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FULL-LENGTH REPORT



Compulsive sexual behaviour in Iranian married women: Prevalence, sociodemographic, sexual, and psychological predictors across-country

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ABSTRACT

Background and Aims: This study addresses the scarcity of research on Compulsive Sexual Behavior Disorder (CSBD) in non-Western cultures and women, exploring its prevalence, sociodemographic, sexual history characteristics, and sexual and psychological health factors in Iranian married women. **Methods:** A cross-sectional study involving 772 heterosexual married women was conducted between 2022 and 2023, covering all 31 provinces of Iran. Participants were categorized as CSBD+ (at-risk individuals) and CSBD− (low-risk individuals) based on a pre-established cut-off point of ≥ 18 by the Compulsive Sexual Behavior Disorder Scale −7. Depression, anxiety, obsessive-compulsive disorder, self-esteem, sexual distress, sexual satisfaction, relationship satisfaction, and sexual dysfunction were assessed as psychological and sexual health variables by standardized scales. **Results:** The prevalence of CSBD was 3.8% in women. Linear regression analysis showed that lower education, being jobless, substance use, pornography use, paraphilic behaviors, conflict on sex frequency, relationship, orgasm and sexual dissatisfaction, higher sexual arousal, depression, and obsessive-compulsive symptoms were positively associated with CSBD. The univariate analysis, at a stringent significance level of 0.005, mirrored the regression findings. Additionally, women with CSBD+ exhibited lower religiousness and higher anxiety compared to those without CSBD−. **Discussion and Conclusions:** Raising awareness of CSBD is crucial for health systems and individuals for better policy-making and help-seeking behavior. Identifying risk factors like substance use presents opportunities for prevention, and the association of CSBD with sexual and mental health variables suggests addressing co-occurring issues for improved treatment outcomes. Recognizing culture and gender-specific sexual and psychological correlates enables targeted and effective treatment approaches.

KEYWORDS

compulsive sexual behaviour disorder, sexual satisfaction, sexual function, depression, obsessive-compulsive disorder, pornography

INTRODUCTION

Compulsive Sexual Behaviour Disorder (CSBD) is defined as a persistent and long-term (6 months or more) unsuccessful effort to control intense sexual desires and fantasies, that can lead to uncontrolled sexual behaviors and significant disruption in the fields of personal,

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family, and social, education or work (Kraus, Potenza, Martino, & Grant, 2015). In recent years, CSBD has been officially included as a diagnostic entity in the eleventh revision of the International Classification of Diseases (ICD-11) under Impulse Control Disorders (Attard-Mallia, 2023). Manifestations of CSBD can include excessive use of pornography and masturbation or uncontrolled use of paid sex services, among others (Kraus et al., 2015). A 2023 global study across 42 countries found 5% (range 1.6–16.7%) at high risk of Compulsive Sexual Behavior Disorder. Estimated frequency was 2.42% for women and 8.17% for men (Bóthe et al., 2023). Yet, research on CSBD is still limited outside developed countries (Grubbs et al., 2020).

The estimation of a disorder's prevalence is significantly affected by the criteria used for defining the disease and the method of sampling. To increase the accuracy of prevalence measurement, it is recommended to use standard questionnaires and population-based sampling (Otto et al., 2020). The Compulsive Sexual Behavior Disorder-19 (CSBD-19) questionnaire is one of the scales designed based on CSBD criteria in ICD-11 and has recently been widely used (Bóthe et al., 2020). In addition, researching women is crucial, while more than 99% of the research conducted in the field of CSBD is focused on heterosexual men (Kowalewska, Gola, Lew-Starowicz, & Kraus, 2022).

A better understanding of factors related to a disorder facilitates prevention and intervention strategies. Due to the lack of recent consensus regarding the diagnostic criteria of this disorder, the information regarding cause and etiological factors is also limited (Carnes, Hopkins, & Green, 2014). However, a set of etiologic factors have been proposed, including a history of childhood abuse (Derbyshire & Grant, 2015), lack of happiness (Long, Smith, Fisher, Sand, & Rosen, 2011), low self-esteem (Salehi, Tavakol, Shabani, & Ziaei, 2015), depression (Raymond, Coleman, & Miner, 2003), obsessive-compulsive disorder (Stein, 2008), sexual dysfunction (Raymond et al., 2003), sexual dissatisfaction (Kowalewska, Kraus, Lew-Starowicz, Gustavsson, & Gola, 2019), internet accessibility (Grubbs et al., 2020), and lack of social support (Soltani Edris, 2019). These factors can play a role in the onset, progression, and persistence of CSBD (Coleman et al., 2018).

In Iran, sex outside of marriage, masturbation, and engaging in multiple sexual relationships are deemed as sins under Islamic laws. Despite these religious prohibitions, the prevalence of such sexual behaviors, particularly among the youth, has increased due to the widespread use of the Internet and social networks. Notably, there is a lack of formal education on sexual matters in the school and university curricula (Alavi-Arjas, Farnam, Granmayeh, & Haghani, 2018). It should be kept in mind that in a religious society, most CSBD behaviors such as having multiple sexual partners, masturbation, and pornography use are illegal and consequently may have more negative outcomes. Considering the cultural-based nature of CSBD, especially in women (Dhuffar & Griffiths, 2014), many researchers emphasize the necessity of conducting more studies in this field in underrepresented countries (Bóthe et al., 2023;

Grubbs et al., 2020). The present study aimed to investigate the prevalence of CSBD and compare sociodemographic, sexual history characteristics, and sexual and psychological health variables, among women at risk of experiencing CSBD (CSBD+) and women with low risk of experiencing CSBD (CSBD-).

METHOD

A cross-sectional study was conducted among Iranian married women between November 2022 and June 2023.

Procedures

In this study, in addition to online sampling, face-to-face sampling was added to reduce selection bias and include individuals without smart device access. In the online sampling, the invitation to participate in the study and inclusion criteria were shared at the national level in different groups through Telegram, WhatsApp, and Instagram platforms. These groups were affiliated with Universities, health centers, sports, and arts belonging to different regions. By sending the questionnaires, the research team ensured the adequacy of the sample in all provinces according to the question related to the place of residence, and if it was insufficient, the level of advertising in that area was increased until the desired result was reached. In the invitation file, in addition to the ethical code and emphasis on data confidentiality, it was stated that the questionnaire contains data about sexual life. For those willing to participate in the study, questionnaires were sent along with ethical consent. The questionnaires were designed on a secure web-based platform called "Porsline." Completed questionnaires were initially transferred to this server and sent anonymously to the researchers. Completing the questionnaire took an average of 15 min. The questionnaire was structured to allow submission only if all questions were answered. Although this method extended the sampling period, it ensured 100% completion of all questions. As compensation, participants had the opportunity to win free internet access through a raffle. Seven percent of participants were selected through in-person visits to 10 health centers affiliated with Tehran University of Medical Sciences. Randomly chosen from electronic lists, individuals were contacted by phone, briefed on the study objectives, and administered questionnaires in person by the researcher at the health centers.

Participants

900 women visited the questionnaires or were invited to participate in the study. A total of 772 women (participation rate 85.77%) from all 31 provinces of the country participated in this study (Table 2). The inclusion criteria were being over 18 years old, married, and having a marriage duration of more than 6 months.



Measures

Compulsive Sexual Behavior Disorder. Compulsive Sexual Behaviour Disorder (CSBD) in the past 6 months was assessed using the Short version of the Compulsive Sexual Behaviour Disorder Scale (CSBD–7) (Böthe et al., 2023). This scale includes 5 dimensions following the diagnostic guidelines of the ICD-11: control (i.e., failure to control CSB), salience (i.e., CSB being the central focus of one's life), relapse (i.e., unsuccessful efforts to reduce CSB), dissatisfaction (i.e., experiencing less or no satisfaction from sexual behaviors), and negative consequences (i.e., CSB generating clinically significant distress or impairment). All dimensions were assessed by 1- item, except for negative consequences that were measured with three items. Each item was answered on a 4-point Likert scale (1 = completely disagree to 4 = completely agree). The overall score on the scale ranged between 7 and 28, and scoring 18 points or higher is considered to be at risk of experiencing CSBD. The CSBD–7 had adequate reliability ($\alpha = 0.80$, $\omega = 0.80$) and a strong, positive correlation with the CSBD–19 (Böthe et al., 2023). Iranian Psychometric version indicated excellent Face validity (impact score >1.5 for all items), content validity (CVI >0.79 , KMO = 0.92, Bartlett's Test = 2648.95, $p \leq 0.001$), reliability (Cronbach's alpha ≥ 0.95 , CI = 95% (0.92–0.98) (Khayer, Rad, Böthe, & Farnam, 2023).

Sociodemographic information. The socio-demographic information questionnaire comprised 9 items, encompassing age, marriage duration, education (years of education since the first grade of primary school), religiousness, residence, number of children, employment status, economic status, and substance use (in the past 6 months). In this study, participants' economic status was assessed by a single-item: 'How do you evaluate your economic situation?' with response options including 'undesirable,' 'medium,' and 'desirable. Also, religiousness was assessed using a single item: "I consider myself religious," extracted from a standard 3-item questionnaire. Participants responded to this question on a 7-point Likert scale (1 = strongly disagree to 7 = strongly agree), with higher scores indicating higher levels of religiosity (Grubbs, Kraus, & Perry, 2019).

Sexual history characteristics. Participants were queried about their sexual history through 11 questions covering age at first sexual intercourse, conflict on sex frequency (rated on a 5-point Likert scale from no argument = 0 to yes even with divorce demand = 4), daily internet usage hours, ease of sexual communication with partners (rated on a 5-point Likert scale from very hard = 1 to very easy = 5), pornography use in the last 12 months (Yes or No), presence of paraphilia (Yes or No), type of paraphilia, extramarital affairs (yearly partner numbers), and frequencies of sexual activity (in the past 3 months), masturbation (monthly), and pornography consumption (monthly).

Sexual distress. Sexual distress in women was assessed using the Sexual Distress Scale-1 (SDS-1), which comprises a

single item measuring being "disturbed about sexual life." Respondents rated their experiences on a 5-point Likert scale, ranging from 1 (never) to 5 (always). A higher score indicates more distress. The SDS-1 has a strong correlation with the female sexual distress scale-revised (FSDS-R) (DeRogatis, Clayton, Lewis-D'Agostino, Wunderlich, & Fu, 2008) full-scale scores (Behraves, 2002).

Relationship satisfaction. To evaluate emotional intimacy and relationship satisfaction, a single-item version of the Relationship Satisfaction Scale was employed (Fülöp et al., 2020). The original questionnaire, comprising 7 items by Hendrick (1988), was condensed into a single question: "In general, how satisfied are you with life with your spouse?" Respondents used a 5-point Likert scale, with "I am not satisfied at all" scored as 1 and "I am very satisfied" as 5. Scores ranged from 1 to 5, with higher scores indicating greater relationship satisfaction. The tool demonstrates acceptable validity and reliability.

Sexual satisfaction. In this survey, a single-item "During the last two months, how satisfied are you with your life with your spouse?" measured participants' satisfaction with their sexual life. Respondents provided answers on a 5-point Likert scale ranging from 1 = I am not at all satisfied to 5 = I am very satisfied. The scoring range is 1–5, where a higher score indicates greater satisfaction (Mark, Herbenick, Fortenberry, Sanders, & Reece, 2014).

Sexual function. The Arizona Sexual Experience Scale assesses sexual dysfunction through five questions that cover core elements of sexual function: sex drive, arousal, vaginal lubrication, ability to reach orgasm, and satisfaction from orgasm. Responses are recorded on a 6-point Likert scale, ranging from 1 = extremely easy to 6 = never. A total score exceeding 18 indicates sexual dysfunction, with higher scores in each dimension signaling greater problems in that specific area. This tool demonstrates acceptable reliability and validity (McGahuey, A., 2000; Pezeshki & Bayrami, 2005).

Depression. To investigate depressive symptoms during the last two weeks, the 2-item Patient Health Questionnaire (PHQ-2) was used (Kroenke, Spitzer, & Williams, 2003). This questionnaire is a shortened version of the PHQ-9. The two questions include "decreased interest and desire to do things" and "feeling frustrated, depressed, or hopeless". For each item, the answers range from 0 = not at all to 3 = almost every day. The score ranges between 0 and 6, with a higher score indicating more depressive symptoms. The validity and reliability of this questionnaire were acceptable in both foreign (Arroll et al., 2010) and Persian (Dadfar & Lester, 2017) studies.

Anxiety. The Spielberger State-Trait Anxiety Inventory was used to assess anxiety symptoms, using the 6-item version of the questionnaire (GAD-6). Each item was answered on a 4-point Likert scale (not at all = 1, somewhat = 2, moderately = 3, and very much = 4). The scores of



individuals were classified into 3 groups no/mild (6–11), moderate (12–17), and severe (18–24) anxiety. The shortened 6-item form of this questionnaire demonstrated good validity and reliability in international studies (Marteau & Bekker, 1992) and in an Iranian study as well (Behraves, 2002).

Self esteem. To examine self-esteem, the Rosenberg Self-Esteem-Single Item (RSE-1) questionnaire was used, which is a shortened version of the 10-item Rosenberg Self-Esteem Scale (RSE-10) (Rosenberg, 1965). This item is “I have high self-esteem”. Participants provided answers on a 5-point Likert scale, from 1 = not very true of me to 5 = very true of me. The score ranges between 1 and 5 and a higher score indicates better self-esteem (Robins, Hendin, & Trzesniewski, 2001; Ziaei, 2021).

Obsessive compulsive disorder. The Compulsive Personality Assessment Scale (CPAS-8) has 8 items and items are answered on a 5-point Likert scale (i.e., 0 = Absent and 4 = Very severe). The total score ranges between 0 and 48. A higher score indicates more obsessive-compulsive symptoms. The validity and reliability of this questionnaire were acceptable in previous studies (Fineberg, Sharma, Sivakumar, Sahakian, & Chamberlain, 2007). Since this study was merely based on self-report, in this text, we preferred using Obsessive Compulsive Symptoms (OCS) instead of OCD, for more caution.

Statistical analyses

Based on the incidence of CSBD in women, in the study of Dickenson, Gleason, Coleman, and Miner (2018), the optimal sample size was calculated to be 700 individuals. This sample size also allowed us to conduct precise regression based on Schmidt-Green’s opinion (25 numbers per variable) (Green, 1991). The study employed independent *t*-tests to compare the mean scores of numerical variables between the CSBD+ and CSBD–groups. Categorical variables were presented as N (Percentage) and compared using chi-square or Fisher’s exact tests. At-risk and low-risk CSBD women were contrasted on sociodemographic, sexual history, and psychological factors. Univariate analysis employed Benferroni-adjusted tests to mitigate type 1 errors, setting significance at 0.005. Cohen *d* till 0.2, 0.5, and 0.8 are considered as small, medium, and large effect sizes, respectively. Backward linear regression was employed for the regression analysis. The backward method is chosen to eliminate redundant or potentially collinear variables and enhance the interpretability of the model. In the variable selection process, all those with a significance level of 0.25 (Bursac, Gauss, Williams, & Hosmer, 2008) and 0.15 (Chowdhury & Turin, 2020), were inserted into the model to predict CSBD–related factors. The results were consistent, and we presented the tables based on factors with a significance level of 0.25. All statistical analyses were performed using SPSS version 25.

Ethics

This study was performed in line with the principles of the Declaration of Helsinki. Approval was granted by the Ethics Committee of Tehran University of Medical Sciences. Informed consent was obtained from all individual participants included in the study.

RESULTS

The prevalence of CSBD in the present study was estimated to be 3.8% in women. The scores of CSBD subscales among CSBD+ and CSBD–women are shown in Table 1.

A total of 772 Iranian married women participated in this study. Among them, 29 were classified as CSBD+, and 743 as CSBD–. Affected women, with an average age of approximately 34, contrasted with CSBD–women averaging 36 years. The marriage duration in CSBD+ was about 10 vs. 12.5 in CSBD–. Among the 29 affected, 27 lived in urban areas, while 2 were from villages. In the CSBD–group, 723 were city residents, and 20 were from villages. The education duration in CSBD+ was 14.6 vs. 15.7 years in CSBD–. The score of religiousness was CSBD+ 3.6 vs. 4.6 in CSBD–. Analysing demographic characteristics in women at a 0.005 significance level showed CSBD+ women reported lower religiousness, and higher substance use, relative to CSBD–women. With 0.05 significantly, the economic condition was also meaningful. The greatest Cohen *d* between demographic traits related to religiousness (0.5) (Table 2).

The sexual history characteristics showed that pornography use ($p < 0.0001$), and paraphilic behaviors ($p = 0.0001$), especially voyeurism were higher among CSBD+ than CSBD–women. At a significance level of 0.05, there was a higher conflict in sexual frequency and daily Internet use in CSBD+ women compared to CSBD–women.

Table 1. Occurrence of Compulsive Sexual Behavior Disorder (CSBD) and comparisons of its dimension in low-risk (CSBD–) and at-risk (CSBD+) women ($N = 772$)

| Variable | Women ($N = 772$) | | <i>p</i> -value | Cohen’s <i>d</i> |
|---------------------------|---------------------|---------------|-----------------|------------------|
| | CSBD+N (%) | CSBD–N (%) | | |
| Occurrence of CSBD | 29 (3.8 %) | 743 (96.2 %) | | |
| CSBD dimensions | M (SD) | M (SD) | ‡ | ‡ |
| Control | 20.06 ± 2.49 | 9.87 ± 2.78 | 0.0001 | 3.86 |
| Salience | 2.86 ± 0.83 | 1.36 ± 0.78 | 0.0001 | 1.85 |
| Relapse | 2.93 ± 0.92 | 1.57 ± 0.91 | 0.0001 | 1.48 |
| Dissatisfaction | 2.79 ± 0.94 | 1.81 ± 0.99 | 0.0001 | 1.01 |
| Negative Consequences | 3.28 ± 0.96 | 1.66 ± 0.99 | 0.0001 | 1.65 |
| | 8.20 ± 2.19 | 3.47 ± 1.00 | 0.0001 | 2.77 |

M: Mean, SD: Standard deviation, N: Number, %: Percentage, CSBD: Compulsive Sexual Behavior Disorder, ‡: Analyzed by the Independent *t*-test.



Table 2. Comparison of sociodemographic characteristics of low-risk (CSBD–) and at-risk (CSBD+) women ($N = 772$)

| Variable | Women ($n = 772$) | | | |
|--------------------------|--------------------------|----------------------------|---------------|-------------|
| | CSBD+N (%) 29 (3.8 %) | CSBD–N (%) 743 (96.2 %) | p -value | Cohen's d |
| | M (SD) | M (SD) | ‡ | |
| Age | 33.59 ± 8.14 | 36.29 ± 9.79 | 0.143 | 0.3 |
| Marriage duration (year) | 10.07 ± 7.23 | 12.55 ± 9.67 | 0.172 | 0.3 |
| Education (year) | 14.69 ± 3.38 | 15.74 ± 3.67 | 0.130 | 0.3 |
| Religiousness | 3.69 ± 1.87 | 4.62 ± 1.75 | 0.005 | 0.5 |
| | N (%) | N (%) | £ | |
| Residence | | | | |
| City | 27 (93.1%) | 723 (97.3 %) | 0.182 | |
| Village | 2 (6.9 %) | 20 (2.7 %) | | |
| Children | | | | |
| No child | 8 (27.6 %) | 195 (26.2 %) | 0.996 | |
| 1-2 Children | 19 (65.5 %) | 471 (63.3 %) | | |
| 3-4 Children | 2 (6.9 %) | 74 (9.9 %) | | |
| >4 Children | – | 3 (0.4 %) | | |
| Employment | | | | |
| unemployed | 22 (75.9 %) | 401 (54 %) | 0.131 | |
| Part-time | 3 (10.3 %) | 139 (18.7 %) | | |
| Full-time | 4 (13.8 %) | 203 (27.3 %) | | |
| Economics | | | | |
| Undesirable | 5 (17.2%) | 94 (12.7%) | 0.044 | |
| Average | 24 (82.8%) | 518 (69.7%) | | |
| Desirable | – | 131 (17.6%) | | |
| Substance use | | | | |
| Opioid | – | 1 (0.1 %) | 0.0001 | |
| Stimulants | – | – | | |
| Hallucinogens | – | – | | |
| Alcohol | 8 (27.6 %) | 50 (6.7 %) | | |
| None | 21 (72.4 %) | 692 (93.1 %) | | |

M: Mean, SD: Standard deviation, N: Number, %: Percentage, CSBD: Compulsive Sexual Behavior Disorder, ‡: Analyzed by the Independent t -test, £: Analyzed by the Chi-square test.

The greatest Cohen d among sexual history information belongs to conflict on sex frequency (0.5) (Table 3).

In the sexual health variable, CSBD+ women reported lower sexual ($p = 0.0001$) and relationship satisfaction ($p = 0.0001$) than CSBD–women. At a significance level of 0.05, CSBD+ women experienced more sexual distress, sexual dysfunction, dysfunctional sex drive, arousal, disability to reach orgasm, and dissatisfaction from orgasm, compared to CSBD–women. Large effect size observed relationship satisfaction ($d = 0.8$), sexual satisfaction ($d = 0.7$), and sexual distress ($d = 0.6$) (Table 4).

In psychological factors, CSBD+ women showed significantly higher depression ($p = 0.0001$), obsessive-compulsive symptoms ($p = 0.0001$), and near meaningful higher anxiety ($p = 0.005$) than CSBD–women. Large effect size observed depression ($d = 0.9$), OCD ($d = 0.7$), and anxiety ($d = 0.6$) (Table 4).

A Backward linear regression was conducted to identify predictors of CSBD. After including all variables in the model, results showed that a one-unit decrease in education was linked to a 0.06 increase in CSBD scores ($B = -0.068$, $p = 0.033$). Unemployment was associated with a 0.256 increase ($B = -0.256$, $p = 0.61$), and substance use

demonstrates a 1.11 increase in CSBD scores ($B = 1.110$, $p = 0.003$). Additionally, elevated scores in conflict on sex frequency ($B = 0.211$, $p = 0.011$), pornography use ($B = 0.991$, $p = 0.000$), and engagement in paraphilic behaviors ($B = 3.904$, $p = 0.000$) were strongly associated with increases in CSBD scores. Decreased sexual satisfaction ($B = -0.352$, $p = 0.008$), lower relationship satisfaction ($B = -0.313$, $p = 0.008$), higher arousal ($B = -0.295$, $p = 0.006$), dissatisfaction with orgasms ($B = 0.292$, $p = 0.006$) contribute to elevated CSBD scores. Depression ($B = 0.261$, $p = 0.000$), and obsessive-compulsive symptoms ($B = 0.067$, $p = 0.002$) increased the CSBD probability (Table 5).

DISCUSSION

Given the lack of data on Compulsive Sexual Behaviour Disorder (CSBD) in Iran and little information on CSBD in non-Western cultures, especially among women, the present study aimed to investigate the prevalence of CSBD, compare some sexual and psychological variables between CSBD+ and CSBD–women and predict its associated factors. Linear regression analysis showed that lower education,



Table 3. Comparison of sexual history characteristics of low-risk (CSBD-) and at-risk (CSBD+) women (N = 772)

| Variable | Women (N = 772) | | p-value | Cohen's d |
|--|--------------------------|----------------------------|---------------|-----------|
| | CSBD+N (%) 29 (3.8 %) | CSBD-N (%) 743 (96.2 %) | | |
| | M (SD) | M (SD) | ‡ | |
| Age at first sexual intercourse | 22.59 ± 3.40 | 23.33 ± 9.43 | 0.671 | 0.1 |
| Sex frequency (3 months) | 12.03 ± 9.36 | 15.61 ± 35.00 | 0.583 | 0.1 |
| Masturbation frequency (Monthly) | 1.28 ± 3.31 | 0.51 ± 1.65 | 0.227 | 0.2 |
| Extramarital affair (Yearly partner numbers) | 0.10 ± 0.31 | 0.08 ± 0.39 | 0.746 | 0 |
| Conflict on sex frequency | 0.79 ± 1.04 | 0.31 ± 0.604 | 0.021 | 0.5 |
| Daily Internet use (hours) | 3.48 ± 1.78 | 2.69 ± 1.94 | 0.032 | 0.4 |
| Pornography use frequency (monthly) | 3.50 ± 5.53 | 2.36 ± 7.93 | 0.588 | 0.1 |
| Sex communication | 3.59 ± 1.29 | 3.80 ± 1.07 | 0.386 | 0.1 |
| | N (%) | N (%) | £ | |
| Pornography use | | | | |
| No | 14 (2.3 %) | 598 (97.7 %) | 0.000 | |
| Yes | 15 (9.4 %) | 145 (90.6 %) | | |
| Paraphilia | | | | |
| No | 26 (89.7%) | 736 (99.1%) | 0.0001 | |
| Yes | 3 (10.3%) | 7 (0.9%) | | |
| Type of Paraphilia | | | | |
| Exhibitionism | - | 1 (0.1%) | 0.0001 | |
| Voyeurism | 2 (6.9%) | 6 (0.8%) | | |
| Paedophilia | - | - | | |
| Sadism | - | - | | |
| Frotteurism | 1 (3.4%) | - | | |
| Necrophilia | - | - | | |
| Masochism | - | 3 (0.4%) | | |
| None | 26 (89.7%) | 733 (98.7%) | | |

M: Mean, SD: Standard deviation, N: Number, %: Percentage, CSBD: Compulsive Sexual Behavior Disorder, ‡: Analyzed by the Independent *t*-test, £: Analyzed by the Chi-square test.

Table 4. Comparison of sexual and psychological health factors of low-risk (CSBD-) and at-risk (CSBD+) women (N = 772)

| Variable | Women (N = 772) | | p-value | Cohen's d |
|--------------------------------|--------------------------|----------------------------|---------------|-----------|
| | CSBD+N (%) 29 (3.8 %) | CSBD-N (%) 743 (96.2 %) | | |
| | M (SD) | M (SD) | ‡ | |
| Sexual Health variables | | | | |
| Sexual Distress | 1.59 ± 1.21 | 1.01 ± 1.14 | 0.008 | 0.6 |
| Sexual Satisfaction | 3.10 ± 1.04 | 3.89 ± 1.15 | 0.0001 | 0.7 |
| Relationship satisfaction | 2.72 ± 1.30 | 3.75 ± 1.13 | 0.0001 | 0.8 |
| Sexual Function* | 17.10 ± 5.59 | 14.77 ± 5.12 | 0.017 | 0.5 |
| Drive | 3.83 ± 1.25 | 3.34 ± 1.24 | 0.039 | 0.3 |
| Arousal | 3.45 ± 1.42 | 2.97 ± 1.23 | 0.043 | 0.3 |
| Orgasm | 3.55 ± 1.42 | 3.02 ± 1.31 | 0.035 | 0.3 |
| Orgasm satisfaction | 3.59 ± 1.35 | 2.97 ± 1.37 | 0.017 | 0.4 |
| Lubrication | 2.69 ± 1.31 | 2.42 ± 1.21 | 0.243 | 0.2 |
| Psychological variables | M (SD) | M (SD) | ‡ | |
| Depression | 3.48 ± 1.86 | 1.93 ± 1.66 | 0.0001 | 0.9 |
| Anxiety | 14.65 ± 1.77 | 13.46 ± 2.27 | 0.005 | 0.6 |
| Self-esteem | 2.52 ± 0.82 | 2.95 ± 1.24 | 0.062 | 0.4 |
| OCD | 17.31 ± 5.56 | 13.48 ± 5.09 | 0.0001 | 0.7 |

Note. M: Mean, SD: Standard deviation, N: Number, %: Percentage, CSBD: Compulsive Sexual Behavior Disorder, OCD: Obsessive Compulsive Disorders ‡: Analyzed by the Independent *t*-test.

*A higher score in this variable and its related dimensions indicates a higher level of dysfunction.



Table 5. Predictors of compulsive sexual behavior Disorder (CSBD) among women (Backward linear regression)

| Model | Unstandardized coefficients | | <i>t</i> | <i>p</i> -value | 95.0% confidence interval for B | |
|-------------------------------|-----------------------------|------------|----------|-----------------|---------------------------------|-------------|
| | B | Std. error | | | Lower bound | Upper bound |
| (Constant) | 13.352 | 2.385 | 5.599 | 0.000 | 8.671 | 18.034 |
| Education | −0.068 | 0.032 | −2.133 | 0.033 | −0.131 | −0.005 |
| Employment | −0.256 | 0.136 | −1.879 | 0.061 | −0.524 | 0.011 |
| Substance use | 1.110 | 0.370 | −2.998 | 0.003 | −1.836 | −0.383 |
| Pornography use | 0.991 | 0.277 | 3.576 | 0.000 | 0.447 | 1.535 |
| Paraphilic behavior | 3.904 | 0.962 | 4.058 | 0.000 | 2.016 | 5.793 |
| Sexual satisfaction | −0.352 | 0.132 | −2.678 | 0.008 | −0.610 | −0.094 |
| Relationship satisfaction | −0.313 | 0.118 | −2.652 | 0.008 | −0.546 | −0.081 |
| Conflict on sex frequency | 0.211 | 0.082 | 2.557 | 0.011 | 0.049 | 0.372 |
| Depression | 0.261 | 0.072 | 3.635 | 0.000 | 0.120 | 0.402 |
| Obsessive compulsive symptoms | 0.067 | 0.022 | 3.100 | 0.002 | 0.025 | 0.109 |
| Sexual arousal | −0.295 | 0.106 | −2.775 | 0.006 | −0.504 | −0.086 |
| Orgasm satisfaction | 0.292 | 0.106 | 2.751 | 0.006 | 0.084 | 0.501 |

Employment: reference = unemployed; Substance & Pornography use & Paraphilic behavior: reference = No.

being jobless, substance use, pornography use, paraphilic behaviors, conflict on sex frequency, relationship, orgasm and sexual dissatisfaction, higher sexual arousal, depression, and obsessive-compulsive symptoms were positively associated with CSBD. It should be mentioned that, due to the nature of the study, it was not possible to establish causality, and our findings only indicate a probable association between these variables and CSBD. Further cohort or randomized controlled trial studies are needed to ascertain the true effects of these factors on CSBD.

In the present study, the prevalence of CSBD+ in women was estimated as 3.8%. In the International Sex Survey in 42 countries, with a sample size of 46,874 participants, the occurrence of CSBD in women was 2.42% (Bóthe et al., 2023). In another study that was conducted on 3,279 women from three countries, the prevalence of CSBD was estimated in the range of 0–5.5% (Bóthe et al., 2020). It should be considered, that women may be less willing to report their sexual behaviours, including CSBD, due to cultural-religious reasons (Klein & Kaplan, 2021).

CSBD+ women exhibited lower religiousness and higher anxiety compared to those CSBD - women. As other studies show (Grubbs et al., 2019; Rahm-Knigge, Miner, & Coleman, 2023), CSBD-related sexual behaviors are in argument with religious teachings, and individuals are less likely to engage in these activities. At the same time, if CSBD-related behaviors, such as masturbation or watching pornography, occur, it can lead to a higher level of anxiety in women in an Islamic society, as individuals not only do not feel good but also fear disclosure and being labelled, which can be stressful (Grant Weinandy, Lee, Hoagland, Grubbs, & Bóthe, 2023).

Among demographic characteristics, substance use, lower education, and unemployment were associated with CSBD. Despite the legal and religious prohibition of alcohol consumption in our country, the most used substance was alcohol. The substance consumption was associated with an approximate 1.11 increase in the CSBD score. This suggests

a notable positive relationship between substance use and compulsive sexual behaviors. Other studies similarly found higher alcohol and opioid consumption in CSBD individuals (Ballester-Arnal, Castro-Calvo, Giménez-García, Gil-Juliá, & Gil-Llario, 2020; Chassin, Colder, Hussong, & Sher, 2016). Addiction to these substances may alter the brain, potentially forming new reward pathways, leading to craving, tolerance, and an inability to quit (Balon & Briken, 2021). Alcohol's impact on sexual desire, potentially fostering addiction, compulsion, and sexual problems. This suggests a complex interplay between substance use, neurobiology, and CSBD development (Kafka, 2003). Lower levels of education were associated with an increase in CSBD. It seems that with an increase in educational attainment, people's awareness of healthy sexual behaviors is enhanced and they avoid certain high-risk sexual behaviors due to the potential impact on their sexual life. There is a possibility that individuals with higher education, have better job opportunities and income, and have greater access to healthier forms of entertainment. Conversely, they may have less free time to address their thoughts and emotions. Similarly, Mestre-Bachbian et al. showed that as the level of education decreases, access to education and knowledge is reduced leading to an increased likelihood of CSBD (Mestre-Bach, Granero, Fernandez-Aranda, Potenza, & Jimenez-Murcia, 2023).

Unemployment was associated with an increase in the CSBD score. Unemployed individuals, with more free time and limited financial resources for expensive entertainment, may turn to cheaper alternatives like pornography, potentially increasing the likelihood of Compulsive Sexual Behavior Disorder (CSBD). Irina and Garnik's study supports this, linking joblessness and increased free time to excessive sexual behaviors. Moreover, unemployment may contribute to depression and reduced self-esteem, further elevating the risk of engaging in hypersexuality as a coping mechanism (Bancos, Nippoldt, & Erickson, 2017; Kocharyan, 2019).



Among sexual history characteristics, the use of pornography, paraphilic behaviours, and conflict in sex frequency have a positive relationship with CSBD. Pornography users in women are associated with a notable, 99% increase in CSBD scores. With similar results, Mestre stated the relationship between CSBD and pornography usage and suggested that loneliness may be a potential mediator (Mestre-Bach & Potenza, 2023). The probability of CSBD in the presence of paraphilic behaviors increases by 3.9 times. In fact, among all variables, the highest association with CSBD was observed with paraphilia. Turner's study aligns with this investigation, linking CSBD to paraphilia (Turner, Hertz, Biedermann, Barra, & Retz, 2022). Some suggest a spectrum relationship, viewing paraphilia and CSBD as impulsive-compulsive or obsessive-compulsive disorders (Rösler & Witztum, 2000). Each unit increase in arguments on sex frequency was associated with a 0.21 increase in the CSBD score. Higher conflict in sex frequency observed in this survey is one of the characteristics of CSBD and individuals may struggle with a persistent pattern of failure to control intense and repetitive sexual impulses.

In this survey, women with CSBD showed higher sexual arousal, but less satisfaction with orgasm and sexual and relationship satisfaction than CSBD–women. Walton and colleagues stated that sexual arousal may be an appropriate criterion for hypersexuality (Walton, Cantor, Bhullar, & Lykins, 2017). The nature of the study doesn't let us understand that if one item is a risk factor for CSBD or its outcome. It seems that higher arousal may be accompanied by CSBD, but simultaneously satisfaction of orgasm and sex life decreased probably due to lack of control over sex activity and addictive pattern. Relationship dissatisfaction could be related to sexual satisfaction and frequent arguments on sex issues (Reid, Carpenter, Draper, & Manning, 2010). On the contrary, it is possible that women's dissatisfaction with their sex life in a patriarchal context, characterized by the dominance of an androgenic sexual script, leads to Compulsive Sexual Behavior Disorder (CSBD)-related behaviors. This may manifest in individual sexual behaviors such as masturbation or pornography usage, as women might resort to these activities instead of expressing their sexual needs and problems with their husbands. In line with this assumption, although not statistically significant, the number of sexual relationships with husbands and sexual communication was lower, while masturbation, pornography usage, and extramarital relationships were higher in CSBD+ women than in CSBD–women.

The psychological health variables, depression, and Obsessive-Compulsive symptoms were predictors of CSBD+. Depression and OCS obtained large effect sizes ($d = 0.9$, and 0.7 , respectively). However, due to the cross-sectional nature of this study, it cannot be determined whether depression and OCD symptoms could lead to CSBD or vice versa. Depression increased the CSBD+ score to 26%. It assumed that high levels of negative emotions make individuals more likely to engage in risky sexual behaviours and they may use multiple sexual relationships as a coping mechanism for unpleasant feelings (Draps et al.,

2021). On the other hand, CSBD+ women may violate society's norms and they might be socially isolated which leads to psychological problems such as depression (Ballester-Arnal et al., 2020). It should be noted that although some studies reported the relationship between depression with CSBD (Kraus et al., 2017), this relationship was not observed in some other studies (Shirk, Saxena, Park, & Kraus, 2021). Regarding the relationship between CSBD and OCS, it seems plausible that disturbing and repetitive thoughts caused by OCS can also be focused on sexual issues and cause unwanted sexual behaviours. On the other hand, CSBD has an obsessive nature and the person loses control over sexual behaviours and finds a compulsion to do them, which may cause dissatisfaction and personal and social problems (Adams.M, 2001). In line with the present study, a positive relationship between OCS and CSBD was also shown in previous studies (Fuss, Briken, Stein, & Lochner, 2019; Långström & Hanson, 2006; Odlaug et al., 2013; Skegg, Nada-Raja, Dickson, & Paul, 2010).

Some limitations of this study should be considered. Due to legal and religious prohibitions, the study focuses solely on married and heterosexual women. Despite using a standardized ICD-11-based tool to measure CSBD, the observed prevalence is based on self-report and should be interpreted with caution. Given the cross-sectional nature of the study, the possibility of recall bias should be considered, and the directionality of the associations between variables could not be determined. The strengths of this study include the use of a standardized ICD-11-based tool to measure CSBD, sampling with a significant volume at the national level in an Islamic and traditional society with a different culture from non-Western countries, and anonymously collecting data.

CONCLUSIONS AND IMPLICATIONS

The present study, as the first nation-wide study in Iran, investigated the prevalence of CSBD in women, compared CSBD+ women with CSBD–in some sociodemographic, sexual, and psychological factors, and detected predictors of CSBD. Considering the 3.8 prevalence of CSBD in women, it seems necessary to train health-provider in this field. Findings suggested that CSBD+ women had experienced more adverse sexual and psychological than CSBD–. Some of the risk factors of CSBD, such as substance use and being jobless can be modified by proper policy. Considering the relationship between CSBD and sexual and psychological health variables, the health care providers should pay attention to the appropriate interventions. The consistency between linear regression and stringent significance level univariate analyses enhances the robustness of our findings.

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Conflict of interest: Beáta Bóthe is an associate editor of the Journal of Behavioral Addictions. The other authors declare no conflict of interest.

Data availability: The datasets generated during the current study are not publicly available due to the sensitivity of the subject in our country but are available from the corresponding author on reasonable request.

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