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# Sexual Compulsive Symptoms and General Psychopathology: Exploring the Role of Sexual Orientation in Men

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## ABSTRACT

Sexual compulsivity symptoms are more common in men than in women. However, there is less evidence on the role of other relevant variables such as sexual orientation and general psychopathology. The present study aimed to assess the relationship between psychopathological and sexual compulsivity symptoms in heterosexual, gay, or bisexual men. A total of 564 adult's men completed an assessment including sociodemographic variables, the Sexual Compulsivity Scale (SCS), and the Symptom Checklist-90-Revised (SCL-90-R). Results showed no significant differences in the SCS across sexual orientation groups. However, gay participants showed higher SCL-90-R general severity index (GSI), somatization, interpersonal sensitivity, anxiety, phobic anxiety, and psychoticism subscales compared to heterosexual men. Bisexual men had higher anxiety levels than gay men. Positive correlations between the SCS and SCL-90-R scores were present, regardless of sexual orientation. Multiple linear regression analysis identified GSI scores as predictors of SCS. In contrast, sexual orientation and age did not predict SCS. These findings suggest that there is an association between general psychopathology and symptoms of sexual compulsivity which is independent of sexual orientation, at least among men. Further research including clinical samples and women is needed to increase understanding in this field.

## Introduction

Compulsive Sexual Behavior Disorder (CSBD) is a mental disorder recently included in the 11th edition of the International Classification of Diseases (ICD-11; (World Health Organization, 2018)). CSBD is characterized by experiencing repetitive and intense sexual impulses, urges, and behavior that the individual fails to control and results in clinically significant distress and adverse consequences at multiple levels (Kraus et al., 2018). Compulsive sexual behaviors include but are not limited to, problematic

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pornography use (PPU) (Stark, Klucken, Potenza, Brand, & Strahler, 2018). CSBD has been classified as a behavioral addiction, impulse control disorder, or hypersexuality, although there is still no consensus in the scientific and clinical community regarding the definition and classification of CSBD (Bóthe, Koós, & Demetrovics, 2022; Gola et al., 2020; Kafka, 2010; Kraus, Voon, & Potenza, 2016; Potenza, Gola, Voon, Kor, & Kraus, 2017; Sassover & Weinstein, 2020). Despite the controversies around CSBD, there is a call for studies that include diverse populations, such as lesbian, gay, bisexual, and transgender individuals (Jennings, Gleason, & Kraus, 2022). In line with this need, the current study investigated sexual compulsivity symptoms and their relationship to general psychopathological symptoms among gay, bisexual and heterosexual men.

Sexual compulsive symptoms and CSBD have been reported more frequently among males than females (Kürbitz & Briken, 2021). However, sexual orientation, which refers to the sex of those to whom one is sexually and romantically attracted (APA, 2012), is another important factor to consider. The terms 'gay' or 'lesbian' refer to attraction to members of the same sex, and the term 'bisexual' refers to attraction to members of both sexes. A higher prevalence of gay, lesbian and bisexual orientations has been shown in men and women with CSBD compared with those without CSBD (Ballester-Arnal, Castro-Calvo, Giménez-García, Gil-Juliá, & Gil-Llario, 2020). Similarly, higher symptoms of hypersexuality have been shown in gay or bisexual men compared to heterosexuals (Bóthe et al., 2018; Kamolova, Chen, Etuk, Sacco, & Kraus, 2022). By contrast, others have reported a prevalence of 7.9% of CSBD among gay men, which is similar to that estimated in the general population (Gleason, Finotelli, Miner, Herbenick, & Coleman, 2021).

Research that focused on pornography use and PPU is heterogeneous. The majority of the studies suggested greater use of pornography among gay, lesbian and bisexual orientations than among heterosexuals (Bóthe et al., 2020; B. Træen & Daneback, 2013; Træen, Nilsen, & Stigum, 2010), and higher levels of self-perceived pornography addiction and PPU among gay and bisexual men than heterosexual ones (Borgogna, Griffin, Grubbs, & Kraus, 2022; Bóthe et al., 2018; Droubay & White, 2023; Kamolova et al., 2022). However, other studies have found no association between pornography use and sexual orientation, especially among men (Sanz-Barbero, Pérez-Martínez, Estévez-García, & Vives-Cases, 2023; zohor Ali, Muhammad, Jamil, Ahmad, & Abd Aziz, 2021).

Other studies investigated the relation between sexual orientation and sexual compulsive symptoms as assessed by the Kalichman sexual compulsivity scale (SCS) (Kalichman & Rompa, 1995). Data from a university sample showed higher SCS for lesbian than in heterosexual women, whereas no differences in the SCS were found between gay and heterosexual men

(Weinstein, Katz, Eberhardt, Cohen, & Lejoyeux, 2015). Another study in a clinical sample of men seeking treatment for CSBD did not show differences in the SCS scores when comparing heterosexuals to gay and bisexual patients (Scanavino et al., 2013). It should be noted that the SCS is specific to assessing sexual compulsivity and does not capture the full range of CSBD symptoms as contemplated by the emerging ICD-11 categorization (Reed et al., 2022). More recently, a large study using newer instruments to measure CSBD symptoms suggests no sexual orientation differences in community samples of males or females of various nationalities (Böthe et al., 2023). However, the role of sexual orientation in sexual compulsivity symptoms is not yet clear, and there is a need for studies directly comparing gay and bisexual orientations.

Comorbidity between CSBD and other psychopathologies has been frequently reported in both clinical and non-clinical samples, most often indicating co-occurrence of sexual compulsive symptoms with mood disorders, anxiety disorders, and obsessive-compulsive disorder (Ballester-Arnal et al., 2020; Kraus et al., 2017; Scanavino et al., 2013). Research shows that, on average, lesbian, gay and bisexual individuals are at higher risk of mental disorders, having high rates of psychological distress, depression, anxiety, and substance use disorders (Cochran, Sullivan, & Mays, 2003; Gilman et al., 2001; Jorm, Korten, Rodgers, Jacomb, & Christensen, 2002; King et al., 2003; Meyer, 2003; Sandfort, De Graaf, Bijl, & Schnabel, 2001; Warner et al., 2004). However, few studies have examined the association between sexual compulsive symptoms and psychopathology taking into account sexual orientation. In a community sample of gay and bisexual men with sexual compulsive symptoms, high comorbidity with Axis I psychiatric disorders was observed, although no heterosexual sample was recruited for direct comparison (Morgenstern et al., 2011). A study among men diagnosed with CSBD found that 72% of the sample had at least one Axis I psychiatric diagnosis, regardless of sexual orientation (Scanavino et al., 2013). More research is needed to understand the relationship between sexual compulsive symptoms and general psychopathology accounting for sexual orientation.

### ***The current study***

The purpose of the present study was to address the aforementioned gap in the understanding of the role of sexual orientation in sexual compulsivity symptoms, general psychopathology, and the associations between these factors. To this end, we explored sexual compulsivity and general psychopathology in a community sample of heterosexual, gay, and bisexual men. The SCS was used as a measure of sexual compulsive symptoms and the Symptom Checklist-90 Revised (SCL-90-R) as a measure of

psychopathological symptoms. First, we might expect to find no differences between gay and heterosexual men in SCS, as showed in previous studies using this scale (Scanavino et al., 2013; Weinstein et al., 2015). Exploratory comparisons are also made between bisexuals and the other two orientations without an a priori hypothesis. Second, we predict to find higher SCL-90-R scores in the sexual minority groups (i.e. gay and bisexuals) compared to heterosexuals, which is consistent with previous literature. Finally, the associations between general psychopathology and sexual compulsive symptoms will be studied, and significant predictors of sexual compulsive symptoms will be identified, including sexual orientation, age, and general psychopathology.

## **Method**

### ***Participants***

Participants were recruited using snowball sampling through the author's professional networks, dissemination through social networks (e.g. Facebook; Instagram, LinkedIn), and by contacting public and private lesbian, gay, transsexual, and bisexual (LGBT) associations in different regions of Spain. Eligibility criteria included 1) being at least 18 years old and giving; 2) being male (biological sex at birth); 3) signing the informed consent to take part in the study.

Five hundred and seventy-two men participated in the study. Of these, 409 reported their sexual orientations as 'heterosexual', 108 'gay', 47 'bisexual', and 8 'others'. As the small number of people with 'other sexual orientation' made it difficult to draw statistical conclusions, we excluded these 8 participants from the study. The final sample consisted of 564 men who identified with one of three sexual orientations: heterosexual, gay, and bisexual.

### ***Materials and method***

The variables of interest collected by the survey included sociodemographic data, sexual compulsive symptoms, and general psychopathological symptoms.

#### ***Sexual compulsivity scale (SCS)***

The SCS is a 10-item scale that assesses obsessive and intrusive sexual thoughts and out-of-control sexual behaviors (Ballester-Arnal, Gómez-Martínez, Llarío, & Salmerón-Sánchez, 2013; Kalichman & Rompa, 1995). Responses are given on a 4-point Likert scale, and the total score is the sum of all items (ranging from 10 to 40). Higher scores indicate greater

sexual compulsivity symptoms. A cutoff score  $\geq 24$  has been suggested to indicate problematic sexual behaviors (Hook, Hook, Davis, Worthington, & Penberthy, 2010). The internal consistency of the Spanish adaptation of the SCS is good (Cronbach's  $\alpha = .837$ ). In the present sample, good internal consistency was also reported for the total score of the scale (Cronbach's  $\alpha = .866$ ).

### ***Symptom checklist-90 revised (SCL-90-R)***

The SCL-90-R is a self-report questionnaire to assess global psychopathology (Derogatis, 1994). By using 90 items, it measures nine symptom dimensions and three global indices. The global severity index (GSI) is used for measuring psychopathological distress, which is a direct indicator of the severity of the symptoms. The other subscales of the SCL-90-R include somatization, interpersonal sensitivity, anxiety, phobic anxiety, psychoticism, obsession and compulsion, depression, hostility, and paranoid ideation. The Spanish-adapted version of the SCL-90-R was used here (González de Rivera, 2001), which demonstrated good internal consistency (Cronbach's  $\alpha$  between 0.79 and 0.93). Cronbach's  $\alpha$  in the present sample was excellent ( $\alpha$  GSI = .097).

### ***Procedure***

In this cross-sectional study, participants were given access to the online survey *via* an online link. By accepting the study conditions, they were asked to provide their age, level of education, biological sex at birth, and marital status. Sexual orientation was assessed by asking about sexual orientation with four possible responses: 1) heterosexual; 2) gay; 3) bisexual; 4) other. Participants then completed the SCS and SCL-90-R questionnaires.

### ***Ethics***

In accordance with the Declaration of Helsinki, the study protocol was approved by the Ethics Committee of the University of San Pablo-CEU (465/20/TFM). Participants were fully informed about the study and provided their informed consent.

### ***Statistical analysis***

Data analysis was performed using SPSS (version 25). Cronbach's alpha was used to calculate the internal consistency of the SCL-90-R and SCS in the sample. As indicated in the method, this ranged from good to

excellent. Descriptive statistics are reported as percentages for categorical variables and as means and standard deviations for continuous variables. Group comparisons by sexual orientation group were analyzed by Chi-squared ( $\chi^2$ ) for categorical variables. The effect size for the comparisons was defined based on the Cramer-V coefficient (Cohen, 1988) indicating null-low effect size ( $C-V < 0.10$ ), moderate-mild ( $C-V < 0.10$ ), and large-high ( $C-V > 0.30$ ). Analysis of variance (ANOVAs) was used for continuous variables. Partial-eta-squared coefficients were calculated and interpreted as low-poor ( $\eta^2 > 0.06$ ), moderate-mild ( $\eta^2 > 0.10$ ), and large-high ( $\eta^2 > 0.25$ ) (Levine & Hullett, 2002). Pearson's correlations were performed to study the association between the SCL-90-R and the SCS in the sample as a whole and in the groups of sexual orientation (heterosexual, gay, bisexual). A multiple linear regression was calculated to predict the SCS scores, based on age, SCL-90-R global severity index (GSI), and sexual orientation (a dummy variable was used to represent sexual orientation: 0 = gay, 1 = bisexual, 2 = heterosexual).

## Results

### Characteristics of the sample

Sociodemographic characteristics for each group are represented in Table 1. The total sample consisted of 564 men, of which 409 identified themselves as heterosexual (72.5%), 108 as gay (19.1%), and 47 as bisexual (8.3%). The mean age for the total sample was  $32.4 \pm 14.9$  years old, with no significant differences between groups of sexual orientation ( $F_{2,563} = .176$ ,  $p = .173$ ,  $\eta^2 = .006$ ). The majority were single (78.9%), with high education level (77.7%). No differences in education level were shown across sexual orientations ( $X^2_{4,564} = 1.99$ ,  $p = .738$ ,  $C-V = .042$ ). Sexual orientation was associated with marital status ( $X^2_{4,564} = 16.44$ ,  $p = .002$ ,  $C-V = .121$ ),

**Table 1.** Descriptive of the sample.

	Total Sample <i>n</i> = 564		Heterosexual <i>n</i> = 409		Gay <i>n</i> = 108		Bisexual <i>n</i> = 47		<i>p</i>	C-V
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%		
Education:									.738	.042
Primary	9	1.6%	8	2%	1	.925%	0	0%		
Secondary	117	20.7%	87	21.3%	22	20.4%	8	17%		
University	438	77.7%	314	76.8%	85	78.7%	39	83%		
Marital status:									.002**	.121
Single	445	78.9%	306	74.8%	97	89.8%	42	89.4%		
Married	102	18.1%	89	21.8%	10	9.3%	3	6.4%		
Divorced	17	3%	14	3.4%	1	0.9%	2	4.3%		
	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>p</i>	$\eta^2$
Age (yrs)	32.4	14.9	32.4	16.6	34.1	9.5	29.1	8.3	.173	.006

Note. yrs: years old SD: standard deviation. C-V: Cramer-V.  $\eta^2$ : Partial-eta-square.

\* $p < .05$ .

\*\* $p < .01$ .

with the heterosexual group presenting higher frequencies of married and lower frequencies of singles, whereas the gay group showed higher frequencies of single individuals.

### Groups comparisons

Mean scores and standard deviations of the SCS and SCL-90-R are reported in Table 2. Participants scoring higher on the SCS than the cutoff for problem behaviors corresponded to 10.5% of the sample. No significant differences between sexual orientation group (heterosexual = 10.3%, gay = 7.4%, bisexual = 19.1%,  $X^2_{2,564} = 4.879$ ,  $p = .087$ ,  $C-V = .093$ ).

The ANOVA on the SCS total score did not show a significant effect of sexual orientation ( $F_{2,561} = .491$ ,  $p = .612$ ;  $\eta^2 = .002$ , Table 2). Although higher mean scores were observed in the bisexual group, no significant group differences in SCS scores were shown. The ANOVA on GSI of the SCL-90-R showed a significant main effect of sexual orientation ( $F_{2,561} = 5.04$ ,  $p = .007$ ;  $\eta^2 = .018$ , Table 2). Post-hoc showed significantly higher GSI scores in the gay group compared to the heterosexual orientation group ( $p = .004$ ), but no significant differences between gay and bisexual ( $p = .762$ ) or heterosexual and bisexual ( $p = .090$ ). The ANOVAs on the subscales of the SCL-90-R showed an effect of sexual orientation for somatization ( $F_{2,561} = 7.11$ ,  $p = .001$ ;  $\eta^2 = .025$ ), interpersonal sensitivity ( $F_{2,561} = 5.14$ ,  $p = .006$ ;  $\eta^2 = .018$ ), anxiety ( $F_{2,561} = 6.26$ ,  $p = .002$ ;  $\eta^2 = .022$ ), phobic anxiety ( $F_{2,561} = 4.93$ ,  $p = .007$ ;  $\eta^2 = .017$ ), psychoticism ( $F_{2,561} = 4.61$ ,  $p = .01$ ;  $\eta^2 = .016$ ). No significant effect of sexual orientation was shown for obsession and compulsion ( $F_{2,561} = 1.507$ ,  $p = .222$ ;  $\eta^2 = .005$ ), depression ( $F_{2,561} = 2.72$ ,  $p = .066$ ;  $\eta^2 = .010$ ), hostility ( $F_{2,561} = .324$ ,  $p =$

**Table 2.** SCS and SCL-90-R scores comparisons by sexual orientation.

	Sexual orientation			Group effect
	Heterosexual ( <i>n</i> = 409)	Gay ( <i>n</i> = 108)	Bisexual ( <i>n</i> = 47)	<i>p</i>
	Mean (SD)	Mean (SD)	Mean (SD)	
SCS total score	16.01 (5.29)	15.73 (5.52)	16.66 (5.53)	.612
SCL-90-R GSI	.737 (.619)	.940 (.735)	.906 (.638)	<b>.007**</b>
SCL-90-R Somatization	.507 (.610)	.750 (.772)	.696 (.602)	<b>.001**</b>
SCL-90-R Obsession Compulsion	1.05 (.860)	1.21 (.906)	1.16 (.914)	.222
SCL-90-R Interpersonal sensitivity	.852 (.748)	1.10 (.859)	1.01 (.695)	<b>.006**</b>
SCL-90-R Anxiety	.691 (.715)	.944 (.805)	.929 (.837)	<b>.002**</b>
SCL-90-R Hostility	.668 (.710)	.729 (.760)	.666 (.623)	.723
SCL-90-R Phobic anxiety	.204 (.472)	.371 (.672)	.333 (.626)	<b>.007**</b>
SCL-90-R Paranoid ideation	.729 (.793)	.903 (.856)	.923 (.862)	.066
SCL-90-R Psychoticism	.588 (.672)	.795 (.763)	.761 (.637)	<b>.01**</b>

Note. SD: standard deviations; SCS: sexual compulsivity scale; GSI: global severity index.

\*  $p < .05$ .

\*\* $p < .01$ .

.723;  $\eta^2 = .001$ ), paranoid ideation ( $F_{2,561} = 2.79$ ,  $p = .066$ ;  $\eta^2 = .010$ ). Post-hoc contrasts for significant effect showed significantly higher scores in gays compared to heterosexuals for somatization ( $p = .001$ ), interpersonal sensitivity ( $p = .002$ ), anxiety ( $p = .002$ ), phobic anxiety ( $p = .004$ ) and psychoticism ( $p = .006$ ). Anxiety was also significantly higher in bisexuals than heterosexuals ( $p = .038$ ). Somatization was higher for bisexuals than heterosexuals but only at a marginally significant level ( $p = .056$ ). No significant differences were observed in SCL-90-R subscales between bisexual and gay orientations.

### Correlations

A full correlation matrix for the SCS and SCL-90-R scores is presented in Table 3. For the total sample, the SCS score positively correlated with GSI score and with all the scores of the SCL-90-R subscales. Correlations by groups of sexual orientation are presented in Table 3 showing that: 1) for the heterosexual group, scores in the SCS positively correlated with all the subscales of the SCL-90-R; 2) for the gay group, the SCS scores positively correlated with all SCL-90-R subscales, except somatization and phobic anxiety; 3) for the bisexual group, the SCS scores positively correlated with all SCL-90-R subscales, except somatization, anxiety and phobic anxiety.

**Table 3.** Pearson's correlations between SCL-90-R and SCS scores.

	SCS total score			
	Total Sample $n = 564$	Heterosexual $n = 409$	Gay $N = 108$	Bisexual $N = 47$
SCL-90-R	.400**	.431**	.317	.423*
GSI				
SCL-90-R	.233**	.237**	.176	.433*
Somatization				
SCL-90-R	.428**	.448**	.363**	.435*
Obsession and compulsion				
SCL-90-R	.377**	.417*	.317**	.261
Interpersonal sensitivity				
SCL-90-R	.327**	.347**	.272**	.331*
Depression				
SCL-90-R	.340**	.385**	.250**	.267
Anxiety				
SCL-90-R	.419**	.424**	.398**	.454*
Hostility				
SCL-90-R	.176**	.235**	.043	.173
Phobic anxiety				
SCL-90-R	.332**	.353**	.268**	.330*
Paranoid ideation				
SCL-90-R	.438**	.449**	.396**	.518**
Psychoticism				

Note: SD: standard deviation; SD: standard deviations; SCS: sexual compulsivity scale; GSI: global severity index.

\*  $p < .05$ .

\*\* $p < .01$ .

## Regression

A significant regression equation was found ( $F_{3,560} = 35.98, p = .0001$ ) with an  $R^2$  of .162. GSI was a significant predictor of SCS scores, whereas sexual orientation and age did not (see Table 4). Standardized co-efficient show that increases in GSI was associated with an increase in participants' SCS total scores.

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## Discussion

The present study was designed to assess the sexual compulsive symptoms and general psychopathology in men with heterosexual, gay, or bisexual orientations and to investigate the relationship between the sexual compulsivity and general psychopathology.

Firstly, no significant differences in the SCS scores were observed across different sexual orientations. This finding corroborates the results of a previous study by Weinstein et al. (2015) that also found no significant disparities in SCS scores between gay and heterosexual men (Weinstein et al., 2015). This aligns with other studies suggesting that sexual orientation does not affect the prevalence of CSBD (Gleason et al., 2021). Similarly, a large study in 42 countries no sexual orientation based differences were present in CSBD levels (Bóthe et al., 2023). Although other evidence suggests a higher presence of CSBD and PPU in gay, lesbian and bisexuals individuals compared to heterosexuals (Ballester-Arnal et al., 2020; Borgogna et al., 2022; Bóthe et al., 2018; Droubay & White, 2023; Kamolova et al., 2022), the majority of this research has been focused on measured of pornography addiction rather than sexual compulsivity. Furthermore, discrepancies in the results may be partially attributed to differences in sample characteristics (e.g. clinical vs community sample, the biological sex of the sample) (Kürbitz & Briken, 2021). Overall, the current findings suggest that sexual orientation, distinct from biological sex, may not be a significant contributor to sexual compulsivity symptoms in men, as similar sexual compulsivity symptoms were found in adult men from both heterosexual and gay/bisexual groups.

**Table 4.** Predictors of SCS.

	b	SE	Beta	p
Constant	<b>13.17</b>	<b>.589</b>	-	-
SCL-90-R GSI	<b>3.390</b>	<b>.324</b>	<b>.411</b>	<b>&lt;.01</b>
Age	.011	.014	.029	.452
Sexual orientation (Gay)	-0.985	.563	-0.072	.067
Sexual orientation (Bisexual)	.111	.759	.006	.884

Note. Bold, significant parameters.

b=unstandardized coefficient; SE: standard error; Beta=standardized regression coefficient.

Higher levels of psychopathological symptoms were shown in gay men as compared to those with the heterosexual ones. Moreover, bisexual men showed higher levels of anxiety than heterosexuals. Therefore, gay or bisexual men in the community may be at higher risk of presenting symptoms of psychopathology than heterosexual men, in line with previous evidence (Cochran et al., 2003; Gilman et al., 2001; Jorm et al., 2002; King et al., 2003; Meyer, 2003; Sandfort et al., 2001; Warner et al., 2004). This suggests that could be particularly relevant to assess the risk for psychopathology in a community sample with a gay or bisexual orientation. By contrast, a study conducted on men seeking treatment for CSBD showed similar levels of psychiatric comorbidities regardless of sexual orientation (Scanavino et al., 2013). However, important sample differences should be taken into account, since Scanavino included patients diagnosed with CSBD presenting particularly high scores of SCS. Clinical samples may be more likely to present a higher rate of comorbid disorders, regardless of other variables such as biological sex and sexual orientation. In contrast, we collected data from a community sample with low to moderate levels of SCS and subclinical levels of psychopathological symptoms.

Nevertheless, psychopathology was associated with sexual compulsive symptoms, indicating that men with higher psychopathological symptoms had higher SCS scores. Specifically, the regression model suggested that greater severity of general psychopathological symptoms predicted higher levels of sexual compulsive symptoms, independent of other variables such as sexual orientation and age. Similar results were found in clinical samples, indicating that comorbid mood disorders in patients with CSBD significantly predicted higher SCS scores (Scanavino et al., 2013). Therefore, sexual compulsive symptoms and CSBD appear to be closely related to general psychopathology, as observed for other impulsive/compulsive and uncontrolled behaviors. For instance, general psychopathological symptoms, especially depressive symptoms, have been related to problem gambling and gaming (Richard, Fletcher, Boutin, Derevensky, & Temcheff, 2020), excessive internet use (Carli et al., 2013), and compulsive buying (Mestre-Bach, Steward, Jiménez-Murcia, & Fernández-Aranda, 2017).

From a clinical perspective, these results highlight the importance of a comprehensive assessment of psychopathological symptoms in the evaluation of sexual compulsive symptoms in general and CSBD. This would help the development of integrative interventions that cover the possible co-presence of psychopathology, especially mood and anxiety disorders. Special attention should be paid to individuals with gay and bisexual orientation, which could be more at risk of presenting psychopathological symptoms, possibly because of the stigma and discrimination (Moleiro & Pinto, 2015). Identifying not only sex differences in sexual compulsive

symptoms and CSBD but also differences based on sexual orientation is important to provide more effective and adaptive treatments.

These results should be interpreted in light of several limitations. Firstly, participants scored moderately on the SCS, possibly indicating that this sample experienced relatively low levels of problem behavior. To overcome this bias, recruitment in future studies should be restricted to clinical samples seeking treatment for sexual compulsive symptoms or, to individuals in the community with self-reported sexual compulsive symptoms. In addition, the results are only presented for men and therefore cannot be generalized to women. Although the prevalence of sexual compulsive symptoms is higher in gay/bisexual men than in lesbian women (Kelly, Bimbi, Nanin, Izienicki, & Parsons, 2009; Missildine, Feldstein, Punzalan, & Parsons, 2005), it would be interesting to investigate how sexual orientation is related to sexual compulsive symptoms also in women. Furthermore, the sample sizes for gay and especially bisexual groups were smaller than for heterosexuals. Despite these limitations, this study contributes significantly to the understanding of the relationship between sexual compulsive symptoms and psychopathology in men, taking into account sexual orientation.

In conclusion, a higher risk for psychopathological symptoms, but not for sexual compulsive symptoms, is suggested for men with gay and bisexual orientation compared to heterosexual orientation. Psychopathological symptoms were associated with sexual compulsive symptoms and predicted higher SCS scores, regardless of sexual orientation or age. Overall, the results suggest that screening for general psychopathology is recommended when assessing sexual compulsive symptoms, with special attention to individuals with a gay or bisexual orientation.

### Disclosure statement

No potential conflict of interest was reported by the authors.

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