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ORIGINAL PAPER

Cognitive-Emotional Predictors of Sexual Functioning in Lesbians, Gays, and Heterosexuals

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Abstract

Cognitive-emotional dimensions play a core role in predisposing and maintaining sexual difficulties. This study aimed to assess the role of personality traits, sexual beliefs, cognitive schemas, automatic thoughts and affective states in predicting sexual functioning in a Portuguese sample. A total of 226 lesbian women, 254 heterosexual women, 243 gay men, and 274 heterosexual men completed a web-survey. For each sample, hierarchical regression analyses were conducted, separately. Results indicated that positive affective states and fewer thoughts associated with failure and disengagement during sexual activity act as significant predictors for sexual functioning, in both lesbian and heterosexual women's groups. Specific predictors of better sexual functioning in lesbian women were lower activation of schemas of undesirability and incompetence, and fewer thoughts associated with sexual abuse, body-image and sexual passivity were, whereas particular predictors of better sexual functioning for heterosexual women were erotic thoughts, lower activation of schemas of undesirability and difference/loneliness, and beliefs related to sexual desire as a sin. For men's groups, the best predictor of sexual functioning was the presence of erotic thoughts. Particularly for gay men's group, fewer failure anticipation thoughts were also a predictor of better sexual functioning. Overall, this study supports the core and predictive role of cognitive-emotional dimensions in sexual functioning for lesbian and heterosexual women, as for gay and heterosexual men.

Keywords Cognitive schemas · Gay men · Lesbians · Personality traits · Sexual functioning · Sexual orientation

Introduction

Comprehensive models for development and maintenance of sexual dysfunctions, predominantly grounded on cognitive and affective dimensions, have been proposed since the 1980s (e.g., Baker, 1993; Barlow, 1986). Recently, a set of studies investigating the role of cognitive-emotional variables, conducted almost exclusively with heterosexual samples, collected empirical support for the cognitive-emotional model of sexual dysfunction, proposed by Nobre (2013). This model postulates that dispositional dimensions, namely personality traits and dysfunctional sexual beliefs, may work as vulnerability factors, which work as moderators of cognitive schemas activation, when a negative sexual episode occurs, promoting the experience of negative automatic thoughts, as well as preventing positive emotions to arise during sexual activity (Nobre, 2013; Soares & Nobre, 2012). Although the majority of empirical evidence for the cognitive-emotional model has been supported by studies conducted with heterosexual samples, preliminary findings from studies with lesbian women and gay men suggested that cognitive-emotional dimensions may also play a key role on sexual functioning of sexual minorities (e.g., Cohen & Byers, 2014; Lacefield & Negy, 2012; Peixoto & Nobre, 2014, 2015, 2016).

Concerning dispositional, empirical studies suggested that the main dimensions are personality traits, such as neuroticism and introversion, and dysfunctional sexual beliefs (Nobre & Pinto-Gouveia, 2006a; Quinta-Gomes & Nobre, 2011). Previous research has found evidence that neuroticism was strongly and negatively associated with sexual functioning, whereas extraversion was strongly and positively correlated with sexual arousal and orgasmic function (Harris, Cherkas, Kato, Heiman, & Spector, 2008; Kennedy, Dickens, Eisfeld, & Bagby, 1999).

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Along with personality traits, dysfunctional sexual beliefs have also been described as risk factors for developing sexual dysfunctions (Nobre & Pinto-Gouveia, 2006a). Dysfunctional sexual beliefs include negative attitudes toward sexuality and unrealistic expectations or myths about sexual performance, that have a negative impact on both sexual functioning and satisfaction (Hawton, 1985; Heiman & LoPiccolo, 1988; Nobre, 2010; Zilbergeld, 1999). Empirical data about sexual beliefs demonstrate that conservative attitudes toward female sexuality have a negative impact on sexual health (Borg, de Jong, & Schultz, 2011; Morton & Gorzalka, 2013). More specifically, women with vaginismus trend to score higher in conservative values and lower in liberal ones (Borg et al., 2011), with sexual conservatism emerging as a significant predictor of East Asian–Canadian young women's sexual functioning (Morton & Gorzalka, 2013).

Besides trait vulnerability factors, individuals with sexual difficulties have a greater disposition to activate cognitive schemas of incompetence, when facing unsuccessful sexual events (Nobre & Pinto-Gouveia, 2009a). Cognitive schemas are defined as core beliefs about the self that could emerge when someone faces a negative situation (Beck, 1995). According to previous studies, core incompetence schemas underlie sexual dysfunctions (Nobre & Pinto-Gouveia, 2009a; Oliveira & Nobre, 2013; Quinta-Gomes & Nobre, 2012a, b). Nonetheless, the activation of cognitive schemas is not exclusively dependent on the occurrence of unsuccessful sexual episodes. Personality and cognitive profiles, such as neuroticism and introversion traits, and presence of dysfunctional sexual beliefs, predispose individuals to be at higher risk to activate more negative cognitive schemas in response to unsuccessful sexual events (Nobre, 2013).

Additionally, in response to incompetence schema activation, individuals tend to experience negative automatic thoughts, which are described as images or thoughts that occur involuntarily (Beck, 1995). Studies have consistently shown that negative automatic thoughts are strongly correlated with sexual problems, in both heterosexual men and women (Carey, Wincze, & Meisler, 1993; Nobre & Pinto-Gouveia, 2008; Sbrocco & Barlow, 1996; Wiegel, Scepkowski, & Barlow, 2007). A broader research work about sexual cognitions, theorized as sexual thoughts or sexual fantasies (Little & Byers, 2000), revealed that experiencing negative sexual cognitions were associated with sexual difficulties (Nelson & Purdon, 2011; Purdon & Holdaway, 2006; Purdon & Watson, 2011), whereas positive sexual cognitions were associated with sexual arousal (Little & Byers, 2000; Renaud & Byers, 1999, 2001). Additionally, studies regarding affective states during sexual activity have indicated that positive and negative affect are significant predictors of subjective sexual arousal in men (Koukounas & McCabe, 2001; Oliveira et al., 2014) and women (Peterson & Janssen, 2007; Vilarinho et al., 2014). Furthermore, absence of positive emotions (e.g., satisfaction, pleasure) and presence of negative emotions (e.g., sadness) during sexual activity are more frequently reported by sexually dysfunctional heterosexual men and women (Nobre & Pinto-Gouveia, 2006b).

According to the literature previously mentioned, little is known about the integrated role of cognitive-emotional dimensions in predicting sexual functioning of lesbian women and gay men. For that reason, the current study was aimed at investigating the role of personality traits, sexual beliefs, cognitive schemas, automatic thoughts, and affective states during sexual activity in predicting sexual functioning of lesbian and heterosexual women, gay and heterosexual men. According to previous research, we expected that personality traits, dysfunctional sexual beliefs, cognitive schemas, as well as automatic thoughts and affective states during sexual activity would significantly predict sexual functioning in men and women. More specifically, we hypothesized that personality traits of neuroticism and introversion (lack of extraversion) would predict lower sexual functioning (e.g., Quinta-Gomes & Nobre, 2011). Concerning dysfunctional sexual beliefs, it was expected that sexual conservatism, and "macho" beliefs for men, will predict poorer sexual functioning (e.g., Nobre, 2010). We also hypothesized that activation of the incompetence schema will predict lower sexual functioning (e.g., Oliveira & Nobre, 2013; Quinta-Gomes & Nobre, 2012a, b). Finally, we expected that experiencing positive affective states and erotic thoughts, as well as experiencing fewer negative affective states during sexual activity, will predict better sexual functioning (e.g., Nobre & Pinto-Gouveia, 2006b; Vilarinho et al., 2014). For lesbian women and gay men, this will be the first empirical study attempting to examine personality traits, sexual beliefs, cognitive schemas, automatic thoughts, and affective states during sexual activity as predictors of sexual functioning.

Method

Participants and Procedure

A total of 1674 participants (920 women and 754 men), from Portugal, responded to a web-survey, and 1128 participants (570 women, 558 men) completed the full survey. Inclusion criteria included sexual orientation; therefore, only participants who self-reported as exclusively or predominantly heterosexual/homosexual were considered. Additionally, participants who reported no sexual activity, in the past 4 weeks, were excluded. According to the inclusion/exclusion criteria, 90 women and 41 men were excluded in this process. A total of 997 participants were thus considered for this study (226 lesbians, 254 heterosexual women, 243 gay men, and 274

Table 1 Sociodemographic characteristics of the sample ($n = 997$)

Variables	Heterosexual women ($n = 254$)	Lesbian women ($n = 226$)	Heterosexual men ($n = 274$)	Gay men ($n = 243$)
Age (in years)				
M	25.81	26.60	28.87	29.64
SD	7.64	7.80	10.27	9.54
Range	18–62	18–62	18–68	18–64
Marital status (%)				
Single	76.9	77.8	87.4	89.7
Married/living together	19.0	18.2	7.1	6.9
Divorced	4.1	4.0	5.5	3.2
Education (%)				
0–9 years	0.3	3.1	3.4	3.7
10–12 years	31.6	37.1	30.2	29.1
> 13 years	68.4	59.7	66.4	67.2

heterosexual men), and sociodemographic characteristics are shown in Table 1.

The survey was publicized on social networks and through mailing lists from LGBT associations and sexual health related associations, between May 2012 and 2013. After reading and agreeing with the informed consent, participants were invited to answer to several questions concerning sexual functioning and cognitive-affective associated dimensions. Full survey completion took about 20 to 30 min. In order to safeguard the privacy and anonymity of the participants, data were collected and located at the University server, and no IP address was recorded. The study was approved by the University Ethics Committee, and no compensation was given for participation.

Measures

Sociodemographic Information

Sociodemographic characteristics were evaluated by several questions about personal information (e.g., age, educational level, and marital status). For sexual orientation, participants selected one of seven options: Only those who answered Exclusively or predominately homosexual or Exclusively or predominately heterosexual were retained for the present study.

NEO-Five Factor Inventory (NEO-FFI)

The NEO-FFI (Costa & McCrae, 1992) is a self-report measure comprising 60 items answered according to a 5-point Likert scale (0—Strongly disagree; 4—Strongly agree) that allows the evaluation of the NEO five personality traits: Neuroticism, Extraversion, Conscientiousness, Agreeableness, and Openness. Psychometric studies indicated good psychometric properties for the NEO-FFI, with high internal consistency, acceptable test–retest reliability, as well as good discriminant validity (Costa & McCrae, 1992). Psychometric studies conducted with the Portuguese version of the NEO-FFI replicated the five-factor structure of the original scale and indicated good psychometric properties (Magalhães et al., 2014). For the current study, Cronbach's alpha was .77 for the lesbian sample, .78 for the heterosexual women sample, and .79 for both the gay and heterosexual men samples.

Sexual Dysfunctional Beliefs Questionnaire (SDBQ)

The SDBQ (Nobre, Pinto-Gouveia, & Allen-Gomes, 2003) is a 40-item self-report measure assessing beliefs related to sexuality. Participants answered the questions using a 5-point Likert scale (1—Completely disagree; 5—Completely agree). The female version assesses six dimensions: (1) sexual conservatism (e.g., "Masturbation is wrong and sinful"; "Oral sex is one of the biggest perversions"); (2) sexual desire and pleasure as sin (e.g., "Sex is dirty and sinful"; "Experiencing pleasure during sexual activity is not acceptable in a virtuous woman"); (3) age-related beliefs (e.g., "After menopause, women can't reach orgasm"; "As women age, the pleasure they get from sex decreases"); (4) body-image beliefs (e.g., "Women who are not physically attractive can't be sexually satisfied"; "An ugly woman is not capable of sexually satisfying her partner"); (5) motherhood primacy (e.g., "Sex is meant only for procreation"; "The most wonderful emotions that a woman can experience are maternal"); and (6) affection primacy (e.g., "Love and affection from a partner are necessary for good sex"; "Sex without love is like food without flavor"). The male version also assesses six dimensions: (1) sexual conservatism (e.g., "Foreplay is a waste of time"; "In sex, the quicker/faster the better"); (2) "macho" beliefs (e.g., "A real man has sexual intercourse very often"; "A man must be capable of maintaining an erection until the end of any sex"); (3) beliefs about partner's sexual satisfaction (e.g., "A man who doesn't sexually satisfy the partner is a failure"; "Penis erection is essential for partner's sexual satisfaction"); (4) restrictive

attitudes toward sex (e.g., "It is not appropriate to have sexual fantasies during sexual intercourse"; "Repeated engagement in oral/anal sex can cause serious health problems"); (5) sex as an abuse of men's sexual power (e.g., "Sex is an abuse of the male's power"; "Sex is a violation of the partner's body"); and (6) partner's sexual power (e.g., "If a man lets himself go sexually, he is under a partner's control"; "The consequences of a sexual failure are catastrophic"). Psychometric studies indicated good test–retest reliability, internal consistency, and discriminant validity (Nobre et al., 2003). In the current study, Cronbach's alpha was .79 for both the lesbian and heterosexual women sample, .77 for the gay men sample, and .78 for the heterosexual men sample.

Questionnaire of Cognitive Schemas Activated in Sexual Context (QCSASC)

The QCSASC (Nobre & Pinto-Gouveia, 2009b) is a 28-item measure that allows the assessment of cognitive schemas in response to specific sexual episodes. Firstly, sexual episodes related to common sexual dysfunctions are presented. Participants rated the frequency of each sexual episode (1—Never happened; 5—Happens often). Secondly, participants were instructed to focus on the most frequent situation, and answer to 28 self-statements reproducing the self-schemas presented by Beck (1995), using a 5-point Likert scale (1—Completely false; 5—Completely true). The scale assesses five main dimensions: (1) Incompetence (e.g., "I'm incompetent"; "I'm a failure"), (2) Undesirability/rejection (e.g., "I'm unlovable"; "I'm undesirable"), (3) Self-deprecation (e.g., "I'm unworthy"), (4) Difference/loneliness (e.g., "I'm different"; "I'm bound to be alone"), and (5) Helpless (e.g., "I'm helpless"; "I'm needy"). Psychometric studies suggested adequate test–retest reliability and excellent internal consistency (Nobre & Pinto-Gouveia, 2009b). For the current study, Cronbach's alpha was .97 for the lesbian sample, .96 for the heterosexual women sample, and .95 for both the gay and heterosexual men samples.

Automatic Thoughts Scale from the Sexual Modes Questionnaire (AT-SMQ)

The Sexual Modes Questionnaire (Nobre & Pinto-Gouveia, 2003) is a measure developed to assess automatic thoughts, emotions, and sexual response during sexual activity. For the current study, we used the Automatic Thoughts scale to assess self-reported automatic thoughts during sexual activity. The female version consisted of 33 items, measuring six main dimensions: (1) sexual abuse thoughts, (2) failure/disengagement thoughts, (3) thoughts related to partner's lack of affection, (4) sexual passivity and control, (5) low self-body-image thoughts, and (6) lack of erotic thoughts. The male version consisted of 30 items and assesses five dimensions: (1) failure anticipation thoughts, (2) erection concern thoughts, (3) thoughts related to age and sexual functioning, (4) negative thoughts related to sex, and (5) lack of erotic thoughts. Participants answered according to a Likert scale of 5 points (1—Never; 5—Always). Psychometric studies suggested good internal consistency and adequate test–retest reliability (Nobre & Pinto-Gouveia, 2003). In the current study, Cronbach's alpha was .89 for the lesbian sample, .91 for the heterosexual women sample, and .90 for both the gay and heterosexual men samples.

The Positive Affect–Negative Affect Scales (PANAS)

The Positive Affect–Negative Affect Scale (PANAS; Watson & Clark, 1994) is a self-administered questionnaire consisting of 20 items, assessing two dimensions of emotional condition: Positive Affect and Negative Affect (e.g., Positive Affect: "interested"; "excited"; Negative Affect: "distressed"; "ashamed"). Responses were given according to a Likert scale of 5 points from 0, "very little or nothing", to 4, "extremely", and participants answered about what they feel during sexual activity, state measure ("Indicate to what extent you have felt this way during sexual activity"). In terms of psychometric characteristics, PANAS has shown temporal stability and convergent and discriminant validity (Watson & Clark, 1994). The Portuguese version presents good psychometric properties, namely adequate internal consistency (Galinha & Pais-Ribeiro, 2005). For the current study, Cronbach's alpha was .76 for the lesbian sample, .75 for the heterosexual women sample, .77 for the gay men sample, and .74 for the heterosexual men sample.

The Female Sexual Function Index (FSFI)

The FSFI (Rosen et al., 2000) is a 19-item instrument, easily administered and scored, providing detailed information on the major dimensions of sexual function. A principal component analysis identified six factors: sexual interest/desire, sexual arousal, lubrication, orgasm, sexual satisfaction, and sexual pain. The measure presents acceptable test–retest reliability, internal consistency, and validity. For lesbian women, wording was adapted according to Tracy and Junginger's (2007) suggestions. The Portuguese version also presented good psychometric properties. Good internal consistency was found, as well as convergent validity and discriminant validity of the instrument (Pechorro, Diniz, Almeida, & Vieira, 2009). For the current study, Cronbach's alpha was .96 for both samples.

The International Index of Erectile Function (IIEF)

The IIEF (Rosen et al., 1997) is a 15-item self-administered measure assessing different areas of sexual functioning in men. A principal component analysis identified five factors: erectile function, orgasmic function, sexual desire, intercourse satisfaction, and overall satisfaction. Psychometric studies supported the validity (Cronbach's alpha values of .73 and higher and test–retest reliability from $r = .64$ to .84; Rosen et al., 1997). The Portuguese version also presented good psychometric properties (Quinta-Gomes & Nobre, 2012b). The IIEF-MSM (Coyne et al., 2010) is a validated and adapted measure from the IIEF (Rosen et al., 1997), for men who have sex with men. The IIEF-MSM assesses five domains of male sexual function, including desire, erectile function, orgasm, intercourse satisfaction, and overall satisfaction. The scale presents acceptable internal consistency (Coyne et al., 2010). After permission was given by the main author, the scale was translated to Portuguese. For the current study, Cronbach's alpha was .87 for gay men and .88 for heterosexual men.

Statistical Analysis

For each group, hierarchical regression analyses were conducted, separately, in order to test which cognitive-emotional variables represent the strongest predictors of sexual functioning (dependent variable assessed by FSFI, IIEF, or IIEF-MSM, respectively). The ordering of steps in the hierarchical regression was defined according to the cognitive-emotional model for sexual dysfunction (Nobre, 2013), with personality traits and dysfunctional sexual beliefs working as dispositional dimensions, followed by cognitive schemas as intermediate dimensions, and finally both automatic thoughts and affective responses as state variables. In the first step, sociodemographic variables were entered in the regression equation, namely age, educational level, and marital status. In the second, third, and fourth steps, personality traits, dysfunctional sexual beliefs, and cognitive schemas were entered in the regression equation, respectively. Finally, in the fifth step, automatic thoughts and affective states during sexual activity were in entered in the regression equation.

Results

Cognitive-Emotional Predictors of Lesbian Sexual Functioning

A hierarchical regression analysis was conducted to assess the ability of cognitive-emotional variables to predict lesbian women's sexual functioning, above and beyond each other. Results are shown in Table 2. When all variables were entered in the regression equation, 66.6% of the variance of lesbian women's sexual functioning was explained by sociodemographic variables, personality traits, dysfunctional sexual beliefs, cognitive schemas activated in sexual context, automatic thoughts, and affective states during sexual activity. Statistical significant predictors were found, with better sexual functioning being predicted by higher positive affective states ($\beta = .39$, $p < .001$), by lower activation of undesirability ($\beta = -.22$, $p = .013$) and incompetence schemas ($\beta = -.19$, $p = .018$), as well as predicted by fewer thoughts related to sexual abuse ($\beta = -.21$, $p < .001$), failure and disengagement ($\beta = -.20$, $p < .001$), body-image ($\beta = -.14$, $p = .038$), and sexual passivity and control ($\beta = -.14$, $p = .040$).

Cognitive-Emotional Predictors of Heterosexual Women's Sexual Functioning

To assess the ability of cognitive-emotional variables to predict heterosexual women's sexual functioning, a hierarchical regression analysis was also conducted, and results are shown in Table 3. About 76.2% of the variance of heterosexual women's sexual functioning was explained by all variables entered in the regression equation. Statistical significant predictors were found, with better sexual functioning being predicted by greater positive affective states ($\beta = .33$, $p < .001$) and erotic thoughts ($\beta = -.22$, $p < .001$), by fewer negative affective states ($\beta = -.16$, $p = .002$) and thoughts associated with failure and disengagement ($\beta = -.25$, $p < .001$), and by lower activation of schemas of undesirability ($\beta = -.18$, $p = .030$) and difference/loneliness ($\beta = -.12$, $p = .021$), as well as fewer beliefs related to sexual desire as a sin ($\beta = -.10$, $p = .029$).

Cognitive-Affective Predictors of Gay Men's Sexual Functioning

A hierarchical regression analysis was performed for gay men sample, and the results are shown in Table 4. Sociodemographic and cognitive-affective variables explained 30.7% of the variance of sexual functioning in gay men, with better sexual functioning being predicted by fewer failure anticipation thoughts ($\beta = -.29$, $p = .010$) and greater levels of erotic thoughts ($\beta = -.21$, $p = .006$) during sexual activity.

Cognitive-Affective Predictors of Heterosexual Men's Sexual Functioning

Likewise, a hierarchical regression analysis was performed for heterosexual men group, and Table 5 shows the results, with 41.2% of the variance of heterosexual men's sexual functioning being explained by sociodemographic and cognitive-affective variables entered in the regression equation. For heterosexual men, better sexual functioning was predicted by

Table 2 Hierarchical regression for cognitive-affective predictors of lesbian women sexual functioning ($n = 226$)

	Lesbian women						
	B	Standard error	β	95% CI	*t*	R^2	ΔR^2
Step 1						.01	.01
Age	−.01	.04	−.03	−.10, .07	−0.03		
Marital status	.29	.25	.08	−.21, .79	1.15		
Educational level	−.02	.37	−.01	−.76, .72	−0.01		
Step 2						.24	.23***
Age	−.04	.04	−.08	−.12, .03	−1.13		
Marital status	.21	.23	.06	−.24, .66	0.93		
Educational level	−.23	.35	−.05	−.92, .45	−0.68		
Neuroticism	−.07	.04	−.16	−.15, .00	−1.97*		
Extraversion	.16	.04	.33	.09, .23	4.65***		
Conscientiousness	−.01	.05	−.02	−.10, .07	−0.32		
Agreeableness	.03	.05	.05	−.06, .13	0.69		
Openness	.07	.05	.10	−.03, .16	1.31		
Step 3						.29	.05*
Age	−.04	.04	−.08	−.12, .04	−1.06		
Marital status	.24	.23	.07	−.22, .70	1.04		
Educational level	−.24	.36	−.05	−.94, .47	−0.67		
Neuroticism	−.08	.04	−.17	−.15, −.01	−2.19*		
Extraversion	.15	.04	.31	.08, .22	4.28***		
Conscientiousness	−.00	.05	−.00	−.09, .09	0.96		
Agreeableness	.02	.05	.03	−.08, .12	0.40		
Openness	.07	.05	.11	−.03, .17	1.40		
Sexual conservatism	.65	.14	.04	−.20, .33	0.48		
Sexual desire as sin	.13	.22	.04	−.31, .56	0.56		
Age beliefs	−.10	.17	−.04	−.44, .25	−0.54		
Body-image beliefs	−1.36	.38	−.23	.60, 2.12	−3.55***		
Motherhood beliefs	−.01	.14	−.01	−.29, .26	−0.10		
Denying affection primacy	.02	.13	.01	−.25, .28	0.11		
Step 4						.41	.12***
Age	−.03	.04	−.05	−.10, .04	−0.74		
Marital status	.35	.22	.10	−.08, .78	−1.08		
Educational level	−.37	.34	−.07	−1.03, .30	1.07		
Neuroticism	−.10	.05	−.16	−.01, .20	−2.21*		
Extraversion	.10	.04	.20	.03, .16	2.78**		
Conscientiousness	−.03	.04	−.04	−.12, .06	−0.68		
Agreeableness	.03	.05	.04	−.07, .12	0.53		
Openness	.01	.04	.02	.08, .06	0.23		
Sexual conservatism	.08	.13	.05	−.17, .33	0.66		
Sexual desire as sin	.09	.21	.03	−.32, .50	0.45		
Age beliefs	−.20	.16	−.09	−.53, .12	−1.23		
Body-image beliefs	−1.28	.36	−.22	.57, 1.99	−3.56***		
Motherhood beliefs	−.03	.13	−.02	−.29, .23	−0.24		
Denying affection primacy	−.03	.13	−.01	−.27, .22	−0.20		
Undesirability schemas	.05	.10	.06	−.15, .26	0.53		
Incompetence schemas	−.29	.07	−.43	−.42, −.16	−4.40***		
Self-deprecation schemas	−.30	.20	−.16	−.10, .69	−1.49		
Difference schemas	−.05	.12	−.04	−.28, .19	−0.39		
Helpless schemas	−.31	.22	−.13	−.75, .13	−1.39		

Table 2 (continued)

	Lesbian women						
	B	Standard error	*β*	95% CI	*t*	R^2	ΔR^2
Step 5						.67	.26***
Age	−.02	.03	−.04	−.08, .03	−0.75		
Marital status	.22	.17	.06	−.12, .56	1.29		
Educational level	.12	.27	.02	−.42, .65	0.43		
Neuroticism	−.03	.03	−.08	−.10, .03	−1.13		
Extraversion	.04	.03	.08	−.01, .09	1.45		
Conscientiousness	−.06	.03	−.08	−.12, .01	−1.63		
Agreeableness	.01	.04	.01	−.07, .08	0.16		
Openness	.03	.04	.05	−.04, .11	0.82		
Sexual conservatism beliefs	−.10	.10	−.06	−.30, .10	−1.01		
Sexual desire as sin beliefs	.03	.16	.01	−.29, .35	0.20		
Age-related beliefs	.07	.13	.03	−.19, .34	0.55		
Body-image beliefs	.44	.29	.07	−.13, 1.01	1.52		
Motherhood beliefs	.00	.10	.00	−.20, .21	0.03		
Denying affection primacy beliefs	−.15	.10	−.07	−.35, .05	−1.44		
Undesirability schemas	−.07	.09	−.09	−.25, .10	−0.82		
Incompetence schemas	−.13	.06	−.19	−.24, −.02	−2.38*		
Self-deprecation schemas	−.42	.16	−.22	.10, .73	−2.58*		
Difference schemas	−.02	.10	−.02	−.21, .17	−0.24		
Helpless schemas	−.21	.18	−.09	−.56, .15	−1.15		
Sexual abuse thoughts	−.29	.10	−.21	−.48, −.09	−2.85***		
Failure/disengagement thoughts	−.39	.16	−.20	−.70, −.09	−2.52***		
Partner's lack of affection thoughts	−.14	.11	−.09	−.08, .36	−1.28		
Sexual passivity and control thoughts	−.16	.08	−.14	−.32, −.00	−2.01*		
Lack of erotic thoughts	−.05	.07	−.05	−.18, .08	−0.69		
Low self-body-image thoughts	−.18	.09	−.14	−.00, .36	1.99*		
Positive affect	.23	.04	.39	.15, .31	5.62***		
Negative affect	.01	.07	.01	−.13, .15	0.16		

*$p < .05$, **$p < .01$, ***$p < .001$

greater levels of erotic thoughts ($\beta = -.32$, $p < .001$) during sexual activity.

Discussion

Comprehensive models of sexual dysfunction based on cognitive-emotional approaches have been developed and tested broadly for the last three decades (e.g., Baker, 1993; Barlow, 1986; Nobre, 2013), yet to our knowledge there are no studies testing its applicability to non-heterosexual samples. The current study aimed to overcome that limitation by exploring the predictive role of cognitive-emotional dimensions in the sexual functioning of lesbian women and gay men. Concerning hierarchical regression models, cognitive-emotional dimensions entered in the equation account for 76.2, 66.6, 41.2, and 30.7% of explained variance of sexual functioning of heterosexual women, lesbian women, heterosexual men and gay men, respectively. Significant predictors emerged for each model, and allow to conclude that cognitive-emotional dimensions predict sexual functioning of men and women, regardless of sexual orientation.

Thoroughly, results indicated that positive affective states, lower activation of schemas of undesirability and incompetence, and fewer thoughts associated with sexual abuse, failure and disengagement, body-image and sexual passivity were predictors of better sexual functioning in lesbian women. For heterosexual women predictors of better sexual functioning were positive affective states and erotic thoughts, lower affective states, lower activation of schemas of undesirability and difference/loneliness, fewer thoughts associated with failure and disengagement, and beliefs related to sexual desire as a sin. For gay men, predictors of better sexual functioning were fewer failure anticipation thoughts and greater erotic thoughts. For heterosexual men, the best predictor of sexual functioning was the presence of erotic thoughts. These findings are

Table 3 Hierarchical regression for cognitive-affective predictors of heterosexual women sexual functioning ($n = 254$)

	Heterosexual women						
	B	Standard error	β	95% CI	*t*	R^2	ΔR^2
Step 1						.00	.00
Age	−.01	.03	−.02	−.07, .05	−0.31		
Marital status	.02	.22	.00	−.41, .44	0.08		
Educational level	.15	.24	.03	−.32, .63	0.63		
Step 2						.16	.16***
Age	−.04	.03	−.07	−.10, .01	−1.156		
Marital status	−.43	.20	−.01	−.43, .35	−0.22		
Educational level	−.03	.23	−.00	−.47, .41	−0.14		
Neuroticism	−.11	.02	−.21	−.16, −.07	−4.93***		
Extraversion	.15	.03	.20	.09, .21	4.63***		
Conscientiousness	.07	.03	.09	.02, .13	.2.48*		
Agreeableness	.02	.03	.02	−.05, .09	0.61		
Openness	.03	.03	.04	−.03, .08	0.99		
Step 3						.19	.03***
Age	−.05	.03	−.08	−.10, .00	−1.81		
Marital status	−.03	.20	−.01	−.41, .36	−0.14		
Educational level	−.17	.23	−.03	−.62, .27	−0.76		
Neuroticism	−.11	.02	−.20	−.15, −.06	−4.71***		
Extraversion	.14	.03	.19	.08, .20	4.37***		
Conscientiousness	.05	.03	.07	−.01, .11	1.71		
Agreeableness	−.00	.03	−.01	−.07, .06	−0.13		
Openness	.03	.03	.05	−.02, .08	1.22		
Sexual conservatism	−.09	.05	−.07	−.20, .01	−1.76		
Sexual desire as sin	−.31	.13	−.10	−.57, −.04	−2.29*		
Age beliefs	−.15	.11	−.06	−.35, .06	−1.37		
Body-image beliefs	−.10	.18	−.02	−.46, .27	−0.52		
Motherhood beliefs	−.05	.10	−.02	−.25, .15	−0.47		
Denying affection primacy	.04	.07	.02	−.10, .18	0.64		
Step 4						.32	.13***
Age	−.04	.03	−.06	−.09, .01	−1.45		
Marital status	−.00	.18	.00	−.35, .35	−0.01		
Educational level	−.13	.21	−.02	−.54, .29	−0.61		
Neuroticism	−.03	.02	−.05	−.07, .02	−1.27		
Extraversion	.10	.03	.13	.04, .16	3.34**		
Conscientiousness	.09	.03	.12	.04, .15	3.33**		
Agreeableness	−.02	.03	−.02	−.08, .05	−0.56		
Openness	.03	.02	.05	−.02, .08	1.28		
Sexual conservatism	−.05	.05	−.04	−.14, .05	−0.91		
Sexual desire as sin	−.15	.12	−.05	−.40, .09	−1.25		
Age beliefs	−.12	.10	−.05	−.31, .07	−1.23		
Body-image beliefs	.05	.17	.01	−.29, .39	0.28		
Motherhood beliefs	−.03	.10	−.01	−.22, .15	−0.35		
Denying affection primacy	−.09	.06	.05	−.04, .21	1.34		
Undesirability schemas	−.10	.07	−.09	−.23, .03	−1.58		
Incompetence schemas	−.32	.04	−.37	−.40, −.24	−7.96***		
Self-deprecation schemas	−.45	.14	−.17	−.18, −.72	−3.25**		
Difference schemas	−.28	.08	−.16	−.45, −.12	−3.42**		
Helpless schemas	−.13	.14	−.04	−.15, .40	0.91		

Table 3 (continued)

	Heterosexual women						
	B	Standard error	*β*	95% CI	*t*	R^2	ΔR^2
Step 5						.69	.37***
Age	.04	.02	.07	.01, .08	0.24		
Marital status	−.07	.13	−.02	−.32, .17	−0.60		
Educational level	.26	.15	.05	−.03, .54	1.78		
Neuroticism	−.04	.02	−.06	−.07, −.02	−2.11*		
Extraversion	.02	.02	.03	−.02, .06	1.14		
Conscientiousness	.01	.02	.01	−.03, .05	0.33		
Agreeableness	−.04	.02	−.05	−.09, .00	−1.88		
Openness	−.02	.02	−.03	−.01, .01	1.33		
Sexual conservatism beliefs	.04	.03	.04	−.02, .11	1.30		
Sexual desire as sin beliefs	.09	.09	.03	−.08, .26	1.03		
Age-related beliefs	−.05	.07	−.02	−.18, .09	−0.68		
Body-image beliefs	.02	.12	.00	−.22, .25	0.14		
Motherhood beliefs	−.06	.07	−.02	−.18, .07	−0.86		
Denying affection primacy beliefs	.05	.04	.03	−.04, .14	1.09		
Undesirability schemas	.00	.05	.00	−.09, .10	0.05		
Incompetence schemas	−.05	.03	−.06	−.11, .00	−1.85		
Self-deprecation schemas	−.23	.10	−.08	−.04,−42	−2.35*		
Difference schemas	−.11	.06	−.06	−.22, .00	−1.94		
Helpless schemas	.06	.09	.02	−.13, .24	0.58		
Sexual abuse thoughts	.04	.05	.03	−.06, .13	0.78		
Failure/disengagement thoughts	−.57	.07	−.28	−.71, −.44	−8.25***		
Partner's lack of affection thoughts	.04	.05	.02	−.06, .14	0.72		
Sexual passivity and control thoughts	−.02	.04	−.01	−.10, .06	−0.44		
Lack of erotic thoughts	−.22	.04	−.17	−.31, −.13	−5.01***		
Low self-body-image thoughts	−.00	.04	−.00	−.09, .08	−0.11		
Positive affect	.24	.02	.39	.20, .28	10.85***		
Negative affect	−.20	.03	−.19	−.26, −.13	−6.06***		

*$p < .05$, **$p < .01$, ***$p < .001$

partially in line with our hypotheses, which proposed automatic thoughts and affective states as significant predictors of sexual functioning.

Considering the regression model for lesbian group, our data highlighted the role of dispositional variables, namely personality traits, as significant predictors of sexual functioning, above and beyond sociodemographic variables. Both introversion and neuroticism traits acted as significant and negative predictors of lesbians' sexual functioning, which corroborated our and is consistent with previous studies (e.g., Peixoto & Nobre, 2016). When another dispositional group of variables was added to the hierarchical model, i.e., dysfunctional sexual beliefs, both introversion and neuroticism, along with body-image related beliefs, emerged as significant and negative predictors of sexual functioning. Previous research has shown that lesbian couples reported more often feelings of satisfaction related to their sexual and intimate relationships (Jordan & Deluty, 2000; Van Rosmalen-Nooijens, Vergeer, & Lagro-Janssen, 2008), which may also contribute to current findings, with body-image related beliefs emerging as a significant dimension. Body-image related beliefs refer to ideas such as "Women who are not physically attractive can't be sexually satisfied". This may suggest that, for lesbians, negative attitudes toward physical attraction may negatively interfere with sexual functioning.

When process variables were added to the lesbian women's model (i.e., cognitive schemas activated in sexual context), both dispositional dimensions maintained their predictive role (personality traits and sexual beliefs), and the incompetence schema emerged as a significant and negative predictor of lesbians' sexual functioning. Theoretically, dispositional variables moderate incompetence schemas activation during negative sexual events (Soares & Nobre, 2012), which is consistent with the current findings. Finally, when automatic thoughts and affective states during sexual activity were introduced in the hierarchical model as predictors, variance explained of sexual functioning increased significantly. The final regression

Table 4 Hierarchical regression for cognitive-affective predictors of gay men sexual functioning ($n = 243$)

	Gay men						
	B	Standard error	β	95% CI	*t*	R^2	ΔR^2
Step 1						.04	.04
Age	−.05	.09	−.04	−.22, .12	−0.59		
Marital status	.67	.03	.03	.25, .30	0.23		
Educational level	.03	.03	.07	.24, .26	0.45		
Step 2						.14	.10**
Age	−.09	.09	−.07	−.26, .08	−1.04		
Marital status	1.27	.80	.10	−.31, 2.85	1.58		
Educational level	1.29	.80	.11	.12, 2.26	1.12		
Neuroticism	−.22	.11	−.16	−.44, −.01	−2.08*		
Extraversion	.36	.14	.19	.09, .62	2.65**		
Conscientiousness	−.06	.14	−.03	−.33, .22	−0.39		
Agreeableness	.11	.15	.05	−.18, .40	0.74		
Openness	−.01	.12	−.00	−.25, .24	−0.05		
Step 3						.18	.04
Age	−.10	.09	−.08	−.27, .07	−1.15		
Marital status	.80	.82	.06	−.80, 2.41	0.98		
Educational level	.98	.80	.06	.40, .55	0.47		
Neuroticism	−.19	.11	−.14	−.40, .030	−1.73		
Extraversion	.39	.14	.21	.12, .66	2.84**		
Conscientiousness	−.13	.14	−.06	−.41, .16	−0.87		
Agreeableness	.10	.15	.04	−.20, .39	0.64		
Openness	−.00	.12	−.00	−.24, .24	−0.03		
Sexual conservatism	.02	.31	.01	−.59, .64	0.08		
Macho beliefs	.76	.44	.15	−.11, 1.62	1.73		
Partner's satisfaction	−.35	.36	−.08	−1.05, .35	−0.98		
Restrictive attitudes	−.56	.46	−.11	−1.47, .35	−1.22		
Partner's sexual abuse	−.83	.73	−.08	−2.27, .61	−1.14		
Power beliefs	−.34	.29	−.09	−.90, .22	−1.19		
Step 4						.20	.02
Age	−.08	.09	−.07	−.26, .09	−0.93		
Marital status	.62	.83	.05	−1.02, 2.26	0.74		
Educational level	1.53	.83	.12	−.09, 3.16	1.86		
Neuroticism	−.13	.12	−.10	−.37, .10	−1.12		
Extraversion	.38	.14	.20	.10, .65	2.66**		
Conscientiousness	−.13	.15	−.06	−.42, .15	−0.91		
Agreeableness	.19	.16	.09	−.12, .51	1.20		
Openness	−.01	.13	−.01	−.26, .24	0.93		
Sexual conservatism	.07	.32	.02	−.55, .69	0.22		
Macho beliefs	.77	.44	.16	−.10, 1.64	1.76		
Partner's satisfaction	−.40	.36	−.10	−1.10, .31	−1.11		
Restrictive attitudes	−.53	.47	−.10	−1.45, .39	−1.14		
Partner's sexual abuse	−.72	.75	−.07	−2.21, .76	−0.96		
Power beliefs	−.31	.29	−.08	−.87, .26	−1.6		
Undesirability schemas	−.257	.28	−.12	−.81, .30	−0.91		
Incompetence schemas	.00	.20	.00	−.38, .39	0.01		
Self-deprecation schemas	1.20	.64	.20	−.05, 2.46	1.89		
Difference schemas	−.39	.44	−.10	−1.26, .47	−0.89		
Helpless schemas	−.18	.75	−.03	−1.65, 1.3	−0.24		

Table 4 (continued)

	Gay men						
	B	Standard error	*β*	95% CI	*t*	R^2	ΔR^2
Step 5						.31	.11**
Age	−.09	.09	−.07	−.26, .09	−1.00		
Marital status	.70	.80	.06	−.86, 2.27	0.89		
Educational level	1.05	.80	.090	−.52, 2.62	1.32		
Neuroticism	−.15	.11	−.11	−.37, .07	−1.31		
Extraversion	.23	.14	.12	−.05, .50	1.61		
Conscientiousness	−.28	.14	−.12	−.56, .00	−1.97		
Agreeableness	.23	.16	.11	−.08, .54	1.48		
Openness	−.04	.12	−.03	−.28, .20	−0.35		
Sexual conservatism	.19	.31	.05	−.42, .79	0.61		
Macho beliefs	.71	.42	.14	−.12, 1.53	1.69		
Partner's satisfaction	−.57	.35	−.14	−1.26, .18	−1.64		
Restrictive attitudes	−.26	.46	−.05	−1.17, .66	−0.55		
Partner's sexual abuse	−.83	.72	−.08	−2.25, .59	−1.15		
Power beliefs	−.54	.28	−.14	−1.09, .01	−1.94		
Undesirability schemas	−.27	.28	−.12	−.82, .28	−0.98		
Incompetence schemas	.29	.20	.15	−.11, .69	1.43		
Self-deprecation schemas	1.05	.62	.18	−.17, 2.27	1.69		
Difference schemas	−.16	.42	−.04	−.99, .68	−0.37		
Helpless schemas	−.20	.72	−.03	−1.63, 1.2	−0.28		
Failure anticipation	−.82	.32	−.29	−1.44, −.20	−2.59**		
Erection concerns	−.13	.22	−.05	−.55, .30	−0.59		
Age-related thoughts	.64	.46	.15	−.26, 1.55	1.41		
Negative thoughts	.47	.47	.09	−.46, 1.39	1.00		
Lack erotic thoughts	−.73	.26	−.21	−1.24, −.21	−2.75**		
Positive affect	.22	.17	.11	−.11, .55	1.33		
Negative affect	−.05	.19	−.02	−.42, .32	−0.27		

*$p < .05$, **$p < .01$, ***$p < .001$

model for lesbian women highlighted the role of cognitive schemas, namely lower activation of incompetence schemas, as well as experiencing fewer negative automatic thoughts (e.g., failure and disengagement, passivity, and control), and more positive emotions during sexual activity, as core predictors of sexual functioning in lesbian women.

The incompetence schema has already been described as a central cognitive domain in female sexuality (e.g., Oliveira & Nobre, 2013), and the current data add empirical support, by extending that finding to lesbian women. Self-labeling oneself as "incompetent" in response to an unsuccessful outcome in sexual context appears to predict negatively lesbian women's sexual functioning. Partner's lack of affection thoughts was the only dimension of negative thoughts that did not show a significant predictive role for lesbians' sexual functioning. Expression of affection and intimacy have been frequently reported by lesbian couples (Eldridge & Gilbert, 1990), which may contribute to this finding. It may be possible that lesbian women often perceived their partners as warm and caring, and did not frequently report automatic thoughts related to a partner's lack of affection. Also, positive emotions during sexual activity were positive predictors of better sexual functioning.

The regression model for heterosexual women was analyzed, and results showed that both extraversion and conscientiousness were significant and positive predictors, whereas neuroticism was a significant and negative predictor of sexual functioning. When sexual beliefs were entered into the regression equation, sexual conservatism and age-related beliefs stood out as the strongest and negative predictors of sexual functioning. In the next step, the incompetence schema emerged as a significant and negative predictor, along with extraversion and conscientiousness traits, as well as sexual conservatism and age-related beliefs. Finally, negative automatic thoughts, negative affective states and lack of positive states also emerged as negative predictors of heterosexual women's sexual functioning, which is consistent with previous data (e.g., Nobre & Pinto-Gouveia, 2008).

Bringing together findings from both lesbian and heterosexual women, data emphasize the role of introversion and neuroticism as common traits negatively predicting sexual

Table 5 Hierarchical regression for cognitive-affective predictors of heterosexual men sexual functioning ($n = 274$)

	Heterosexual men						
	B	Standard error	*β*	95% CI	*t*	R^2	ΔR^2
Step 1						.01	.01
Age	−.00	.11	−.04	−.23, .22	−0.04		
Marital status	−1.68	2.59	−.07	−6.79, 3.43	−0.65		
Educational level	.02	.10	.03	.01, .21	0.03		
Step 2						.11	.10**
Age	.02	.11	.02	−.20, .24	0.17		
Marital status	−1.43	2.52	−.06	−6.42, 3.55	−0.57		
Educational level	.04	.24	.05	.03, 2.25	0.13		
Neuroticism	−.08	.13	−.06	−.33, .17	−0.61		
Extraversion	.49	.17	.26	.17, .83	3.03**		
Conscientiousness	.11	.14	.06	−.16, .38	0.80		
Agreeableness	.00	.17	.00	−.33, .34	0.02		
Openness	.98	.14	.05	−.20, .35	0.54		
Step 3						.16	.06
Age	.03	.11	.03	−.19, .25	0.25		
Marital status	−2.03	2.51	−.08	−6.98, 2.92	−0.81		
Educational level	.00	.12	.00	−.09, .23	0.28		
Neuroticism	−.04	.13	−.03	−.29, .21	−0.29		
Extraversion	.44	.17	.23	.11, .76	2.62**		
Conscientiousness	−.02	.15	−.01	−.32, .27	−0.16		
Agreeableness	−.06	.18	−.03	−.40, .29	−0.33		
Openness	−.09	.14	.06	−.19, .37	−0.63		
Sexual conservatism	.02	.35	.01	−.67, .70	0.05		
Macho beliefs	.15	.45	.04	−.74, 1.03	0.32		
Partner's satisfaction	−.49	.35	−.16	−1.18, .20	−1.39		
Restrictive attitudes	−.83	.46	−.19	−1.72, .07	−1.81		
Partner's sexual abuse	−.94	.79	−.10	−.62, 2.50	1.19		
Power beliefs	.15	.35	.04	−.54, .84	0.44		
Step 4						.27	.11**
Age	.05	.11	.04	−.17, .26	0.43		
Marital status	−1.66	2.40	−.07	−6.40, 3.09	−0.69		
Educational level	.07	.20	.08	−03, .34	0.36		
Neuroticism	.21	.14	.16	−.06, .47	1.53		
Extraversion	.26	.17	.14	−.07, .59	1.57		
Conscientiousness	.03	.15	.02	−.27, .33	0.19		
Agreeableness	−.06	.17	−.03	−.39, .28	−0.33		
Openness	.07	.13	.04	−.20, .33	0.49		
Sexual conservatism	−.12	.34	−.04	−.79, .56	−0.34		
Macho beliefs	.40	.0	.158	−.45, 1.25	0.92		
Partner's satisfaction	−.22	.34	−.07	−.90, .46	−0.65		
Restrictive attitudes	−.55	.44	−.13	−1.43, .32	−1.26		
Partner's sexual abuse	.83	.77	.09	−.70, .2.35	1.07		
Power beliefs	.08	.33	.02	−.57, .74	.25		
Undesirability schemas	−.10	.34	−.04	−.78, .58	−0.29		
Incompetence schemas	−.55	.21	−.28	−.97, −.13	−2.60**		
Self-deprecation schemas	−.15	.83	−.03	−1.80, 1.50	−0.18		
Difference schemas	−.35	.43	−.09	−1.20 .50	−0.82		
Helpless schemas	−.63	.81	−.10	−2.23, 1.00	−0.78		

Table 5 (continued)

	Heterosexual men						
	B	Standard error	*β*	95% CI	*t*	R^2	ΔR^2
Step 5						.41	.14***
Age	.03	.10	.03	−.17 .24	0.33		
Marital status	−.65	2.23	−.03	−5.05, 3.78	−0.29		
Educational level	.02	.11	.02	−.08, .23	0.27		
Neuroticism	.26	.13	.20	.00, .52	1.99		
Extraversion	.14	.16	.08	−.17, .46	0.91		
Conscientiousness	−.03	.15	−.01	−.32, .27	−0.17		
Agreeableness	.13	.17	.07	−.20, .46	0.79		
Openness	−.02	.13	−.01	−.26, .23	−0.13		
Sexual conservatism	−.21	.32	−.08	−.85, .43	−0.65		
Macho beliefs	.62	.40	.16	−.17, 1.42	1.55		
Partner's satisfaction	−.27	.32	−.09	−.90, .37	−0.83		
Restrictive attitudes	−.55	.42	−.13	−1.37, .28	−1.31		
Partner's sexual abuse	.83	.72	.09	−.59, 2.25	1.16		
Power beliefs	.15	.31	.04	−.47, .76	0.48		
Undesirability schemas	−.19	.33	−.07	−.84, .47	−0.57		
Incompetence schemas	−.40	.25	−.20	−.89, .09	−1.61		
Self-deprecation schemas	.04	.78	.01	−1.5, 1.6	0.05		
Difference schemas	−.48	.40	−.12	−1.27, .31	−1.20		
Helpless schemas	−.23	.76	−.04	−1.73, 1.26	−0.31		
Failure anticipation	.02	.41	.01	−.79, .84	0.06		
Erection concerns	−.16	.32	−.05	−.80, .48	−0.50		
Age-related thoughts	.60	.55	.12	−.49, 1.69	1.09		
Negative thoughts	.17	.51	.03	−.83, 1.17	0.33		
Lack erotic thoughts	−1.22	.32	−.32	−1.86, −.58	−3.78***		
Positive affect	.26	.18	.13	−.09, .61	1.47		
Negative affect	−.24	.23	−.11	−.69, .21	−1.04		

*p <.05, **p <.01, ***p <.001

functioning for both groups, when sociodemographic variables were controlled for, which corroborated our hypothesis and was consistent with previous studies (Harris et al., 2008; Kennedy et al., 1999; Peixoto & Nobre, 2016). For process variables, the incompetence schema was reported as a significant and negative predictor of lesbian women and heterosexual women's sexual functioning, which corroborate our hypothesis and is consistent with previous data (e.g., Nobre & Pinto-Gouveia, 2009a; Oliveira & Nobre, 2013). Additionally, for sexual cognitions, current and previous studies suggest that erotic thoughts during sexual activity are significant predictors of heterosexual women's sexual functioning (e.g., Nobre & Pinto-Gouveia, 2008). However, results for the lesbian group indicate that negative thoughts significantly predict lower sexual functioning but not the absence of pleasurable thoughts. Moreover, positive affect during sexual activity was a significant positive predictor of lesbian and heterosexual women's sexual functioning, as expected (Nobre & Pinto-Gouveia, 2006b).

The regression model for gay men group revealed that both neuroticism and introversion were significant and negative predictors, above and beyond sociodemographic variables. As expected, personality traits appear to act as dispositional predictors of gay men's sexual functioning, which is consistent with previous findings (Peixoto & Nobre, 2016; Quinta-Gomes & Nobre, 2011). Contrary to our expectation, when dysfunctional sexual beliefs were added to the regression model of gay men group, no significant predictive role was found. An identical result occurs when cognitive schemas were added to the regression equation. This finding may suggest that personality traits, by themselves, did not moderate the role of activation of cognitive schemas for gay men's sexual functioning. Personality traits no longer remained as significant predictors, when other cognitive dimensions were controlled for. Overall, for gay men, failure anticipation thoughts and lack of erotic thoughts were the strongest and negative predictors, above all and beyond other cognitive and emotional dimensions.

For gay men, thoughts related to failure anticipation during sexual encounters, and lack of pleasurable thoughts during sexual activity played a significant role in predicting poorer sexual functioning. These findings were in line with previous

research; nevertheless, erection concern thoughts have also been reported as significant for men sexual functioning (e.g., Nobre & Pinto-Gouveia, 2006b), but in our study, erection concern thoughts did not appear as a significant predictor for gay men's sexual functioning. A possible explanation for this result could be that gay men may adopt different sex roles during sexual intercourse: insertive role (top), receptive role (bottom), or the versatile role (Moskowitz, Rieger, & Roloff, 2008). It is possible that, when a receptive or versatile role was adopted, fewer erection concerns occur, which may contribute to current findings.

For the heterosexual men group, regression model showed that only introversion appeared to be a significant and negative predictor, which partially corroborated our hypothesis and previous data (Quinta-Gomes & Nobre, 2011), not supporting the role of neuroticism in predicting sexual functioning. When cognitive schemas were added to the equation regression, the incompetence schema was a sole significant and negative predictor of sexual functioning, as expected (Quinta-Gomes & Nobre, 2012a), corroborating our hypothesis. Nevertheless, personality traits no longer remained as significant predictors, when other cognitive dimensions were controlled for. In the final step, when automatic thoughts and affective states were added to the equation regression, only lack of erotic thoughts emerge as significant and negative predictor of sexual functioning. This finding partially support our hypothesis (Nobre & Pinto-Gouveia, 2006b, 2008), not founding empirical support for the role of erection concern and failure anticipation thoughts in the heterosexual men group.

Globally, data from the gay men and the heterosexual men groups highlighted the predictive role of dispositional and process variables in sexual functioning, particularly personality traits, namely introversion, and negative automatic thoughts related to sexual context and a poor repertory of erotic thoughts. These findings are in line with previous data about cognitive-emotional predictors of sexual functioning in heterosexual men (e.g., Nobre, 2013) and suggest that similar cognitive processes are also common in gay men. Absence or lack of erotic thoughts during sexual activity was the core dimension for both gay and heterosexual men, which is consistent with previous data on cognitive interference of sexual functioning (Barlow, 1986; Lacefield & Negy, 2012).

Additionally, for all groups, age, marital status and educational level did not predict sexual functioning. Previous research suggested that sociodemographic characteristics have a negative impact on sexual functioning (e.g., Laumann, Paik & Rosen, 1999), and a possible explanation for our findings could be the lower variability of these variables in our sample. Therefore, due to some limitations, the current findings should be generalized with caution. As an online-sample was used, only individuals with internet access were able to participate. Our sample is constituted by young participants. Conservative attitudes toward sex may be related to more conventional education, and older individuals may endorse more dysfunctional sexual beliefs, which can also interfere in the emergence of sexual dysfunction. Additionally, although sociodemographic characteristics have been assessed and controlled, no medical or psychological assessment was conducted or controlled for. Further research is still needed, not only to overcome current limitations but to broadly explore how cognitive-emotional dimensions' impact lesbian women and gay men's sexual functioning. Sexual beliefs particularly targeting internalized homophobia and sexual minorities need to be explored and better understood. As noted in the current study, the variance of sexual functioning explained for gay men was lower when compared to other groups. Future studies should address these topics for a better understanding of gay men' sexuality. It is possible that other cognitive dimensions, for instance, automatic thoughts related to HIV or other ISTs infection (Lacefield & Negy, 2012), may interfere with sexual functioning.

Although some limitations can be acknowledged, current findings represent one of the first attempts to assess the predictive role these specific cognitive-emotional dimensions of lesbian women and gay men's sexual functioning. Overall, findings supported the main role played by cognitive-emotional factors and particularly negative automatic thoughts in predicting lesbians and gay men' sexual functioning. Considering that cognitive-behavioral interventions for sexual dysfunction address sexual beliefs and sexual cognitions during sexual activity, findings from this research raise support for the consistent use of cognitive-behavior therapy in treating lesbian women and gay men with sexual difficulties.

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Compliance with Ethical Standards

Conflict of interest The authors declare that they have no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the studies.

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