turn, would be reduced by adjusting the value or characteristic more susceptible to change to the one less susceptible to change. In this way, if orgasms are difficult or impossible to achieve, women with these difficulties would use a coping strategy of reducing orgasms' importance. Some authors have found data supporting this explanation (Anthony, & Laan, 2012; Nicholson & Burr, 2003). In a study conducted by Anthony and Laan (2012) with participants in a heterosexual relationship, women who reported a higher frequency of orgasms attributed significantly more importance to achieving orgasms during sex with a partner than women who reported less frequent orgasms. These results suggest not only that orgasms are important for women's sexual satisfaction but also that assigning less importance to orgasm is associated with a lower orgasm consistency during partnered sexual activity, and not with the fact that orgasms are less important *per se*.

3.5. The present study: aims and hypotheses.

So far, the knowledge of factors that increase or protect against the risk of orgasm difficulties is still rudimentary (Leeners et al., 2014). As we concluded with the analysis of the evidence presented, data regarding the contribution of psychosocial variables to the occurrence of female orgasm are not yet sufficiently clear and integrated.

The present study intends to, firstly, assess the differential contribution of different types of sexual stimulation in predicting the occurrence of female orgasm. Secondly, and as a main goal, we propose to investigate the moderating role of dispositional characteristics (personality, sexual inhibition/excitation) and sexual beliefs on the occurrence of female orgasm in response to sexual stimulation, as well as the mediator role of thoughts and emotions associated to partnered sexual activity.

As secondary goals of this study, we intend to verify if the consistency of orgasms with a partner is more strongly associated with the duration of foreplay or with the duration of intercourse and, also, to test the association between the consistency of orgasms and the importance women attribute to their occurrence.

Thus, based on the literature on orgasm occurrence during intercourse (Anthony, & Laan, 2012; Hite, 1976; Kinsey, 1948/1953) and during vaginal penetration without

additional stimulation of the glans clitoris (i.e., PVI) (e.g., Brody & Costa, 2008) for women, Hypothesis 1 predicts that women are more likely to show a higher frequency of orgasms through sexual activities that involve a direct clitoral glans stimulation (receiving oral sex, masturbation focused on the clitoris, manual stimulation by their partner focused on the clitoris, penis-in-vagina intercourse with additional clitoral stimulation) than through coital activity (masturbation focused on vaginal penetration, manual stimulation by their partner focusing on vaginal penetration, penis-in-vagina intercourse without additional clitoral stimulation). Based on the literature on the contribution of different erogenous zones for the occurrence of female orgasm, (e.g., Levin, 2011, 2012; Puppo, 2013; Weiss & Brody, 2010), Hypothesis 2 predicts that the duration of foreplay is a stronger predictor of partnered orgasm consistency than the duration of intercourse. Supported by the literature on the importance of orgasm (Anthony, & Laan, 2012; Anthony, Levin & Laan, in preparation; Hite, 1976), Hypothesis 3 anticipates that women who report more orgasms are more likely to find it important to have an orgasm. Based on the literature on the role of automatic thoughts on sexual difficulties (Cuntim & Nobre, 2011; Nobre & Pinto-Gouveia, 2008a, 2008b), Hypothesis 4 predicts that negative automatic thoughts will be significant predictors of orgasm difficulties, in particular thoughts related to: (1) sexual abuse, (2) failure and disengagement, (3) partner's lack of affection, (4) sexual passivity (5) lack of erotic thoughts, and (6) low self-body image. Based on the literature which addresses the role of negative affect on sexual difficulties (e.g., Nobre, 2006; Nobre & Pinto-Gouveia, 2006b, 2008a), Hypothesis 5 anticipates that the affect women experience during sexual activity will be a significant predictor of orgasm experience (more specifically, that women with low orgasmic frequency are more likely to present more negative affect and less positive affect during sexual activity than women with high frequency of orgasm). Hence, Hypothesis 6 predicts that the effect of sexual stimulation on orgasm occurrence will be mediated by cognitiveemotional variables, such as negative automatic thoughts and negative affect presented during sexual activity. Based on the literature about the role of dysfunctional sexual beliefs on sexual problems (e.g., Nobre, 2006; Nobre & Pinto-Gouveia, 2006a, 2008a), Hypothesis 7 anticipates that dysfunctional sexual beliefs significantly predict orgasm difficulties (namely, sexual beliefs about body self-image). Based on the literature about the importance

of inhibitory control in sexual difficulties (e.g., Bancroft & Janssen, 2000; Bridges et al., 1985; Janssen & Bancroft, 1997), Hypothesis 8 anticipates sexual inhibition to be a significant predictor of female orgasm difficulties. Sustained by the literature on personality in sexual dysfunctions (Harris et al., 2008; Leeneres et al., 2014; Nobre, 2006), Hypothesis 9 predicts that personality dimensions significantly predict female orgasm experience (namely, that women with high scores in the dimension of neuroticism and/or low scores in the dimension of openness to experience are more likely to report less orgasms than women with lower and/or higher scores on these dimensions, accordingly). Finally, Hypothesis 10 anticipates that the effect of sexual stimulation in orgasm occurrence is moderated by dispositional characteristics (neuroticism, openness to experience, body self-image beliefs and sexual inhibition).

Throughout this work we will be using coitus and PVI interchangeably, since both behaviors involve vaginal penetration by a penis (see Kinsey et al., 1948/1953 for a discussion of the meaning of coitus). In this study, both terms will refer to penile-vaginal intercourse without additional stimulation of the glans clitoris (unless otherwise stated).

Empirical Study

1. Method

Age

1.1.Participants.

In this study participants were required to be at least 18 years old, to be identified as women, to be heterosexual, to be sexually active (i.e., having had at least one coital sexual experience) and to speak the Portuguese language.

The initial sample consisted of a community sample of 2250 participants. One thousand two hundred forty-eight participants were eliminated from the sample: 7 because they were male and 1241 because they did not complete the entire questionnaire. The final sample was composed of 1002 women, ranging between 18 and 72 years old (M = 26.27, SD = 8.74), with most of them being premenopausal (92.4%). The majority of the women have had at least 15 years of education (66.8%). With regard to relationship status, most women were dating (58.3%). Considering those women who reported being in a relationship, the average relationship duration was 4.8 years (SD = 6.02, 1 month–46 years). The main sociodemographic characteristics of the sample are shown in Table 1.

Table 1 Socio-demographic characteristics of the sample (n = 1002)

M	26.27	
Min-Max (years)	18-72	
SD	8.74	
	n	%
Relationship Status		
Single	232	23.2
Dating	584	58.3
Married/Civil Union	152	15.2
Separated/Divorced	27	2.7
Widowed	3	0.3
Educational qualifications		
(higher level achieved)		
9 th grade	10	1
High School Diploma (Standard	241	24.1
or Vocational)		
Bachelor's Degree	418	41.7
Master's Degree	270	26.9
Doctorate	57	5.7

1.2.Data collection materials.

1.2.1. General introductory questionnaire.

This self-report questionnaire (adapted from Peixoto, 2014) assesses a wide range of general questions about the respondents. Includes questions about sociodemographic data (age, nationality, gender, ethnicity, occupation, educational level, religion, zone of residence and medical history – including data about medical problems or complaints and medication –) and relational issues (relational situation, duration and relationship satisfaction) (see Appendix C).

1.2.2. Duration of foreplay versus duration of intercourse.

These questions assess the approximate duration in which participants engage in foreplay and in intercourse (adapted from Weiss & Brody, 2010). In a different manner than that used by these authors, this information was assessed in a seven point likert scale (1 - less than a minute to 7 - more than 25 minutes) (see Appendix E).

1.2.3. Frequency of sexual activities and frequency of orgasm occurrence.

Participants were asked about how often they practice each sexual activity (e.g., "receiving oral sex") (adapted from Anthony & Laan, 2012; Brody & Costa, 2008). In a different manner than that used in the original questionnaire, in which frequencies of the last thirty days were reported (Brody & Costa, 2008), answers were assessed on a seven point likert scale (1 - never to 7 - always). Additionally, information on what was meant with the clitoris 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 anatomical picture to help the respondents distinguish the different parts of the vulva. Questions about anal sexual activities were added to the original questionnaire. Participants also answered about the frequency with which they usually have an orgasm with each sexual activity, also in a seven point likert scale (1 - never to 7 - always) (see Appendix E). This last question can be considered as a measure of the consistency of orgasms, as it is assessing the extent to which women normally have an orgasm in each sexual activity they engage in.

1.2.4. Importance of having an orgasm.

Two questions were made about the importance of having an orgasm: "Do you think that you having an orgasm is important during intercourse?" and "Do you feel that you having an orgasm (regardless of how it is achieved) is important for your feeling of sexual satisfaction?" (adapted from Anthony & Laan, 2012) (see Appendix E). Both items employed a seven point likert scale (1 – *strongly disagree* to 7 – *strongly agree*).

1.2.5. Sexual Dysfunctional Beliefs Questionnaire (SDBQ).

The SDBQ (Nobre, Pinto-Gouveia, & Gomes, 2003), in its female version, is a 40item self-reported measure that evaluates specific sexual beliefs and stereotypes, commonly referred in the clinical literature as constituting predisposing factors in the development of various sexual dysfunctions (Nobre, 2006). Participants are asked to identify the degree of concordance with the 40 statements regarding diverse sexual issues in a five point likert scale (1 - completely disagree to 5 - completely agree). The principal component analysis performed on the female version of the scale identified six factors that explain 42.5% of the total variance: sexual conservatism (e.g., "Masturbation is wrong and sinful"), sexual desire and pleasure as a sin (e.g., "Experiencing pleasure during sexual activities is not acceptable in a virtuous woman"), age related beliefs (e.g., "As women age the pleasure they get from sex decreases"), body-image beliefs (e.g., "An ugly woman is not capable of sexually satisfying her partner"), affection primacy (e.g., "Sex without love is like food without flavor") and motherhood primacy (e.g., "Sex is meant only for procreation") (see Appendix F). Psychometric studies demonstrate that the global scale presents good internal consistency $(\alpha=.81)$ and test-retest reliability (r=.80). For each of the factors, the α values are adequate, varying between .50 and .81. Moreover, the scale showed a good discriminant validity between a clinical group and a community group without sexual problems (Nobre, Pinto-Gouveia, & Gomes, 2003). In the present study, this scale showed an acceptable internal consistency (Cronbach's α =.79), with the dimensions of sexual conservatism, sexual desire and pleasure as a sin, and age related beliefs presenting the best internal consistency (Cronbach's \alpha values greater than .60). However, the dimensions of body-image beliefs (Cronbach's α =.35), affection primacy (Cronbach's α =.50) and motherhood primacy (Cronbach's α =.36) showed a weak internal consistency. Nevertheless, the Cronbach's α

values may be considered adequate because these subscales are composed of a small number of items.

1.2.6. Sexual Modes Questionnaire (SMQ) – automatic thoughts subscale.

The SMO (Nobre & Pinto-Gouveia, 2003), in its female version, is an instrument designed to measure the relation between automatic thoughts, emotions and behavioral responses during sexual activity, according to the modes theory proposed by Beck (1996). This questionnaire is a combined measure constituted by three interdependent subscales: automatic thoughts subscale (ATS), emotional response subscale (ERS) and sexual response subscale (SRS). In this study, only the ATS will be used, composed of 33 representative items of thoughts and images oriented to erotic stimuli (task-focused attention) or to non-erotic stimuli (attention focused on nonrelevant cues). The participants are asked to rate the frequency (from 1 = never to 5 = always) with which they usually experience those automatic thoughts during their sexual activity. The principal component analysis performed on the 33 items of the female version of the subscale identified six factors, explaining 53.1% of the total variance: sexual abuse thoughts (e.g., "He is abusing me"), failure and disengagement thoughts (e.g., "When will this be over?"), partner's lack of affection (e.g., "Why doesn't he kiss me?"), sexual passivity and control (e.g., "I should wait for him to make the first movement"), lack of erotic thoughts (e.g., "The way he is talking turns me on", scored in reverse order) and low self-body-image thoughts (e.g., "I'm getting fat/ugly") (see Appendix G). Psychometric studies indicate that the global scale presents a good internal consistency $(\alpha=.88)$ and a moderate test-retest reliability (r=.65). To each one of the factors, the α values are adequate, varying between .71 and .87. The scale also presented a good discriminant validity between a clinical group and a community group without sexual problems (Nobre & Pinto-Gouveia, 2003). In the present study, the global scale presented an excellent internal consistency (Cronbach's α =.90), with all the six factors presenting an adequate internal consistency (Cronbach's \alpha values between .63 and .88).

1.2.7. Positive and Negative Affect Schedule (PANAS).

The Positive and Negative Affect Schedule (PANAS), originally developed by Watson, Clarck and Tellengen (1988), is one of the most widely used affect scales. The study of its adaptation to the Portuguese population was conducted by Galinha and Pais-Ribeiro

(2005a, 2005b). The final version of the Portuguese version of PANAS consists of a checklist of 20 emotions, with two subscales: positive affect and negative affect. The responses are assessed in a five point likert scale (from 1 - very slightly or not at all to 5 - extremely). Psychometric studies conducted on the Portuguese version of the scale show a good internal consistency for the positive affect subscale (α =.86) and for the negative affect subscale (α =.89). Both categories of affect indicate being independent of each other (r=-.10). PANAS can be used with different time-frames, ranging from "right now" to "during last year" and "usually/on average", which allows to evaluate and distinguish between fleeting mood alterations and long-term emotional states, associated with personality traits (Galinha & Pais-Ribeiro, 2005a). In this study we used PANAS to evaluate affect dimensions demonstrated during the occurrence of sexual activity and therefore more closely associated with state-affect; thus, responses were reported to "during sexual activity" (see Appendix H). In this study, PANAS also presented a good internal consistency for each of its dimensions, with the positive affect dimension presenting an α value of .93 and the negative affect dimension presenting an α value of .84.

1.2.8. NEO-Five Factor Inventory (NEO-FFI).

This instrument consists of a shortened version of the NEO Personality Inventory-Revised (NEO-PI-R; Costa & McCrae, 1992). The use of the NEO-FFI has been widespread once the long extension of its original version – 240 items – makes the application long-lasting and little versatile. In turn, NEO-FFI is composed of 60 items and intends to obtain a reliable assessment of the dimensions of the Five-Factor Model (FFM) of personality as proposed by McCrae & Costa (2004), in a five point likert scale (0 – *strongly disagree* to 4 – *strongly agree*). The Portuguese version of the questionnaire replicates the five factor structure congruently with the cross-cultural studies available (e.g., United Kingdom, Spain and Australia) (Magalhães, Lima, Salgueira, Gonzalez, Costa, Costa, & Costa, 2014; McCrae & Costa, 2004). Furthermore, this version presents adequate internal consistency values: Conscientiousness (α =.81), Neuroticism (α =.81), Extraversion (α =.75), Agreeableness (α =.72) and Openness to Experience (α =.71) (see Appendix J). In the present study, this scale presented, overall, an acceptable internal consistency (α =.66). For each factor, the α values indicated a good internal consistency (between .70 and .88).

1.2.9. Sexual Inhibition/Sexual Excitation Scales – Short Form (SIS/SES-SF).

The SIS and SES scales (Janssen et al., 2002a, 2002b) measure the individual proneness to sexual inhibition and to sexual excitation, according to the dual control model (Bancroft & Janssen, 2000). These scales consist of 45 items and feature one sexual excitation factor (SES) and two inhibition-related factors: one related to the threat of performance failure (SIS1) and one related to the threat of performance consequences (SIS2). The SIS/SES-Short Form (SIS/SES-SF; Carpenter, Janssen, Graham, Vorst, & Wicherts, 2010) was designed by selecting items that represent the three-factor structure equally well for women and men, containing 14-items rated in a four point likert scale (from 1 = strongly agree to 4 = strongly disagree) (see Appendix I). In this study only the female version of the scale was used. This short form exhibits reliability and convergent/discriminant validity that largely resemble the original version (Carpenter et al., 2010). Psychometric studies performed on this instrument revealed that the three factors showed strong associations with other sexuality-related measures for both men and women, although there was a modest tendency for women's SIS1 scores to overlap more with other measures on the Short Form SIS/SES. The women's short form test-retest coefficients are adequate, for all the three factors, SES (r=.61), SIS1 (r=.61) and SIS2 (r=.63). In the present study, the global scale showed an adequate internal consistency (Cronbach's α =.60), with values indicating an also adequate internal consistency for each of the three subscales (α values between .62 and .78).

1.2.10. Socially Desirable Response Set (SDRS-5).

Lastly, a measure intended to identify socially desirable responses that may compromise the validity of the self-reported measures was included. The Socially Desirable Response Set (SDRS-5; Hays, Hayashi, & Stewart, 1989) is composed of five items assessed in a five point likert scale (1 – *definitely true* to 5 – *definitely false*), which were drawn from the Marlowe-Crowne (MC) Form A (Reynolds, 1982), an 11-item short form measure developed from the 33-item Marlowe-Crowne Scale (Crowne & Marlowe, 1960). The questionnaire presents acceptable internal consistency (two studies were conducted, with α =.66 and α =.68) and reliability test-retest (r=.75) (Hays, Hayashi, & Stewart, 1989). This measure was used as a form of detecting the participants susceptible to misrepresent and/or

distort their sexual behaviors and preferences (see Appendix D). In this study, this scale also presented an acceptable internal consistency (Cronbach's α =.57).

1.3.Data collection procedures.

The sample collection was conducted online. The electronic questionnaire was developed using an online survey application (*LimeSurvey*), being the link and the correspondent database hosted in the server of the Faculty. Data confidentiality was guaranteed, since no personal information that could identify the respondents was collected, nor were their IP addresses recorded. Before the release of the study, preliminary tests were carried out on volunteers in order to test the clarity and adequacy of the instructions, the questions and items of the questionnaires and the total response time, estimated between 20 to 30 minutes. After being approved by the Faculty's Institutional Review Board, the study was released online. Sample collection was made through various networks of electronic contacts, such as the University email, electronic mailing lists from other Portuguese Universities and social networks (e.g., Portuguese blogs and associations dedicated to sexuality, Facebook, Google+), that is, through the non-probabilistic snowball sampling technique. Data collection was conducted between October 2015 and March 2016 (six months).

When the participants opened the link of the questionnaire, they were presented with an initial page in which the aims of the study were described (see Appendix A). In this opening page, some other aspects related to their participation were also clarified, such as the absence of any monetary compensation, the confidentiality and anonymity of their responses, the estimated response time, and the possibility of withdrawal at any moment, with the consequent elimination of all their previous responses. It was also provided the email of the principal investigator, in case the participants had questions and/or suggestions or if they wanted to have access to the study's results. If they chose to proceed, they were explicitly asked whether they had understood the information and whether they agreed to participate (see Appendix B). Thus, participation in the present study was voluntary. After this step, and having agreed to this terms, participants had access to the survey questions.

1.4.Data analysis procedures.

To perform the statistical analysis of the data, the 21th version of the *IBM SPSS Statistics* for Windows was used. Taking into account the characteristics of the variables and the intended statistical analyses, different tests were selected.

In order to check the assumption of normality of the data, we used the Kolmogorov–Smirnov test. In cases where this assumption was not verified, and whenever the skewness and kurtosis values were within the expected range for the violation of normality not to be considered severe (from -3 to 3), the analyses were performed through parametric methods (Kline, 2005). To ensure the non-violation of the assumptions for carrying out the various tests performed in this study, preliminary analyses were also conducted.

For some analyses, orgasm frequency was considered as one composite score, based on the means of the items measuring orgasm frequency obtained through the different sexual behaviors: Orgasm Frequency (Cronbach's α =.76). Serving the purpose of assessing orgasm frequency with a partner, one composite score based on the means of the items measuring frequency of orgasm obtained through partnered sexual activities was calculated: Partnered Orgasm Frequency (Cronbach's α =.76).

The items on frequency of engaging in sexual behaviors were averaged into one composite score based on the means of the items: Sexual Behavior Frequency (Cronbach's α =.69).

With the aim of testing the relationship between the importance women attribute to having an orgasm and its occurrence, we used the Pearson product-moment correlation coefficient. In order to determine the contribution of different predictors on orgasm occurrence (e.g., personality, sexual inhibition/excitation, thoughts and affect related to partnered sexual activity), several multiple regression analyses were conducted. In all of these, the effects of covariates such as social desirability, sociodemographic characteristics (age, education level and relationship status), relationship satisfaction, psychopathology (such as depression or anxiety), and having performed any female/genital intimate surgery were controlled for, according to the hierarchical method. Because age was already being

controlled for, we didn't include menopause status as a covariate, since in multivariate analysis age has a greater effect than menopause status (Aslan, Beji, Gungor, Kadioglu, & Dikencik, 2008). To investigate the moderator and mediator roles of psychological characteristics on the occurrence of female orgasm in response to sexual stimulation, we used linear regressions in order to verify the assumptions of Baron and Kenny (1986). In the case of the mediation analysis, the Sobel test was used for testing the significance of the mediation effect, whereas in the moderation analysis, the regression's simple slopes graphic was analysed as a moderation post hoc probing technique.

It is important to note that in all analyses, a significance level below .05 (p<.05) was considered as an indicator of statistically significant differences. As for the correlation coefficients, the relationships' strength was analysed according to the guidelines suggested by Cohen (1988): r=.10 to .29 – poor correlation; r=.30 to .49 – moderate correlation; r=.50 to 1.0 – strong correlation. In the case of the Principal Component Analysis performed, we used as criteria for component retention the rule of the *eigenvalue* > 1, in accordance with the analysis of the *Scree Plot*.

2. Results

2.1.Initial analyses.

Taking into account the variety of sexual behaviors in which women report engaging, sexual behaviors involving direct clitoral glans stimulation were the ones in which more frequent orgasms were reported (M=5.06; DP=1.18), followed by sexual behaviors in which the focus of stimulation is the vagina (M=3.73; DP=1.59) and, finally, behaviors involving anal stimulation (M=2.71; DP=1.71) (see Table 2).

Table 2
Orgasm frequency means for all sexual behaviors

Behavior	Mean Orgasm	SD	n
	Frequency		
Masturbation (focus on the clitoris)	5.76	1.87	835
Masturbation (focus on penetration of the vagina)	3.77	2.17	596
Partner manually stimulating you (focus on the clitoris)	4.66	2.05	928
Partner manually stimulating you (focus on the vagina)	3.62	2.06	909
Receiving oral sex	4.48	2.12	889

Penis-in-vagina intercourse (without additional clitoris stimulation	3.81	2.02	903
for the orgasm itself) Penis-in-vagina intercourse (with additional clitoris stimulation for	5 32	1 88	891
the orgasm itself)	3.32	1.00	071
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

Note. The *n* differs depending on whether participants reported ever using this behavior. All items employ a 7-point response scale (1 = never to 7 = always); higher numbers reflect more organisms.

The data on orgasm frequency were analysed in two ways. Firstly, composite scores based on the averages of the items were determined according to the types of sexual behavior defined by Brody et al. (e.g., Costa & Brody, 2008): (1) non-coital partnered sexual behavior factor (includes items regarding oral sex and masturbation by partner; Cronbach's α =.70), (2) masturbation factor (Cronbach's α =.49), and (3) penile-vaginal intercourse without additional clitoral stimulation (see Table 3).

The second method consisted of performing a Principal Component Analysis (PCA) to the larger version of the original questionnaire, used in this study, in order to examine which items are related using statistical techniques (rather than at face value). This analysis was followed by orthogonal (varimax) rotations. This produced a model explaining 67.85% of the total variance, composed of four components (see Table 4): (1) diverse partnered sexual behavior, including items related to both clitoral and vaginal stimulation, all partnered (Cronbach's α =.72); (2) anal sexual behavior (Cronbach's α =.77); (3) masturbatory sexual behavior (Cronbach's α =.62); and (4) PVI without additional clitoral stimulation.

Table 3
Orgasm frequency means for sexual behaviors based on Brody and colleague's structure

Behavior	Mean Orgasm	SD	n
	Frequency		
Non-coital partnered sexual activities	4.25	1.44	
Partner manually stimulating you (focus on the clitoris)	4.66	2.05	928
Partner manually stimulating you (focus on the vagina)	3.62	2.06	909
Receiving oral sex	4.48	2.12	889
Masturbation	4.77	1.86	
Masturbation (focus on the clitoris)	5.76	1.87	835
Masturbation (focus on penetration of the vagina)	3.77	2.17	596
Penile-vaginal intercourse without additional clitoral stimulation	3.81	2.02	903

Note. The *n* differs depending on whether participants reported ever using this behavior. All items employ a 7-point response scale (1 = never to 7 = always); higher numbers reflect more orgasms.

Table 4
Four factors based on Principal Component Analysis of PVI questions

Behavior	Diverse partnered sexual behavior component loadings	Anal sexual behavior component loadings	Masturbatory sexual behavior component loadings	PVI without additional clitoral stimulation component loadings
Partner manually stimulating you (focus	.834			loadings
on the clitoris)				
Partner manually stimulating you (focus	.776			
on the vagina)				
Penis-in-vagina intercourse (with	.657			
additional clitoris stimulation for the				
orgasm itself)	646			
Receiving oral sex	.646			
Partner inserting a finger in your anus		.837		
Partner orally stimulating your anus		.817		
Penis-in-anus intercourse		.790		
Masturbation (focus on penetration of			.852	
the vagina)				
Masturbation (focus on the clitoris)			.818	
Penis-in-vagina intercourse (without				.976
additional clitoris stimulation for the				
orgasm itself)				

Table 5
Orgasm frequency means for all sexual behaviors based on Principal Component Analysis

Behavior	Mean Orgasm	SD	n
	Frequency		
Diverse partnered sexual behavior	4.56	1.59	
Partner manually stimulating you (focus on the clitoris)	4.66	2.05	928
Partner manually stimulating you (focus on the vagina)	3.77	2.17	596
Penis-in-vagina intercourse (with additional clitoris	5.32	1.88	891
stimulation for the orgasm itself)			
Receiving oral sex	4.48	2.12	889
Anal sexual behavior	2.71	1.16	
Partner inserting a finger in your anus	2.65	1.97	399
Partner orally stimulating your anus	2.56	1.92	207
Penis-in-anus intercourse	2.91	2.14	313
Masturbatory sexual behavior	4.22	1.86	
Masturbation (focus on penetration of the vagina)	3.77	2.17	596
Masturbation (focus on the clitoris)	4.66	2.05	928
PVI without additional clitoral stimulation	3.81	2.02	

Note. The *n* differs depending on whether participants reported ever using this behavior. All items employ a 7-point response scale (1 = never to 7 = always); higher numbers reflect more orgasms.

2.2. The predictive role of different types of sexual stimulation for orgasm frequency.

In order to examine the ability of different types of sexual behavior to predict orgasm frequency in women, a multiple regression was conducted, being selected as predictors the

four components found by the PCA. All four components were entered in a single step. This analysis resulted in a statistically significant model, F(11,555)=32.472, p<.001, which explained 38% of the variance ($R^2a=.380$). Consistent with our hypothesis, all the components of sexual behavior statistically significantly and positively predicted orgasm frequency, in such a way that engaging in these types of sexual behavior predicts higher frequencies of orgasm in women ("diverse partnered sexual behavior" component, $\beta=.389$, p<.001; "anal sexual behavior" component, $\beta=.374$, p<.001; "masturbatory sexual behavior" component, $\beta=.269$, p<.001; and "coitus without additional clitoral stimulation", $\beta=.087$, p=.01), with the latter being the weakest predictor of women's orgasm frequency (see Table 6).

Table 6

Sexual behavior components as orgasm frequency predictors

Sexual behavior component	В	SE B	β
Diverse partnered sexual behavior	.443	.040	.389***
Anal sexual behavior	.417	.037	.374***
Masturbatory sexual behavior	.297	.037	.269***
PVI without additional clitoral stimulation	.051	.020	.087*

Note. * *p* < .05; ** *p* < .01; *** *p* < .001

2.3. The predictive role of duration of foreplay *versus* duration of intercourse on partnered orgasm consistency.

The overall mean duration of foreplay was 4.15 minutes (*SD*=1.408), and of intercourse 4.56 minutes (*SD*=1.506).

Simple correlations were calculated between partnered orgasmic consistency and duration of foreplay, and between partnered orgasmic consistency and duration of penile-vaginal intercourse. In these univariate analyses, consistency of partnered orgasm was more associated with penile-vaginal intercourse duration (r=.159, n=808, p<.001) than with foreplay duration (r=.104, n=794, p<.01).

Moreover, a multiple regression was run to examine the variables' ability to predict partnered orgasm consistency. This analysis resulted in a statistically significant model, F(10, 547)=5.183, p<.001, explaining 7% of the variance ($R^2_a=.070$). Both variables significantly predicted partnered orgasm consistency, indicating that as the duration in which women engage in foreplay and intercourse increases, the frequency in which orgasm is obtained also

increases. However, inconsistent with our hypothesis, the duration of intercourse showed a stronger predictive role on this relationship (β =.129, p<.01) than the duration of foreplay (β =.095, p<.05) (see Table 7).

Table 7

Duration of foreplay and duration of intercourse as orgasm frequency predictors

Sexual activities duration	В	SE B	β
Duration of foreplay	.077	.035	.095*
Duration of intercourse	.098	.033	.129**

Note. * p < .05; ** p < .01; *** p < .001

2.4. The relationship between importance of orgasms and orgasm frequency.

To test the relationship between orgasm frequency and the importance of having an orgasm, we conducted a correlation analysis. Consistent with our hypothesis, this analysis indicated a statistically significant association between importance of orgasm and frequency of orgasm (r=.249, n=806, p<.001), suggesting that orgasm importance and orgasm frequency are positively correlated to the extent that the higher the importance women attribute to orgasm, the higher the frequency in which they experience orgasm. A correlation was also conducted to test the relationship between importance of having an orgasm during PVI and orgasm frequency during PVI with and without additional clitoral stimulation. There was a positive correlation between importance of having an orgasm during PVI and orgasm frequency during PVI with additional clitoral stimulation (r=.194, n=955, p<.001), the latter being weaker. As the importance of having an orgasm during intercourse increases, the frequency of experienced orgasms from PVI with and without additional glans clitoris stimulation also increases.

2.5. The predictive role of negative automatic thoughts on orgasm frequency.

We hypothesized that negative automatic thoughts, and some of its dimensions in particular, would be significant predictors of orgasm difficulties in women. In order to examine this, a multiple regression was carried out, in which the different dimensions of the SMQ (AT subscale) were selected as predictors. Consistent with our hypothesis, this analysis yielded a statistically significant model, F(14, 548)=8.894, p<.001, explaining 16.4% of the variance ($R^2_a=.164$). The analysis of the regression coefficients showed that thoughts related

to failure and disengagement (β =-.325, p<.001) and lack of erotic thoughts (β =-.201, p<.001) significantly predicted orgasm occurrence, in such a way that the presence of negative automatic thoughts related to failure and disengagement (e.g., "I'm not getting turned on") or the lack of erotic thoughts (e.g., "Making love is wonderful", scored in reverse order) predicts lower frequencies of orgasm in women (see Table 8).

Table 8
Negative automatic thoughts as orgasm frequency predictors

SMQ dimensions	В	SE B	β
Sexual abuse thoughts	.017	.020	.047
Failure and disengagement thoughts	162	.027	325***
Partner's lack of affection	038	.022	087
Sexual passivity and control	.030	.020	.076
Lack of erotic thoughts	061	.014	201***
Low self-body-image thoughts	.021	.016	.056

Note. * p < .05; *** p < .01; *** p < .001

2.6. The predictive role of affect on orgasm frequency.

A multiple regression was conducted to predict orgasm frequency from the affect women reported experiencing during sexual activity (positive and negative affect dimensions, measured by PANAS). From this analysis resulted a statistically significant model, F(10, 535)=5.983, p<.001, explaining 8.4% of the variance ($R^2_a=.084$). Only the report of positive affect experienced during sexual activity ($\beta=.288$, p<.001) statistically significantly predicted orgasm frequency, in such a way that the presence of positive affect during sexual activities predicts higher frequencies of orgasm in women (see Table 9).

Table 9
Affect as orgasm frequency predictor

Tiffeet as organit frequency predictor			
PANAS dimensions	В	SEB	β
Positive Affect	.037	.006	.288***
Negative Affect	001	.013	005

Note. * p < .05; ** p < .01; *** p < .001

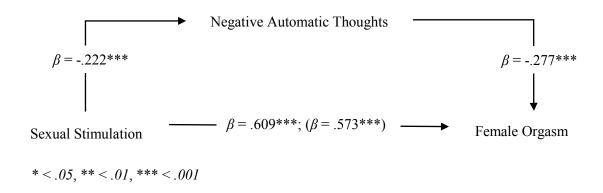
2.7. The mediating role of cognitive-emotional variables on the relationship between sexual stimulation and orgasm occurrence.

Linear regressions were conducted in order to test the mediation hypothesis, with those variables selected as mediators which previously demonstrated playing a predictive role on orgasm frequency in women. Thus, frequency of engaging in sexual behaviors was selected as the independent variable, orgasm frequency was defined as the dependent variable, and both negative automatic thoughts and positive affect presented during sexual activity were considered as mediating variables.

2.7.1. The mediating role of negative automatic thoughts.

The first condition set by Baron and Kenny (1986) asserts that the independent variable must significantly affect the mediating variable. Sexual behavior frequency was found to have a statistically significant effect on negative automatic thoughts (R^2_a =.048, β =-.222, p < .001). The second condition implies a significant effect of the independent variable on the dependent variable, which was supported by our data. The frequency of engaging in sexual behaviors significantly predicted orgasm frequency (R^2 _a=.371, β =.609, p<.001). As for the third condition, it is suggested that the mediator variable has a significant effect on the dependent variable. Negative automatic thoughts were found to significantly predict orgasm frequency (R^2 _a=.076, β =-.277, p<.001). The fourth and last condition implies that, for the mediating variable to meaningfully contribute to the relationship between the independent variable and the dependent variable, the effect of the independent variable on the dependent variable, after controlling for the mediating variable, must be smaller than the effect found in the second condition. Results indicated that, after the inclusion of negative automatic thoughts, the effect of sexual behaviors frequency on orgasm frequency remained significant, showing a decrease (R^2 _a=.385, β =.573, p<.001), indicating evidence for mediation. As such, all the four conditions were verified. Therefore, the Sobel test was performed, confirming the statistical significance of this decrease (Z=5.222, p<.05). Thus, negative automatic thoughts experienced during sexual activity showed a partial mediation between frequency of engaging in sexual behaviors and orgasm frequency in women, in such a way that the presence of more negative automatic thoughts hampers the likelihood of experiencing orgasm in response to sexual stimulation (see Figure 1).

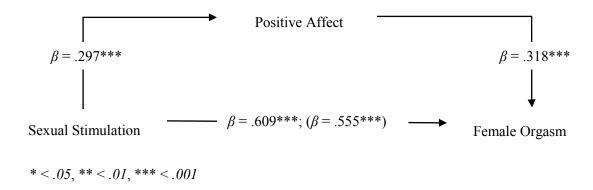
Figure 1
Standardized regression coefficients for the relationship between sexual stimulation and female orgasm as mediated by negative automatic thoughts. The standardized regression coefficient between sexual stimulation and female orgasm, controlling for negative automatic thoughts, is in parenthesis



2.7.2. The mediating role of positive affect.

To investigate the mediating role of positive affect, we first tested whether the independent variable significantly affected the mediator variable. The frequency of engaging in sexual behaviors was found to significantly affect positive affect (R^2 _a=.087, β =.297, p < .001). As already demonstrated in the previous mediation analysis, the statistically significant effect of the independent variable (sexual behaviors frequency) on the dependent variable (orgasm frequency) in the absence of the mediator was supported by our data $(R^2 = .371, \beta = .609, p < .001)$. The mediator variable (positive affect) was found to have a statistically significant effect on the dependent variable (R^2 _a=.100, β =.318, p<.001). Finally, it was also found that the effect of the independent variable on the dependent variable decreased upon the addition of the mediator to the model (R^2 _a=.378, β =.555, p<.001). In order to assess the significance of the mediation effect, the Sobel test was calculated, confirming the statistical significance of such decrease (Z=6.698, p<.001). Hence, positive affect experienced during sexual activity showed a partial mediation between frequency of engaging in sexual behaviors and orgasm frequency in women, in such a way that the presence of more positive affect during sexual activities increases the likelihood of experiencing orgasm in response to sexual stimulation (see Figure 2).

Figure 2
Standardized regression coefficients for the relationship between sexual stimulation and female orgasm as mediated by positive affect. The standardized regression coefficient between sexual stimulation and female orgasm, controlling for positive affect, is in parenthesis



2.8. The predictive role of dysfunctional sexual beliefs on orgasm frequency.

To evaluate the predictive role of dysfunctional sexual beliefs on orgasm occurrence, a multiple regression, in which the different SDBQ dimensions were selected as predictor variables, was calculated. This analysis produced a statistically significant model, F(14, 551)=2.158, p<.01, explaining 2.8% of the variance ($R^2_a=.028$). Partially consistent with our hypothesis, the analysis of the regression coefficients showed that the dimension related to sexual conservative beliefs (e.g., "Reaching climax/orgasm is acceptable for men but not for women") statistically significantly predicted orgasm frequency ($\beta=-.132$, p=.01), in such a way that the presence of sexual conservative beliefs predicts lower orgasm frequencies in women (see Table 10).

Table 10 Dysfunctional sexual beliefs as orgasm frequency predictors

SDBQ dimensions	В	SE B	β
Sexual conservatism	053	.020	132**
Sexual desire and pleasure as a sin	.061	.085	.034
Age related beliefs	010	.020	023
Body-image beliefs	.055	.039	.064
Affection primacy	008	.019	019
Motherhood primacy	001	.026	002

Note. * p < .05; *** p < .01; *** p < .001

2.9. The predictive role of sexual inhibition and sexual excitation on orgasm frequency.

A multiple regression was run to predict orgasm frequency from the SIS/SES dimensions. This analysis produced a statistically significant model, F(11,535)=5.188, p<.001, explaining 7.8% of the variance ($R^2_a=.078$). Consistent with our hypothesis, the dimension of sexual inhibition (in its two dimensions, that is when associated with fear of performance failure, SIS1, but also when related to the threat of performance consequences, SIS2) significantly predicted orgasm frequency (SIS1, $\beta=-.112$, p<.05; SIS2, $\beta=-.145$, p=.001), the latter being a stronger predictor. Additionally, the dimension of sexual excitation also statistically significantly predicted women's orgasm frequency ($\beta=.120$, p<.01). These results suggest that the presence of higher levels of sexual excitation predicts higher frequencies of orgasm in women and that, in contrast, the presence of higher levels of sexual inhibition predicts lower orgasm frequencies in women (see Table 11).

Table 11

Sexual inhibition and sexual excitation as orgasm frequency predictors

service that service and service exercision as organization productors				
SIS/SES dimensions	В	SE B	β	
SES	.040	.014	.120**	
SIS1	053	.021	112*	
SIS2	064	.019	145***	

Note. * p < .05; ** p < .01; *** p < .001

2.10. The predictive role of personality traits on orgasm frequency.

In order to examine the ability of personality dimensions to predict orgasm frequency in women, a multiple regression was carried out, with the NEO-FFI dimensions selected as predictors. This analysis resulted in a statistically significant model, F(13, 490)=2.653, p=.001, explaining 4.1% of the variance ($R^2_a=.041$). Partially consistent with our hypothesis, the analysis of the regression coefficients showed that only the dimension of Extraversion significantly predicted orgasm frequency ($\beta=.119$, p<.05), in such a way that the presence of higher levels of extraversion predicts higher frequencies of orgasm in women (see Table 12).

Table 12
Personality traits as orgasm frequency predictors

NEO-FFI dimensions	В	SE B	β
Neuroticism	119	.087	078
Extraversion	.247	.110	.119*
Openness to experience	.101	.098	.048
Agreeableness	163	.135	069
Conscientiousness	.122	.092	.064

Note. * p < .05; ** p < .01; *** p < .001

2.11. The moderating role of dispositional characteristics on the relationship between sexual stimulation and orgasm occurrence.

In order to test the moderation hypothesis, a multiple hierarchical regression analysis was performed, in which two distinct steps were stipulated (according to the conditions proposed by Baron and Kenny, 1986). In the first step, the effect of the independent and of the moderator variables was entered. In the second step, the interaction term was entered while the independent and moderator variables were controlled. In this analysis, frequency of engaging in sexual behaviors was selected as the independent variable, orgasm frequency was defined as the dependent variable, and the variables which previously demonstrated playing a predictive role on orgasm frequency in women (sexual conservative beliefs, SIS1, SIS2, SES, and extraversion) were considered as moderating variables.

2.11.1. The moderating role of sexual conservative beliefs.

The dimension of sexual conservative beliefs was examined as a moderator of the relation between sexual behavior frequency and orgasm frequency. The interaction term between sexual behavior frequency and sexual conservative beliefs did not explain a statistically significant increase in variance in orgasm frequency, ΔR^2 =.001, F(3, 798)=157.889, p>.05. Thus, sexual conservative beliefs dimension was not a significant moderator of the relationship between sexual behavior frequency and orgasm frequency.

2.11.2. The moderating role of sexual inhibition associated with fear of performance failure, SIS1.

The SIS1 factor was examined as a moderator of the relation between sexual behavior frequency and orgasm frequency. The interaction term between sexual behavior frequency and SIS1 explained a statistically significant increase in variance in orgasm frequency, ΔR^2 =.005, F(3,787)=162.599, p<.05. Thus, SIS1 was a significant moderator of the relationship between sexual behavior frequency and orgasm frequency (β =-.331, p<.05) (see Figure 3). Then, both sexual stimulation frequency (high, medium, low) and SIS1 (high, medium, low) were trichotomized in order to compute the simple slopes graphic, according to the suggestions of Aiken and West (1991); "high" being defined as one standard deviation

above the mean, "medium" being the mean, and "low" being one standard deviation below the mean. Taking into account the simple slopes graphic analysis, the strongest positive association occurred for women who reported low levels of SIS1. In contrast, the weakest association occurred for women who reported high levels of SIS1 (see Figure 4). Consistent with our hypothesis, the weakest association between frequency of sexual stimulation and frequency of orgasm occurred for women who reported high levels of SIS1.

Figure 3

Standardized regression coefficients for SIS1 as moderator on the relationship between sexual stimulation and female orgasm

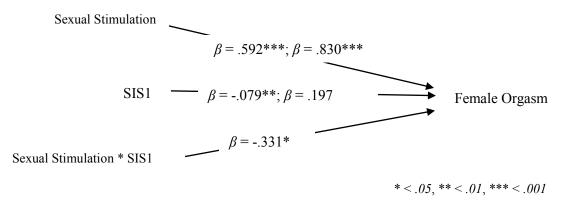
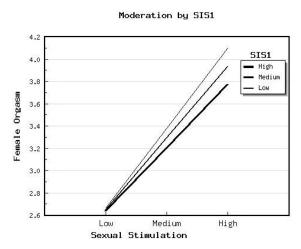


Figure 4
Simple slopes for the moderation effect of SIS1 on the relationship between sexual stimulation and female orgasm



2.11.3. The 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 behavior frequency and orgasm frequency. The interaction term between sexual behavior frequency and SIS2 did not explain a statistically significant increase in variance in orgasm frequency, $\Delta R^2 < .001$, F(3, 787) = 154.351, p > .05. Thus, the SIS2 dimension was not a significant moderator of the relationship between sexual behavior frequency and orgasm frequency.

2.11.4. The moderating role of sexual excitation, SES.

The SES factor was examined as a moderator of the relation between sexual behavior frequency and orgasm frequency. The interaction term between sexual behavior frequency and SES did not explain a statistically significant increase in variance in orgasm frequency, $\Delta R^2 < .001$, F(3, 788) = 154.964, p > .05. Thus, the SES dimension was not a significant moderator of the relationship between sexual behavior frequency and orgasm frequency.

2.11.5. The moderating role of extraversion.

The extraversion factor was examined as a moderator of the relation between sexual behavior frequency and orgasm frequency. The interaction term between sexual behavior frequency and extraversion did not explain a statistically significant increase in variance in orgasm frequency, ΔR^2 =.001, F(3, 763)=157.910, p>.05. Thus, extraversion was not a significant moderator of the relationship between sexual behavior frequency and orgasm frequency.

3. Discussion

The present study intended to examine the differential contribution of diverse sexual activities to female orgasm occurrence, and whether psychological factors play a significant role in this phenomenon. As such, our main objective was to examine the relationship between sexual stimulation and orgasm occurrence, testing the moderating role of sexual beliefs and dispositional characteristics (such as personality and sexual inhibition/excitation),

as well as the mediator role of cognitive-affective variables (such as thoughts and affect associated with partnered sexual activity), while controlling for the effects of sociodemographic characteristics, social desirability, presence of psychopathology and relationship satisfaction in a sample of Portuguese, heterosexual women. As a secondary aim, we also intended to clarify the relative influence of the length of foreplay and intercourse in partnered orgasm consistency, and whether the importance women attribute to orgasm is a significant contributor to its occurrence.

First of all, taking into account the various types of sexual activities women engage in, the female participants in this study reported, as expected, a higher frequency of orgasms through sexual activities that involve clitoral stimulation compared to coital activity alone. The finding that women's orgasm frequency increases with sexual behavior with a clitoral component fits with theories postulated by several researchers that women may have orgasms as easily as men do as long as they have been sufficiently aroused, leading to the enlargement of the clitoral complex (Hite, 1976; Kinsey et al., 1948/1953; Laan & Rellini, 2011; Levin, 2003). Using the structure proposed by Brody and colleagues (e.g., Brody & Costa, 2008), we found, as expected, that women reported higher orgasm frequencies during sexual activities with a clitoral component. Using a principal component analysis, we found that a different structure may be useful in examining orgasm data compared to the partitioning used by Brody and colleagues (e.g., Brody & Costa, 2008): diverse partnered sexual behavior, anal sexual behavior, masturbatory sexual behavior and PVI without additional clitoral stimulation. The first component, which explains a greater portion of variance, comprises different partnered sexual behaviors, some involving a clitoral component and some involving a vaginal component. In a similar manner, the masturbation sexual behavior component aggregates the two masturbatory items (whether the focus of stimulation is the clitoris or the vagina) and does not propose an anatomically-based distinction between them. The other two components, that is anal sexual behavior and PVI without additional clitoral stimulation, comprehend a more anatomically-driven aggregation of sexual activities. This structure does not propose a separation between vaginal and clitoral sensations, but instead reinforces the idea that it is a difficult task to distinguish orgasms as clearly initiated in the vagina or in the clitoris. Thus, these findings are in agreement with the idea that any type of sexual activity will implicate the stimulation of not only a single anatomical structure, but also of some other adjacent anatomical structures (Levin, 2003) and, as such, it seems to be hard to imagine any sexual activity that does not involve clitoral stimulation. Moreover these data denote that we are dealing with women's perceptions of the source of their orgasmic sensations, and that by offering a clear definition of these sensations, women show a preference for sexual activities that, more than comprising a specific anatomical focus, implicate a partner. In a multivariate analysis, we found that of all these four components, PVI without additional clitoral simulation showed the weakest contribution to orgasm frequency in women. In line with the idea of the clitoris being the primary anatomical structure responsible for orgasm occurrence in women, it seems that behaviors in which a more direct glans clitoris stimulation is used increase the likelihood of female orgasm. This corroborates Laan and Rellini's (2011) idea that a "vaginal" orgasm is always due to clitoral stimulation, even if the glans clitoris is not being directly stimulated. These findings agree with our hypothesis and do not support theories that postulate the supremacy of coitus in determining female orgasm. We also found that anal sexual activities, when examined by themselves, were the ones in which women reported a lower orgasm frequency. However, when considering their relative contribution to female orgasm likelihood in general, these activities showed a stronger predictive role when compared to other types of sexual stimulation such as masturbatory activities and PVI without additional clitoral stimulation. This finding suggests that anal sexual behavior is not, per se, a type of behavior that reliably incites orgasm experience in women, which is justified by the fact that in anal sexual activities there is a relatively low stimulation of the clitoral complex. Nevertheless, being a strong predictor of female orgasm when in comparison with other sexual activities, we can argue that this type of sexual behavior might be a positive index of an involvement in a higher variability of sexual behavior by women which, in turn, seems to play an important role in predicting orgasm experience (Anthony & Laan, 2012).

Regarding the relative contribution of foreplay and intercourse duration to female partnered orgasm consistency, we found that the duration of both activities seems to play a significant role in predicting female orgasm, which is in accordance with previous studies (Gebhard, 1966). However, the duration of intercourse showed a stronger predictive role on

female partnered orgasm consistency than the duration of foreplay, which contrasted with our hypothesis. In a study intended to assess this same question, Weiss & Brody (2010) found that women's partnered orgasm consistency was associated with PVI duration but not with foreplay duration, which the authors accredited to the supremacy of the vagina when compared to the clitoris in inducing female orgasm. Nonetheless, we find this view to be simplistic and to overlook some alternative and important explanations. First of all, this view is based on wrong assumptions about female genital anatomy, which considerate PVI as being independent from any clitoral stimulation. As previously discussed, this idea seems to be inaccurate and is not supported by the most recent findings (e.g., Levin, 2002; O'Connell, 2005). Also, there is a virtually sequential relationship between foreplay and intercourse, with the former happening first, if not always, at least some of the times. In fact, in our study we found that there is a moderate positive correlation between length of foreplay and length of intercourse (r=.301, n=967, p<.001), indicating that as foreplay duration increases, intercourse duration increases as well. This implies that there is probably some independent influence of foreplay on orgasm during intercourse, which is not being taken into account when both assessing and interpreting coitus' contribution to female orgasm. Moreover, foreplay can include a wide variety of erotic behaviors that can go from sensual touching or kissing to a direct stimulation of the glans clitoris (e.g., receiving oral sex). As such, the likelihood of female orgasm in response to foreplay, in this broad sense, might be better explained by the variety of sexual behaviors women engage in before intercourse than by the length of these activities itself. On the other hand, regarding PVI, whether these findings are due to the use of clitoral glans stimulation during penile-vaginal intercourse is unknown, as it was not specifically queried. It is possible that women benefit of additional glans clitoral stimulation during intercourse, which will contribute to their likelihood of having an orgasm during coitus. This hypothesis fits with the data gathered by the present study, in which 74.8% of the women reported using additional clitoral stimulation during PVI at least half of the times. Finally, the obtained correlations were of modest magnitude (the higher significant association between partnered orgasm consistency with PVI duration was of small effect size) and the variance explained by the multivariate analysis was very low (7%). This suggests that various factors other than simple duration are likely to influence orgasm

consistency, being perhaps of greater importance than duration of sexual activity (beyond some threshold specific to the individual woman). These other factors may include sexual dysfunctional beliefs, individual dispositional characteristics such as personality and sexual inhibition and excitation, and cognitive-affective factors such as automatic thoughts and affect related to sexual activity, as it is being investigated in this work. Besides, we can also consider the contribution of variables such as sexual technique and variety of sexual behavior (Anthony & Laan, 2012), partner factors such as erectile function and quality (Goldstein, Fisher, Sand, Rosen, Mollen, Brock, Karlin, Pommerville, Bangerter, Bandel, & Derogatis, 2005), or genetic and vaginal anatomical factors (Dawood, Kirk, Bailey, Andrews, & Martin, 2005; Dunn, Cherkas, & Spector, 2005).

Overall, these findings call for a more comprehensive view of female orgasmic function and for a reconsideration of the contribution of foreplay and penile—vaginal intercourse durations to women's orgasm consistency. It is possible that the variety of sexual behavior in which women engage in, rather than the duration of the sexual behaviors *per se*, represents an important contributing factor to women's orgasm (Anthony & Laan, 2012). In this way, the use of a greater variety of sexual behaviors in foreplay would lead to heightened arousal (and thus increased enlargement of the clitoral complex) which should make it easier for a woman to achieve orgasm, no matter what sexual activity she is engaged in.

We found that participants who reported a higher frequency of orgasms also indicated that having an orgasm was important. Furthermore, the importance of having an orgasm during intercourse was found to be positively associated with how frequent orgasms were obtained during intercourse, with and without additional clitoral stimulation. These data are in conformity with results of a previous study that examined this question (Anthony & Laan, 2012) and fit with the idea of reducing cognitive dissonance: for women who do not regularly have an orgasm from any type of sexual stimulation it may be more comfortable to say that having an orgasm is less important. In this way, this strategy is used to diminish distress resulting from conflicting ideas; one simply does not find orgasms *that* important, thus their lack is also not *that* troubling. In other words, the findings show that the importance of having an orgasm depends on the ease with which you achieve an orgasm. From a clinical point of

view, these findings suggest that clinicians should take into consideration the relative and idiosyncratic importance of female orgasm in the promotion of overall sexual function and satisfaction in women.

As expected in our fourth hypothesis, the data confirmed that cognitive distraction during sexual activity interferes negatively with women's orgasmic response. These data are in accordance with previous studies (e.g., Nobre & Pinto-Gouveia, 2008a, 2008b; Cuntim & Nobre, 2011), revealing the negative effect of cognitive distraction on female sexual function and, more specifically, on female orgasm. In this study we found that both the presence of negative automatic thoughts about failure and disengagement and the lack of erotic thoughts during sexual activity significantly diminish the likelihood of female orgasm. However, we did not find a significant effect of the other expected automatic thoughts dimensions, particularly of thoughts associated with an attentional focus on physical appearance, which in previous studies was shown to be the best predictor of female orgasm difficulties (Meana & Nunink, 2006; Nobre & Pinto-Gouveia, 2008a; Wiederman, 2000). One could hypothesize that we did not find this because we are dealing with a sample of young, mainly sexually functional women (only 23.9% of the participants reported having experienced orgasm difficulties in the last six months causing them significant distress). We did not study a sexually dysfunctional sample which, in that case, may have provided us with different findings. In addition, the fact that we did not find a significant association between female orgasmic response and cognitive distraction about body appearance can also be justified by the control of the effect of relationship satisfaction in the analyses. Accordingly, as indicated by Steer and Tiggemann (2008), relational satisfaction may be a protective factor, minimizing the negative influence of body image in sexual function and satisfaction. These data point to the fact that relational variables may be of importance when considering dimensions that relate to the body and its role in sexual response. Overall, the results confirm the negative influence of cognitive distraction on women's orgasmic function, as in previous studies (e.g., Cuntim & Nobre, 2011; Dove & Wiederman, 2000). They also fit with the assertions of Masters and Johnson (1970) about the role of spectatoring and performance anxiety. Therefore, the fact that individuals are focused on their sexual performance, rather

than on the sexual stimuli and the symbolism inherent to the sexual situation, may contribute to sexual difficulties.

In relation to our fifth hypothesis, we found that affect related to partnered sexual activity significantly and positively contributes to female orgasmic response, as expected. In our sample, a greater presence of positive affect in the context of sexual activity significantly contributed to the experience of higher frequencies of orgasm, whereas the amount of negative affect experienced in the same context did not significantly impact women's orgasmic response. In regard to orgasm difficulties, studies which investigate the role of state affect during sexual involvement are still scarce, but our study's results indicate that orgasm difficulties might share some common factors with sexual difficulties in general. Although the explained variance of our analysis was relatively low, the results of this study are in agreement with previous research showing that the absence of positive affect seems to be a central aspect in individuals with sexual problems, more than the actual presence of negative emotions (Nobre & Pinto-Gouveia, 2006b). The examination of this question in a sample of women with clinical orgasmic difficulties could provide us with some clarification on what is the role negative state affect plays on this sexual dysfunction. In a complementary view, some results also suggest that women, when experiencing positive emotions, tend to show a greater predisposition to sexual involvement (Bancroft, 2009). The cognitive-affective model of sexual functioning proposed by Barlow (1986) provides us with a comprehensive explanation of a way in which this process may occur. This model is characterized by the emphasis given to the interaction between physiological activation and cognitive interference processes in the determination of functional and dysfunctional sexual response. The present study's results give support to the idea advanced by this model, by which sexually functional individuals are described as being more likely to experience positive affect when engaging in a sexual situation. The subsequent mechanism by which sexual response is influenced both by physiological and cognitive processes could either result on a sexually functional or dysfunctional response. In case a sexually functional response occurs, which might include the occurrence of female orgasm, motivation for future sexual encounters is enhanced, promoting a greater likelihood of subsequent functional sexual situations. This idea fits with incentive motivation theory (e.g., Laan & Both, 2008), in such a way that the occurrence of a sexually functional response would create a positive reinforcement of the cycle, making it more probable for women who have positive previous sexual experiences to associate this context with positive emotions and, thus, to engage in future sexual encounters. Taking into account the general findings of our study, we can further argue that the way in which these women regard sexual experiences as more or less positive may be influenced by their orgasm consistency, in such a way that the relative orgasms' importance in their sexual lives is positively connected to the easiness in which they experience orgasms, as it was previously found in our third hypothesis. These findings have some important clinical implications, feasibly leading to the development of cognitive and emotional strategies which contemplate the central role of positive emotions in promoting female orgasm and also in treating female orgasm difficulties.

In order to accomplish one of the main goals of this study, the effect of sexual stimulation on orgasm occurrence as mediated by the previously debated cognitive-emotional variables was analysed. As anticipated, we found that both negative automatic thoughts and positive affect show a partial mediating role on this relationship. These findings offer support to the idea that cognitive and emotional processes are of importance when considering orgasm difficulties and fit with a cognitive-affective conceptualization of sexual problems, as proposed by Barlow (1986). As discussed in our fourth hypothesis, the presence of negative automatic thoughts during sexual activities seems to negatively interfere with women's orgasmic response, so that women who experience greater cognitive distraction in a sexual context will show greater difficulties in reaching orgasm. Considering the present findings, we can further add that women who engage less in sexual activities are more likely to experience cognitive distraction during them, presenting lower orgasm frequencies, whatever type of sexual stimulation they use. It is possible that this finding points out to an avoidance of sexual activities when these are associated with negative events, to which cognitive distraction significantly contributes by increasing sexual difficulties (Barlow, 1986). This differential effect between involvement in sexual behavior and cognitive interference on female orgasm may be explained by the fact that women who have some difficulties in reaching orgasm show a tendency to focus on ideas about failure and disengagement and also to non-erotic stimuli, as previously discussed, and when sexually

stimulated, they tend to enhance this attentional focus. This cognitive distraction consequently hampers women's capacity to reach orgasm, by failing to enhance their level of physiological arousal. This dysfunctional sexual response may create a feedback mechanism, which will be negative in the case of women with orgasmic difficulties (reducing the likelihood of involvement in future sexual activities and augmenting the likelihood of orgasm difficulties) and positive in the case of women with no orgasmic difficulties (improving both the likelihood of future sexual behavior and probability of subsequent functional orgasmic response).

In regard to the mediating role of positive affect on the relationship between sexual stimulation and orgasm occurrence, our data show that the presence of this emotional response significantly enhances the likelihood of female orgasm in response to sexual stimulation, whatever type of sexual behavior women engage in. In agreement with the previous finding, this result also fits with the model proposed by Barlow (1986), in which the affect experienced during sexual activities has an important contribution to a functional or dysfunctional sexual response. This model proposes that sexually dysfunctional individuals differ from sexually functional ones on the affect experienced during sexual activities, presenting a greater tendency to experience more negative affect. It is important to note that a non-clinical sample was investigated in the present study, which may possibly explain the fact that only positive and not negative affect showed a significant mediating role on orgasm occurrence in response to sexual stimulation. In this way, and according to Barlow (1986), positive affect experienced during sexual encounters by sexually functional individuals would promote a greater attentional focus on erotic stimuli which, in turn, increased physiological arousal, promoting an even greater attentional focus on erotic stimuli which facilitated a functional sexual response. The functional outcome of this sexual encounter was expected to promote a further involvement in future sexual interactions by sexually functional subjects. Supporting this conceptualization, in our study women who reported a more frequent involvement in sexual activities were also more likely to show positive affect during these interactions, showing a greater frequency of orgasm. Hence, our findings indicate that cognitive-emotional factors such as negative automatic thoughts and positive affect play an important role in orgasmic difficulties, and may contribute to explain

the emergence and maintenance of orgasmic problems in women. In short, these data offer support to the importance of a cognitive-affective view of female orgasmic difficulties, in which orgasm is influenced not only by the different type of sexual stimulation women engage in but also by the cognitive processes and affect they experience during sexual activities, which facilitate or hinder women's orgasmic functioning.

To date, the investigation on the role of sexual dysfunctional beliefs specifically on orgasmic response is still scarce, with studies indicating that inadequate beliefs concerning self-body image may play a central role on these difficulties in women (Nobre & Pinto-Gouveia, 2008a). Thus, our seventh hypothesis anticipated that sexual beliefs would be a significant predictor of women's orgasmic response, which was supported by the data. However, orgasmic response was not predicted by self-body image beliefs, as expected, but rather by the dimension of sexual conservative beliefs. This finding is in accordance with studies that examined female sexual problems in general, in which sexual beliefs regarding sexual conservatism and the sexual double standard – permissive and demanding for men and oppressive for women – emerged as important predictors of sexual problems in women (Hawton, 1985; Heiman & LoPiccolo, 1988). In our study the subscale measuring sexual conservative beliefs comprised items about satisfaction with the exclusivity of sexual behavior, the use of toys and masturbation. Thus, this study confirms that conservatism in ideas about sexual activity and sexual function demonstrate a negative impact on female orgasm, even in people who are involved in relationships that, from a social point of view, are the most prevalent, that is monogamous heterosexual relationships. This evidence is in line with the idea that inadequate sexual beliefs may play a vulnerability role also in orgasmic difficulties, as women with this type of beliefs are more likely to show problems in orgasm experience. Although our data support the relevance of sexual beliefs as contributing factors to lower levels of orgasmic function in women, it is important to recognize the relative importance of this factor, as the variance explained by this model was very low (2.8%) and, thus, many other factors are naturally involved in women's orgasmic function. Also, and because this study was conducted in a sample of largely sexually functional women, the results found in a clinical sample could possibly give us more cues on how to distinguish and treat women with clinically significant orgasm difficulties.

As it has been found for female sexual dysfunctions in general (Bloemendaal & Laan, 2015; Sanders, Graham & Milhausen, 2008), it seems that sexual inhibitory and excitatory processes play a significant role also on female orgasm difficulties. Our eighth hypothesis, which anticipated sexual inhibition to be a significant predictor of female orgasm occurrence, was confirmed. More specifically, we found that sexual inhibition related to the threat of performance consequences (SIS2) was a better predictor of orgasm than sexual inhibition associated with fear of performance failure (SIS1), although both predicted it in a negative manner. The subscale that measured the SIS2 dimension comprised 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 due to distraction or focusing on sexual performance. It seems that the probability with which women experience orgasm is 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), which supports the importance of sexual inhibition as a factor associated with lower levels of female orgasmic functioning, as found in previous research (e.g., Bridges et al., 1985). In addition, the individual propensity for sexual excitation was also found to significantly predict female orgasm occurrence. The ease by which women get aroused by social and relational sexual activities (such as fantasies, sexual cues, or sexually-explicit materials) enhances the likelihood in which they experience an orgasm. Therefore, it may be hypothesized that one's proneness to sexual inhibition may act as a vulnerability factor for experiencing orgasmic problems, whereas the tendency to sexual excitation may act as a protective factor against the development of these difficulties in women. The individually achieved balance of these characteristics may be related to central inhibitory and excitatory mechanisms that can either block or facilitate sexual response, depending on the interaction between cognitive and physiological mechanisms, as proposed by some authors (Bancroft, 1999; Bancroft & Janssen, 2000; Janssen & Bancroft, 1997). Future investigations should be developed to further our understanding of the idiosyncratic processes of sexual inhibition and sexual excitation in women, preferably using a longitudinal approach. From a clinical

perspective, these findings implicate that attention should be given to these individual factors, with a pending necessity of developing clinical strategies to address and regulate them.

Our ninth hypothesis anticipated that personality played a significant role on regulating female orgasmic function, which was supported by the data of this study. Nevertheless, based on the previous literature (Bridges et al., 1985; Costa et al., 1991; Davidson & Moore, 1994; Eysenk, 1971; Harris et al., 2008; Loos et al., 1987; Mah & Binik, 2001; Nobre & Pinto-Gouveia, 2008a; Leeners et al., 2014), the personality dimensions of neuroticism and openness to experience, which were thought to significantly contribute to this aspect of female sexual response, were not found to do so. Yet, the dimension of extraversion was found to be significantly implicated in female orgasmic response, in such a way that women who score high in extraversion are more likely to experience orgasm more frequently. This finding is somewhat similar to that reported by Harris et al. (2008), in a study where orgasm infrequency was found to be significantly associated with introversion. In this way, the personality dimension of extraversion may play a protective role against the experience of orgasmic problems in women. The replication of this result would be valuable, given the non-clinical characteristics of our sample. Overall, these data provide us with some insight in the significant role of personality in female orgasmic function, although it is to be noted that this contribution may be of a small size, since the variance explained by this analysis was very low (4.1%).

Another aim of this study was to investigate the moderating role of dispositional characteristics on the relationship between sexual stimulation and orgasm occurrence. As discussed earlier, it was found that extraversion, sexual conservative beliefs, sexual inhibition (SIS1 and SIS2) and low sexual excitation (SES) can impair female orgasm occurrence. It was also shown that higher levels of sexual stimulation are associated with higher frequencies of female orgasm, but we wanted to understand whether this relationship is similar in women with different levels of such dispositional features. Of all the variables tested it was found that only sexual inhibition related to fear of performance failure, SIS1, significantly moderates the relation between sexual stimulation and female orgasm. This type of sexual inhibition mechanisms relates to the ease with which women lose arousal, by means of

distraction or focusing on their sexual performance. As expected, we found that women who engage more frequently in sexual activities experience higher orgasm frequencies, but that this relationship 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 stimulation to experience orgasm when compared to women with lower levels of SIS1. This combined effect has a negative impact on female orgasm likelihood, so that we can think of SIS1 as a factor that weakens or diminishes the association between frequency of sexual stimulation and frequency of orgasm occurrence. As ascertained earlier, we may hypothesize that the individual proneness to sexual inhibition, considered as a dispositional characteristic, may be a vulnerability factor for experiencing orgasmic problems in women. Additionally, cognitive distraction with one's own sexual performance when engaging in sexual activities also emerges as a main contributor to women's poorer orgasmic function, aligning with the concept of spectatoring, as introduced by Masters and Johnson (1970).

On a final note, and not overlooking the importance of the previously discussed results, some considerations about the limitations of the present study must be made. The data were collected online, using self-reports of people who were not randomly selected for the research, which has some inherent disadvantages. The use of an online methodology may have limited the participation of people who do not have access to or do not use online resources, namely participants of an older age or with a lower socioeconomical and educational status. To overcome this issue, a wide variety of recruitment sources were used, and various elderly institutions were contacted, but the final sample consisted of a relatively young sample with a high educational level. As such, the generalization of the present results, which resulted from a convenience sample, should be made with caution. Nonetheless, the use of this methodology was advantageous in many ways. Firstly, it permitted reaching a large number of people nationwide, by entailing a widespread dissemination in a short period of time. Additionally, the fact that the data were not collected face-to-face is also an advantage, as research suggests that social desirability is lower in self-administered online questionnaires in comparison to the traditional paper-and-pencil questionnaires, particularly for more sensitive sexual issues (Pealer, Weiler, Pigg, Miller, & Dorman, 2001). In sex research, self-reported measures are the most commonly used, due to their relatively ease of use and the difficulty in researching certain questions by other experimental means. Also, it is difficult to have a true random selection because people who participate in a study on sexual behavior are generally more likely to be open about their sexual lives compared to people who are not willing to participate in such a study, leading to a selection bias (Chivers, Seto, Lalumière, Laan, & Grimbos, 2010). Moreover, another limitation of this study relates to the fact that the use of medication was not controlled for, which may interfere with sexual functioning. However, and because our sample was relatively young (with a mean age of 26.27 years), it is likely that this factor would not have demonstrated a great influence on the results.

Lastly, the resultant findings of this work raise new, relevant and uninvestigated questions. Future research may wish to examine the causal relation between orgasm importance and likelihood of female orgasm. In the present study, this phenomenon was investigated from a correlational perspective, but whether it is the ease with which women reach orgasm that influences the importance they attribute to experiencing it or whether it is the other way around emerges as an unanswered question and, thus, requires some further investigation. Also, the dimension of sexual inhibition emerges as an important factor in orgasm experience in women, so that it is recommend that more effort is given to studying factors associated with sexual inhibition. As hypothesized in this study, the variability of sexual behaviors practiced by women may be an important contributing factor to orgasm likelihood, especially during intercourse. We did not assess this question in the present work, but it may be relevant that future studies do investigate it. Also, the mediating and moderator roles of psychological variables were studied considering female orgasm as a single phenomenon. However, future studies may wish to use the partitioning proposed by some authors between vaginal and clitoral orgasm (e.g., Brody & Costa, 2008) in order to ascertain the extent to which these subjective reports are explained by different psychological factors. Besides, this study was designed to study self-identified heterosexual women and thus its findings cannot be generalized to LGBT population. This is an expected limitation, as the conceptual framework and empirical work were developed based on the cisgender heterosexual population. However, we believe that future studies should be developed to address these questions in different populations, may them be regarding different sexual

orientations or genders, or other types of relational structures (e.g., people in polyamorous relationships).

From a clinical point of view, and considering the fact that the present study investigated a largely functional sample of women with a cross-sectional approach, it is recommended that future studies take into account the current findings with the aim of establishing in a clearer way, possibly with a longitudinal approach and using clinical samples, the particular contribution of the analysed factors to the development and maintenance of female orgasmic dysfunction.

4. Conclusion

Female orgasm is a contentious topic and has incited debate among researchers from different areas of expertise over the years. This being a multidetermined and complex psychophysiological process, there remain some unanswered questions about this specific domain of women's sexual response to date, both from a physiological and from a psychosocial point of view. The intention of the present work was to clarify the importance of some psychological factors in women's orgasm experience. Hopefully, we contributed, to a certain extent, to supporting the idea that not only what is between humans' legs but also what is between humans' ears matters when it comes to female orgasm.

Women's orgasm is more frequently experienced in response to sexual activities involving clitoral stimulation than in response to coital activities. These findings do not support theories that postulate the supremacy of coitus in determining female orgasm (e.g., Weiss & Brody, 2010). Furthermore, a contribution of dispositional characteristics, sexual beliefs and cognitive-emotional factors to predict the probability of experiencing orgasm has been demonstrated. The results of this study indicate that sexual stimulation is, as you would expect, the stronger contributor to the experience of orgasm in women, with the component of diverse partnered sexual behavior, and not coitus *per se*, demonstrating a greater influence on this psychophysiological response when compared to the other types of sexual behavior. Additionally, the analyzed state variables (the type of affect and automatic thoughts presented by women during partnered sexual activities) were shown to contribute to a greater extent to

female orgasm likelihood when compared to women's dispositional characteristics, except for the dimensions of sexual inhibition and sexual excitation which appear to be of considerable importance. This indicates that cognitive-affective variables and sexual excitation/sexual inhibition may constitute important clinical targets when considering female orgasm difficulties. Overall, it seems that these psychological individual factors have a say in female orgasm experience, regardless of the type of sexual stimulation women engage in. These results may have implications for the development of cognitive and emotional strategies aimed at promoting female orgasm (e.g., CBT or mindfulness strategies) and, eventually, treating orgasm difficulties.

As far as we know, this is the first study that has examined the mediating and moderating roles of psychological variables in the relation between sexual stimulation and orgasm experience in women. 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 stimulation and psychological factors to this phenomenon. Future research is needed to confirm these findings with other samples, particularly clinical samples of women seeking help for sexual problems.

It is our hope that this work has contributed to a better understanding of the female orgasm. However, we are aware that in the process of answering the questions we sought out to test, new questions have arisen, that are now in need of an answer.

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O presente estudo tem como principal objetivo estudar a relação entre alguns aspetos psicossociais e a resposta sexual feminina. Para participar apenas é necessário ser mulher, maior de idade, ter iniciado a sua vida sexual e autoidentificar-se como heterossexual. Com a sua participação, estará a contribuir para melhorar a compreensão acerca dos fatores que afetam a saúde sexual.

Este estudo faz parte do projeto de investigação da aluna Inês Tavares, no âmbito do Mestrado em Psicologia Clínica e da Saúde pela Faculdade de Psicologia e de Ciências da Educação da Universidade do Porto (FPCEUP), encontrando-se sob orientação do Prof. Dr. Pedro Nobre, da FPCEUP, e da Prof.ª Dr.ª Ellen Laan, do Academic Medical Center University of Amsterdam, Department of Obstetrics & Gynecology. O projeto foi aprovado pela Comissão de Ética da FPCEUP.

A resposta ao questionário tem a duração média de 30 minutos. Para conseguirmos obter informação válida, é importante que **responda da forma mais sincera possível**. Não há respostas certas ou erradas. No caso de algumas questões parecerem mais difíceis, assinale a resposta que considera que melhor descreve a sua opinião/experiência. O questionário deve ser preenchido de forma autónoma, sem qualquer interferência externa. Realçamos que o estudo aborda questões de natureza sexual e íntima, e algumas pessoas poderão sentir algum desconforto a responder. Informamos também que o caráter da participação é voluntário, sendo livre de desistir do estudo em qualquer momento, se o desejar. Não existe nenhuma recompensa monetária por participar no estudo. Acrescentamos que **todas as respostas são confidenciais** e serão unicamente utilizadas para o propósito do presente estudo.

Caso deseje esclarecer alguma dúvida adicional ou para conhecer os resultados, poderá enviar email para: <u>inesmmtavares@gmail.com</u> Acrescentamos que não há nenhuma forma de associar as suas respostas ao e-mail que nos será enviado.

Sair e limpar questionário	Carregar inquérito não terminado	Seguint





100%

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Foi-me prestada uma explicação integral acerca da natureza e objetivos do estudo, sendo-me concedida a possibilidade de esclarecer todos os aspetos que considerei pertinentes. Se assim o desejar, sei que sou livre de abandonar o estudo em qualquer momento.

Não serão recolhidos dados que permitam a minha identificação, permanecendo confidenciais. Concordo que estes sejam analisados pelos investigadores responsáveis pelo estudo, sob autoridade delegada do investigador principal. Além disso, não procurarei restringir o uso dos dados para os quais o estudo se dirige.

Declaro ainda que sou maior de idade e que li o formulário de consentimento.

Sim, confirmo a informação declarada anteriormente, concordo e aceito participar no presente estudo.

Sair e limpar questionário

Continuar mais tarde

Appendix C. General introductory questionnaire (adapted from Peixoto, 2014)

PORTO PASSING SE VICTORIA Construction of Control Security of Agrantic Security University of Agranted Security				0% 100%
Idade: Neste campo só é possível introduzir números.				
Género: Escolha uma das seguintes respostas				
Masculino Feminino Outro. Por favor, especifique				
Habilitações literárias (nível mais alto): Escolha uma das seguintes respostas				
Menos de 4 anos de escolaridade 4.º classe 6.º ano 9.º ano		12.° ano ou Curso tecnoló Licenciatura/Bacharelato Mestrado Doutoramento	gico/profissional (nível iii)	
Profissão/Ocupação: Escolha uma das seguintes respostas				
Ativo Desempregado Reformado Estudante				
Zona de residência atual: Escolha uma das seguintes respostas				
Norte Centro	LisboaAlentejo	Algarve Açores	Madeira Estrangeiro	
Situação relacional: Escolha uma das seguintes respostas				
Solteiro Namoro Casado ou em união de facto Separado ou divorciado Viúvo				
Número de parceiros sexuais ao longo da vi Neste campo só é possível introduzir números.	ida:			
Professa alguma religião?				
○ Sim ○ Não				

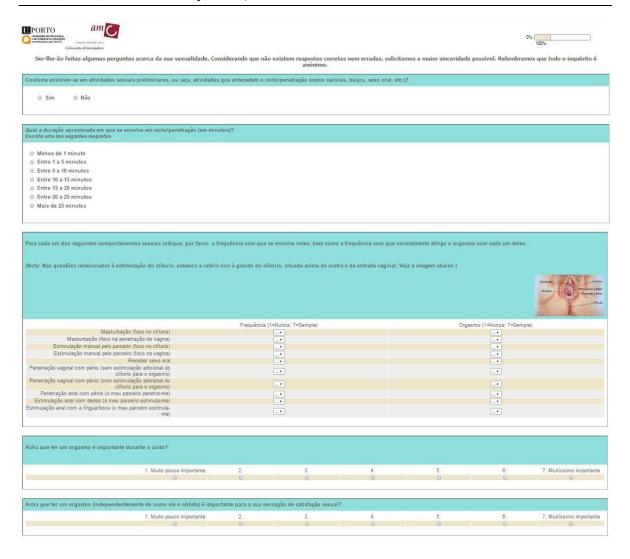
Appendix C. General introductory questionnaire (continued)

Por tavor indique se alguma vez teve problemas	ou se apresenta atualmente queixas nas seguintes áreas:	
Selecione todas as que se apliquem		
ASSERTA DAVI COLONY VIII NO		ARTHORNOOTHER NO THE THIS TO MAKE THE GOODS
☐ Tensão arterial elevada	Problemas sanguíneos	IST (Infeção Sexualmente Transmissível)
□ Diabetes	Cancro	Dor crónica
Problemas cardíacos	Ansiedade	Abuso de drogas
Doença neurológica	Depressão	Abuso de álcool
Problemas ginecológicos Endometriose	 □ Problemas urológicos □ Problemas na coluna 	Outra. Por favor, especifique
AVC (Acidente Vascular Cerebral)	Dores de cabeça crónicas/enxaquecas	
Avc (Acidente vasculai Cerebiai)	Dores de cabeça cronicas/enxaquecas	
Por favor indique se toma ou tomou algum dos se	equintes madicamentos nos últimos 6 masas	
Selecione todas as que se apliquem	guintes incurvamentos nos transces o meses.	
Anti-hipertensores	Anti-psicóticos	Outra. Por favor, especifique
Anti-depressivos	Hormonas/contraceção hormonal	Soundar For lavor, especialde
Andepessives	iii Hormonas contraceção nomonar	
Tá foi quiaita a alguma cimegia uralógica ou circu	rgia íntima feminina (e.g., vulvoplastia ou ninfoplastia)?	
Sa foi sujena a arguma cirurgia urorogica ou cirui	ука пшна теппппа (е.у., чигоргазва од пппоразва):	
○ Sim ○ Não		
Face do olimatério:		
Excelle uma des seguintes respostes		
Pré-menopausa (menstruações regulares)	 Peri-menapausa (menstrusgões irregulares - não menstrus há dois meses o meses) 	ou mais, até 12 0 Pos-menopausa (não menstrus há 12 meses ou mais)
	110 (01)	
Exits gravids?		
O Sim O Não		
Ects a amamentar?		
O Sim O Não		
Numero de filhos: Mashe campo ad a possival infroduce números.		
Meste Campo so s poesive: introduce numeros,		
Guão satisfeita se encontra com a sus imagem corporai?		
	Multo Insatisfeita 2. 3.	4. S. 6. 7. Multo satisfeita
	0 0	
Not sittimos sels meses, experienciou alguma difficuldade em atingir orgas	mo, cautando-ine um mai-estar signimostivo?	
O Sim O Não		
Not ultimos sels meses, experiencion auráleste ou radiación encondo de la	neresce na atividade sexual <u>OU</u> auséncia ou redupto marcede de exclação ou prazer sexual durante a	athylade sexual, causando-ine um mai-ester significativo?
The district one metal, approximate seasons of reapple microsis or in	and the service of the Control of the service of th	an rate state, sectionarie on mercus significant i
o šim o Não		
2 VSM 2 VSM		
	louidade durante a penetração vaginal, oausando-lhe um mai-estar significativo?	
O Sim O Não		

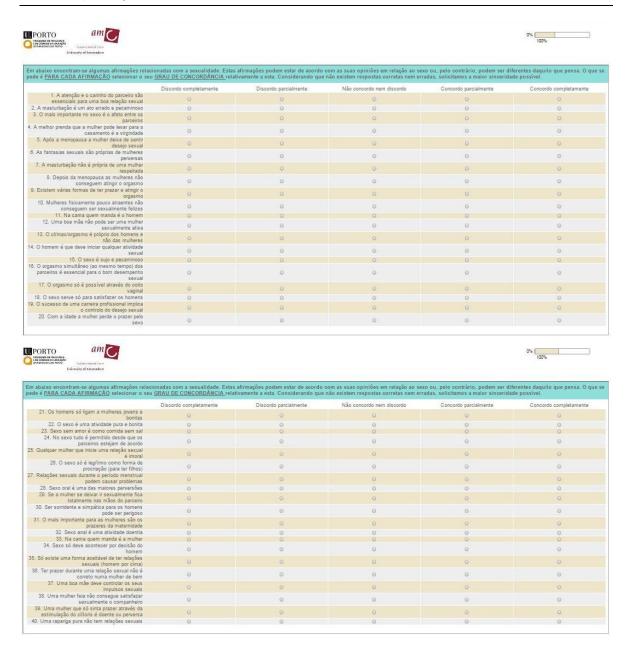
Appendix D. Socially Desirable Response Set (SDRS-5; Hays, Hayashi, & Stewart, 1989)

PORTO FACULDADE DE PSICOLOGIA E DE CIÊNCIAS DA EDUCAÇÃO UNIVERSIDADE DO PORTO Acode	am			0% (100%
University	of Amsterdam				
aixo estão algumas frases acerc	a do seu relacionamento c	om outras pessoas. Por favor i	ndique o quanto cad	a frase é verdadeira ou falsa ¡	para si.
	Definitivamente verdade	Quase sempre verdade	Não sei	Quase sempre falsa	Definitivamente falsa
Sou sempre amável mesmo quando as pessoas são desagradáveis	0	0	0	0	0
2. Houve situações em que tirei	•	0	0	0	0
vantagem de alguém					
vantagem de alguém Às vezes tento vingar-me em vez de perdoar ou esquecer	0	0	0	0	0
vantagem de alguém Às vezes tento vingar-me em vez	0	•	0	0	0

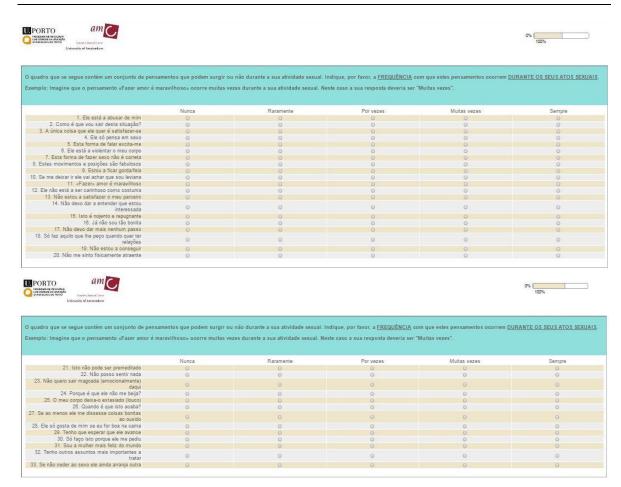
Appendix E. Sexual behavior questions (adapted from Anthony & Laan, 2012; Brody & Costa, 2008; Weiss & Brody, 2010)



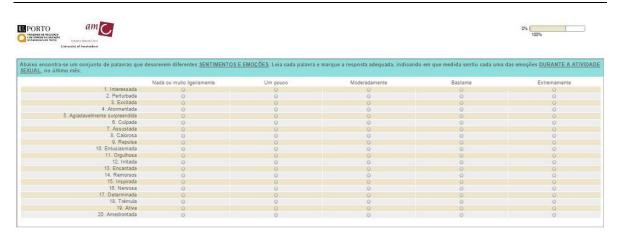
Appendix F. Sexual Dysfunctional Beliefs Questionnaire (SDBQ; Nobre, Pinto-Gouveia, & Gomes, 2003)



Appendix G. Sexual Modes Questionnaire (SMQ; Nobre & Pinto-Gouveia, 2003) – automatic thoughts subscale



Appendix H. Positive and Negative Affect Schedule (PANAS; Portuguese version by Galinha & Pais-Ribeiro, 2005a, 2005b)



Appendix I. Sexual Inhibition/Sexual Excitation Scales – Short Form (SIS/SES-SF; Carpenter, Janssen, Graham, Vorst, & Wicherts, 2010)

POTO UPIN ONLINE TO SOLUTION LES COMMUNES DE RECORDE LES COMMUNES DE RECORDE LETTER LES COMMUNES DE RECORDE LETTER LE				
baixo encontram-se afirmações relacionadas com a iteressados em saber qual seria a sua <u>reação mais i</u>	provável. Por favor leia cada afirmação con	n atenção e decida qual seria a sua reação	mais provável.	
oderá por vezes sentir que nenhuma das resposta plicasse a si. Algumas das afirmações contêm pala e "sexualmente estimulada", "quente", "excitada" ou	vras que descrevem reações como "sexual	mente excitada" ou, por vezes, apenas "exc	sitada". Com estes termos pretendemos des	crever "sentimentos de excitação sexual".
	Discordo fortemente	Discordo	Concordo	Concordo fortemente
Quando uma pessoa desconhecida sexualmente atraente me toca por acaso, facilmente fico sexualmente excitada	0	٥	0	0
Se estou a praticar sexo num local ao ar livre e solado e penso que alguém pode estar por perto, é provável que não fique muito excitada	0	0	•	۰
Quando falo ao telefone com alguém que tem uma voz sensual fico sexualmente excitada	0	0	0	0
Não consigo ficar excitada, a não ser que me concentre exclusivamente no estímulo sexual	0	0	0	0
Se estou sozinha a masturbar-me e me apercebo que alguém pode entrar a qualquer momento no quarto, perco a minha excitação sexual	o	۰	01	0
Se me apercebo que há risco de contrair uma doença sexualmente transmissível, é provável que não permaneça sexualmente excitada	۰	0	0	0
Se alguém me puder ver a praticar sexo, é provável que não permaneça sexualmente excitada	0	0	0	o
Quando penso numa pessoa muito atraente facilmente fico sexualmente excitada	0	0	0	٥
Assim que fico sexualmente excitada, quero iniciar a penetração de imediato antes que perca a excitação	0	0	0	0
Quando começo a fantasiar sobre sexo, rapidamente fico sexualmente excitada	0	0	0	0
Quando vejo outras pessoas a praticarem actividades sexuais apetece-me fazer sexo	0	0	0	0
12. Se algum pensamento me distrai, facilmente perco a minha excitação	0	0	0	0
Se ficar distraída por ouvir música, ver elevisão ou uma conversa, é pouco provável que fique excitada	0	0	0	o
14. Quando uma pessoa atraente flerta/namorisca comigo, facilmente fico sexualmente excitada	0	0	۰	0

Appendix J. NEO-Five Factor Inventory (NEO-FFI; Portuguese version by Magalhães, Lima, Salgueira, Gonzalez, Costa, Costa, & Costa, 2014)

		HELHOD DEPOSACION A	cus opinišo passavi i i			
ila cuidadosamente cada uma das afirmações que se seguem e selecione a resposta que MELHOR REPRESENTA A SUA OPINIÃO. Responda a todas as questões. Discordo completamente Discordo Não concordo nem discordo Concordo Concordo Concordo completamente						
1. Não sou uma pessoa preocupada	0	0	0	0	0	
Gosto de ter muita gente à minha volta Não gosto de perder tempo a sonhar acordada	0	0	0	0	0	
4. Tento ser delicada com todas as pessoas que	0	0	0	0	0	
Mantenho as minhas coisas limpas e em ordem	0	0	0	0	0	
6. Sinto-me muitas vezes inferior às outras	9	0	0	0	0	
pessoas 7. Rio facilmente	0		0	0	0	
. Quando encontro uma maneira correta de fazer qualquer coisa não mudo mais	0	0	0	0	0	
9. Frequentemente arranjo discussões com a	0	0		0		
minha família e colegas de trabalho). Sou bastante capaz de organizar o meu tempo						
de maneira a fazer as coisas dentro do prazo	0	0	0	0	0	
11. Quando estou numa grande tensão sinto-me, às vezes, como se me estivessem a fazer em	0	0	0	0	0	
pedaços 12. Não me considero uma pessoa alegre		0		0		
12. Não me considero uma pessoa alegre 13. Fico admirada com os modelos que encontro	0		0		0	
na arte e na natureza	0	0	0	0	٥	
Algumas pessoas pensam que sou invejosa e egoísta	0	0	0	0	0	
15. Não sou uma pessoa muito metódica (ordenada)	0	0	0	0	0	
16. Raramente me sinto só ou abatida	0	0	0	0	0	
Gosto muito de falar com as outras pessoas Acredito que deixar os alunos ouvir pessoas,	0	0	0	0	0	
com ideias discutíveis, só os pode confundir e	0	0	0	0	0	
desorientar 19. Preferia colaborar com as outras pessoas do						
que competir com elas	0	0	0	0	0	
20. Tento realizar, conscienciosamente, todas as minhas obrigações	0	0	0	0	0	
21. Muitas vezes sinto-me tensa e enervada	0	0	0	0	0	
 Gosto de estar onde está a ação A poesia pouco ou nada me diz 	0	0	0	0	0	
24. Tendo a ser descrente ou a duvidar das boas						
intenções dos outros 5. Tenho objetivos claros e faço por atingi-los de	0	0	9	0	0	
uma forma ordenada	0	0	٥	0	0	
26. Ås vezes sinto-me completamente inútil 27. Normalmente prefiro fazer as coisas sozinha	0	0	0	0	0	
28. Frequentemente experimento comidas novas	0	0	0	0	0	
e desconhecidas 28. Penso que a maior parte das pessoas abusa			Ü	0		
de nós, se as deixarmos	0	0	0	0	0	
Perco muito tempo antes de me concentrar no trabalho	0	0	0	0	0	
Raramente me sinto amedrontada ou ansiosa	0	0	0	0	0	
32. Muitas vezes, sinto-me a rebentar de energia 3. Poucas vezes me dou conta da influência que	0	0	0	0	0	
diferentes ambientes produzem nas pessoas	0	0	0	0	0	
34. A maioria das pessoas que conheço gostam de mim	0	0	0	0	0	
35. Trabalho muito para conseguir o que quero	O	o	Ö	0	0	
3. Muitas vezes aborrece-me a maneira como as pessoas me tratam	٥	0	0	0	0	
37. Sou uma pessoa alegre e bem-disposta	0	0	0	0	0	
 Acredito que devemos ter em conta a autoridade religiosa quando se trata de tomar 	0	0	0	0	0	
decisões respeitantes à moral	0	0	0	0		
39. Algumas pessoas consideram-me fria e calculista	0	0	٥	0	0	
40. Quando assumo um compromisso podem	~					
sempre contar que eu o cumpra	0	0	0	0	0	
41. Muitas vezes quando as coisas não me orrem bem perco a coragem e tenho vontade de	0	Ö		0	O.	
desistir						
42. Não sou uma grande otimista 43. Ås vezes ao ler poesía e ao olhar para uma	0	0	0	0	0	
obra de arte sinto um arrepio ou uma onda de	0	0	0	0	0	
44. Sou inflexível e dura nas minhas atitudes	0	0	0	0	0	
45. Ås vezes não sou tão segura ou digna de	0	0	0	0	0	
confiança como deveria ser 46. Raramente estou triste ou deprimida	0	0		0	0	
47. A minha vida decorre a um ritmo rápido	ŏ	Ö	ŏ	ő	ō	
 Gosto pouco de me pronunciar sobre a natureza do universo e da condição humana 	0	0	0	0	0	
49. Geralmente procuro ser atenciosa e delicada	0	0	0	0	0	
 Sou uma pessoa aplicada, conseguindo sempre realizar o meu trabalho 	0	0	0	0	0	
51. Sinto-me, muitas vezes, desamparada,						
sejando que alguém resolva os meus problemas por mim	0	0	Ö	0	0	
52. Sou uma pessoa muito ativa	0	0	0	0	0	
 Tenho muita curiosidade intelectual Quando não gosto das pessoas faço-lhes 	0	0	0	0	0	
saber	0	0	0	0	0	
 Parece que nunca consigo ser organizada Já houve alturas em que fiquei tão 	0	٥	0	0	0	
vergonhada que desejava meter-me num buraco	0	0	0	0	0	
57. Prefiro tratar da minha vida a ser chefe das outras pessoas	0	0	0	0	0	
58. Muitas vezes dá-me prazer brincar com	0	0	0	0	0	
teorias e ideias abstratas 9. Se for necessário não hesito em manipular as						
pessoas para conseguir aquilo que quero	0	0	0	0	0	
60. Esforço-me por ser excelente em tudo o que faço	0	0	0	0	0	

Appendix K. Assessment Protocol, Final Page

Agradecemos a sua participação neste estudo!

Os participantes que tenham necessidade de apoio e esclarecimentos acerca da sexualidade e problemas sexuais poderão recorrer aos serviços de consultas de sexologia. Para saber a lista de serviços públicos com consultas de sexologia pode aceder à página da Sociedade Portuguesa de Sexologia Clínica: www.spsc.pt/pages.aspx?pg=pagina10

Caso resida no Porto, outras necessidades de apoio poderão ser encaminhadas para o Serviço de Consultas de Psicología da Faculdade de Psicología e de Ciências da Educação da Universidade do Porto.