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FULL-LENGTH REPORT

Compulsive sexual behavior disorder in 42 countries: Insights from the International Sex Survey and introduction of standardized assessment tools

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ABSTRACT

Background and aims: Despite its inclusion in the 11th revision of the International Classification of Diseases, there is a virtual paucity of high-quality scientific evidence about compulsive sexual behavior disorder (CSBD), especially in underrepresented and underserved populations. Therefore, we comprehensively examined CSBD across 42 countries, genders, and sexual orientations, and validated the original (CSBD-19) and short (CSBD-7) versions of the Compulsive Sexual Behavior Disorder Scale to provide standardized, state-of-the-art screening tools for research and clinical practice. *Method:* Using data from the International Sex Survey (N = 82,243; M_{age} = 32.39 years, SD = 12.52), we evaluated the psychometric properties of the CSBD-19 and CSBD-7 and compared CSBD across 42 countries, three genders, eight sexual orientations, and individuals with low vs. high risk of experiencing CSBD. *Results:* A total of 4.8% of the participants were at high risk of experiencing CSBD. Country- and gender-based differences were observed, while no sexual-orientation-based differences were present in CSBD levels. Only 14% of individuals with CSBD have ever sought treatment for this disorder, with an additional 33% not having sought treatment because of various reasons. Both versions of the scale demonstrated excellent validity and reliability. *Discussion and conclusions:* This study contributes to a better understanding of CSBD in underrepresented and underserved populations and facilitates its identification in diverse populations by providing freely accessible ICD-11-based screening tools in 26 languages. The findings may also serve as a crucial building block to stimulate research into evidence-based, culturally sensitive prevention and intervention strategies for CSBD that are currently missing from the literature.

KEYWORDS

addictive behavior, assessment, compulsive sexual behavior, cross-cultural, International Sex Survey (ISS), validation

INTRODUCTION

Compulsive sexual behavior disorder (CSBD; also referred to as sex addiction, hypersexual disorder/hypersexuality, sexual compulsivity, sexual impulsivity, or out-of-control sexual behaviors) is included in the 11th revision of the International Classification of Diseases (ICD-11) (World Health Organization, 2022). According to the new diagnostic guidelines (Kraus et al., 2018; World Health Organization, 2022), CSBD is characterized by repetitive, poorly controlled engagement in sexual impulses, urges, and behaviors (e.g., pornography use). For a diagnosis of CSBD, these sexual behaviors should result in clinically significant distress, neglect of responsibilities, interests, and health, and cause significant impairment in critical areas of functioning. Notably, people with CSBD derive little or no satisfaction from their sexual activities and often make unsuccessful efforts to reduce or stop their behavior. However, this diagnosis is still new with several theoretical and methodological limitations and essential questions that have yet to be addressed (Bőthe, Koós, & Demetrovics, 2022; Grubbs et al., 2020). Fundamental concerns involve the lack of data about CSBD outside Western, Educated, Industrialized, Rich, and Democratic (WEIRD) countries, among women and gender diverse individuals, and sexually diverse individuals as well (Grubbs et al., 2020; Klein, Savaş, & Conley, 2021).

Until now, only a few studies examined the prevalence of CSBD among nationally representative samples and all were conducted in Western countries (i.e., the United States, Germany, Hungary, and Poland), limiting the generalizability of their results. Based on these studies' findings, 3–10% of men and 2–7% of women might experience CSBD (Briken et al., 2022; Bőthe et al., 2020; Dickenson, Gleason, Coleman, & Miner, 2018; Grubbs et al., 2023; Lewczuk et al., 2022). Thus, CSBD might be as prevalent as other psychiatric disorders (e.g., mood or substance use disorders) (Steel et al., 2014). Yet, it has received significantly less scientific attention than the aforementioned disorders (Grubbs et al., 2020).

Although most studies investigating CSBD focus predominantly on cisgender (i.e., an individual whose sex assigned at birth aligns with their gender identity; Perzanowski, Ferraiolo, & Keuroghlian, 2020) men (Grubbs et al., 2020), CSBD is likely to be present in women and gender-diverse individuals as well. Women and gender-diverse individuals can experience similar adverse consequences from CSBD (Bőthe et al., 2018, 2020; Koós et al., 2021; Kowalewska, Gola, Kraus, & Lew-starowicz, 2020), though gender-diverse individuals are often excluded from studies due to insufficient sample sizes (Jennings, Gleason, & Kraus, 2022). Regarding sexual orientation, most CSBD studies either did not report participants' sexual orientation, reported a blend of sexual orientations, or focused solely on heterosexual or gay men (Grubbs et al., 2020; Jennings et al., 2022). This approach is problematic since individuals with different sexual orientations may experience sexuality and CSBD in different ways and be diagnosed and treated differently (Jennings et al., 2022). In previous CSBD studies focusing on sexual orientation (Bőthe et al., 2018; Koós et al., 2021), all individuals with diverse sexual identities (e.g., bisexual individuals, gay or lesbian individuals) were merged into one sexual minority group. Such an approach may lead to biased results as crucial differences and disparities have been documented between individuals with different sexual orientations. There is ample evidence that bisexual or both-gender attracted individuals are facing more mental health challenges than lesbian/gay or exclusively same-gender attracted individuals (Költő et al., 2019; Persson & Pfaus, 2015). These findings highlight the importance of considering individuals with different sexual orientations as unique groups in research and clinical settings as well.

Apart from the general focus on WEIRD countries and heterosexual, cisgender men in psychiatric, psychological, and sex research (Baxter, Patton, Scott, Degenhardt, & Whiteford, 2013; Cheon, Melani, & Hong, 2020; Klein et al., 2021), another potential explanation for the relative lack of studies focusing on the prevalence and other aspects of CSBD in diverse populations is the absence of a valid, inclusive, and standardized assessment tool for CSBD. To date,

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the only comprehensive scale assessing all criteria of the ICD-11-based CSBD diagnosis is the Compulsive Sexual Behavior Disorder Scale (CSBD-19) (Bőthe et al., 2020; Grubbs et al., 2023). The CSBD-19 was developed via international collaboration and validated in four independent samples with more than 9,000 participants, including one nationally representative sample. The scale includes five factors representing each diagnostic criterion: control, salience, relapse, dissatisfaction, and negative consequences. It demonstrated strong psychometric properties and has a reliable cut-off score that can identify individuals likely to experience CSBD. Still, the CSBD-19's psychometric properties have almost exclusively been tested in WEIRD countries, warranting critical investigation (Bőthe et al., 2020; Khayer, Rad, Bőthe, & Farnam , 2023). Although no previous large-scale, cross-cultural studies focused on comparing CSBD across countries, differences may be hypothesized given different levels of religiosity, attitudes, and cultural norms regarding sexuality in different countries (Lewczuk, Nowakowska, Lewandowska, Potenza, & Gola, 2021; Mestre-Bach, Blycker, Actis, Brand, & Potenza, 2021). For example, in cultures that are more conservative in their approach to sexual matters, individuals may experience higher levels of self-perceived CSBD due to stricter values or other factors (Chen et al., 2022; Islam et al., 2022; Lewczuk, Glica, Nowakowska, Gola, & Grubbs, 2020; Vaillancourt-Morel & Bergeron, 2019), warranting further research.

Therefore, to provide an overview of CSBD across 42 countries from five continents and fill these gaps in the literature, first, we comprehensively validated the CSBD-19 and the newly developed, short version of it (CSBD-7). It is essential to validate and examine a scale's psychometric equivalence across groups before conducting any comparisons to reduce the possibility of biases, invalid conclusions, and potentially misleading implications (Jeong & Lee, 2019). Then, we compared CSBD across country-, gender-, and sexual-orientation-based groups, and examined differences in a variety of sexual behaviors between individuals at low vs. high risk of experiencing CSBD. As no prior large-scale, cross-cultural study was conducted on CSBD, we could not set formal hypotheses. However, based on previous findings, we hypothesized that men would report higher CSBD scores than women (Bőthe et al., 2020; Kingston et al., 2020). All other research questions of this study were examined in an exploratory manner.

METHOD

The supplemental materials include a detailed description of the method and results, and present complementary tables as well.

Procedure

We used data from the International Sex Survey (ISS), which is a large, collaborative, cross-sectional, self-report study using rigorous, preregistered (https://osf.io/uyfra/?view_only = 6e4f96b748be42d99363d58e32d511b8) methods across 42 countries in 26 languages (Bőthe et al., 2021).[1] Data were collected between October 2021 and May 2022. As described in detail in the study protocol (Bőthe et al., 2021), collaborators used standardized materials (e.g., templates of emails, advertisement texts, and posters) and contacted large, nationwide popular news websites in their country to advertise the study. Collaborators offered exclusive results to advertising partners in exchange for the study advertisement (i.e., a one- or two-paragraph-long description of basic descriptive information about the sample collected in their country). This recruitment strategy worked well in some countries (e.g., Hungary), while it was not fruitful in others (e.g., Canada). Therefore, in these latter countries, collaborators used additional recruitment strategies (e.g., targeted social media advertisements, advertisements on sexuality-related forums, and survey panels) to reach the target sample size. Participants who responded to the study advertisements completed an anonymous survey on the Qualtrics Research Suite (Qualtrics, 2022), which took approximately 25 to 45 minutes. The list of all collaborating countries, the detailed description of the translation and data collection procedures, data cleaning procedures, and the eligibility criteria are described in the study protocol (Bőthe et al., 2021). All participants provided informed consent. Although the ISS follows open-science practices, as it includes data on sensitive topics; therefore, the dataset is not publicly available. However, the corresponding author may provide data upon justified request.

Participants

A total of 82,243 participants (M_{age} = 32.39 years, SD = 12.52) were included in the final dataset. Most participants were women (n = 46,874; 57.0%), followed by men (n = 32,549; 39.6%), and gender-diverse individuals (n = 2,783; 3.4%). Most participants were heterosexual (n = 56,125; 68.2%), while 31.5% (n = 25,777) of the participants were sexually diverse (i.e., used other terms than heterosexual to describe their sexual orientation). Most participants completed tertiary education (e.g., university) (n = 60,896; 74.0%) and worked full-time (n = 42,981; 52.3%) (Table 1). Participants' detailed sociodemographic characteristics by country can be found at https://osf.io/n3k2c/?view_only=838146f6027c4e6bb68371d9d14220b5.

Measures

Compulsive Sexual Behavior Disorder Scale (CSBD-19). The CSBD-19 (Bőthe et al., 2020) is the only scale comprehensively assessing compulsive sexual urges,

[1]Definition of sex used for the CSBD-19: "For the purpose of this questionnaire, sex is defined as any activity or behavior that stimulates or arouses a person with the intent to produce an orgasm or sexual pleasure (e.g., self-masturbation or solo sex, using pornography, intercourse with a partner, oral sex, anal sex, etc.). Sexual behaviors may or may not involve a partner."

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Table 1. Participants' sociodemographic characteristics

Variables	N = 81,975–82,243	%
Country of residence		
Algeria	24	0.03
Australia	639	0.78
Austria	746	0.91
Bangladesh	373	0.45
Belgium	644	0.78
Bolivia	385	0.47
Brazil	3,579	4.35
Canada	2,541	3.09
Chile	1,173	1.43
China	2,428	2.95
Colombia	1,913	2.33
Croatia	2,390	2.91
Czech Republic	1,640	1.99
Ecuador	276	0.34
France	1,706	2.07
Germany	3,271	3.98
Gibraltar	64	0.08
Hungary	11,200	14.58
India	194	0.24
Iraq	99	0.12
Ireland	1,702	2.07
Israel	1,334	0.66
Italy	2,401	2.92
Japan	562	0.68
Lithuania	2,015	2.45
Malaysia	1,170	1.42
Mexico	2,137	2.60
New Zealand	2,834	3.45
North Macedonia	1,251	1.52
Panama	333	0.40
Peru	2,672	3.25
Poland	9,892	12.03
Portugal	2,262	2.75
Slovakia	1,134	1.38
South Africa	1,849	2.25
South Korea	1,464	1.78
Spain	2,327	2.83
Switzerland	1,144	1.39
Taiwan	2,668	3.24
Turkey	820	1.00
United Kingdom	1,412	1.72
United States of America	2,398	2.92
Other	1,177	1.43
Language		
Arabic	142	0.17
Bangla	332	0.40
Croatian	2,522	3.07
Czech	1,583	1.92
Dutch	518	0.63
English	13,994	17.02
French	3,941	4.79
German	3,494	4.25
Hebrew	1,315	1.60
Hindi	17	0.02
Hungarian	10,937	13.30
Italian	2,437	2.96
Japanese	466	0.57
Korean	1,437	1.75
Lithuanian	2,094	2.55
Macedonian	1,301	1.58
Mandarin – simplified	2,474	3.01
Mandarin – traditional	2,685	3.26
Polish	10,343	12.58
Portuguese – Brazil	3,650	4.44
Portuguese – Portugal	2,277	2.77
Slovak	2,118	2.58
Spanish – Latin America	8,926	10.85
Spanish – Spain	2,312	2.81
Turkish	853	1.04
Sex assigned at birth		
Male	33,245	40.43
Female	48,987	59.57
Gender (original answer options in the survey)		
Masculine/Man	32,549	39.58
Feminine/Woman	46,874	56.99
Indigenous or other cultural gender minority identity (e.g., two-spirit)	166	0.20
Non-binary, gender fluid, or something else (e.g., genderqueer)	2,315	2.81
Other	302	0.37
Gender (categories used in the analyses)		
Man	32,549	39.58
Woman	46,874	56.99
Gender-diverse individuals	2,783	3.38
Trans status		
No, I am not a trans person	79,280	96.43
Yes, I am a trans man	357	0.43
Yes, I am a trans woman	295	0.36
Yes, I am a non-binary trans person	881	1.07
I am questioning my gender identity	1,137	1.38
I don't know what it means	269	0.33
Sexual orientation (original answer options in the survey)		
Heterosexual/Straight	56,125	68.24
Gay or lesbian or homosexual	4,607	5.60
Heteroflexible	6,200	7.54
Homoflexible	534	0.65
Bisexual	7,688	9.35
Queer	957	1.16
Pansexual	1,969	2.39
Asexual	1,064	1.29
I do not know yet or I am currently questioning my sexual orientation	1,951	2.37
None of the above	807	0.98
I don't want to answer	308	0.37
Sexual orientation (categories used in the analyses)		
Heterosexual	56,125	68.24
Gay or lesbian	4,607	5.60
Bisexual	7,688	9.35
Queer and pansexual	2,926	3.56
Homo- and heteroflexible identities	6,734	8.19
Asexual	1,064	1.29
Questioning	1,951	2.37
Other	807	0.98
Highest level of education		

(continued)

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Table 1. Continued

Variables	N = 81,975–82,243	%
Primary (e.g., elementary school)	1,002	1.22
Secondary (e.g., high school)	20,325	24.71
Tertiary (e.g., college or university)	60,896	74.04
Currently being in education		
Not being in education	49,802	60.55
Being in primary education (e.g., elementary school)	64	0.08
Being in secondary education (e.g., high school)	1,571	1.91
Being in tertiary education (e.g., college or university)	30,762	37.40
Work status		
Not working	20,853	25.36
Working full time	42,981	52.26
Working part-time	11,356	13.81
Doing odd jobs	7,029	8.55
Socioeconomic status		
My life circumstances are among the worst	227	0.28
My life circumstances are much worse than average	773	0.94
My life circumstances are worse than average	4,232	5.15
My life circumstances are average	26,742	32.52
My life circumstances are better than average	31,567	38.38
My life circumstances are much better than average	14,736	17.92
My life circumstances are among the best	3,957	4.81
Residence		
Metropolis (population is over 1 million people)	26,441	32.15
City (population is between 100,000 and 999,999 people)	29,920	36.38
Town (population is between 1,000 and 99,999 people)	21,103	25.66
Village (population is below 1,000 people)	4,764	5.79
Relationship status		
Single	27,541	33.49
In a relationship	27,440	33.36
Married or common-law partners	24,338	29.59
Widow or widower	428	0.52
Divorced	2,472	3.01
Having children		
No	57,909	70.41
Yes, 1	8,417	10.23
Yes, 2	10,353	12.59
Yes, 3	3,843	4.67
Yes, 4	1,014	1.23
Yes, 5	290	0.35
Yes, 6–9	125	0.15
Yes, 10 or more	24	0.03
	M	*SD*
Age	32.39	12.52

Note. Percentages might not add up to 100% due to missing data. M = mean, SD = standard deviation.

thoughts, and behaviors and their consequences in the past six months along five factors corresponding to the ICD-11 diagnostic guidelines (World Health Organization, 2022): control (three items, e.g., "I could not control my sexual cravings and desires."); salience (three items, e.g., "I would rather have had sex than to have done anything else."); relapse (three items, e.g., "Trying to reduce the amount of sex I had almost never worked."); dissatisfaction (three items, e.g., "Although sex was not as satisfying for me as before, I engaged in it."); and negative consequences (seven items, e.g., "I did not accomplish important tasks because of my sexual behavior."). Participants indicate their levels of agreement with each item on a four-point scale (1 = "totally disagree"; 4 = "totally agree"), with total scores ranging from 19 to 76 points. Scoring 50 points or more indicates being at high risk of experiencing CSBD. The scale demonstrated excellent psychometric properties in previous studies (Bőthe et al., 2020; Khayer et al., 2023; Park & Chang, 2021). Participants read a pre-established definition of sex[2] before completing the CSBD-19. The translation of the CSBD-19 and the CSBD-7 in all available languages can be found at https://osf.io/jcz96/?view_only = 9af0068dde81488db54638a01c8ae118.

Sociodemographic and sexuality-related questions. Several sociodemographic (e.g., level of education) and sexuality-related questions (e.g., past-year sexual frequency) were included in the survey battery (Bőthe et al., 2021). Participants were provided with a definition of sexual experience before answering these questions.[3] The wording of each question and answer option in all languages can be seen at https://osf.io/jcz96/? view_only=9af0068dde81488db54638a01c8ae118.

Statistical analyses

We followed a preregistered analysis plan (https://doi.org/10.17605/OSF.IO/DK78R) to examine the CSBD-19's and CSBD-7's psychometric properties and compare country-, gender-, sexual- orientation-, and CSBD-status-based groups. Mplus 8.7 (Muthén & Muthén, 2022) was used for multivariate analyses. Confirmatory factor analysis (CFA) was conducted to examine the structural validity and dimensionality of the CSBD-19. The model was evaluated using common goodness-of-fit indices (Marsh, Hau, & Grayson, 2005): Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and Root-Mean-Square Error of Approximation with its 90% confidence interval (RMSEA). The weighted least squares mean- and variance-adjusted estimator was used for the CFA and measurement invariance

[2]Definition of sexual experiences with a partner: "Sexual experience with a partner is defined as any activity or behavior (excluding childhood sexual games or possible sexual abuse) that stimulates or arouses a person with the intent to produce an orgasm or sexual pleasure. Think about any kind of sexual experience with a partner."

[3]Language is a methodological variable and potentially reflects country-based differences. Therefore, we did not examine language-based mean differences in detail.

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tests. To ensure that comparisons are meaningful and reduce the possibility of measurement biases and invalid comparisons between groups (Millsap, 2011), tests of measurement invariance were conducted using participants' language, country, gender identity (i.e., men, women, gender-diverse individuals), and sexual orientation (i.e., heterosexual, gay or lesbian, bisexual, queer or pansexual, homo- and hetero-flexible identities, asexual, questioning, and other sexual orientations) as grouping variables. In each measurement invariance test, we tested and compared six levels of invariance with increasingly constrained parameters. Cronbach's alpha and McDonald's omega values were calculated to assess the reliability of the CSBD-19 (McNeish, 2018).

The CSDB-19's association with theoretically relevant correlates was assessed to examine its validity. A cut-off score is already available for the CSBD-19 (having a total score of ≥50 out of 76 suggests being at high risk of having CSBD) (Bőthe et al., 2020). We examined its applicability to the current sample by comparing those participants who scored below (i.e., low-risk group) and above (i.e., high-risk group) the cut-off score along the aforementioned correlates (e.g., past-year frequency of masturbation).

To develop the CSBD-7, the items of the CSBD-19 were examined to select the best ones representing each factor with one item, and three items from the negative consequences factor to represent personal, interpersonal, and general adverse consequences. The same analytical steps were followed as in the case of the CSBD-19. A cut-off score was also developed for the CSBD-7 using the previously established high-risk group as a reference group.

Ethics

The authors assert that all procedures contributing to this work comply with the relevant national and institutional committees' ethical standards on human experimentation and the Helsinki Declaration. The study was approved by all collaborating countries' national/institutional ethics review boards or the local ethics committees considered the study exempt and did not further assess the study as it had already been approved by the ethics committees of the principal investigators' institutions: https://osf.io/n3k2c/?view_only = 838146f6027c4e6bb68371d9d14220b5.

RESULTS

Psychometric properties of the Compulsive Sexual Behavior Disorder Scale (CSBD-19) and the short Compulsive Sexual Behavior Disorder Scale (CSBD-7)

The pre-established five-factor model (Bőthe et al., 2020) had a good fit to the data (CFI = 0.956, TLI = 0.947, RMSEA = 0.066 [90%CI = 0.066–0.067]). The inter-factor correlations were positive and moderate-to-strong. The CSBD-19 and its factors demonstrated acceptable reliability (α = 0.68–0.90, ω = 0.68–0.90). Concerning the CSBD-7, one item from each factor and three items from the negative consequences factor were selected. We tested a one-factor, first-order model, which had a good fit to the data (CFI = 0.972, TLI = 0.957, RMSEA = 0.088 [90%CI = 0.086–0.089]). The CSBD-7 had adequate reliability (α = 0.80, ω = 0.80) and a strong, positive correlation with the CSBD-19 (Tables S1–S2).

A cut-off score is already available for the CSBD-19 (Bőthe et al., 2020). Potential cut-off scores were calculated for the CSBD-7 based on membership in the high-risk group. A score of 18 points was suggested as an optimal cut-off (i.e., having a score of ≥18 out of 28 suggests a high risk of having CSBD) with a sensitivity of 87.38% and a specificity of 97.77% (Table S3). At this cut-off score, a positive predictive value of 66.56%, a negative predictive value of 99.35%, and an accuracy of 97.26% were observed (Table S3). These results practically mean that 2.23% of the negative cases were falsely considered high-risk, while 12.62% of the true high-risk cases were not identified. As Table S3 shows, increasing the cut-off score would have led to more false negative cases (i.e., mistakenly identifying high-risk individuals as low-risk individuals), while decreasing the cut-off score would have resulted in more false positive cases (i.e., mistakenly classifying low-risk individuals as high-risk individuals). Therefore, the cut-off score of 18 points was deemed the most optimal one.

Associations between CSBD and sexual behaviors

Regarding associations with theoretically relevant correlates, CSBD had weak-to-moderate, positive associations with the past-year frequency of pornography use, masturbation, sex with casual partners, and the number of casual sexual partners. It also had weak, positive associations with the number of lifetime sexual partners, past-year frequency of having sex in and out of the relationship, and past-year frequency of having sex with one's partner. The results were similar with the CSBD-19 and the CSBD-7 (Table 2) and across gender- and sexual-orientation-based groups as well (Tables S5–S14).

Country-, gender-, and sexual-orientation-based differences in CSBD

Before group comparisons, we conducted language-,[4] country-, gender-, and sexual-orientation-based measurement invariance tests on the CSBD-19 and the CSBD-7 as well to reduce the possibility of measurement biases (Tables S15–S22). Findings suggest the lack of potential measurement biases, while group-based differences in the means may be present.

[4]Egypt, Iran, Pakistan, and Romania were included in the study protocol paper as collaborating countries (Bőthe et al., 2021); however, it was not possible to get ethical approval for the study in a timely manner in these countries. Chile was not included in the study protocol paper as a collaborating country (Bőthe et al., 2021) as it joined the study after publishing the study protocol. Therefore, instead of the planned 45 countries (Bőthe et al., 2021), only 42 individual countries are considered in the present study, see details at https://osf.io/n3k2c/.

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Table 2. Associations between compulsive sexual behavior disorder and theoretically relevant correlates

	Range	*M*	*SD*	*Mdn*	1.	2.	3.	4.	5.	6.	7.	8.
1. Compulsive sexual behavior (CSBD-19)	19–76	30.63	9.54	28.00	—							
2. Compulsive sexual behavior (CSBD-7)	7–28	10.67	3.78	10.00	0.91*	—						
3. Total number of sexual partner (in and out of a relationship)	0–1,000	12.59	42.53	4.00	0.15*	0.13*	—					
4. Past-year sexual frequency (in and out of a relationship)[a]	0–10	4.07	2.72	5.00	0.07*	0.05*	0.32*	—				
5. Past-year sexual frequency (with the partner)[a,b]	0–10	5.30	2.14	6.00	0.01*	−0.01*	0.06*	0.88*	—			
6. Number of past-year casual sexual partners	0–340	1.12	5.85	0.00	0.23*	0.20*	0.45*	0.11*	0.05*	—		
7. Past-year casual sexual frequency[a]	0–10	0.74	1.59	0.00	0.22*	0.19*	0.43*	0.11*	0.04*	0.91*	—	
8. Past-year frequency of masturbation[a]	0–10	5.36	2.61	6.00	0.26*	0.24*	0.14*	−0.04*	0.02*	0.21*	0.20*	—
9. Past-year frequency of pornography use[a]	0–10	4.22	3.02	4.00	0.29*	0.28*	0.12*	−0.04*	<−0.01	0.17*	0.16*	0.69*

Note. *M* = mean; *SD* = standard deviation; *Mdn* = median; a = 0: never, 1: once in the past year, 2: 2–6 times in the past year, 3: 7–11 times in the past year, 4: monthly, 5: 2–3 times a month, 6: weekly, 7: 2–3 times a week, 8: 4–5 times a week, 9: 6–7 times a week, 10: more than 7 times a week; b = Only partnered individuals responded to this question (n = 51,754). *$p < 0.001$.

The highest CSBD scores were observed in Turkey, followed by China and Peru. All pairwise comparisons between countries had small-to-moderate effect sizes and can be seen in Tables S23–25. Men had the highest scores on the CSBD-19, followed by gender-diverse individuals, and women, with a moderate effect size (Tables S17 and S21). No sexual-orientation-based differences were observed in the levels of CSBD when the eight sexual-orientation-based groups were compared (Tables S18 and S22). The results were similar with the CSBD-19 and the CSBD-7 as well.

Occurrence of CSBD and comparison of individuals with low vs. high risk of CSBD

A total of 4.84% of the participants scored above the pre-established cut-off score of the CSBD-19 (i.e., ≥50 points out of 76; high-risk group) (Bőthe et al., 2020). Detailed information on the country-, gender-, and sexual-orientation-based proportions of participants belonging to the high-risk and low-risk (i.e., scored below the cut-off score) groups can be seen in Table 3.

The high-risk group reported significantly higher levels of all theoretically relevant correlates, including solo (e.g., masturbation) and partnered sexual activities (sexual activities with a casual partner), compared to the low-risk group with small-to-moderate effect sizes (Table 4). A sizable portion, 13.7% of the high-risk group had previously sought treatment for CSBD, with an additional 32.8% not having sought treatment for various reasons (e.g., unaffordability). Only 1.6% of the low-risk group had ever sought treatment for CSBD, with an additional 3.3% not having sought treatment because of various reasons (Table 4). Similar ratios are reported for current treatment-seeking behavior in the two groups as well.

DISCUSSION

With the inclusion of CSBD in the 11th revision of the ICD-11, there have been calls for the inclusion of underrepresented and underserved populations in this field of research as well as for improved assessment and rigorous methodological designs (Griffin, Way, & Kraus, 2021; Grubbs et al., 2020; Klein et al., 2021; Reed et al., 2022). We believe that the present study is a first step in this direction by providing data on CSBD across 42 countries, including gender and sexually diverse individuals as well. Moreover, we provide psychometrically sound and cross-culturally acceptable measures for assessing CSBD according to the ICD-11 guidelines. We made the CSBD-19 and CSBD-7 freely accessible to provide standardized screening tools for future research and practice, contributing to the unification efforts of CSBD assessment (Grubbs et al., 2020; Reed et al., 2022).

Almost 5% of participants were at high risk of CSBD in the present study, though estimates varied between 1.6% to 16.7% across countries, genders, and sexual orientations. These estimates are similar to, or slightly higher than in some cases, those reported in previous nationally representative samples in the US, Germany, Hungary, and Poland (Briken et al., 2022; Bőthe et al., 2020; Dickenson et al., 2018; Grubbs et al., 2023; Lewczuk et al., 2022). This variability in prevalence estimates highlights the importance of and the need to support the examination of CSBD and other sexual, psychological, or psychiatric issues in diverse populations outside the realm of WEIRD countries, as sexuality and related values might be rooted in one's cultural background and norms, warranting further research (Baxter et al., 2013; Cheon et al., 2020; Klein et al., 2021).

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Table 3. Proportion of participants in the low-risk and high-risk compulsive sexual behavior disorder groups

	Low-risk group (n = 78,065, 95.16%)				High-risk group (n = 3,971, 4.84%)			
Variables	*n*	%	Lower 95% CI	Upper 95% CI	*n*	%	Lower 95% CI	Upper 95% CI
Country of residence								
Algeria	20	83.33	67.26	99.41	4	16.67	0.59	32.74
Australia	581	91.50	89.32	93.67	54	8.50	6.33	10.68
Austria	726	97.32	96.16	98.48	20	2.68	1.52	3.84
Bangladesh	313	86.70	83.18	90.22	48	13.30	9.78	16.82
Belgium	626	97.51	96.30	98.72	16	2.49	1.28	3.70
Bolivia	328	85.42	81.87	88.96	56	14.58	11.04	18.13
Brazil	3,293	92.19	91.31	93.07	279	7.81	6.93	8.69
Canada	2,393	94.21	93.30	95.12	147	5.79	4.88	6.70
Chile	1,108	94.62	93.33	95.91	63	5.38	4.09	6.67
China	2,176	89.62	88.41	90.84	252	10.38	9.16	11.59
Colombia	1,806	94.75	93.75	95.76	100	5.25	4.24	6.25
Croatia	2,306	96.81	96.10	97.52	76	3.19	2.48	3.90
Czech Republic	1,582	96.64	95.77	97.51	55	3.36	2.49	4.23
Ecuador	247	89.49	85.85	93.13	29	10.51	6.87	14.15
France	1,585	93.07	91.86	94.28	118	6.93	5.72	8.14
Germany	3,177	97.51	96.98	98.05	81	2.49	1.95	3.02
Gibraltar	59	92.19	85.43	98.94	5	7.81	1.06	14.57
Hungary	10,806	96.77	96.44	97.10	361	3.23	2.90	3.56
India	166	86.01	81.07	90.95	27	13.99	9.05	18.93
Iraq	90	90.91	85.15	96.67	9	9.09	3.33	14.85
Ireland	1,604	94.41	93.31	95.50	95	5.59	4.50	6.69
Israel	1,291	96.78	95.83	97.73	43	3.22	2.27	4.17
Italy	2,334	97.49	96.87	98.12	60	2.51	1.88	3.13
Japan	521	93.54	91.49	95.59	36	6.46	4.41	8.51
Lithuania	1,924	95.86	94.99	96.74	83	4.14	3.26	5.01
Malaysia	1,087	93.22	91.78	94.67	79	6.78	5.33	8.22
Mexico	2,021	94.75	93.80	95.70	112	5.25	4.30	6.20
New Zealand	2,635	93.24	92.32	94.17	191	6.76	5.83	7.68
North Macedonia	1,199	96.62	95.61	97.62	42	3.38	2.38	4.39
Panama	300	90.36	87.17	93.55	32	9.64	6.45	12.83
Peru	2,459	92.13	91.11	93.15	210	7.87	6.85	8.89
Poland	9,657	97.75	97.46	98.05	222	2.25	1.95	2.54
Portugal	2,222	98.41	97.89	98.92	36	1.59	1.08	2.11
Slovakia	1,067	94.51	93.18	95.84	62	5.49	4.16	6.82
South Africa	1,744	94.53	93.49	95.56	101	5.47	4.44	6.51
South Korea	1,355	92.62	91.28	93.96	108	7.38	6.04	8.72
Spain	2,243	96.72	96.00	97.45	76	3.28	2.55	4.00
Switzerland	1,096	96.06	94.93	97.19	45	3.94	2.81	5.07
Taiwan	2,493	93.48	92.54	94.41	174	6.52	5.59	7.46
Turkey	747	91.43	89.51	93.36	70	8.57	6.64	10.49
United Kingdom	1,341	95.31	94.20	96.42	66	4.69	3.58	5.80
United States of America	2,257	94.32	93.39	95.25	136	5.68	4.75	6.61
Gender								
Man	29,826	91.83	91.53	92.13	2,654	8.17	7.87	8.47
Woman	45,616	97.58	97.44	97.72	1,133	2.42	2.28	2.56
Gender-diverse individual	2,592	93.54	92.62	94.46	179	6.46	5.54	7.38
Sexual orientation								
Heterosexual	53,605	95.75	95.58	95.91	2,382	4.25	4.09	4.42
Gay or lesbian or homosexual	4,241	92.16	91.38	92.93	361	7.84	7.07	8.62
Bisexual	7,201	93.84	93.30	94.37	473	6.16	5.63	6.70
Queer and pansexual	2,763	94.66	93.84	95.47	156	5.34	4.53	6.16
Homo- and heteroflexible identities	6,311	93.91	93.34	94.49	409	6.09	5.51	6.66
Asexual	1,037	98.11	97.29	98.93	20	1.89	1.07	2.71
Questioning	1,839	94.74	93.75	95.74	102	5.26	4.26	6.25
Other	754	94.49	92.90	96.07	44	5.51	3.93	7.10

Note. Sample sizes in subgroups might not add up to the total sample size due to missing data. Data are based on the Compulsive Sexual Behavior Disorder Scale (CSBD-19).

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Table 4. Comparison of participants' sexuality-related characteristics in the low-risk and high-risk compulsive sexual behavior disorder groups

Variables	1. Low-risk group (n = 77,850–78,065; 95.16%)			2. High-risk group (n = 3,951–3,971; 4.84%)			Mann-Whitney U-tests			
	M	SD	Mdn	M	SD	Mdn	U	Z	p	Cohen's d
Compulsive sexual behavior total score (CSBD-19)	29.34	7.72	28.00	55.96	5.84	54.00	309996115.00	106.56	<0.001	0.80
Control factor of the CSBD-19	4.57	1.73	4.00	9.25	1.60	9.00	298609545.50	102.03	<0.001	0.73
Salience factor of the CSBD-19	4.98	1.89	5.00	8.85	1.96	9.00	281653812.00	88.72	<0.001	0.64
Relapse factor of the CSBD-19	4.78	1.78	4.00	8.88	1.77	9.00	289031052.00	94.74	<0.001	0.68
Dissatisfaction factor of the CSBD-19	5.60	2.42	5.00	9.05	1.97	9.00	263582678.00	76.16	<0.001	0.54
Negative consequences factor of the CSBD-19	9.42	3.06	8.00	19.93	3.70	20.00	302259661.50	104.70	<0.001	0.76
Total number of sexual partner (in and out of a relationship)	11.82	39.45	4.00	28.25	81.27	7.00	183032746.00	20.28	<0.001	0.14
Past-year sexual frequency (in and out of a relationship)[a]	4.08	2.71	5.00	4.04	2.82	5.00	153634294.00	−0.86	0.388	0.01
Past-year sexual frequency (with the partner)[a,b]	5.31	2.13	6.00	5.21	2.36	6.00	51385675.00	−1.48	0.140	0.01
Number of past-year casual sexual partners	1.00	5.20	0.00	3.54	13.04	0.00	195095307.00	35.65	<0.001	0.20
Past-year casual sexual frequency[a]	0.70	1.53	0.00	1.62	2.24	0.00	192453787.50	34.15	<0.001	0.18
Past-year frequency of masturbation[a]	5.28	2.58	6.00	6.89	2.53	7.00	211175963.50	39.24	<0.001	0.28
Past-year frequency of pornography use[a]	4.12	2.98	4.00	6.35	2.99	7.00	218509874.00	44.01	<0.001	0.31

Variables	1. Low-risk group (n = 77,937–77,988; 95.16%)		2. High-risk group (n = 3,959–3,966; 4.84%)		χ^2 tests		
	n	%	n	%	χ	p	Cramer's V
Having ever sought treatment for compulsive sexual behaviors					13,161.94	<0.001	0.40
Yes.	1,249	1.60%	545	13.74%			
No, because has not had any problems with it.	65,887	84.48%	778	19.62%			
No, because has not felt that it was a serious problem.	7,797	10.00%	1,259	31.74%			
No, because has not known where should seek help.	593	0.76%	312	7.87%			
No, because would have felt uncomfortable or embarrassed.	1,442	1.85%	732	18.46%			
No, because could not afford it.	543	0.70%	255	6.43%			
No, because of other reason.	477	0.61%	85	2.14%			
Being currently under treatment for compulsive sexual behaviors					14265.31	<0.001	0.42
Yes.	335	0.43%	253	6.39%			
No, because does not have any problems with it.	69,190	88.78%	1,112	28.09%			
No, because does not feel that it is a serious problem.	5,711	7.33%	1,136	28.69%			
No, because does not know where should seek help.	447	0.57%	304	7.68%			
No, because would feel uncomfortable or embarrassed.	1,027	1.32%	636	16.06%			
No, because could not afford it.	621	0.80%	367	9.27%			
No, because of other reason.	606	0.78%	151	3.81%			

Note. M = mean; SD = standard deviation; Mdn = median; a = 0: never, 1: once in the past year, 2: 2–6 times in the past year, 3: 7–11 times in the past year, 4: monthly, 5: 2–3 times a month, 6: weekly, 7: 2–3 times a week, 8: 4–5 times a week, 9: 6–7 times a week, 10: more than 7 times a week; b = Only partnered individuals responded to this question (n = 51,754). Data are based on the Compulsive Sexual Behavior Disorder Scale (CSBD-19).

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From a public health perspective, only 13.7% of the high-risk group sought treatment for CSBD, while more than 30% did not do so due to various reasons (e.g., unaffordability of treatment, stigma). Thus, there is a need to raise awareness of CSBD, including affordable, accessible, evidence-based treatment options for CSBD in a culturally sensitive manner, given its adverse biopsychosocial correlates (e.g., increased risk of experiencing sexually transmitted infections) (Miner & Coleman, 2013; World Health Organization, 2022).

Both the CSBD-19 and CSBD-7 demonstrated excellent psychometric properties, work well with various populations in terms of culture, gender, and sexual orientation, and they distinguish well between individuals being at low risk and high risk of CSBD. Yet, the CSBD-7 is recommended when limited resources are available (e.g., limited space in surveys) and for quick screening purposes in prevention, clinical, and research settings, as its administration takes approximately two minutes. When the aim is to assess different criteria of CSBD or more detailed information is needed about individuals' CSBD (e.g., detailed information on adverse consequences), the CSBD-19 should be used as the multidimensional nature of the CSBD-19 was sacrificed for the CSBD-7's brevity. Both scales should be used as a first step (e.g., screening) in the diagnostic process, and a formal clinical examination is needed to diagnose CSBD. In brief, the use of established, psychometrically sound measures with international reference data, such as the CSBD-19 and CSBD-7, provide a basis for further, high-quality studies and greater inclusivity of underrepresented and underserved groups often missing from the literature (Grubbs et al., 2020; Reed et al., 2022).

Despite the strengths of this study (e.g., rigorous methodology, following open-science practices), some general limitations of the ISS as a whole should be considered (e.g., limitations relating to the cross-sectional, self-report study design). These general limitations are discussed on the study's related OSF page (https://osf.io/n3k2c/?view_only=838146f6027c4e6bb68371 d9d1 4220b5). Besides these general limitations, some study-specific limitations should be considered. Although the model fit indices for the CSBD-7's language-based CFA models can be considered adequate (see details in the Supplemental Materials) (Chen, Curran, Bollen, Kirby, & Paxton, 2008; Kenny, Kaniskan, & McCoach, 2015), it should be noted that the RMSEA values exceeded the commonly used cut-off values (Browne & Cudeck, 1993; Schermelleh-Engel, Moosbrugger, & Müller, 2003). Further studies are recommended to test the factor structure and other psychometric properties of the CSBD-7 in different languages and cultures as well. Future studies are also warranted to further examine both the CSBD-19 and CSBD-7 in other populations, including nationally representative, longitudinal, and clinical samples. The potential role of the intersectionality of sex, gender, and sexual orientation in relation to CSBD is also an area that warrants further investigation (Bőthe et al., 2018; Grubbs et al., 2020; Klein et al., 2021). Future studies are also necessary to clarify the complex roles that religiosity and moral incongruence may play in the diagnosis of CSBD, as distress entirely related to moral judgments about sexual behaviors is an exclusion criterion in the diagnosis of CSBD (Briken et al., 2022; Grubbs, Perry, Wilt, & Reid, 2019).

CONCLUSIONS

In conclusion, with a worldwide occurrence rate of almost 5%, CSBD seems to be as prevalent as other, more extensively studied psychiatric disorders (Grubbs et al., 2020). Yet, a wide range of estimates were observed across countries, genders, and sexual orientations. In line with recent expert recommendations and the World Health Organization's policies (Grubbs et al., 2020; Reed et al., 2022), these differences in CSBD estimates provide empirical evidence for the need for more inclusive studies in this field of research. We recommend the use of the freely available ICD-11-based CSBD-19 and CSBD-7 in further research and clinical work as they demonstrated their applicability across 42 countries, including underrepresented and underserved populations as well. A high-quality, internationally standardized assessment of CSBD will facilitate the identification of individuals with CSBD in diverse populations and can eventually stimulate research into scientifically based and culturally sensitive prevention and intervention strategies (Grubbs et al., 2020; Reed et al., 2022).

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SUPPLEMENTARY MATERIAL

Supplementary data to this article can be found online at https://doi.org/10.1556/2006.2023.00028.

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