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International Sex Survey: Study protocol of a large, cross-cultural collaborative study in 45 countries

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FULL-LENGTH REPORT



ABSTRACT

Background and aims: Limitations of research into sexuality and compulsive sexual behavior disorder (CSBD) include the use of simplistic methodological designs and the absence of quality and unified measurements, empirically supported theoretical models, and large, collaborative studies between laboratories. We aim to fill these gaps with the International Sex Survey (ISS, <http://internationalsexsurvey.org/>). **Methods:** The ISS is a large-scale, international, multi-lab, multi-language study using cross-sectional survey methods, involving more than 40 countries. Participants responding to advertisements complete a self-report, anonymous survey on a secure online platform. Collaborators from each country collect a community sample of adults with a minimum sample size of 2,000 participants with a gender ratio of approximately 50–50% men and women, including diverse individuals with respect to sexuality and gender. The ISS includes a wide range of sociodemographic questions and scales assessing a diverse set of sexual behaviors, pornography use, psychological characteristics, and potential comorbid disorders. Analyses are conducted within a structural equation modeling framework, including variable (e.g., measurement invariance tests) and person-centered approaches (e.g., latent profile analysis). **Discussion and conclusions:** The ISS will provide well-validated, publicly available screening tools, helping to eliminate significant measurement issues in the field of sexuality research and health care. It will provide important insights to improve the theoretical understanding of CSBD as well as help to identify empirically supported treatment targets for prevention and intervention programs. Following open-science practices and making study materials open-access, the ISS may serve as a blueprint for future large-scale research in addiction and sexuality research.

KEYWORDS

addictive behavior, compulsive sexual behavior, impulsive behavior, pornography, sexuality, sexual well-being

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INTRODUCTION

Sexuality encompasses basic yet complex behaviors and is an integral part of people's well-being. Experiencing problems with one's sexuality may cover a wide range of concerns (e.g., sexual dysfunctions or sexuality-related impulse control disorders) ([World Health](#)

Organization, 2019), and may result in significant distress and functional impairment (Bóthe, Tóth-Király, Griffiths et al., 2021; Kraus et al., 2018). Compulsive sexual behavior disorder (CSBD; also known as sex addiction or hypersexual disorder/hypersexuality) has long been considered (Carnes, 1983) and appears prevalent in general populations (3–10% in national probability samples) (Grubbs et al., 2020). However, its systematic scientific examination has started to increase only a few decades ago and proliferated in the past 25 years (Grubbs et al., 2020; Kafka, 2010). As a result, CSBD, characterized by persistent patterns of failures to control intense sexual urges and behaviors that result in clinically significant distress and functional impairment, is now included in the 11th revision of the *International Classification of Diseases* (ICD-11) (Kraus et al., 2018; World Health Organization, 2019). However, some crucial questions have yet to be addressed, as the field is still characterized mainly by simplistic methodological designs and often lacks quality and unified measurements, empirically supported theoretical models, and collaborative studies between laboratories (Grubbs et al., 2020; Grubbs & Kraus, 2021). We aim to fill these gaps with the International Sex Survey (ISS), which is a large, international, collaborative study using rigorous methods to examine sexual behaviors. Given its recent inclusion in ICD-11 and documented knowledge gaps, the ISS will focus on CSBD and one of its most prominent manifestations, problematic pornography use (PPU) (Reid et al., 2012; Wordecha et al., 2018). However, other sexual behaviors (e.g., paraphilias, risky sexual behaviors) are also included in the study, and similar knowledge gaps also exist for these behaviors.

The ISS' first overarching aim is to provide publicly available screening tools that can reliably and validly assess a wide range of sexual behaviors. For example, one of the main issues in CSBD research is the lack of valid and unified measurement, resulting in difficulties in comparing findings across studies (Grubbs et al., 2020). Although the assessment of CSBD has started to converge as a result of the proposed hypersexual disorder criteria (Kafka, 2010) and those for ICD-11-defined CSBD (Kraus et al., 2018; World Health Organization, 2019), there is no gold standard assessment for CSBD. To address this issue, the Compulsive Sexual Behavior Disorder Scale was developed (CSBD-19) (Bóthe, Potenza, Griffiths, Kraus, et al., 2020), which is currently the only tool assessing CSBD based on the ICD-11 diagnostic guidelines. Although it was developed in an international manner (i.e., Germany, Hungary, and the US) and demonstrated strong psychometric properties, further examination is required to establish its psychometric properties (e.g., validity, reliability) in other populations, as it has only been tested in Western, educated, industrialized, rich, and democratic (WEIRD) countries (Klein, Savaş, & Conley, 2021).

As more than 80% of individuals with CSBD also report PPU (Reid et al., 2012; Wordecha et al., 2018), PPU may be the most prominent manifestation of CSBD, and the aforementioned measurement issues apply to PPU as well (Fernandez & Griffiths, 2021; Grubbs et al., 2020). Based on the recommendations of recent systematic literature reviews

(Fernandez & Griffiths, 2021; Grubbs et al., 2020), the Problematic Pornography Consumption Scale (PPCS) (Bóthe, Tóth-Király, et al., 2018) and the Brief Pornography Screen (BPS) (Kraus et al., 2020) are the most psychometrically robust scales to assess PPU. Although these scales were validated in diverse populations (Bóthe, Lonza, Štulhofer, Demetrovics, 2020; Bóthe, Tóth-Király, Demetrovics, Orosz, 2021; Bóthe, Tóth-Király, et al., 2018; Chen et al., 2021; Kraus et al., 2020), further examination is needed to establish how these scales function in other populations. In sum, the ISS' first aim not only consolidates the assessment of compulsive sexual behaviors, including PPU, as well as other sexual behaviors assessed in the study, which is an essential prerequisite for any future research, but also paves the way for the second study aim.

The ISS' second overarching aim is to examine who may develop adaptive and maladaptive sexual behaviors and how they may do so. Prior work and recent calls have highlighted the need to better understand which populations may be at greater risk of developing CSBD and PPU, and which processes may underlie the development of CSBD and PPU (Bóthe, Tóth-Király, et al., 2019; Bóthe, Tóth-Király, Potenza, Orosz, & Demetrovics, 2020; Grubbs et al., 2020; Grubbs & Kraus, 2021; Kowalewska, Gola, Kraus, & Lewstarowicz, 2020; Kraus, Martino, & Potenza, 2016). As detailed elsewhere (Grubbs et al., 2020), most studies seem to approach CSBD and PPU without assumptions about their theoretical background and knowledge about factors contributing to the development of CSBD and PPU.

Currently, despite the inclusion of CSBD in ICD-11 (World Health Organization, 2019), there is not sufficient scientific evidence to conclusively determine whether CSBD and PPU should be considered as impulse control, compulsivity-related, or addictive disorders (Kor, Fogel, Reid, & Potenza, 2013; Kraus et al., 2016a, 2016b; Kraus et al., 2016; Potenza, Gola, Voon, Kor, & Kraus, 2017; Prause, Janssen, Georgiadis, Finn, & Pfaus, 2017; Sassover & Weinstein, 2020). Therefore, from a theoretical perspective, we will assess both impulsivity and compulsivity as transdiagnostic features to consider questions concerning the etiologies of CSBD and PPU (i.e., whether CSBD and PPU are rather characterized by impulsivity, compulsivity, or both, supporting the impulse control, compulsive, or addictive disorders models, respectively) (Bóthe et al., 2019; Fineberg et al., 2014).

In the case of PPU, two other relevant models have been introduced to the literature recently. The moral incongruence model of pornography use (Grubbs, Perry, Wilt, & Reid, 2019; Grubbs & Perry, 2019) posits that PPU may appear not only as a result of dysregulation (e.g., impulsivity), but also due to moral incongruence towards pornography use (i.e., feelings that one's pornography use is not consistent with one's beliefs, resulting in self-perceived PPU). Thus, dysregulated, high-frequency pornography use may not always be present in the case of PPU. Complementing this notion, the engagement model of (online) behaviors (Billieux, 2012; Billieux, Flayelle, Rumpf, & Stein, 2019; Bóthe, Tóth-Király, et al., 2020) proposes that high engagement in a given activity



(i.e., high-frequency pornography use) may not always result in problematic engagement in behaviors (i.e., PPU). Thus, besides impulsivity and compulsivity, we will also examine PPU's associations with moral incongruence towards pornography use and pornography use frequency, providing insights into the applicability of these models in cross-cultural settings as most previous research has been conducted in WEIRD countries. In addition, other relevant socio-demographic (e.g., sexual orientation, religiosity; Bóthe, Bartók, et al., 2018; Grubbs, Perry, et al., 2019), sexuality and romantic relationship-related (e.g., sexual function, sexual abuse; Bóthe et al., 2021; Slavin et al., 2020), and psychological characteristics (e.g., basic psychological needs; Bóthe, Tóth-Király, et al., 2020), and other psychiatric symptomatology (e.g., relating to depression, ADHD; Bóthe, Koós, Tóth-Király, Orosz, & Demetrovics, 2019; Grubbs, Volk, Exline, & Pargament, 2015) will also be assessed in the ISS. In sum, to make substantial advances in the upcoming years, rigorous and systematic examination of sociodemographic and psychological characteristics that may contribute to the development of CSBD and PPU need to be conducted using sophisticated methods.

The overarching aims of the ISS are to (1) provide publicly available screening tools that can reliably and validly assess different sexual behaviors, (2) identify populations at high risk of developing maladaptive sexual behaviors, and (3) study mechanisms underlying different sexual behaviors and identify potential risk and protective factors related to maladaptive sexual behaviors. In the ISS, we plan to use a theory-based approach with high-quality statistical methods and large multi-cultural and diverse samples (e.g., sex- and gender-diverse individuals).

METHODS

Study design

The ISS (<http://internationalsexsurvey.org/>) is an international, multi-lab, multi-language study using cross-sectional, self-report survey methods. The principal and co-investigators planned the study protocol, prepared all materials (e.g., survey, guidelines for collaborators, study advertisement materials), invited collaborators, secured incentives (i.e., donation), and preregistered the study (https://osf.io/uyfra/?view_only=6e4f96b748be42d99363d58e32d511b8). They will manage all language versions of the survey and collected data, conduct the analyses, and write the first drafts of most subsequent manuscripts. Collaborators from each country will sign the collaboration agreement, translate the survey battery from English to the target language, following a pre-established translation protocol (Beaton, Bombardier, Guillemin, & Ferraz, 2000); pretest it in the target language; obtain ethical permission for the study in their country; and, collect an adult community sample in their country. Collaborators can co-author papers in a manner that is compatible with the prevailing standards. The list of participating countries is shown in Table 1.

Table 1. List of participating countries in the International Sex Survey

Africa	America	Asia	Europe	Oceania
Algeria	Bolivia	Bangladesh	Austria	Australia
Egypt	Brazil	China	Belgium	New Zealand
South Africa	Canada	India	Croatia	
	Colombia	Iran	Czech Republic	
	Ecuador	Iraq	France	
	Mexico	Israel	Germany	
	Panama	Japan	Gibraltar	
	Peru	Malaysia	Hungary	
	United States	Pakistan	Ireland	
		South Korea	Italy	
		Taiwan	Lithuania	
			North Macedonia	
			Poland	
			Portugal	
			Romania	
			Slovakia	
			Spain	
			Switzerland	
			Turkey	
			United Kingdom	

Note. The list includes the participating countries (i.e., who signed the collaboration agreement) as of July 1, 2021.

The project's start date was February 2021, when collaborators were provided the complete study documentation. Data collection starts in October 2021 at the earliest. The estimated end date for data collection is December 2021 but may change depending on the success of recruitment. Collaborators will contact large, nationwide popular news websites in their countries to advertise the study, using standardized advertisement materials (e.g., templates of emails to contact news websites, study advertisement text, and study advertisement posters). The advertisement materials explicitly state that participation in the study is completely anonymous, and anyone meeting the eligibility criteria can participate in the study, promoting inclusivity and encouraging participants to share sensitive information. Collaborators may offer exclusive results to advertising partners (i.e., in exchange for advertisement, collaborators may write one or two paragraphs about basic descriptive information about the sample collected in their country and send it to the advertising partners after finishing the data collection). Based on previous data collection experiences (Bóthe, Potenza, et al., 2020; Bóthe et al., 2021), popular news websites are usually open to collaborating with academic researchers in exchange for exclusive results. Moreover, as an incentive for participation, we will inform participants



that the principal and co-investigators would donate 50 cents (USD) to non-profit, sexuality-related international organizations (e.g., World Association for Sexual Health) for every completed survey, with a maximum of a 1000 USD donation. Participants will have the opportunity to select their preferred non-profit, sexuality-related international organization from a list after survey completion. For example, this data collection strategy worked well in previous data collections in Hungary and the US (Bóthe, Bartók, et al., 2018; Bóthe, Potenza, et al., 2020; Bóthe et al., 2021; Koós, Bóthe, et al., 2021; Kraus et al., 2016), resulting in large samples ($N = 9,000$ – $24,000$), including individuals of all genders and sexual orientations and diverse socioeconomic characteristics, in a relatively short period of time (i.e., several weeks). As the ISS includes data on sensitive topics, we will not make all datasets publicly available. However, we may provide data upon request when permissible.

Procedure and participants

Participants responding to the advertisements complete a self-report, anonymous survey on a secure online platform (Qualtrics Research Suite). Survey completion takes approximately 25–35 min. Those individuals are eligible to participate in the study who (a) are at least 18 years old (or the legal age to provide informed consent) and (b) understand any of the languages in which the survey is available. Those participants are excluded from the study who (a) fail two out of three attention questions (Thomas & Clifford, 2017), and/or (b) produce unengaged response patterns (e.g., contradictory answers to several questions). Participants are provided a country-specific list of mental health services if they feel the need to speak to someone or need help. As an incentive, we inform participants that we donate 50 cents to non-profit, sexuality-related international organizations (e.g., World Association for Sexual Health) for every completed survey, with a maximum of a \$1,000 donation.

Collaborators from each country collect a community sample of adults with a minimum sample size of 2,000 participants, with a gender ratio of approximately 50-50% men and women, including sexual and sex/gender-diverse individuals. We chose a minimum of 2,000 participants from each country as we plan to examine specific sub-samples (e.g., based on sexual orientation). Moreover, we plan to conduct analyses that require large samples, such as person-centered statistical approaches. However, the field of person-centered analyses is still evolving when it comes to *a priori* sample size and power calculations. Compared to variable-centered analyses where well-established guidelines and methods are available (e.g., G*Power software), no formal person-centered guidelines have been established yet, and only some recommendations are available (Collins & Wugalter, 1992; Finch & Bronk, 2011; Gudicha, Tekle, & Vermunt, 2016). Thus, we chose a sample size sufficient for all analyses planned to be conducted without power issues.

Measures

Sociodemographic characteristics. A wide range of socio-demographic questions is included in the ISS survey battery. Participants report their sex assigned at birth, gender identity (Bauer, Braimoh, Scheim, & Dharma, 2017), trans status, sexual orientation (Weinrich, 2014), acceptance of gender and sexual orientation (by the individual and the country in which they reside), age, highest level of education, current engagement in education, work status, place of residence, ethnic minority status, subjective socioeconomic status, relationship status, number of children, and religious affiliation. The complete list of variables and the order of presentation in the survey battery is shown in Table 2.

General questions about mental and physical health

Mental and physical health. One item assesses the presence of any mental health and emotional problems. If participants report any mental health or emotional problems, they answer three additional questions concerning medication use and experiencing any general or sexuality-related side effects. One item assesses the presence of any physical health problems. If participants report any physical health problems, they answer three additional questions concerning medication use and experiencing any general or sexuality-related side effects.

Medication. One item assesses the use of medication for any other health issues or conditions. If participants report taking any medication, they answer two additional questions concerning experiencing any general and sexuality-related side effects.

Sexual problems. One item assesses the presence of any sexual problems. If participants report taking any medication, they answer two additional questions concerning medication use and experience any side effects of medication.

Pregnancy and breastfeeding. One item assesses whether female participants are pregnant at the time of data collection and how far they are in their pregnancy. One item assesses whether female participants are breastfeeding at the time of data collection.

COVID-19-related questions. Five items assess participants' COVID-19-related characteristics, including infection status, belonging to a risk group, engagement in social distancing, extent of being affected by the pandemic, and levels of COVID-19-related stress.

Sexuality-related characteristics

General questions about sexuality. Before asking about any sexual experiences with a partner, we provide a definition of sexual experience for participants.¹ Participants

¹Definition of sexual experiences with a partner used in the study: "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."



Table 2. Complete list of variables in the International Sex Survey in order of presentation for participants

Variable (Scale, Abbreviation)	Number of items
<i>Informed consent, country, and language choice</i>	
Country of residence	1
Informed consent	1
<i>Sociodemographic characteristics</i>	
Sex assigned at birth	1
Gender identity	1
Trans status	1
Sexual orientation	1
Acceptance of gender and sexual orientation (by the individual and the country they reside in)	4
Age	1
Highest level of education	1
Current education	1
Work status	1
Place of residence	1
Ethnic minority status	1
Subjective socioeconomic status	1
Relationship status	1
Children	1
Religious affiliation	1
Religiousness	3
<i>General questions about sexuality</i>	
Having any sexual experience with a partner	1
Age at first sexual experience with a partner	1
Total number of sexual partner (in and out of a relationship)	1
Past-year sexual frequency (in and out of a relationship)	1
Contraception use	1
Having any sexually transmitted infection	1
Treatment for sexually transmitted infection	1
Having ever masturbated	1
Past-year frequency of masturbation	1
<i>Romantic relationship</i>	
Length of the romantic relationship	1
Relationship satisfaction (Single-item Relationship Assessment Scale, RAS-1)	1
Past-year sexual frequency (with the partner)	1
Sexual satisfaction (Global Measure of Sexual Satisfaction, GMSEX)	5
<i>Sexuality-related measures</i>	
Having any casual sexual partners	1
Number of past-year casual sexual partners	1
Past-year casual sexual frequency	1
Compulsive sexual behavior (Compulsive Sexual Behavior Disorder Scale, CSBD-19)	19
Having ever sought treatment for compulsive sexual behaviors	1

(continued)

Table 2. Continued

Variable (Scale, Abbreviation)	Number of items
Being currently under treatment for compulsive sexual behaviors	1
Sexual distress (Short version of the Sexual Distress Scale, SDS-3)	3
Risky sexual behaviors (Sexual Risk Survey, SRS)	1+23
Paraphilias (Paraphilic Disorders Scale, PDS)	1+22
Sexual desire (Sexual Desire Inventory-2, SDI-2)	14
Question on displaying the male-bodied vs. female-bodied sexual function measure	1
Sexual function (Arizona Sexual Experience Scale, ASEX)	5
Sexual assertiveness (Short version of the Sexual Assertiveness Questionnaire, SAQ)	9
Sexual abuse (Sexual Abuse History Questionnaire, SAHQ)	6
<i>Pornography use-related measures</i>	
Having ever used pornography	1
Age at first pornography use	1
Past-year frequency of pornography use	1
Time spent with pornography use per each session	1
Pornography use motivations (Pornography Use Motivations Scale, PUMS)	24
Problematic pornography use (Problematic Pornography Consumption Scale, PPCS; Brief Pornography Screen, BPS)	23
Self-perceived pornography addiction	1
Moral incongruence toward pornography use	1
Having ever sought treatment for pornography use	1
Being currently under treatment for pornography use	1
<i>Impulsivity, compulsivity, and basic psychological needs</i>	
Impulsivity (Short UPPS-P Impulsivity Scale, UPPS-P)	20
Compulsivity (Compulsive Personality Assessment Scale, CPAS)	8
Basic psychological needs (Basic Psychological Needs Satisfaction and Frustration Scale, BPNSFS)	24
<i>Psychiatric symptomatology and related characteristics</i>	
Depression and anxiety (Subscales of the Brief Symptom Inventory, BSI-18)	12
ADHD (Adult ADHD Self-Report Screening Scale, ASRS)	6
Alcohol use disorder (Alcohol Use Disorders Identification Test, AUDIT)	1+9

1+10
(continued)

Table 2. Continued

Variable (Scale, Abbreviation)	Number of items
Substance use (Alcohol, Smoking and Substance Involvement Screening Test, ASSIST)	
Gambling	2+2
Body mass index	2
Binge eating (Binge Eating Disorder Screener-7, BEDS-7)	1+6
Self-harm (P4 Suicidality Screener)	1+4
<i>General questions about physical and mental health</i>	
Mental illness or emotional problems, medication, side effects	1+3
Physical illness, medication, side effects	1+3
Other medication or treatment, side effects	1+2
Any sexuality-related problems, medication, side effects	1+2
Currently pregnant and weeks of pregnancy	1+1
Breastfeeding	1
<i>COVID-19</i>	
COVID-19 status	1
Being in a COVID-19 risk group	1
COVID-19-related social distancing	1
Being affected by COVID-19	1
COVID-19-related stress	1
<i>Attention testing questions</i>	
Attention testing question 1 – added to SDI-2 (item 3)	1
Attention testing question 2 – added to UPPS-P (item 17)	1
Attention testing question 3 – added to ASRS-5 (item 5)	1

End of survey, list of resources for participants

Note. When the number of items appears in a format of “number” + “number”, it means that a screening item is included in the survey battery and only participants with a positive answer to the screening item receive the additional items.

report if they had any sexual experience with a partner before, age at first sexual experience with a partner, total number of sexual partners in their life, past-year sexual frequency (in and out of a relationship), past-year sexual frequency with the romantic partner, having any casual sex partner in their lifetime, past-year sexual frequency with casual sexual partners, type of contraception use, presence of any sexually transmitted infection, treatment for any sexually transmitted infection, and past and present treatment-seeking for compulsive sexual behaviors. Length of current romantic relationship,² lifetime masturbation, and past-year masturbation frequency are assessed. All general questions about sexuality are asked with one item and based on

²Before answering any romantic relationship-related questions, participants indicating being in any type of romantic relationship are asked to answer all following questions with respect to their primary partner if they have more than one partner.

previous studies (Beáta Bóthe, Bartók, et al., 2018; Bóthe et al., 2021).

Relationship satisfaction. The Single-item Relationship Assessment Scale (RAS-1) (Fülöp et al., 2020) assesses participants’ relationship satisfaction levels (i.e., “In general, how satisfied are you with your relationship?”). Participants indicate their answers on a five-point scale (1=“I am not satisfied”; 5=“I am very satisfied”).

Sexual satisfaction. The five-item Global Measure of Sexual Satisfaction (GMSEX) (Lawrance & Byers, 1998) assesses partnered individuals’ level of sexual satisfaction. It includes five seven-point dimensions based on a semantic differential approach (i.e., very bad-very good, very unpleasant-very pleasant, very negative-very positive, very unsatisfying-very satisfying, worthless-valuable) answering the question of “Overall, how would you describe your sexual relationship with your partner?”.

Compulsive sexual behavior. The 19-item Compulsive Sexual Behavior Disorder Scale (CSBD-19) (Bóthe, Potenza, et al., 2020) assesses the extent of compulsive sexual urges, thoughts, and behaviors and their consequences in the past six months. The CSBD-19 includes five factors based on the ICD-11 diagnostic guidelines: control (three items, e.g., “Even though my sexual behavior was irresponsible or reckless, I found it difficult to stop.”), salience (three items, e.g., “Sex has been the most important thing in my life.”), relapse (three items, e.g., “I was not successful in reducing the amount of sex I had.”), dissatisfaction (three items, e.g., “I had sex even when I did not enjoy it anymore.”), and general and domain-specific negative consequences (seven items, e.g., “My sexual activities interfered with my work and/or education.”). Participants indicate their levels of agreement on a four-point scale (1=“totally disagree”; 4=“totally agree”). Before completing the scale, participants read a pre-established definition of sex.³

Sexual distress. The one-factor, three-item version of the Sexual Distress Scale (SDS) (Derogatis, Rosen, Leiblum, Burnett, & Heiman, 2002; Pâquet et al., 2018) assesses the frequency of experiencing distress due to sexual difficulties in the past month (e.g., “How often did you feel distressed about your sex life?”). Participants indicate their answers on a five-point scale (0=“never”; 4=“always”).

Risky sexual behaviors. Participants indicating engagement in any type of risky sexual behaviors (i.e., “yes” answer to a screening question) are presented the relevant items of the 23-item Sexual Risk Survey (SRS) (Turchik & Garske, 2009). The SRS assesses how many times participants

³Definition 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.”

engaged in different risky sexual behaviors in the past six months. The SRS includes items related to risky vaginal, oral, or anal sex (e.g., “How many times have you had vaginal intercourse without protection against pregnancy?”), sex with casual sexual partner(s) (e.g., “How many times have you had sex with someone you don’t know well or just met?”), using alcohol or drugs while engaging in sexual activities (e.g., “How many times have you or your partner used alcohol or drugs before or during sex?”), having sex with a partner before discussing sexual history (e.g., “How many times have you had sex with a new partner before discussing sexual history, IV drug use, disease status and other current sexual partners?”), having sex with someone who had many sexual partners (e.g., “How many times (that you know of) have you had sex with someone who has had many sexual partners?”), having sex with someone who had been sexually active before you were with them but had not been tested for sexually transmitted infections (e.g., “How many partners (that you know of) have you had sex with who had been sexually active before you were with them but had not been tested for STIs/HIV?”), having sex with someone the participant do not trust (e.g., “How many partners have you had sex with that you didn’t trust?”), and having sex with someone who was also engaging in sex with others during the same period (e.g., “How many times (that you know of) have you had sex with someone who was also engaging in sex with others during the same time period?”).

Paraphilic disorders. Participants indicating interest in any paraphilias (i.e., “yes” answer to a screening question) complete items related to the reported paraphilic interest. Paraphilic disorders are assessed based on the current ICD-11 guidelines (Koós et al., 2021). Exhibitionistic disorder, voyeuristic disorder, pedophilic disorder, coercive sexual sadism disorder, frotteuristic disorder, paraphilic disorders involving non-consenting individuals, paraphilic disorders involving solitary behavior or consenting individuals (atypical sexual arousal patterns) are all assessed with three items. Two items are related to the given paraphilic disorder-related interest and resulting distress (e.g., “I have had a sustained and intense sexual arousal from the thought or fantasy of exposing my genitals to an unsuspecting individual in public places.”). Participants indicate their level of agreement on a four-point scale (1=“totally disagree”; 4=“totally agree”). One item asks about acting on the given thoughts and fantasies in the past six months (e.g., “I have acted on these thoughts and fantasies in the past six months.”), using a dichotomous answer option (0=“no”; 1=“yes”). Moreover, a fourth item is displayed for paraphilic disorders involving solitary behavior or consenting individuals (atypical sexual arousal patterns), assessing which acts are of interest (i.e., “Which of the following acts are the interest of yours?”, answer options include choking, beating, eating, castration, and free text answer).

Sexual desire. The 14-item Sexual Desire Inventory-2 (SDI-2) (Spector, Carey, & Steinberg, 1996) assesses individual (five items, e.g., “How strong is your desire to engage

in sexual behavior by yourself?”) and dyadic (nine items, e.g., “How strong is your desire to engage in sexual activity with a partner?”) sexual desire. Participants indicate their answers using eight-point (e.g., 0=“not at all”; 7=“more than once a day”) or nine-point scales (e.g., 0=“no desire”; 8=“strong desire”), with answer options adjusted to items.

Sexual function. The five-item Arizona Sexual Experience Scale (ASEX) (McGahuey et al., 2000) assesses the main aspects of sexual function (i.e., sexual drive, arousal, vaginal lubrication/penile erection, ability to reach orgasm, and satisfaction with orgasm) with one item (e.g., “How easily are you sexually aroused (turned on)?”). Participants indicate their answers using a six-point (e.g., 1=“extremely easily”; 6=“never reach orgasm”), with answer options adjusted to each item. A female and a male version of the scale is available with specific male-bodied and female-bodied questions.⁴

Sexual assertiveness. The nine-item version of the Sexual Assertiveness Questionnaire (SAQ) (Loshek & Terrell, 2015; Nagy et al., 2021) assesses three dimensions of sexual assertiveness among participants who had sex in the past year: ability to initiate and communicate about sex (three items, e.g., “It is easy for me to discuss sex with my partner.”); ability to refuse unwanted sex (three items, e.g., “It is easy for me to say no if I don’t want to have sex.”); and communication about sexual history and risk (three items, e.g., “I ask my partners about their sexual history.”). Participants indicate their answers on a seven-point scale (1=“strongly disagree”; 7=“strongly agree”).

Sexual abuse. The Sexual Abuse History Questionnaire (SAHQ) (Leserman, Drossman, & Li, 1995) assesses participants’ experiencing different types of sexual abuse during their childhood, adolescence, and adulthood, with 12 dichotomous (i.e., “no” and “yes”) questions (e.g., “Has anyone ever forced you to have sex when you did not want this?”).

Pornography use-related characteristics

General questions about pornography use. Before answering any pornography use-related questions, participants are provided a definition of pornography (Kohut et al., 2019).⁵ Participants report if they have ever used pornography in their life, age at first use, past-year pornography use

⁴Participants reporting a different gender identity than their sex assigned at birth, being non-binary, and/or being trans persons are provided a question concerning whether they would like to receive the male-bodied or the female-bodied sexual function scale, or whether they would prefer to skip this entire scale.

⁵Definition of pornography used in the study: “Using pornography (porn) means to intentionally look at, read, or listen to: (a) pictures, videos, or films that depict nude individuals or people having sex; or (b) written or audio material that describes nude individuals, or people having sex. Using porn does not involve viewing or interacting with actual, live, nude individuals, or participating in interactive sexual experiences with other human beings in person or online. For example, participating in live sex chat or a camshow, and getting a “lapdance” in a strip club are not considered porn use.”



frequency, time spent with pornography use per each session (in minutes), self-perceived addiction, moral incongruence (Grubbs, Kraus, & Perry, 2019), and past and present treatment-seeking for pornography use (adapted from Kraus, Rosenberg, Martino, Nich, & Potenza, 2017).

Pornography use motivations. The 24-item Pornography Use Motivations Scale (PUMS) (Bóthe, Tóth-Király, Bella, et al., 2020) assesses the reasons of pornography use via eight factors: sexual pleasure (three items, e.g., “I watch porn to arouse myself sexually.”), sexual curiosity (three items, e.g., “I watch porn to gather new ideas for sex.”), emotional distraction/suppression (three items, e.g., “I watch porn to suppress my bad mood.”), boredom avoidance (three items, e.g., “I watch porn because I am bored.”), stress reduction (three items, e.g., “I watch porn because it is one of the best ways to relieve stress.”), fantasy (three items, e.g., “I watch porn because I can be a part of things that I cannot experience in real life.”), lack of sexual satisfaction (three items, e.g., “I watch porn because my sexual life is not satisfying.”), and self-exploration (three items, e.g., “I watch porn because I can get to know what I like in sex and what I do not.”). Participants indicate their answers on a seven-point scale (1=“never”; 7=“all the time”).

Problematic pornography use. The Problematic Pornography Consumption Scale (PPCS) (Bóthe, Tóth-Király, et al., 2018) and the Brief Pornography Screen (BPS) (Kraus et al., 2020) assess the severity of problematic pornography use in the past six months. The 18-item PPCS includes six factors: salience (three items, e.g., “I felt that porn is an important part of my life.”), tolerance (three items, e.g., “I felt that I had to watch more and more porn for satisfaction.”), mood modification (three items, e.g., “I used porn to restore the tranquility of my feelings.”), conflict (three items, e.g., “Watching porn prevented me from bringing out the best in me.”), withdrawal (three items, e.g., “I became agitated when I was unable to watch porn.”), and relapse (three items, e.g., “I unsuccessfully tried to reduce the amount of porn I watch.”). Participants indicate their answers on a seven-point scale (1=“never”; 7=“all the time”). The BPS is a five-item, one-factor screen (e.g., “You have attempted to ‘cut back’ or stop using porn, but were unsuccessful.”). Participants indicate their answers on a three-point scale (0=“never”; 2=“very often”).

Psychological characteristics

Religiosity. Three pre-established items (e.g., “I consider myself religious.”) assess participants’ religiosity levels (Grubbs et al., 2019). Participants indicate their answers on a seven-point scale (1=“strongly disagree”; 7=“strongly agree”).

Impulsivity. The 20-item Short UPPS-P Impulsive Behavior Scale (UPPS-P) (Billieux et al., 2012) assesses five facets of impulsivity: negative urgency (four items, e.g., “When I am upset I often act without thinking.”), positive urgency (four items, e.g., “When I am really excited, I tend

not to think on the consequences of my actions.”), lack of premeditation (four items, e.g., “I usually think carefully before doing anything.”), lack of perseverance (four items, e.g., “I finish what I start.”), and sensation-seeking (four items, e.g., “I sometimes like doing things that are a bit frightening.”). Participants indicate their answers on a four-point scale (1=“I agree strongly”; 4=“I disagree strongly”).

Compulsivity. The eight-item Compulsive Personality Assessment Scale (CPAS) (Fineberg, Sharma, Sivakumaran, Sahakian, & Chamberlain, 2007) assesses participants’ compulsive behaviors (e.g., “Are you preoccupied with details, rules, lists, order, organization or schedules to the extent that the major aim of the activity is lost?”). Participants indicate their answers on a five-point scale (0=“not at all characteristic of me”; 4=“entirely characteristic of me”).

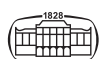
Basic psychological needs. The 24-item Basic Psychological Needs Satisfaction and Frustration Scale (BPNSFS) (Chen et al., 2015) assesses six dimensions of basic psychological needs: relatedness satisfaction (four items, e.g., “I feel that the people I care about also care about me.”), relatedness frustration (four items, e.g., “I feel excluded from the group I want to belong to.”), competence satisfaction (four items, e.g., “I feel confident that I can do things well.”), competence frustration (four items, e.g., “I have serious doubts about whether I can do things well.”), autonomy satisfaction (four items, e.g., “I feel a sense of choice and freedom in the things I undertake.”), and autonomy frustration (four items, e.g., “I feel forced to do many things I wouldn’t choose to do.”). Participants indicate their answers on a five-point scale (1=“not true at all”; 5=“completely true”).

Psychiatric symptomatology and related characteristics

Depression and anxiety. The depression and anxiety factors of the short version of the Brief Symptom Inventory (BSI-18) (Asner-Self, Schreiber, & Marotta, 2006) assess participants’ depressive (six items, e.g., “Feeling hopeless about the future”) and anxiety symptoms (six items, e.g., “Nervousness or shakiness inside”) in the past seven days. Participants indicate their answers on a five-point scale (0=“not at all”; 4=“extremely”).

Attention deficit hyperactivity disorder. The six-item Adult ADHD Self-Report Scale (ASRS) (Kessler et al., 2005) assesses ADHD symptoms (e.g., “How often do you have difficulty getting things in order when you have to do a task that requires organization?”) in the past six months. Participants indicate their answers on a five-point scale (0=“never”; 4=“very often”).

Alcohol use. The 10-item Alcohol Use Disorders Identification Test (AUDIT) (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001) assesses alcohol use-related problems (e.g., “How often during the last year have you failed to do what was normally expected of you because of drinking?”) if participants have used alcohol in the past 12 months.



Participants indicate their answers on three-point (e.g., 0=“no”; 4=“yes, during the last year”) and five-point scales (e.g., 0=“never”; 4=“4 or more times a week”), with answer options adjusted to items.

Substance use. The 10-item Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST) (Humeniuk et al., 2010) assesses the frequency of participants’ use of different substances (i.e., tobacco products, alcoholic beverages, cannabis, cocaine, amphetamine type stimulants, inhalants, sedatives or sleeping pills, hallucinogens, opioids, and other substances, with free text answers) in the past three months. Participants indicate their answers on a five-point scale (0=“never”; 4=“daily or almost daily”).

Gambling. Participants indicate whether they engaged in traditional or online gambling in their lifetime and during the past 30 days. Participants who gambled in the past 30 days also report how many times they engaged in traditional or online gambling during this period.

Body Mass Index. Participants’ height (feet, inches or meter, centimeters) and weight (pounds or kilograms) are assessed with two questions.

Binge eating. The seven-item Binge Eating Disorder Screener-7 (BEDS-7) (Herman et al., 2016) assesses binge-eating symptoms in participants who report any episodes of excessive overeating in the past three months (e.g., “During your episodes of excessive overeating, how often did you feel disgusted with yourself or guilty afterward?”). Participants indicate their answers on two-point (0=“no”; 1=“yes”) and four-point scales (0=“never or rarely”; 3=“always”), with answer options adjusted to items.

Suicidality. The five-item P4 Suicidality Screener (P4) (Dube, Kroenke, Bair, Theobald, & Williams, 2010) assesses participants’ levels of suicidal thoughts and risk among participants who report having suicidal thoughts (e.g., “Have you ever attempted to harm yourself in the past?”). Participants indicate their answers on two-point (0=“no”; 1=“yes”) and three-point scales (0=“not likely at all”; 2=“very likely”), with answer options adjusted to items.

Attention testing questions. The survey battery includes three attention-testing questions added to scales that are displayed to all participants (e.g., “We’re evaluating your level of attention, answer “Disagree some” to this question.”). If participants fail at least two out of these questions, their data will be considered invalid (Thomas & Clifford, 2017).

Statistical analysis

Analyses will be conducted within a structural equation modeling framework. First, we will conduct confirmatory factor analysis to examine the structural validity of each scale. Models will be evaluated based on commonly used goodness-of-fit indices (Browne & Cudeck, 1993; Marsh, Hau, & Grayson, 2005; Schermelleh-Engel, Moosbrugger, &

Müller, 2003), such as the Comparative Fit Index or Root-Mean-Square Error of Approximation with its 90% confidence interval. To ensure that comparisons between groups (e.g., genders, countries) are meaningful and to reduce the possibility of measurement biases and invalid comparisons between groups, we will conduct measurement invariance tests (Milfont & Fischer, 2010; Millsap, 2011; Vandenberg & Lance, 2000).

In the next phase, we will conduct latent profile analysis (LPA) to identify individuals’ sexual profiles (Collins & Lanza, 2010). For example, to identify compulsive and non-compulsive sexual behavior profiles, we will use the dimensions of the CSBD-19 as profile indicators, building on the ICD-11-based conceptualization of CSBD (World Health Organization, 2019) and previous LPA studies of CSBD (e.g., Bóthe, Tóth-Király et al., 2020). In another LPA model, we will examine problematic and non-problematic pornography use profiles using the PPCS, BPS, frequency of pornography use, and moral incongruence towards pornography use as profile indicators, building on the engagement and moral incongruence models (Billieux, 2012; Billieux et al., 2019; Grubbs, Perry, et al., 2019; Grubbs & Perry, 2019; Tóth-Király, Bóthe, & Orosz, 2018), and previous empirical findings (Bóthe, Tóth-Király, et al., 2020; Chen, Jiang, Luo, Kraus, & Bóthe, 2021). The selection of the optimal number of classes will be guided by the theoretical meaningfulness and statistical adequacy of the extracted classes (Marsh, Lüdtke, Trautwein, & Morin, 2009), such as the Akaike Information Criterion, entropy, and Lo-Mendell-Rubin Adjusted Likelihood Ratio Test (Lubke & Muthén, 2007). Once the final number of classes are identified, we will compare the identified profiles based on potential predictors (e.g., impulsivity, basic psychological needs) and outcomes (e.g., sexual distress, sexual satisfaction) (Asparouhov & Muthén, 2007), following previous recommendations and best practices (Gillet, Morin, Colombat, Ndiaye, & Fouquereau, 2021; Morin, Meyer, Creusier, & Biétry, 2015). This paper serves as the general description of the ISS study, and additional statistical analyses may be conducted based on the ISS data. Any study based on data from the ISS will have its own preregistration (e.g., including hypothesis and data analysis plan) and will be added as a new component of the study’s OSF project.

Ethics

The study procedures were conducted following the Declaration of Helsinki. The Institutional Review Board of the Eötvös Loránd University approved the study (2020/474). All participants are informed about the study and provide informed consent.

DISCUSSION

Following recent calls for integration and rigorous methodological designs in sex research, the ISS was designed and dedicated to understanding a wide range of sexual behaviors,



with a focus on CSBD and PPU in diverse populations (Grubbs et al., 2020; Grubbs & Kraus, 2021; Klein et al., 2021). From theoretical and research perspectives, the ISS will provide well-validated, publicly available screening tools (e.g., CSBD-19, PPCS) for researchers, helping to address major issues in the field of potentially compulsive, impulsive, and addictive sexual behaviors research (e.g., difficulties comparing findings across studies given use of different measurements) that may eventually lead to a high-quality, unified assessment (Grubbs et al., 2020). The ISS' findings may provide important insights to improve the theoretical understanding of CSBD and PPU, and may lay the foundations for improving theoretical models by providing empirical evidence about, for example, potential roles impulsivity and compulsivity may have in CSBD, or moral incongruence may have in PPU (Bóthe, Tóth-Király et al., 2019; Fineberg et al., 2014; Grubbs, Perry, et al., 2019). These insights are important for gaining a deeper understanding of CSBD and PPU (Grubbs et al., 2020). Lastly, following open-science practices to contribute to robust and replicable science, we will preregister all analyses and make open-access study materials. Thus, this study may serve as a blueprint for future large-scale research in addiction and sexuality research.

From an applied perspective, in line with the World Health Organization's policy and expert recommendations (Chou, Cottler, Khosla, Reed, & Say, 2015; Stein, Szatmari, Gaebel, & Berk, 2020), several sexuality-related measures will be translated and adapted to different languages, and validated in many countries on five continents, including underserved populations and non-WEIRD countries that were underrepresented in previous studies (Grubbs et al., 2020; Klein et al., 2021). These scales will be freely accessible for healthcare professionals (e.g., psychologists), given that maladaptive sexual behaviors may result in severe functional impairment in different life domains (e.g., relationship issues; Kraus et al., 2018). Thus, it is important to assess these behaviors and evaluate the effectiveness of interventions with valid and reliable scales in clinical settings. Results from the current investigation will contribute to the easy identification of different sexual profiles (e.g., high-risk populations) and knowledge about possible antecedents (i.e., risk factors) and outcomes. This may help health care professionals to identify targets of intervention to increase the likelihood of desirable sexual profiles (e.g., higher sexual well-being). On a larger scale, the ISS will introduce potential empirically-supported treatment targets that can be used to improve and develop preventions and interventions.

Limitations and future studies

Despite the strengths of the ISS, limitations should be considered. The study uses a cross-sectional, self-reported data collection methodology involving self-selected samples; this methodology may be prone to biases (e.g., recall bias). Although the study aims to use large, diverse samples, it will not be representative of all populations in each country, limiting the generalizability of the findings. Future studies

will be needed to further examine the validity and reliability of the screening tools planned for use in the ISS in other populations (e.g., adolescents; Bóthe, Vaillancourt-Morel, Dion, Štulhofer, & Bergeron, 2021) and corroborate the identified sexual profiles and profile correlates, with a special focus on non-WEIRD, nationally representative, and treatment-seeking samples (Grubbs et al., 2020; Klein et al., 2021). Moreover, given limits in the survey battery (e.g., relating to respondent burden), it will not be possible to assess all sexuality-related variables (e.g., use of sexual enhancement products; Corazza et al., 2014) or psychosocial characteristics (e.g., sexual self-esteem; Mitchell, Lewis, O'Sullivan, & Fortenberry, 2021) that may be relevant to CSBD, PPU, sexual well-being, or sexual health. Thus, building off ISS findings, future studies will be needed to examine a wider range of variables in relation to CSBD and PPU, preferably in longitudinal settings, providing information about the natural course and temporal stability of assessed and observed associations (Grubbs & Gola, 2019; Grubbs & Kraus, 2021; Štulhofer, Rousseau, & Shekarchi, 2020).

CONCLUSIONS

Addressing the limitations of previous studies (Grubbs et al., 2020; Grubbs & Kraus, 2021; Klein et al., 2021), the ISS is a theory-driven, large-scale, international, multi-lab, multi-language study using cross-sectional survey methods, involving more than 40 countries from five continents. The ISS will provide well-validated, publicly available screening tools, and important insights to improve the theoretical understanding of CSBD and PPU, as well as help to identify empirically supported risk groups and risk and protective factors that may be targeted in future public health campaigns and intervention efforts.

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Author's contribution: Study concept and design: BB, MK, LN, SWK, MNP, ZD; Obtained funding: BB, ZD; Drafting the article: BB; Revising it critically for important intellectual content: BB, MK, LN, SWK, MNP, ZD; Final approval of the version to be published: BB, MK, LN, SWK, MNP, ZD.

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Casino, the Connecticut Council on Problem Gambling and the National Center for Responsible Gaming; consulted for or advised legal and gambling entities on issues related to impulse control and addictive behaviors; provided clinical care related to impulse-control and addictive behaviors; performed grant reviews; edited journals/journal sections; given academic lectures in grand rounds, CME events and other clinical/scientific venues; and generated books or chapters for publishers of mental health texts. ELTE Eötvös Loránd University receives funding from the Szerencsejáték Ltd to maintain a telephone helpline service for problematic gambling. ZD has also been involved in research on responsible gambling funded by Szerencsejáték Ltd and the Gambling Supervision Board and provided educational materials for the Szerencsejáték Ltd's responsible gambling program. The University of Gibraltar receives funding from the Gibraltar Gambling Care Foundation. However, this funding is not related to this study and the funding institution had no role in the study design or the collection, analysis, and interpretation of the data, writing the manuscript, or the decision to submit the paper for publication. ZD is the Editor-in-Chief of the Journal of Behavioral Addictions.

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