

RECENT ADVANCEMENTS IN COMPULSIVE SEXUAL BEHAVIORS RESEARCH

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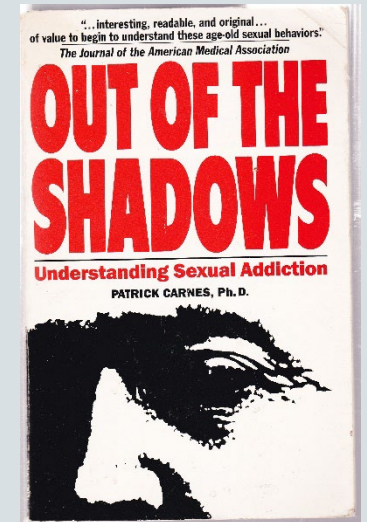
VI. Summary



**I. WHAT ARE COMPULSIVE SEXUAL
BEHAVIOR DISORDER (CSBD) AND
PROBLEMATIC PORNOGRAPHY USE (PPU)?**

HISTORY OF “SEX ADDICTION”

- One of the **oldest** problematic sexual behaviors mentioned in human history (e.g., Casanova or Don Juan) and early descriptions of clinical patients (Karila et al., 2014)
- Systematic clinical and scientific examination has started to increase only a **few decades ago** (e.g., Carnes, 1983; Griffiths, 2001; Kafka, 2010)
- DSM-5: **Hypersexual Disorder (HD)** (American Psychiatric Association, 2013; Kafka, 2010; Kafka, 2014) - rejected
- ICD-11: **Compulsive Sexual Behavior Disorder (CSBD)** (Kraus et al., 2018; World Health Organization, 2019) – **included!**

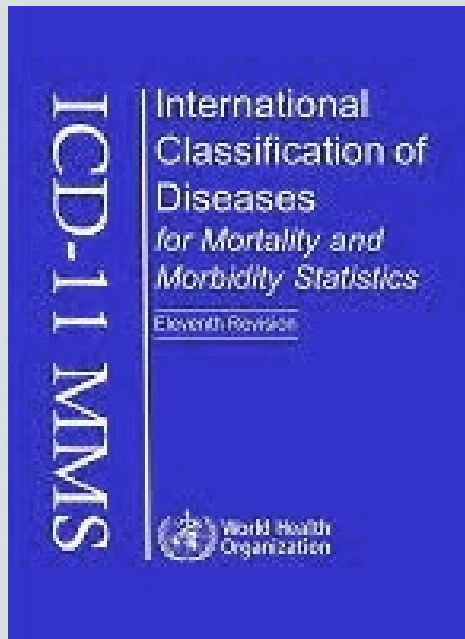


Excessive sexual behavior	Hypersexuality	Sexual impulsivity
Out-of-control sexual behavior	Sexual addiction	Impulsive sexuality
<u>Compulsive sexual behavior</u>	Hypersexual disorder	Sex addiction

Similar but not completely overlapping definitions

Compulsive sexual behaviours

(a.k.a. sex addiction, hypersexuality, sexual impulsivity, etc.)



ICD-11 for Mortality and Morbidity Statistics (Version : 02/2022)

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▼ ICD-11 for Mortality and Morbidity Statistics

- ▶ 01 Certain infectious or parasitic diseases
- ▶ 02 Neoplasms
- ▶ 03 Diseases of the blood or blood-forming organs
- ▶ 04 Diseases of the immune system
- ▶ 05 Endocrine, nutritional or metabolic diseases
- ▼ 06 Mental, behavioural or neurodevelopmental disorders
 - ▶ Neurodevelopmental disorders
 - ▶ Schizophrenia or other primary psychotic disorders
 - ▶ Catatonia
 - ▶ Mood disorders
 - ▶ Anxiety or fear-related disorders
 - ▶ Obsessive-compulsive or related disorders
 - ▶ Disorders specifically associated with stress
 - ▶ Dissociative disorders
 - ▶ Feeding or eating disorders
 - ▶ Elimination disorders
 - ▶ Disorders of bodily distress or bodily experience
 - ▶ Disorders due to substance use or addictive behaviours
 - ▼ Impulse control disorders
 - 6C70 Pyromania
 - 6C71 Kleptomania
 - 6C72 Compulsive sexual behaviour disorder
 - 6C73 Intermittent explosive disorder
 - 6C7Y Other specified impulse control disorders
 - 6C7Z Impulse control disorders, unspecified

CLASSIFICATION OF CSBD AND PPU

**Impulse control
disorder**



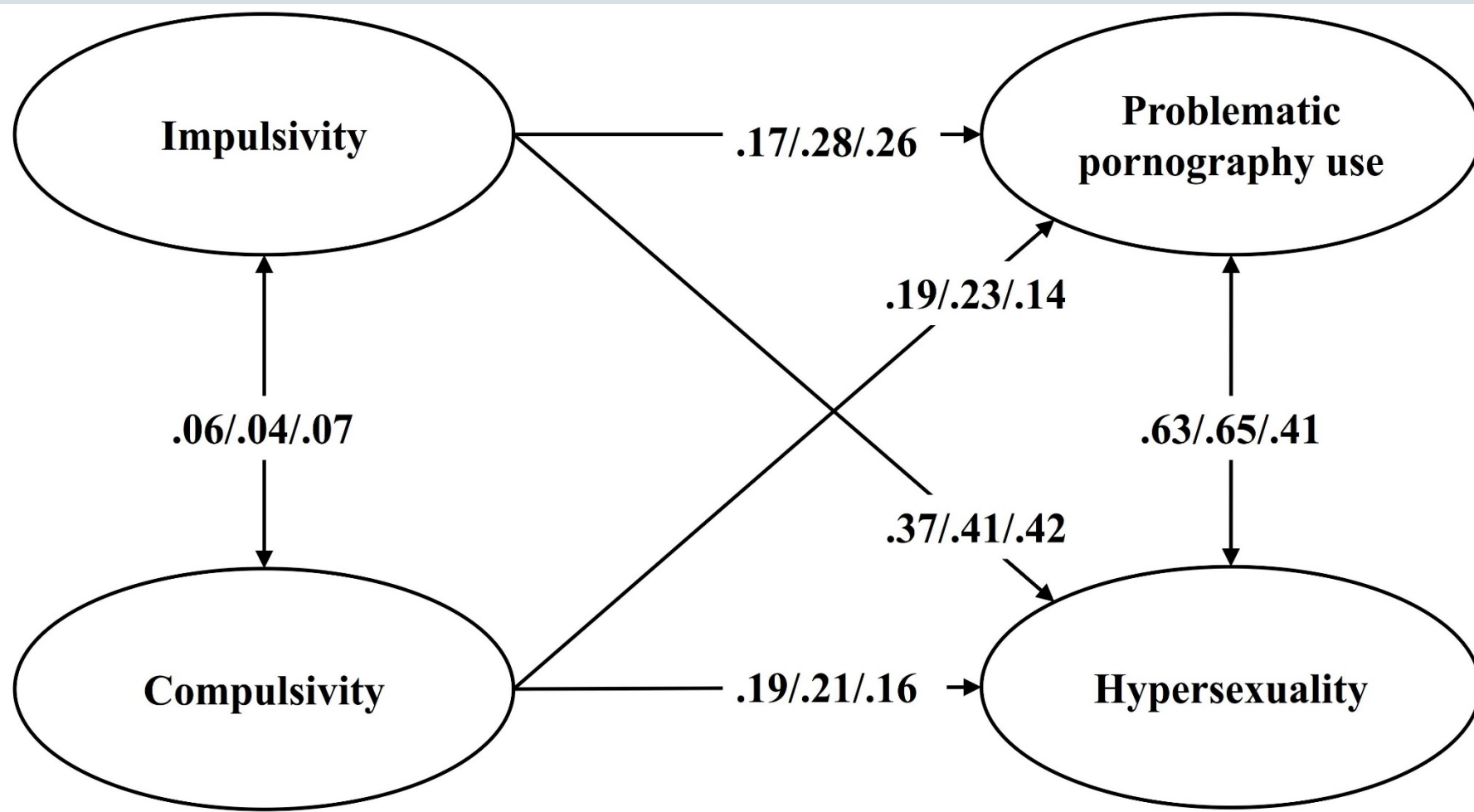
**Addictive
disorder**



**Compulsivity-related
disorder**

Both **impulsivity** and **compulsivity** have been **positively associated with non-substance-related addictive behaviors** (e.g., gambling)

To what extent do impulsivity and compulsivity may be associated with CSBD and problematic pornography use?



Support for both of the classification of CSBD as an impulse-control disorder or as a behavioral addiction BUT the classification of CSBD in the **addictive behaviors** category appears better supported (e.g., Stark et al., 2018; Kowalevska et al., 2018)

Figure 1. The impulsivity and compulsivity background of hypersexuality and problematic pornography use ($N_{\text{total}} = 13,778$; $N_{\text{males}} = 9,555$; $N_{\text{females}} = 4,151$). All variables presented in ellipses are latent variables. For the sake of clarity, indicator variables related to them are not depicted in this figure. One-headed arrows represent standardized regression weights and two-headed arrows represent correlations. The first numbers on the arrows indicate the path coefficients of the total sample, the second numbers indicate the path coefficients of the male sample, and the third numbers indicate the path coefficients of the female sample. All pathways were significant at level $p < .01$.

Diagnostic Criteria	Hypersexual Disorder (Kafka, 2010)	Compulsive Sexual Behavior Disorder (ICD-11, 2019)
Control	- over a period of at least six months, recurrent and intense sexual fantasies, sexual urges, or sexual behaviors	- persistent pattern of failure to control intense, repetitive sexual impulses or urges resulting in repetitive sexual behavior
Salience	—	- repetitive sexual activities becoming a central focus of the person's life
Relapse	- repetitive but unsuccessful efforts to control or significantly reduce these sexual fantasies, urges or behaviors	- numerous unsuccessful efforts to significantly reduce repetitive sexual behavior
Dissatisfaction	—	- continued repetitive sexual behavior despite deriving little or no satisfaction from sexual behavior
Negative consequences	<ul style="list-style-type: none"> - there is clinically significant personal distress or impairment in social, occupational or other important areas of functioning associated with the frequency and intensity of these sexual fantasies, urges or behaviors - repetitively engaging in sexual behaviors while disregarding the risk for physical or emotional harm to self or others - time consumed by sexual fantasies, urges or behaviors repetitively interferes with other important (non-sexual) goals, activities, and obligations 	<ul style="list-style-type: none"> - continued repetitive sexual behavior despite adverse consequences - neglecting health and personal care or other interests, activities, and responsibilities - generates marked distress or significant impairment in personal, family, social, educational, occupational, or other important areas of functioning
In response to negative emotions	- repetitively engaging in sexual fantasies, urges or behaviors in response to dysphoric mood states (e.g., anxiety, depression, boredom, irritability)	—
In response to stress	- repetitively engaging in sexual fantasies, urges or behaviors in response to stressful life events	—
Not due to other problems	- these sexual fantasies, urges or behaviors are not due to the direct physiological effect of an exogenous substance (e.g., a drug of abuse or a medication)	<ul style="list-style-type: none"> - exclusions: paraphilic disorders, medical conditions (e.g., dementia), substance use, due to medication (see (Kraus et al., 2018)) - distress that is entirely related to moral judgments and disapproval about sexual impulses, urges, or behaviors is not sufficient to meet this requirement
Subcategories	- masturbation, pornography, sexual behavior with consenting adults, cybersex, telephone sex, strip clubs	—

Persistent, repetitive patterns of uncontrollable sexual urges and behaviours, resulting in significant distress and functional impairment



Compulsive sexual behaviours (CSBs) are prevalent in general populations (national probability samples): 3-10%

Potential subcategories of CSBs:

- **Problematic pornography use (PPU)**
- Masturbation
- Sexual behaviour with consenting adults
- Cybersex
- Telephone sex
- Strip clubs
- Etc.

COMPULSIVE SEXUAL BEHAVIOURS RESEARCH

Research related to CSBD (and PPU) has **proliferated** in the past 25 years



415 individual studies

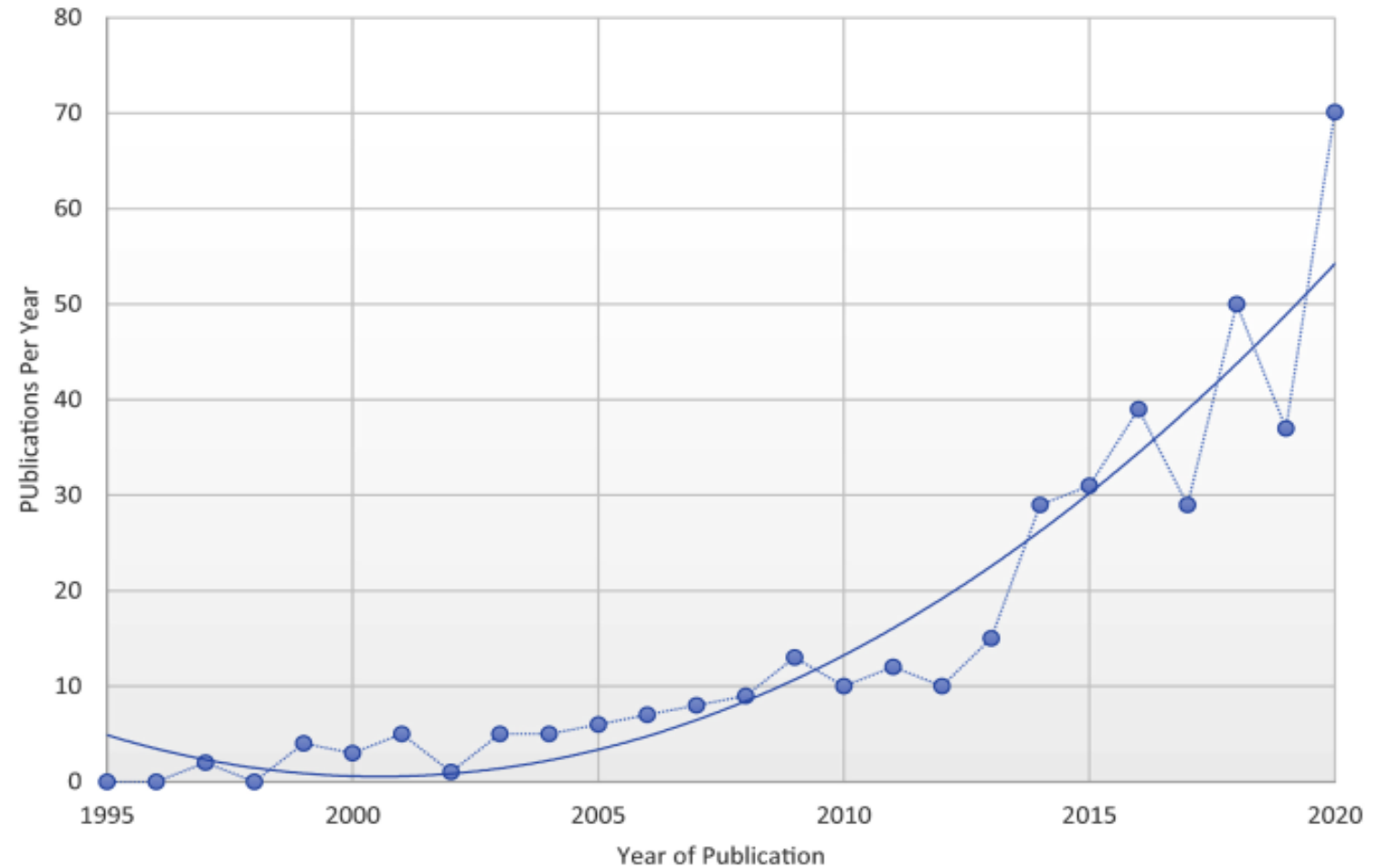


Fig. 2. Summary of included publications related to CSB published over the past 25 years. Data point for 2020 estimated by multiplying the count of articles published from January 1st, 2020 to August 1st, 2020 by 1.71 (1 and 5/7).

Relatively **small** and
homogenous samples

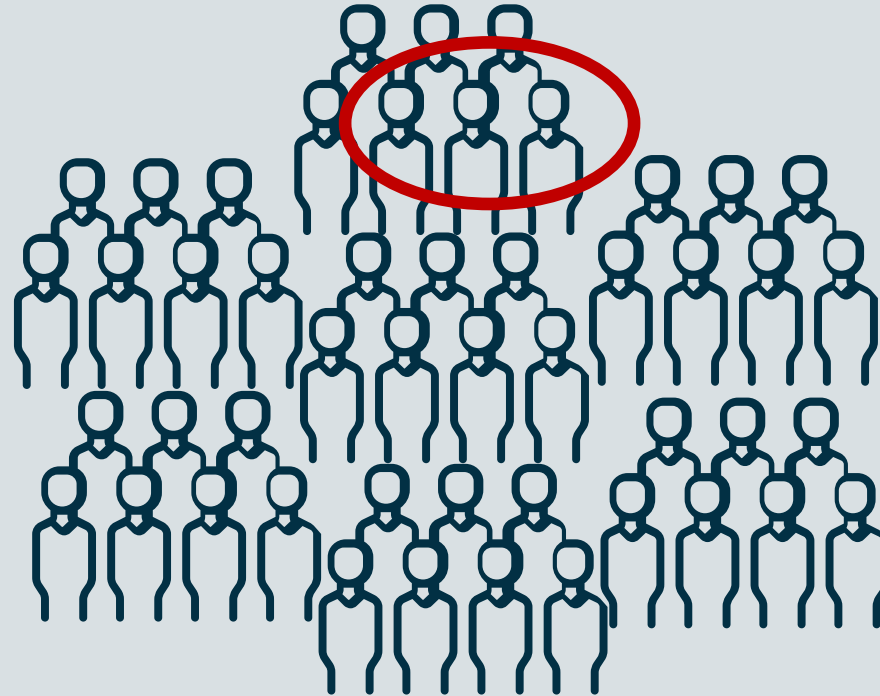
**Lack of rigorous
treatment studies**

Rudimentary
methodological
designs

**Lack of quality
and unified
measurement**

**Lack of
theoretical** models
and **integration**

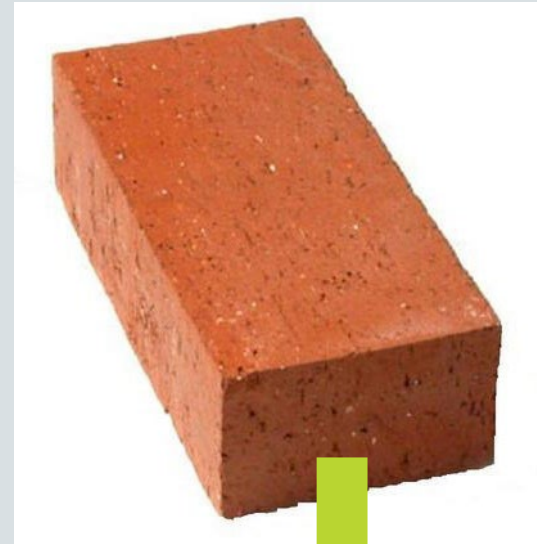
Lack of large-scale,
collaborative studies
between laboratories



**Our knowledge
is limited!**

II. HIGH-QUALITY ASSESSMENT OF CSBD AND PPU

WHY IS HIGH-QUALITY ASSESSMENT IMPORTANT?



Compulsive sexual behaviours (CSBs) are **prevalent** in general populations (national probability samples): **3-10%**

Potential subcategories of CSBs:

- **Problematic pornography use (PPU)**
– **80%**
- Masturbation?
- Sexual behavior with consenting adults
- Cybersex
- Strip clubs
- Telephone sex
- Etc.

Past-year sexual intercourse: 72%
Past-year pornography use: 37-77%



How to identify individuals with CSBs?

II. 1. ASSESSMENT OF CSBD

One of the main issues in CSBD research: **lack of valid and unified measurement** → **incomparability of findings** (Grubbs et al., 2020)

Assessment **started to converge** as a result of the proposed Hypersexual Disorder diagnosis (Kafka, 2010) and CSBD diagnosis in ICD-11 (Kraus et al., 2018; World Health Organization, 2019)

NO gold standard assessment for CSBD → a consolidation of assessment of CSBD is an essential **prerequisite for future research**

The **Compulsive Sexual Behavior Disorder Scale** was developed (CSBD-19) (Bóthe et al., 2020), which is currently the only tool assessing CSBD based on the ICD-11 diagnostic guidelines

The CSBD-19 was developed in an international setting and demonstrated **strong psychometric properties** → continue in the International Sex Survey

COMPULSIVE SEXUAL BEHAVIOR DISORDER SCALE (CSBD-19)

Participants:

- N total = 9,325 (4 samples, Hungary, Germany, US)
- All genders and sexual orientations
- Adult samples (18-76 years)
- Community and nationally representative samples

Statistical analyses:

- Confirmatory factor analysis
- Measurement invariance testing
- Latent profile analysis
- Cut-off score determination
- Validity assessment

Below are a number of statements that describe various thoughts, feelings, and behaviors about sex. Please, think back to the **past six months** and indicate on the following 4-point scale to what extent the statements apply to you. There are no right or wrong answers.

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.

	1 – <i>totally disagree</i>	2 – <i>somewhat disagree</i>	3 – <i>somewhat agree</i>	4 – <i>totally agree</i>
	1	2	3	4
1. Even though my sexual behavior was irresponsible or reckless, I found it difficult to stop.	0	0	0	0
2. Sex has been the most important thing in my life.	0	0	0	0
3. I was able to resist my sexual urges for only a little while before I surrendered to them.	0	0	0	0
4. I had sex even when I did not enjoy it anymore.	0	0	0	0
5. My sexual urges and impulses changed me in a negative way.	0	0	0	0
6. I could not control my sexual cravings and desires.	0	0	0	0
7. I would rather have had sex than to have done anything else.	0	0	0	0
8. Trying to reduce the amount of sex I had almost never worked.	0	0	0	0
9. Although sex was not as satisfying for me as before, I engaged in it.	0	0	0	0
10. I did not accomplish important tasks because of my sexual behavior.	0	0	0	0
11. My sexual desires controlled me.	0	0	0	0
12. When I could have sex, everything else became irrelevant.	0	0	0	0
13. I was not successful in reducing the amount of sex I had.	0	0	0	0
14. Although my sex life was not as satisfying as it had been before, I had sex.	0	0	0	0
15. My sexual activities interfered with my work and/or education.	0	0	0	0
16. My sexual behaviors had negative impact on my relationships with others.	0	0	0	0
17. I have been upset because of my sexual behaviors.	0	0	0	0
18. My sexual activities interfered with my ability to experience healthy sex.	0	0	0	0
19. I often found myself in an embarrassing situation because of my sexual behavior.	0	0	0	0

Scoring: Add the scores of the items. 50 points or more indicate high risk of compulsive sexual behavior disorder.

Factors of the scale:

- Control:** 1., 6., 11.
- Saliense:** 2., 7., 12.
- Relapse:** 3., 8., 13.
- Dissatisfaction:** 4., 9., 14.
- Negative consequences:** 5., 10., 15., 16., 17., 18., 19.

Table 1. Confirmatory factor analyses (CFA) and tests of invariance on the Compulsive Sexual Behavior Disorder Scale (CSBD-19)

Model	WLSMV χ^2 (df)	CFI	TLI	RMSEA	90% CI	Comparison	$\Delta\chi^2$ (df)	Δ CFI	Δ TLI	Δ RMSEA
5-factor first-order CFA (Sample 1)	7148.851*(142)	0.944	0.932	0.079	0.077–0.080					
5-factor first-order CFA (Sample 2)	327.290*(142)	0.983	0.980	0.053	0.045–0.060					
5-factor first-order CFA (Sample 3)	249.477*(142)	0.994	0.993	0.040	0.032–0.048					
5-factor first-order CFA (Sample 4)	286.037*(142)	0.967	0.960	0.052	0.043–0.060					
<i>Language invariance (Sample 1, Sample 2, Sample 3, Sample 4)</i>										
M1. Configural	7847.926*(568)	0.948	0.937	0.074	0.073–0.076	–	–	–	–	–
M2. Metric	7929.214*(610)	0.948	0.941	0.072	0.070–0.073	M2-M1	4.068*(42)	0.000	+0.004	–0.002
M3. Scalar	7146.882*(709)	0.954	0.956	0.062	0.061–0.064	M3-M2	3.851*(99)	+0.006	+0.015	–0.010
M4. Residual	6104.670*(766)	0.962	0.966	0.055	0.053–0.056	M4-M3	3.405*(57)	+0.008	+0.010	–0.007
M5. Latent variance-covariance	3956.990*(811)	0.978	0.981	0.041	0.040–0.042	M5-M4	–	–	–	–
M6. Latent means	3963.853*(826)	0.978	0.981	0.040	0.039–0.042	M6-M5	–	–	–	–
<i>Gender invariance (Merged sample)</i>										
Baseline men	4806.565*(142)	0.953	0.943	0.075	0.074–0.077					
Baseline women	2768.242*(142)	0.938	0.925	0.073	0.070–0.075					
M1. Configural	7406.038*(284)	0.949	0.938	0.073	0.072–0.075					
M2. Metric	7603.677*(298)	0.948	0.940	0.073	0.071–0.074	M2-M1	–	–	–	–
M3. Scalar	7236.398*(331)	0.950	0.949	0.067	0.066–0.068	M3-M2	3.308*(33)	+0.002	+0.009	–0.008
M4. Residual	6625.373*(350)	0.955	0.956	0.062	0.061–0.063	M4-M3	7.549*(19)	+0.005	+0.007	–0.005
M5. Latent variance-covariance	3111.513*(365)	0.980	0.982	0.040	0.039–0.042	M5-M4	4.417*(15)	+0.025	+0.026	–0.022
M6. Latent means	5016.435*(370)	0.967	0.969	0.052	0.051–0.053	M6-M5	9.223*(5)	–0.013	–0.013	+0.012

Good construct validity

Valid comparisons between gender and language-based groups

Note. WLSMV = weighted least squares mean- and variance-adjusted estimator; χ^2 = Chi-square; df = degrees of freedom; CFI = comparative fit index; TLI = Tucker-Lewis Index; RMSEA = root-mean-square error of approximation; 90% CI = 90% confidence interval of the RMSEA; Δ CFI = change in CFI value compared to the preceding model; Δ TLI = change in the TLI value compared to the preceding model; Δ RMSEA = change in the RMSEA value compared to the preceding model. Bold letters indicate the final levels of invariance that were achieved. In the language-based comparison, the highest level of measurement invariance (i.e., latent mean invariance) was achieved, indicating that the CSBD-19 functions the same way in each examined language version. In the gender-based comparison, latent variance-covariance was achieved, but latent means invariance was not, indicating important latent mean differences between men and women.* $P < 0.001$

Men had higher CSB levels compared to women, but no cultural differences

Table 3. Associations between the Compulsive Sexual Behavior Disorder Scale (CSBD-19) and theoretically relevant correlates

	Sample 1 (N = 7,995, N ^c = 5,840, N ^d = 2,949)	Sample 2 (N = 473, N ^c = 341)	Sample 3 (N = 477, N ^c = 335, N ^d = 96)	Sample 4 (N = 380, N ^c = 270, N ^d = 134)
Hypersexual Behavior Inventory-Short Version (HBI-8)	0.75*	–	0.81*	0.79*
Problematic Pornography Consumption Scale-Short Version (PPCS-6)	0.55*	0.53*	0.69*	0.60*
Number of sexual partners ^a	0.17*	0.18*	0.12*	0.09
Number of casual sexual partners ^a	0.21*	0.22*	0.22*	0.17*
Past-year frequency of having sex with the partner ^b	–0.04*	0.03	–0.16*	–0.01
Past-year frequency of having sex with casual partners ^{b,e}	0.12*	0.19*	–0.03	0.02
Past-year frequency of masturbation ^b	0.27*	–	0.20*	0.32*
Past-year frequency of pornography viewing ^b	0.29*	0.29*	0.23*	0.40*

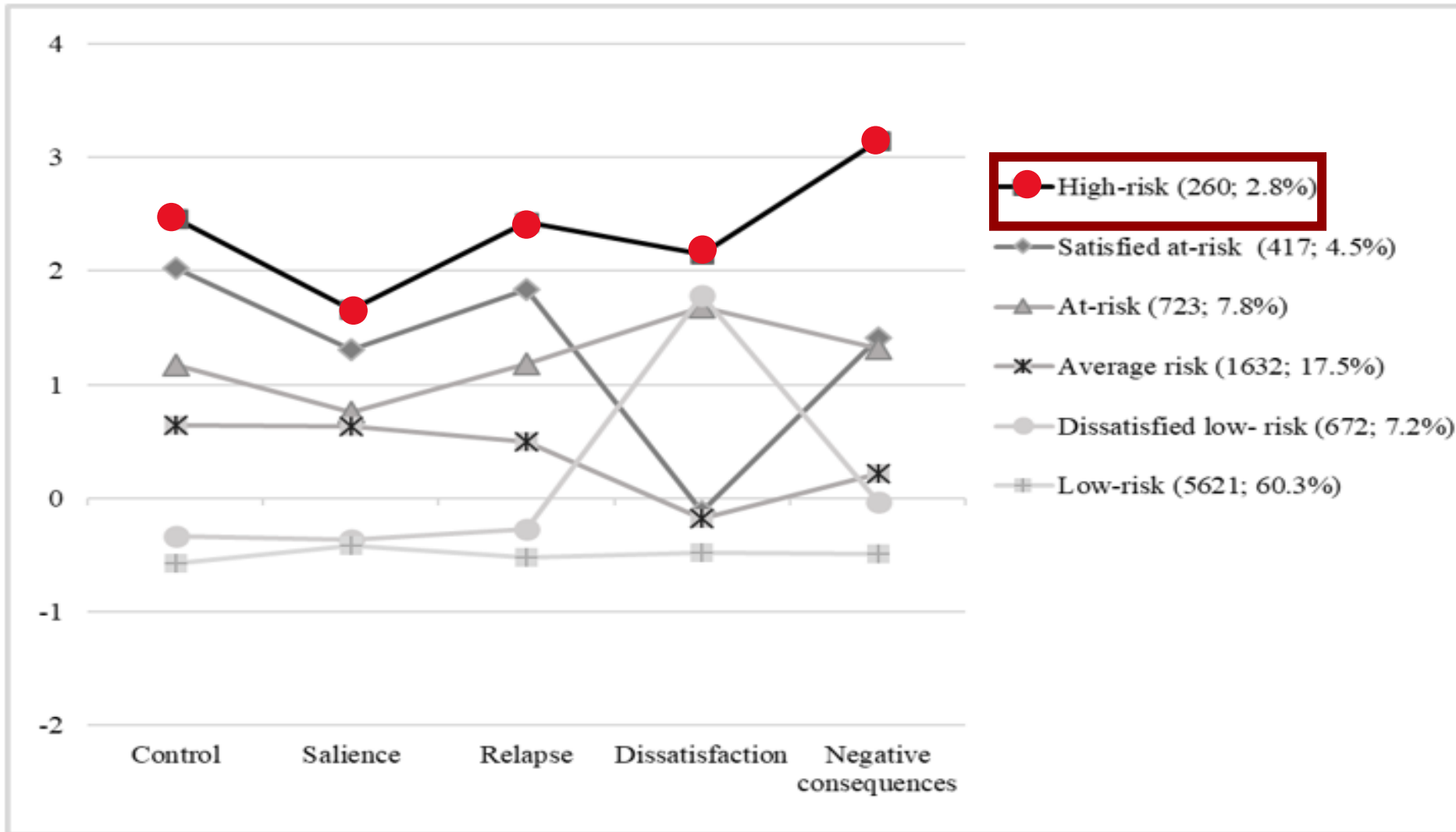
Note. * $P < 0.01$.

^a1 = 0 partner; 2 = 1 partner; 3 = 2 partners; 4 = 3 partners; 5 = 4 partners; 6 = 5 partners; 7 = 6 partners; 8 = 7 partners; 9 = 8 partners; 10 = 9 partners; 11 = 10 partners; 12 = 10 partners; 13 = 11–20 partners; 14 = 31–40 partners; 15 = 41–50 partners; 16 = more than 50 partners.

^b1 = never; 2 = once in the last year; 3 = 1–6 times a year; 4 = monthly; 5 = monthly; 6 = two or three times a month; 7 = weekly; 8 = two or three times a week; 9 = four or five times a week; 10 = six or seven times a week; 11 = more than seven times a week.

Quantity vs. quality?

Appendix 7. Figure 1. Latent classes based on the factors of the Compulsive Sexual Behavior Disorder Scale (CSBD-19) on the merged sample (N = 9325). *Note.* Scores on the factors of the CSBD-19 were standardized (M = 0; SD = 1) to make scores comparable on the factors of the CSBD-19.



Appendix 8. Table 5. Calculation of cut-off thresholds for the Compulsive Sexual Behavior Disorder Scale (CSBD-19) (N = 9325)

cut-off score	true positive	true negative	false positive	false negative	sensitivity (%)	specificity (%)	PPV (%)	NPV (%)	accuracy (%)
46	260	8748	317	0	100%	96.5%	45.1%	100%	96.6%
47	259	8824	241	1	99.6%	97.3%	51.8%	100%	97.4%
48	259	8888	177	1	99.6%	98.0%	59.4%	100%	98.1%
49	258	8946	119	2	99.2%	98.7%	68.4%	100%	98.7%
50	256	8986	79	4	98.5%	99.1%	76.4%	100%	99.1%
51	244	9023	42	16	93.8%	99.5%	84.1%	99.8%	99.3%
52	227	9041	24	33	87.3%	99.7%	90.4%	99.6%	99.4%
53	213	9050	15	47	81.9%	99.8%	93.4%	99.5%	99.3%
54	184	9054	11	76	70.8%	99.9%	94.4%	99.2%	99.1%
55	151	9057	8	109	58.1%	99.9%	95.0%	98.8%	98.8%

Note. The bolded row indicates the suggested cut-off threshold. Possible scores on CSBD-19 range from 19 to 76.

High-risk of CSBD:

- Hungarian community sample: 4.2% of men and 2.0% of women
- **Hungarian nationally representative sample: 5.2% of men and 3.3% of women**
- US community sample: 7.0% of men and 5.5% of women
- German community sample: 5.6% of men and 0% of women

Table 4. Comparison of the Compulsive Sexual Behavior Disorder Scale (CSBD-19) score-based latent classes on theoretically relevant key constructs (N = 9,325)

	1. Dissatisfied low-risk class (7.2%)M (SD)	2. Low-risk class (60.3%)M (SD)	3. Average-risk class (17.5%)M (SD)	4. High-risk class (2.8%)M (SD)	5. At-risk class (7.8%)M (SD)	6. Satisfied at-risk class (4.5%)M (SD)	ANOVA	
							F	η^2
CSBD-19	29.84 (4.06) ^{2,3,4,5,6}	22.36 (2.83) ^{1,3,4,5,6}	32.29 (3.25) ^{1,2,4,5,6}	56.74 (5.33) ^{1,2,3,5,6}	42.47 (4.09) ^{1,2,3,4,6}	43.35 (4.63) ^{1,2,3,4,5}	12400.94*	0.87
HBI-8	1.70 (0.55) ^{2,3,4,5,6}	1.39 (0.42) ^{1,3,4,5,6}	2.03 (0.58) ^{1,2,4,5,6}	3.52 (0.75) ^{1,2,3,5,6}	2.51 (0.71) ^{1,2,3,4,6}	2.81 (0.67) ^{1,2,3,4,5}	1588.33*	0.51
PPCS-6	2.12 (1.37) ^{2,3,4,5,6}	1.72 (1.00) ^{1,3,4,5,6}	2.50 (1.41) ^{1,2,4,5,6}	4.56 (2.56) ^{1,2,3,5,6}	3.28 (1.88) ^{1,2,3,4}	3.43 (1.90) ^{1,2,3,4}	389.63*	0.22
Number of sexual partners ^a	8.47 (4.32) ^{3,4,5,6}	8.25 (4.37) ^{3,4,5,6}	9.50 (4.35) ^{1,2}	10.17 (4.63) ^{1,2}	9.75 (4.48) ^{1,2}	9.84 (4.52) ^{1,2}	42.97*	0.02
Number of casual sexual partners ^a	5.70 (4.65) ^{3,4,5,6}	5.34 (4.54) ^{3,4,5,6}	6.95 (4.85) ^{1,2,4}	8.32 (5.25) ^{1,2,3}	7.41 (5.02) ^{1,2}	7.58 (5.07) ^{1,2}	71.62*	0.04
Past-year frequency of having sex with the partner ^b	6.59 (1.79)	6.85 (1.86) ⁵	6.86 (2.10) ⁵	6.39 (2.46)	6.43 (2.03) ^{2,3}	6.57 (2.19)	7.31*	0.01
Past-year frequency of having sex with casual partners ^b	3.55 (2.12) ^{3,4,5,6}	3.67 (2.23) ^{3,4,5,6}	4.10 (2.13) ^{1,2}	4.51 (2.23) ^{1,2}	4.15 (2.17) ^{1,2}	4.56 (2.20) ^{1,2}	14.79*	0.02
Past-year frequency of masturbation ^b	6.55 (2.50) ^{3,4,5,6}	6.54 (2.39) ^{3,4,5,6}	7.59 (2.23) ^{1,2,4,5,6}	8.47 (2.29) ^{1,2,3,5}	7.91 (2.21) ^{1,2,3,4}	8.07 (2.16) ^{1,2,3}	120.67*	0.06
Past-year frequency of pornography viewing ^b	5.46 (2.82) ^{3,4,5,6}	5.67 (2.87) ^{3,4,5,6}	7.09 (2.63) ^{1,2,4,6}	7.97 (2.72) ^{1,2,3}	7.42 (2.64) ^{1,2}	7.73 (2.55) ^{1,2,3}	137.01*	0.08

Note. M = mean; SD = standard deviation; CSBD-19 = Compulsive Sexual Behavior Disorder Scale; HBI-8 = Hypersexual Behavior Inventory-Short Version; PPCS-6 = Problematic Pornography Consumption Scale-Short Version.

η^2 = Eta-squared. Superscript numbers (1, 2, 3, 4, 5, 6) indicate significant ($P < 0.05$) difference between the given class and the indexed group within the same variable. * $P < 0.001$

^a1 = 0 partner; 2 = 1 partner; 3 = 2 partners; 4 = 3 partners; 5 = 4 partners; 6 = 5 partners; 7 = 6 partners; 8 = 7 partners; 9 = 8 partners; 10 = 9 partners; 11 = 10 partners; 12 = 10 partners; 12 = 11–20 partners; 13 = 21–30 partners; 14 = 31–40 partners; 15 = 41–50 partners; 16 = more than 50 partners.

^b1 = never; 2 = once in the last year; 3 = 1–6 times in the last year; 4 = 7–11 times in the last year; 5 = monthly; 6 = two or three times a month; 7 = weekly; 8 = two or three times a week; 9 = four or five times a week; 10 = six or seven times a week; 11 = more than seven times a week.

II. 1. ASSESSMENT OF PPU

More than **80% of individuals with CSBD report problematic pornography use (PPU)** (Reid et al., 2012; Wordecha et al., 2018) → PPU may be considered the most prominent manifestation of CSBD

NO gold standard assessment for PPU (Fernandez & Griffiths, 2019; Grubbs et al., 2020)

The **Problematic Pornography Consumption Scale** (Bóthe et al., 2018, Bóthe, Tóth-Király, et al., 2020) and the **Brief Pornography Screen** (Kraus et al., 2020) are the most psychometrically robust scales to assess PPU



AKADÉMIAI KIADÓ

Validation of a Brief Pornography Screen across multiple samples

SHANE W. KRAUS^{1*}, MATEUSZ GOLA^{2,3}, JOSHUA B. GRUBBS⁴, EWELINA KOWALEWSKA⁵, RANI A. HOFF^{6,7}, MICHAŁ LEW-STAROWICZ⁵, STEVE MARTINO^{6,8}, STEVEN D. SHIRK^{8,9} and MARC N. POTENZA^{6,10,11,12}

Journal of Behavioral Addictions

9 (2020) 2, 259-271

DOI:
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**Problematic
Pornography
Consumption Scale**

PROBLEMATIC PORNOGRAPHY CONSUMPTION SCALE (PPCS, PPCS-6, PPCS-6-A)

Participants:

- N total = 31,000+
- All genders and sexual orientations
- Adult and adolescent samples (14-76 years)
- Community and treatment-seeking samples
- From several countries (e.g., Hungary, China, Canada)

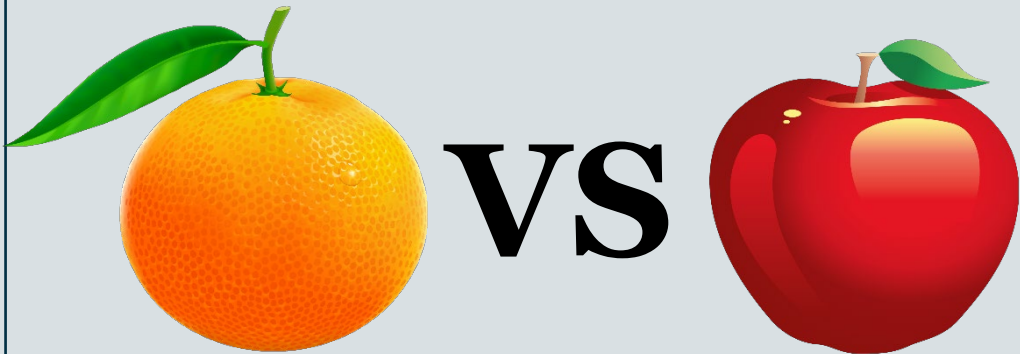
Statistical analyses:

- Confirmatory factor analysis
- Measurement invariance testing
- Latent profile analysis
- Network analysis
- Validity assessment

VALID COMPARISONS AND MEANINGFUL DIFFERENCES

Measurement invariance tests:

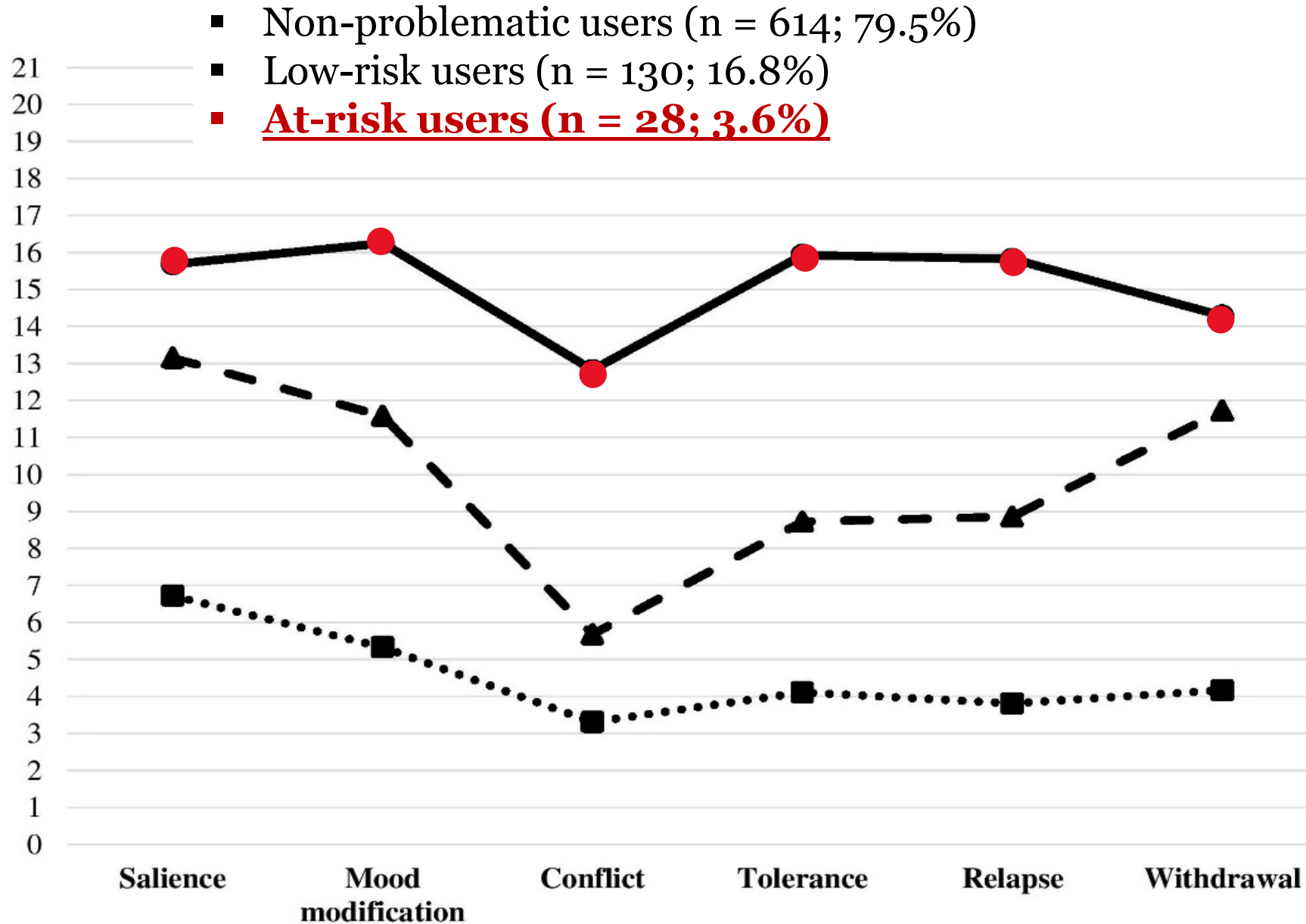
- **Gender** (men vs. women; boys vs. girls)
- **Sexual orientation** (heterosexual vs. sexual minority adults, heterosexual vs. sexual minority adolescents)
- **Culture** (Hungary vs. China)
- **Treatment-seeking status** (treatment-seeking vs. non-treatment-seeking adults)



Valid comparisons

Differences in PPU levels:

- **Men and boys > women and girls**
- **Heterosexual = sexually diverse adults and adolescents**
- **China = Hungary**
- **Treatment-seeking > community samples**

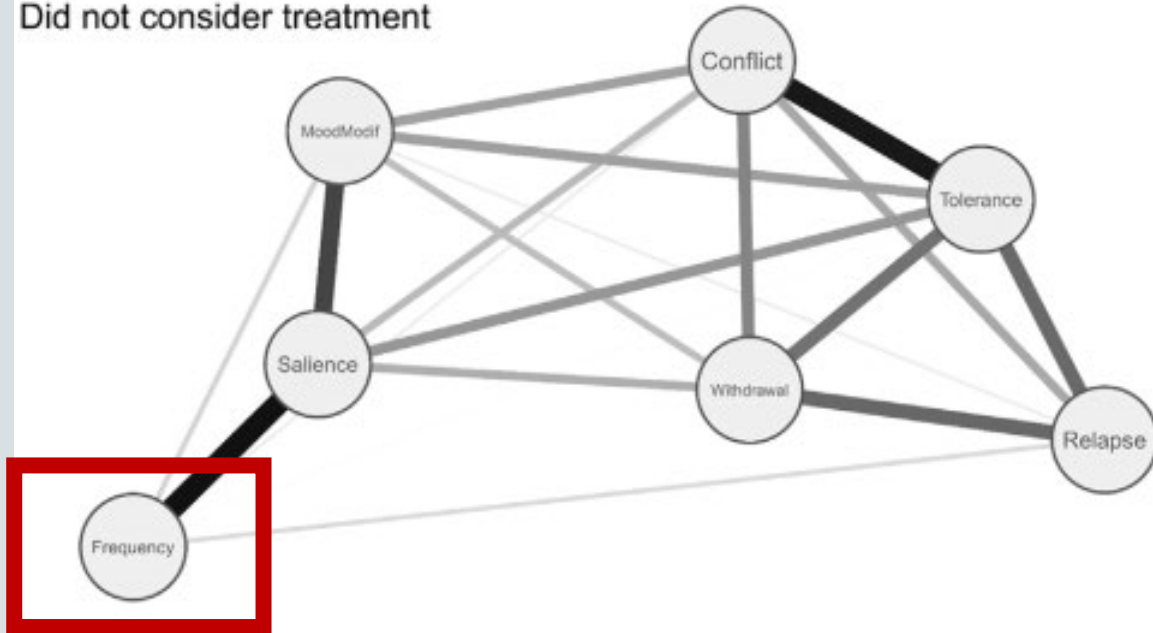


Reliable cut-off scores:
 • PPCS: 76/126
 • PPCS-6: 20/42
First step in the diagnostic process

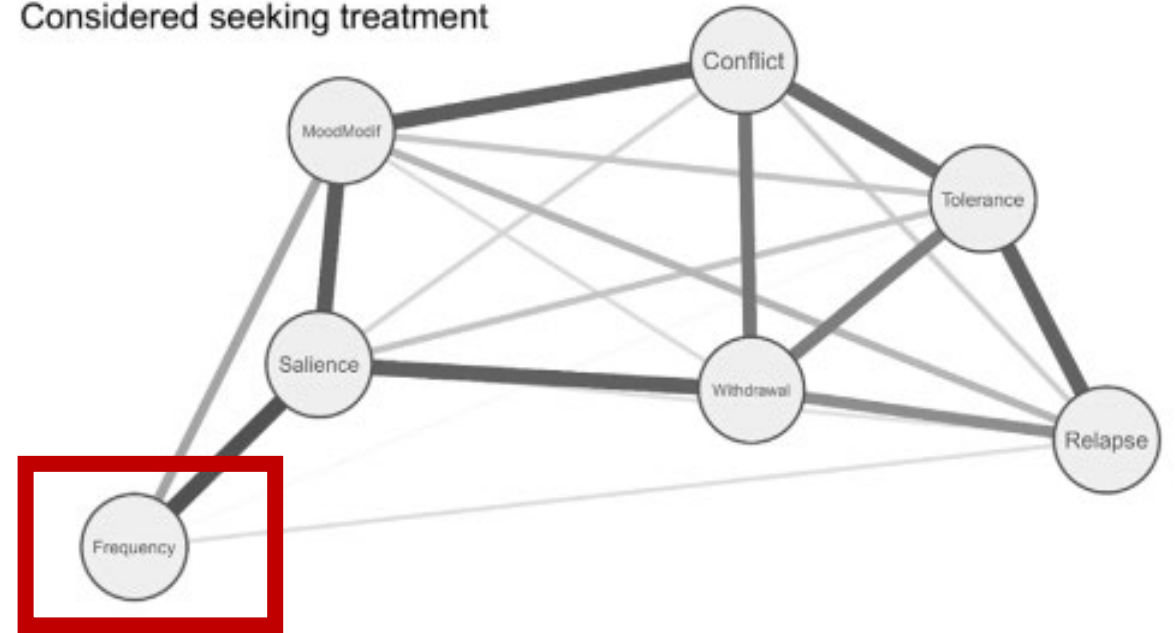
ANY ADDITIONAL SYMPTOMS?

Figure 1. Regularized partial correlation networks across the 2 groups of participants (considered treatment, $n = 509$; not-considered treatment, $n = 3,684$).

Did not consider treatment



Considered seeking treatment



Pornography use frequency was the most peripheral symptom

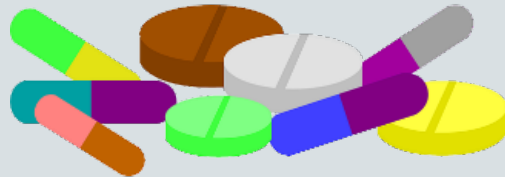
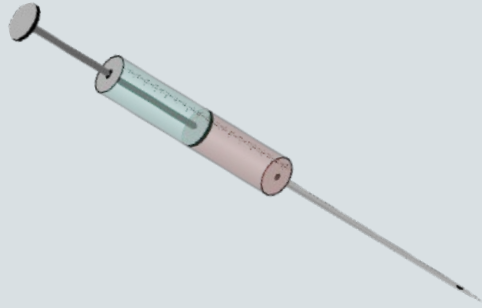
Quantity vs. quality?

III. WHO AND WHY MAY DEVELOP CSBD AND PPU

**III.1. IS *HIGH-FREQUENCY*
PORNOGRAPHY USE ALWAYS
PROBLEMATIC?**

**CAN *LOW-FREQUENCY* PORNOGRAPHY
USE BE PROBLEMATIC?**

HOW MUCH IS TOO MUCH?



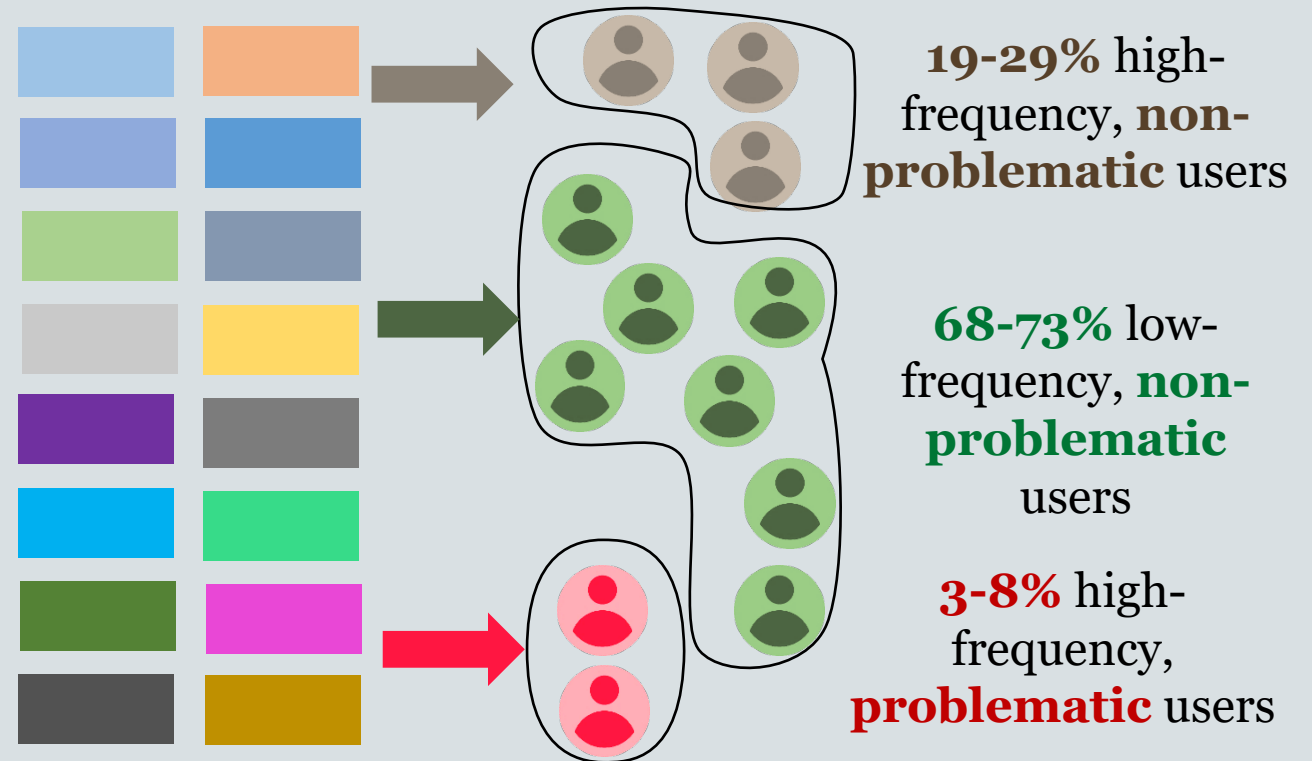
Is high-frequency pornography use always problematic? (Bóthe et al., 2020b)

(Bóthe et al., 2020b)

- Integrative Model of Engagement (Billieux et al., 2012, 2019)
- 3 samples: general populations, pornography site visitors
- Total $N = 15,161$
- Age range: 18-76 years
- Women: 6-52%
- Sexually diverse individuals: 7-10%

- ✓ **Different** underlying **mechanisms** behind problematic and non-problematic high-frequency pornography use
- ✓ **Frequency** of use may **not** be a **reliable** indicators of problematic use

Latent profile analysis with Wald-tests along 40+ characteristics



✓ **More accurate identification of at-risk populations**

Fig. 1 Summary of proposed pathways by which pornography use may be experienced as problematic. Bold pathway to the right of the figure represents the proposed model of pornography problems due to moral incongruence

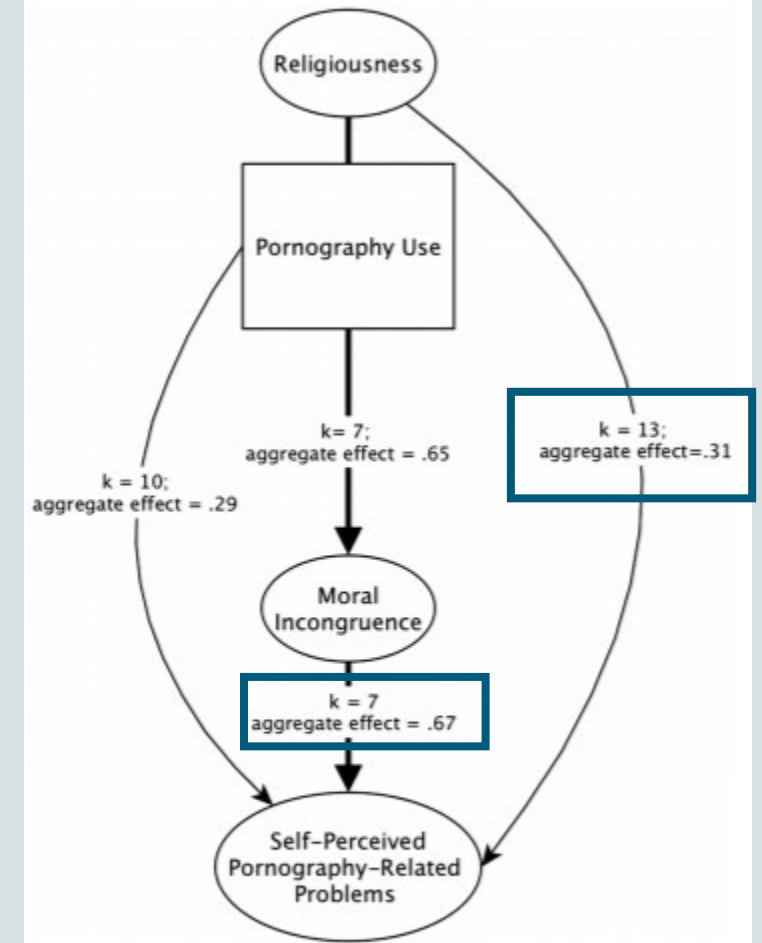
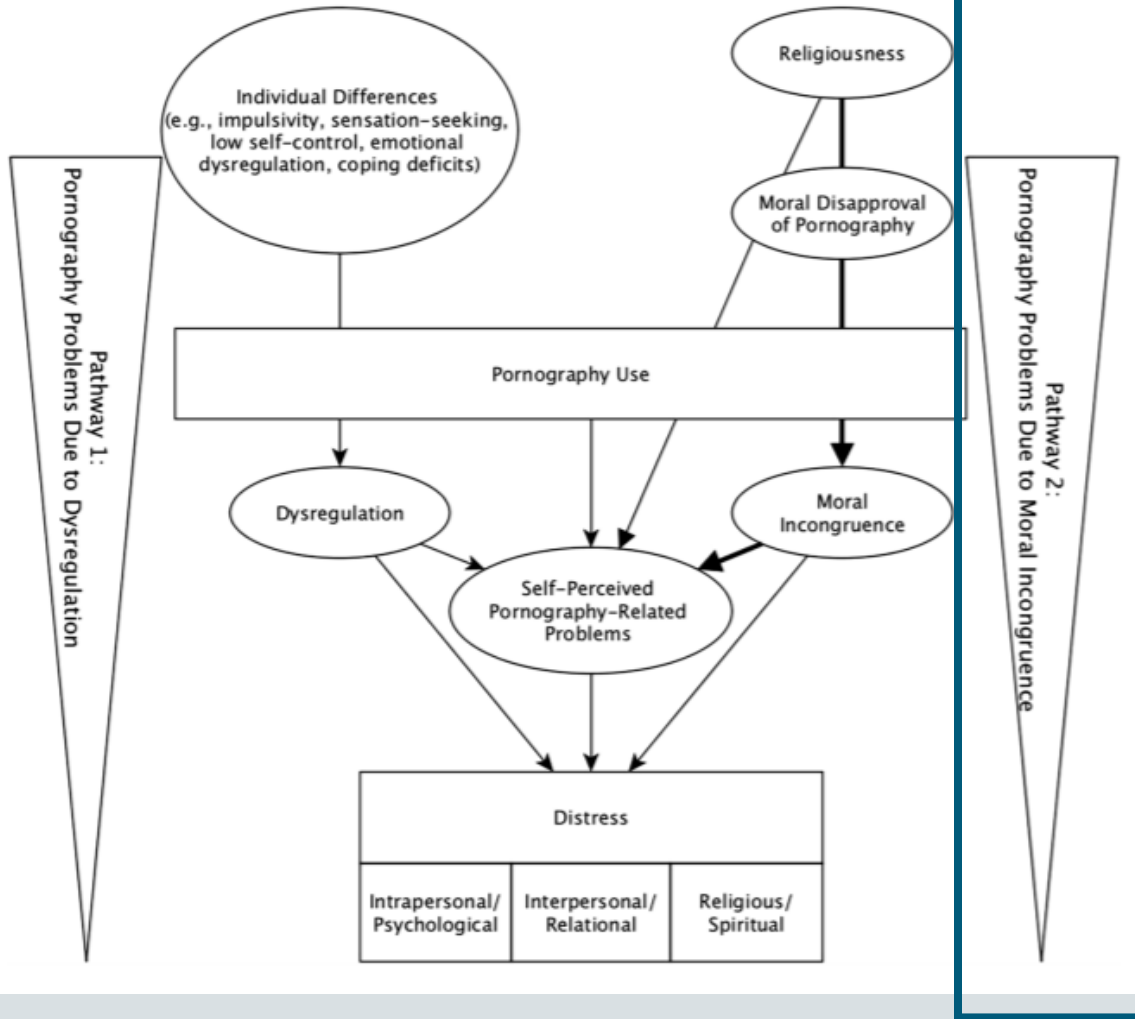


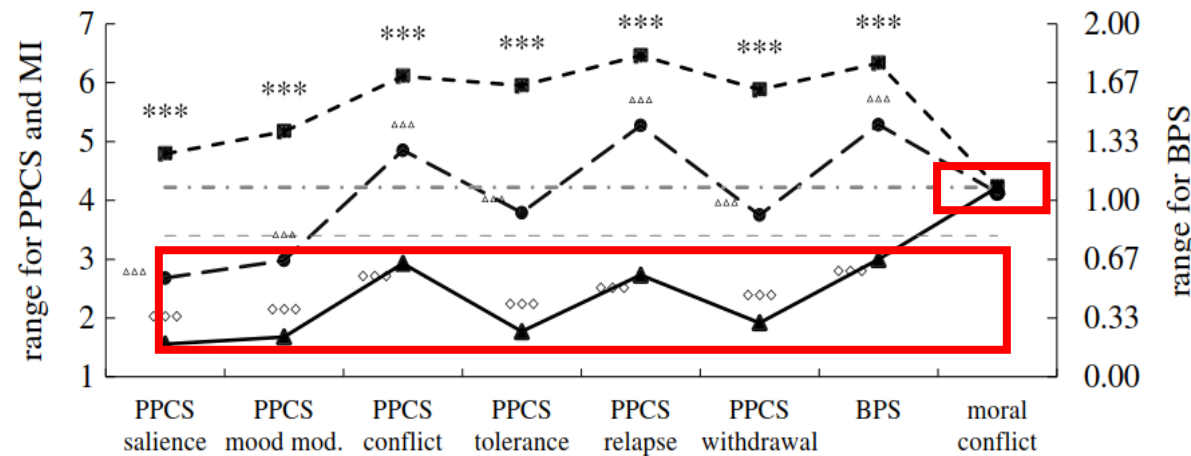
Fig. 3 Model of pornography problems due to moral incongruence with meta-analytic effects. Effects represent Fisher's aggregate Z. Associations are drawn directionally (i.e., religiousness leading to moral incongruence) to demonstrate the proposed model

ICD-11: Distress that is entirely related to moral judgments and disapproval about sexual impulses, urges, or behaviors is not sufficient to meet this requirement.

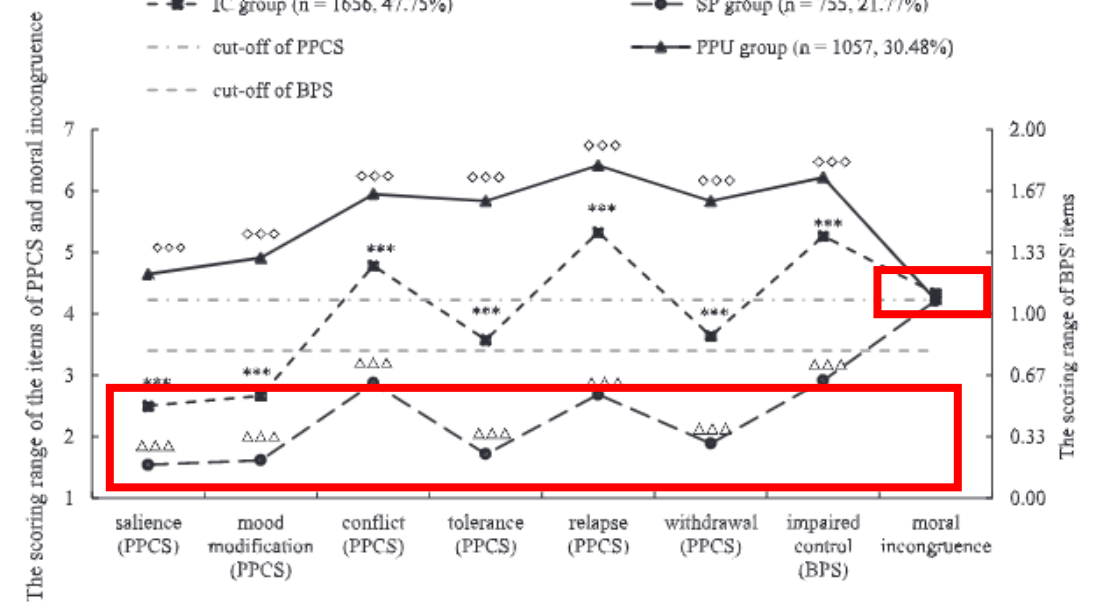
$N = 8,845$ men; ($M_{age} = 25.8$ years, $SD_{age} = 7.8$)

$N = 3,468$ boys; ($M_{age} = 16.6$ years, $SD_{age} = 1.2$)

Figure 1
Comparison of the Dimensions of PPCS and BPS Between Different Groups

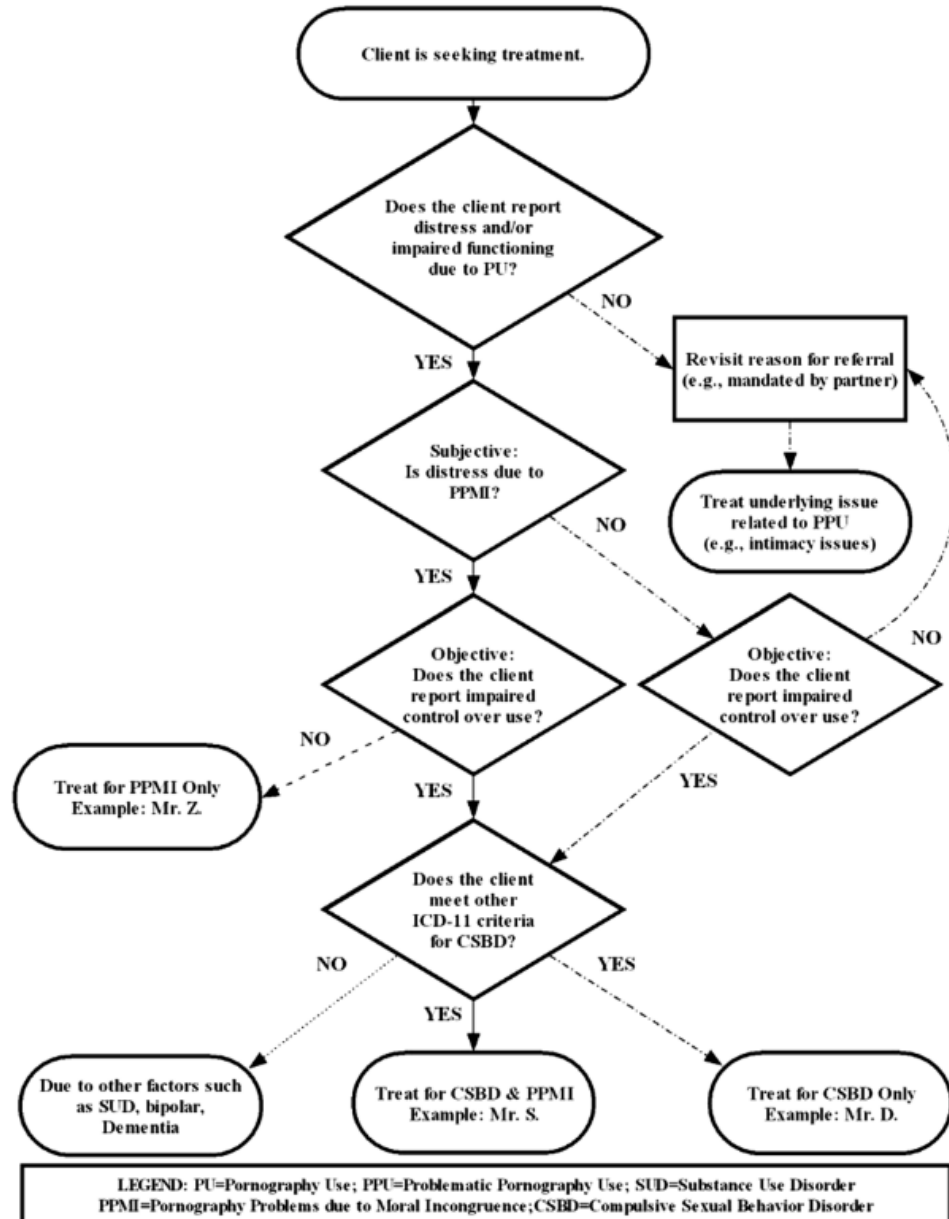


- ■ - Dysregulated PPU group (high scores on the PPCS dimensions and the BPS; $n=2,576$; 29.1%)
- ● - Impaired control group (met the BPS cut-off but had lower scores than the PPCS cut-off score; $n=4,180$; 47.3%)
- ○ - Self-perceived PPU group (low scores on PPCS and BPS; $n=2,089$; 23.6%)
- - - - cut-off of PPCS
- - - - cut-off of BPS



22-24% of help-seeking individuals may experience PPU as a result of moral incongruence toward their pornography use and may self-identify as “porn addicts”

Problematic Pornography Use Treatment Algorithm



Archives of Sexual Behavior (2019) 48:431–435
<https://doi.org/10.1007/s10508-018-1301-9>

COMMENTARY

Hitting the Target: Considerations for Differential Diagnosis When Treating Individuals for Problematic Use of Pornography

Shane W. Kraus^{1,2} · Patricia J. Sweeney¹

III.2. THE MOST ROBUST RISK FACTORS OF PPU

Relatively **small** and
homogenous samples

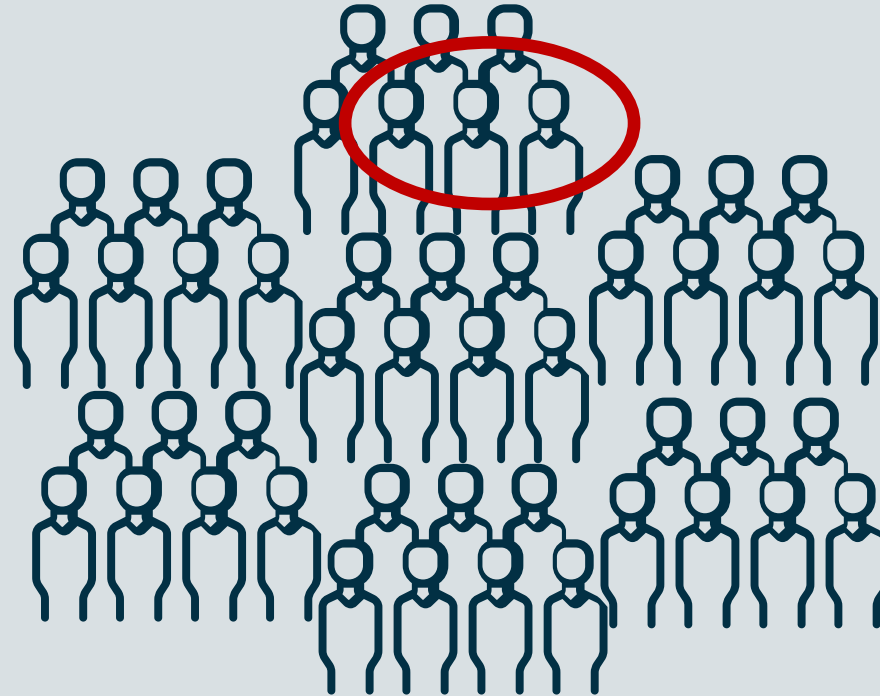
**Lack of rigorous
treatment studies**

Rudimentary
methodological
designs

**Lack of quality
and unified
measurement**

**Lack of
theoretical** models
and **integration**

Lack of large-scale,
collaborative studies
between laboratories



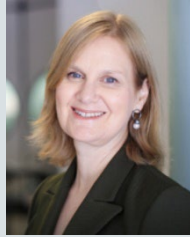
**Our knowledge
is limited!**

IDENTIFYING THE MOST ROBUST RISK FACTORS OF PPU USING MACHINE LEARNING

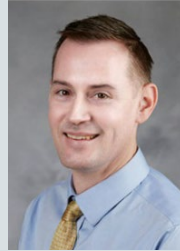
Co-investigators:



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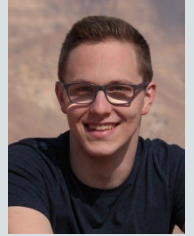


Joshua B. Grubbs, PhD
Bowling Green State University

Data analysts:



Krisztián Ivaskevics
National University of Public Service



Zsombor Hermann
National University of Public Service

Eligibility criteria:

- PPU was assessed by a **well-validated scale** (Fernandez & Griffiths, 2019; Grubbs et al., 2020) or **clinical interview**
- **Cross-sectional** and **longitudinal** studies
- **Self-report** or **behavioral** data
- **Not experimental** studies
- **Not dyadic** studies
- **Adolescent** and **adult** populations
- **Published** and **unpublished** datasets



osf.io/jqkzr

- **Start date:** October 2020
- **Contacted 98 researchers and labs** (fall of 2020 and spring of 2021)
- Received **74 eligible datasets** (64 cross-sectional, 10 longitudinal datasets)
- $N = 100.000+$ (current cross-sectional $N = 82,135$)
- **17 countries**, including ethnically, sexually, and gender diverse individuals
- **700+ potential predictors**
 - **Variables excluded** from the analyses as predictors: (1) Scales assessing compulsive sexual behavior or any other variant of it; (2) Author constructed, not validated scales Scales/items assessing the consequences of pornography use; (3) Open-ended questions

Access to data from:

- Australia
- Bangladesh
- Canada
- China
- Croatia
- Germany
- Hungary
- Israel
- Malaysia
- Mexico
- Netherlands
- New Zealand
- Poland
- Slovakia
- Spain
- Switzerland
- US

STATISTICAL ANALYSIS

- **Random Forest models** on each dataset (R: “randomForest” package, variable selection was conducted using the “VSURF” package) → Each model revealed the **total amount of variance explained** by the model, and the **specific variables** that emerged as predictors
- **Research Question 1: Predicting PPU**
 - Cross-sectional datasets
 - PPU score is the outcome in each model
 - All measures available in each dataset (i.e., all sociodemographic questions, all scales) as predictors of PPU
- **Research Question 2: Predicting *change over time* in PPU**
 - Coming soon
- Combining the results of all datasets using **random-effects meta-analysis with meta-analytic moderators** (e.g., which PPU scale was used, published vs. unpublished study)
 - Coming soon

CHARACTERISTICS OF DATASETS

Studies' characteristics:

- Unpublished ($k = 32$) vs. published ($k = 24$)

Samples' characteristics:

- Community ($k = 50$) vs. treatment-seeking samples ($k = 6$)
- Adolescents ($k = 1$) vs. Adults ($k = 53$) + Young adults (16-29 years) ($k = 2$)

Scales used (some studies used multiple scales):

- Cyber Pornography Use Inventory - long or short versions (CPUI; CPUI-9; CPUI-4; Grubbs et al., 2010, 2015; Grubbs & Gola, 2019) ($k = 28$)
- Problematic Pornography Consumption Scale - long or short versions (PPCS; PPCS-6; PPCS-6-A; Bóthe et al., 2018, 2020, 2021) ($k = 22$)
- Brief Pornography Screen (BPS; Kraus et al., 2020) ($k = 13$)
- Problematic Pornography Use Scale (PPUS; Kor et al., 2014) ($k = 8$)
- Compulsive Pornography Consumption Scale (CPCS; Noor et al., 2014) ($k = 1$)

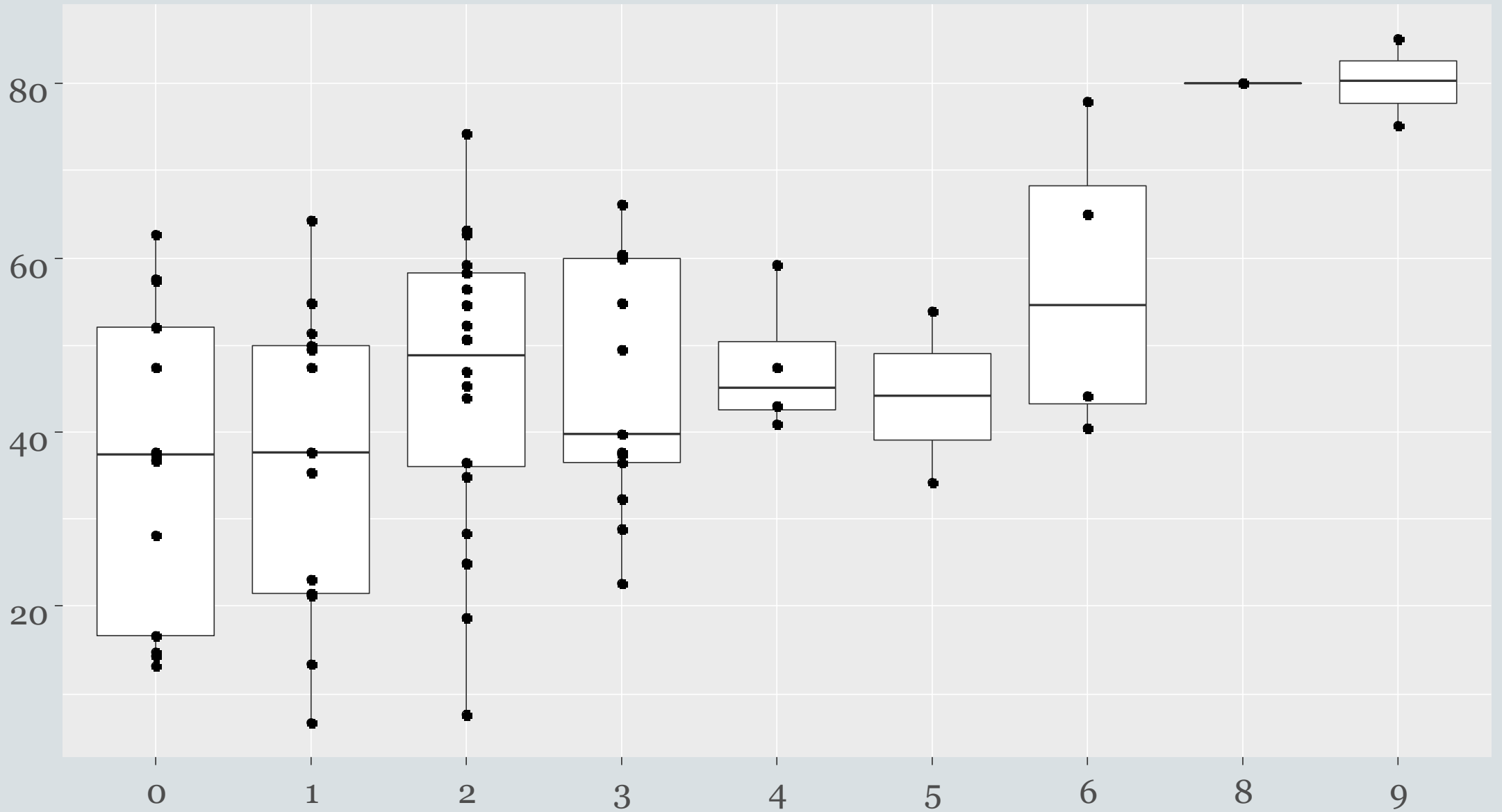
TOP 10 PREDICTORS OF PPU

Variance explained by the models:

- **Range** of explained variance in the models: 8 to 78%
- **Average** variance explained: 42%

Variables (measured at least in 10 datasets)	In database (n)	Is predictor (n)	Percent (%)
Pornography use frequency	53	49	92.45
Sexual shame	13	11	84.62
Moral incongruence	31	26	83.87
Externalization of blame	11	7	63.64
Guilt proneness	13	8	61.54
Duration of pornography use (each occasion)	36	22	61.11
Anxiety	20	12	60.00
Depression	19	11	57.90
Self-perceived addiction to pornography	11	6	54.55
Loneliness	15	8	53.33

Explained variance



Number of predictors included in the models from the top 10 predictors

III.3. UNIVERSAL RISK FACTORS OF CSBD AND PPU?



Show us how sexy you are, North America.



Lín-hó, Taiwan!



Sawubona, South Africa!



Sveiki, Lithuania!
How do you do it?



Don't be shy, Japan.

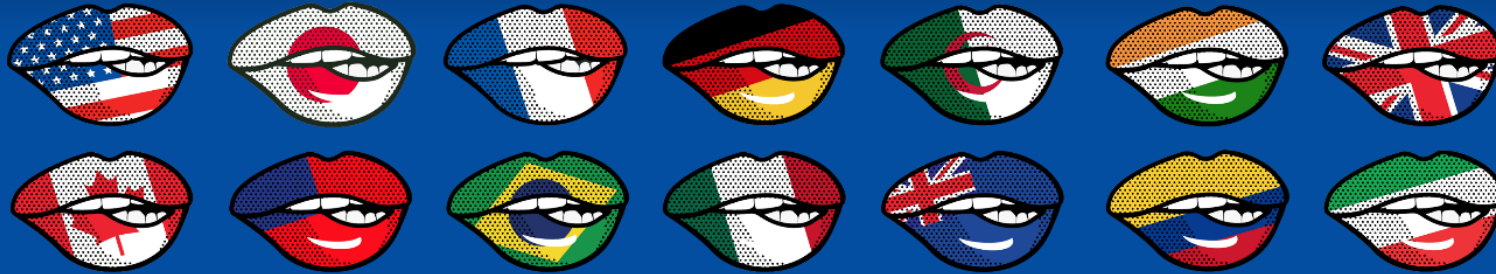


হ্যালো
Have you taken our survey yet?



Hola, Ecuador!
¿Ya tomaste nuestra encuesta?

International Sex Survey



Salam, Algeria!



Central and Eastern Europe, tell us how you do it.



Hi, Ireland.
Let's talk about sex.



Bună ziua!
Tell us about your



Annyong, South Korea!



Just how sexy is it Down Under?



Hala, Iraq!



You're so sexy, Latin America.



Ni hao, China!



Yalla, Egypt!



Salaam, Malaysia!



Western Europe, tell us how you do it.



Shalom, Israel!



Türkiye, hala anketimize katılmadınız mı?

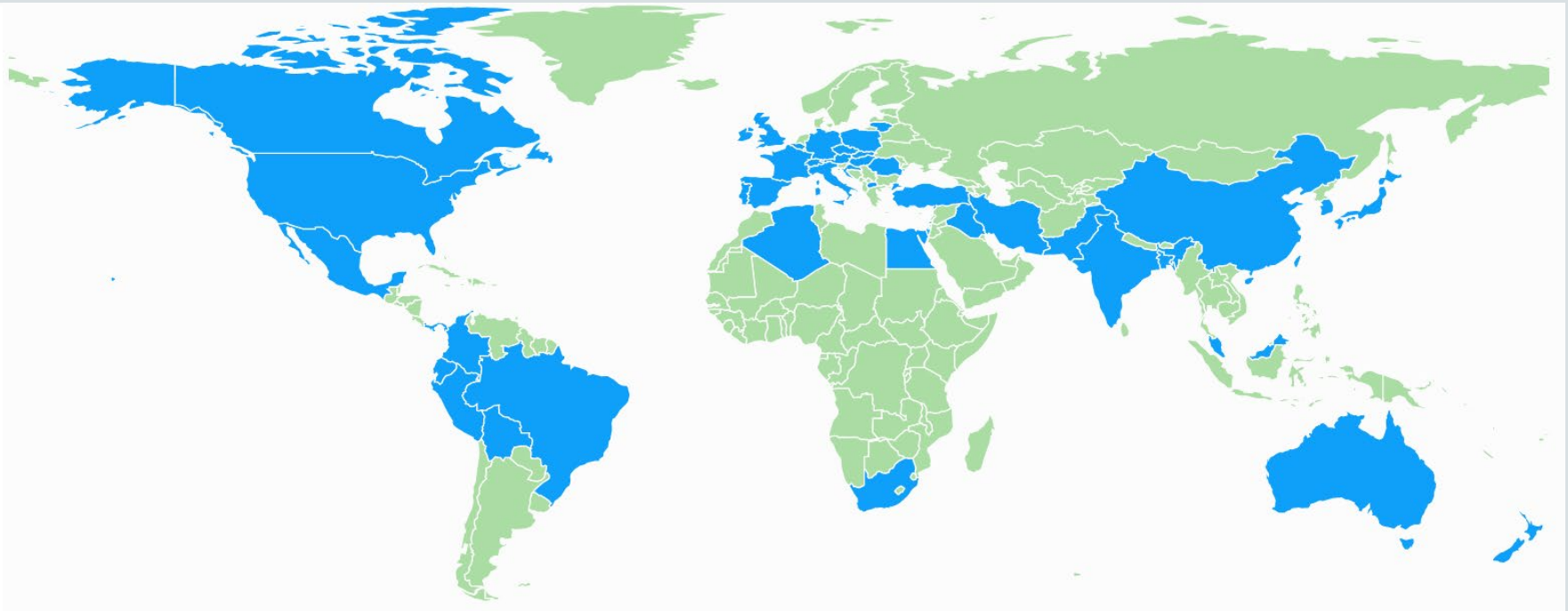
EXAMINING THE GENERALIZABILITY OF FINDINGS IN LARGE-SCALE, CROSS-CULTURAL STUDIES



1. Validate and **provide publicly available scales** that can reliably assess different sexual behaviours
2. Identify **populations at risk** of developing compulsive sexual behaviors
3. Study potential **risk** and **protective** factors across cultures



INTERNATIONAL
SEX SURVEY



Africa (n = 3)	America (n = 9)	Asia (n = 11)	Europe (n = 20)	Oceania (n = 2)
Algeria	Bolivia	Bangladesh	Austria	Australia
Egypt	Brazil	China	Belgium	New Zealand
South Africa	Canada	India	Croatia	
	Chile	Iran	Czech Republic	
	Colombia	Iraq	France	
	Ecuador	Israel	Germany	
	Mexico	Japan	Gibraltar	
	Panama	Malaysia	Hungary	
	Peru	Pakistan	Ireland	
	United States	South Korea	Italy	
		Taiwan	Lithuania	
			North Macedonia	
			Poland	
			Portugal	
			Romania	
			Slovakia	
			Spain	
			Switzerland	
			Turkey	
			United Kingdom	

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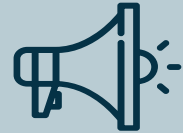
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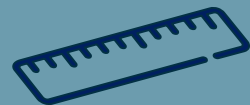
Léna Nagy, MA
Eötvös Loránd University, Hungary

45 countries

- **Data collection:** fall of 2021- spring of 2022
- **Study advertisement:** Popular news websites and other forums
- Self-report, anonymous **survey**



- **Measures:** sociodemographic variables, sexuality-related measures, pornography use-related measures, personality, basic psychological needs, comorbidities, substance use disorders
- **Religiosity**
- **Moral incongruence**
- **Past-year pornography use frequency**
- **Problematic pornography use** (Problematic Pornography Consumption Scale, Brief Pornography Screen)



N = 82,243

- **Age:** $M_{age} = 32.4$, $SD = 12.5$
- **Gender:** 39.6% men; 57.0% women; 4.4% gender diverse
- **Religion:** 47.9% not religious, 29.3% Christian, 13.8% spiritual but not committed to one religion, 1.9% Buddhist, 1.6% Jewish, 1.3% Muslim, all other religions <1%
- **Sexual orientation:** 68.2% heterosexual, 31.8% sexually diverse

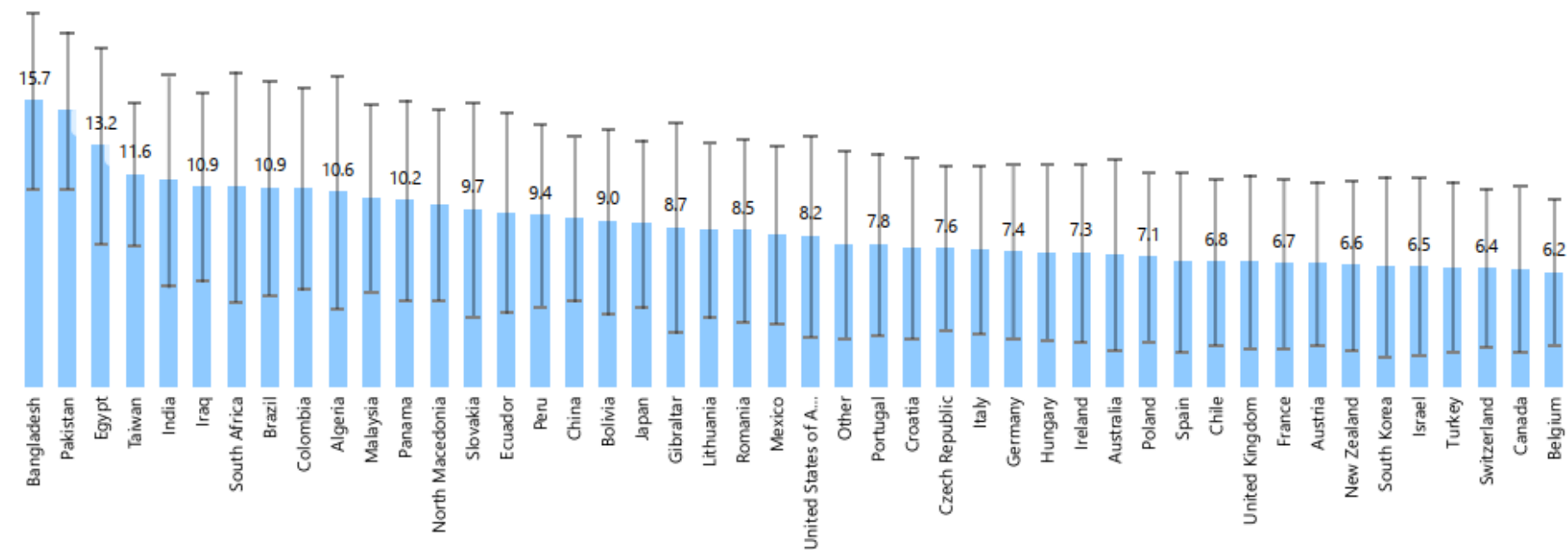
Mean religiosity score by country, 10 highest scores

Country	n	Mean score	Standard deviation	Min.	Max.
Bangladesh	373	15.67	4.82	3	21
Pakistan	125	15.12	4.32	3	21
Egypt	54	13.20	5.40	3	21
Taiwan	2668	11.62	3.92	3	21
India	194	11.28	5.81	3	21
Iraq	99	10.94	5.20	3	21
South Africa	1849	10.92	6.33	3	21
Brazil	3579	10.86	5.91	3	21
Colombia	1913	10.85	5.56	3	21
Algeria	24	10.63	6.39	3	21

Average religiosity score by country, 10 lowest scores

Country	n	Mean score	Standard deviation	Min.	Max.
United Kingdom	1412	6.78	4.76	3	21
France	1706	6.70	4.65	3	21
Austria	746	6.70	4.46	3	21
New Zealand	2834	6.61	4.66	3	21
South Korea	1464	6.54	4.94	3	21
Israel	542	6.53	4.92	3	21
Turkey	820	6.48	4.67	3	21
Switzerland	1144	6.43	4.33	3	21
Canada	2541	6.39	4.59	3	21
Belgium	644	6.23	4.01	3	21

Mean religiosity score by country



Mean religiosity score

8.05

Standard deviation

5.17

RELIGIOSITY
(3-21)

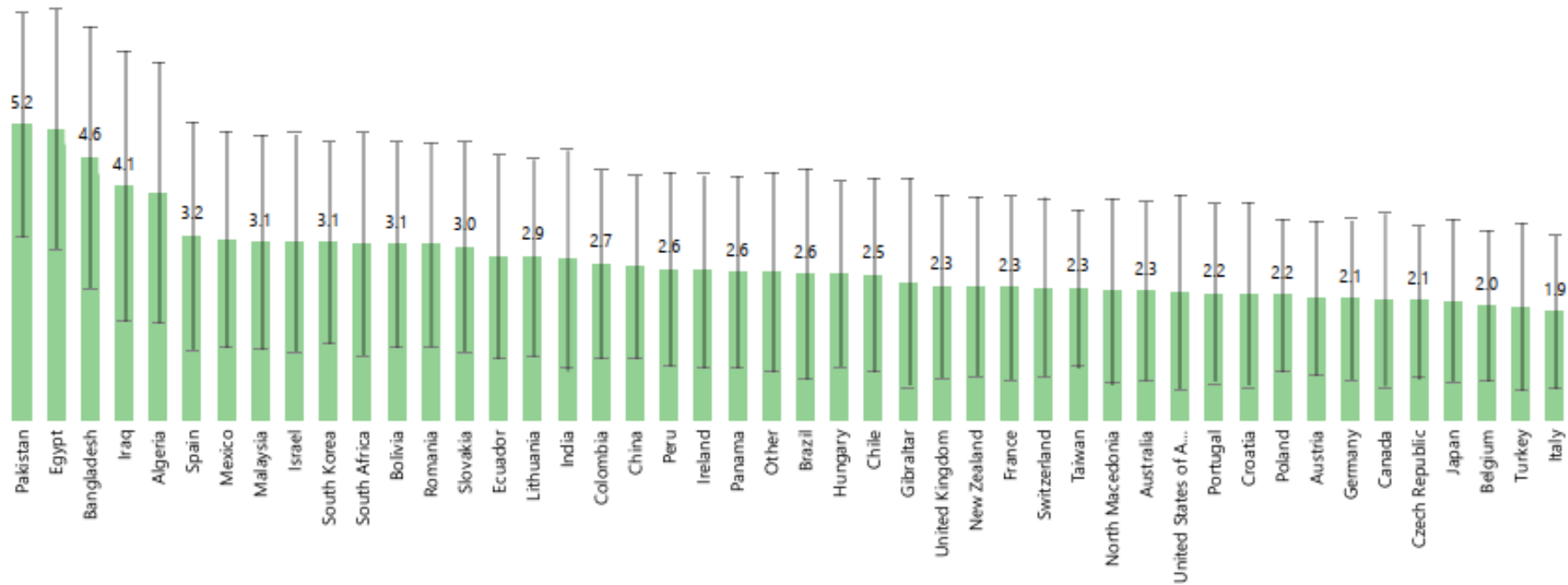
Belief that pornography use is morally wrong by country. 10 highest scores

Country	n	Mean score	Standard deviation	Min.	Max.
South Korea	1464	3.12	1.78	1	7
Israel	542	3.12	1.94	1	7
Malaysia	1170	3.12	1.89	1	7
Mexico	2137	3.17	1.91	1	7
Spain	2327	3.24	2.02	1	7
Algeria	24	4.00	2.31	1	7
Iraq	99	4.12	2.38	1	7
Bangladesh	373	4.62	2.31	1	7
Egypt	54	5.12	2.14	1	7
Pakistan	125	5.20	1.99	1	7

Belief that pornography use is morally wrong by country. 10 lowest scores

Country	n	Mean score	Standard deviation	Min.	Max.
Croatia	2390	2.20	1.63	1	7
Poland	9892	2.19	1.35	1	7
Austria	746	2.14	1.36	1	7
Germany	3271	2.12	1.43	1	7
Canada	2541	2.10	1.54	1	7
Czech Republic	1640	2.09	1.35	1	7
Japan	562	2.08	1.45	1	7
Belgium	644	2.00	1.33	1	7
Turkey	820	1.98	1.48	1	7
Italy	2401	1.89	1.36	1	7

Belief that pornography use is morally wrong score by country



Belief that pornography use is morally wrong mean score

2.49

Standard deviation

1.68

MORAL INCONGRUENCE (1-7)

Mean pornography use frequency score by country, 10 highest scores

Country	n	Mean score	Standard deviation	Min.	Max.
Japan	562	6.23	2.89	0	10
Algeria	24	5.63	3.15	0	10
Egypt	54	5.28	3.23	0	10
Pakistan	125	5.27	2.81	0	10
India	194	5.24	3.32	0	10
Brazil	3579	5.10	3.15	0	10
United States of America	2398	5.09	3.09	0	10
Canada	2541	5.06	2.94	0	10
Turkey	820	5.04	2.76	0	10
Malaysia	1170	5.01	3.24	0	10

Mean pornography use frequency score by country, 10 lowest scores

Country	n	Mean score	Standard deviation	Min.	Max.
Italy	2401	3.72	3.04	0	10
Lithuania	2015	3.71	2.93	0	10
Mexico	2137	3.70	3.03	0	10
Poland	9892	3.45	2.61	0	10
Israel	542	3.43	3.05	0	10
Czech Republic	1640	3.18	2.84	0	10
Portugal	2262	3.15	2.69	0	10
China	2428	3.11	3.02	0	10
Colombia	1913	3.00	2.87	0	10
Bangladesh	373	2.45	3.22	0	10

Mean pornography use frequency score

4.22
(3.02)

Mean pornography use frequency score by country



Past year (in the past 12 months),
how often did you use porn?

- 0 never
- 1 once in the last year
- 2 2-6 times in the last year
- 3 7-11 times in the last year
- 4 once a month
- 5 2-3 times a month
- 6 once in a week
- 7 2-3 times in a week
- 8 4-5 times in a week
- 9 6-7 times in a week
- 10 more than 7 times in a week

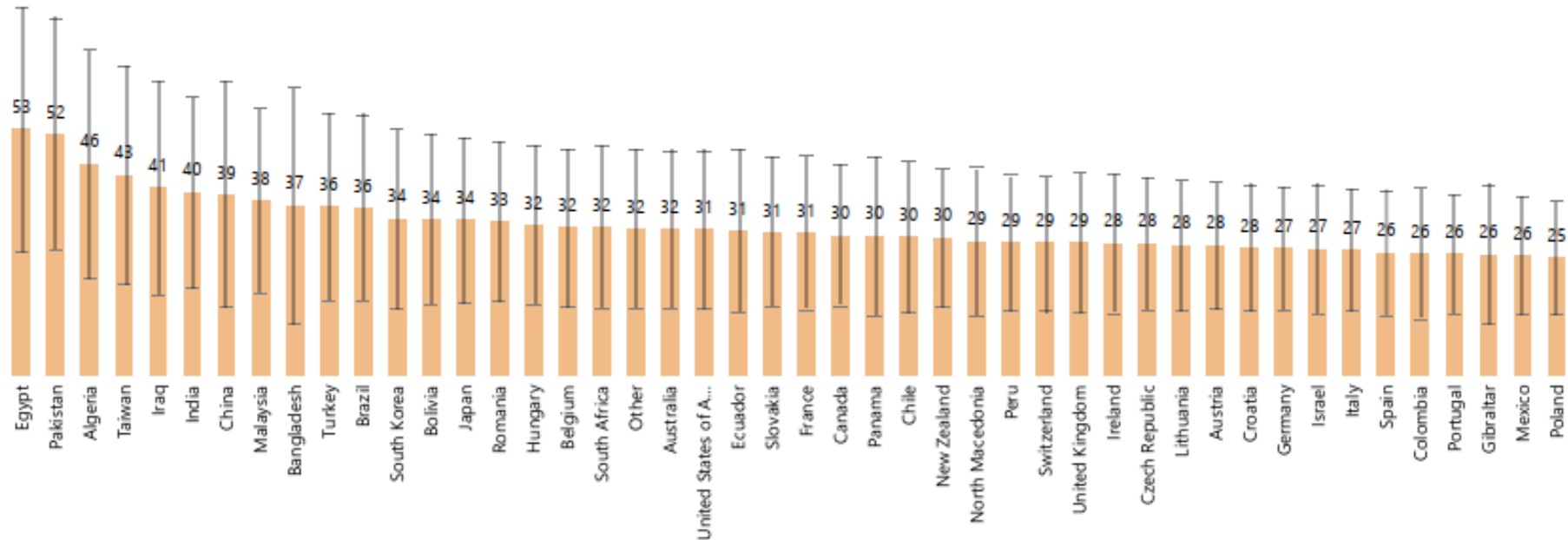
Mean PPCS score by country, 10 highest scores

Country	n	Mean PPCS	Standard deviation	Min.	Max.
Egypt	54	53.43	26.68	18	112
Pakistan	125	52.34	25.11	18	120
Algeria	24	45.83	24.97	18	102
Taiwan	2668	43.41	23.69	18	126
Iraq	99	40.70	23.34	18	96
India	194	39.68	20.76	18	112
China	2428	39.14	24.61	18	126
Malaysia	1170	37.76	20.21	18	123
Bangladesh	373	36.74	25.85	18	125
Turkey	820	36.49	20.46	18	125

Mean PPCS score by country, 10 lowest scores

Country	n	Mean PPCS	Standard deviation	Min.	Max.
Croatia	2390	27.54	13.71	18	111
Germany	3271	27.37	13.48	18	120
Israel	542	27.24	13.98	18	113
Italy	2401	26.97	13.18	18	105
Spain	2327	26.33	13.75	18	117
Colombia	1913	26.21	14.32	18	122
Portugal	2262	26.13	12.97	18	116
Gibraltar	64	26.00	15.11	18	105
Mexico	2137	25.70	12.78	18	114
Poland	9892	25.32	12.34	18	121

Mean PPCS score by country



Mean PPCS score

30.50

Standard deviation

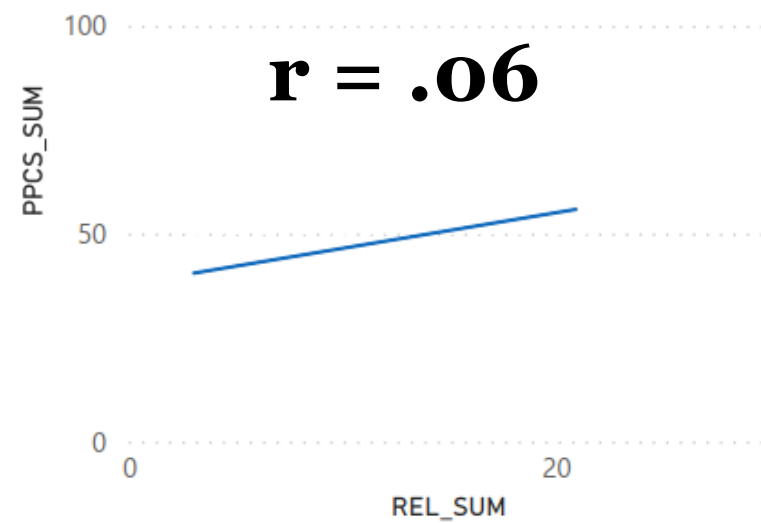
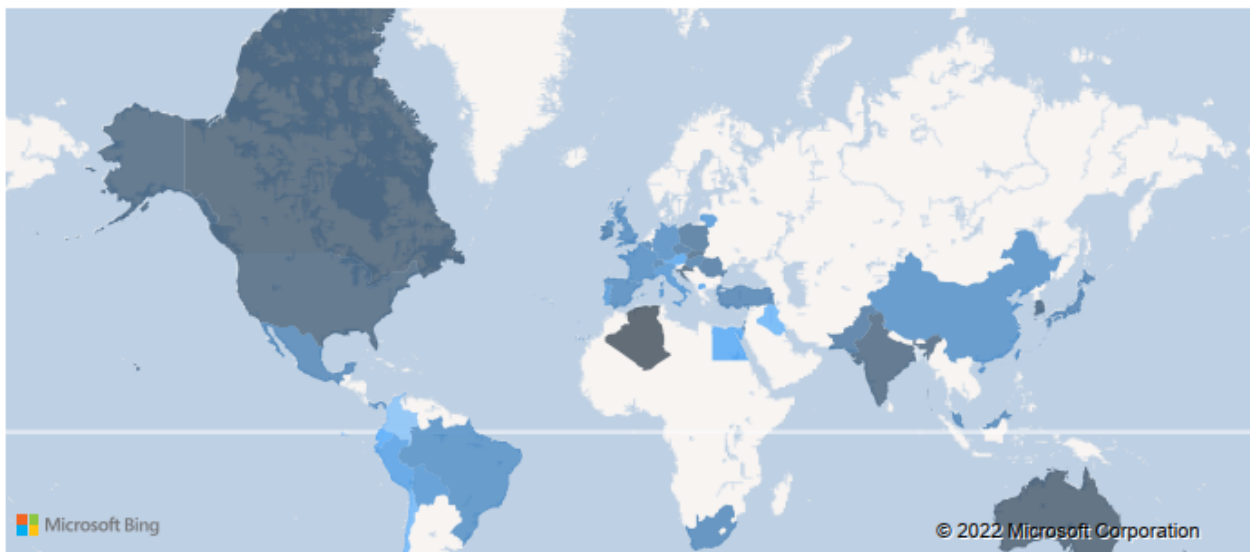
17.09

**PROBLEMATIC
PORNOGRAPHY
USE
(18-126)**

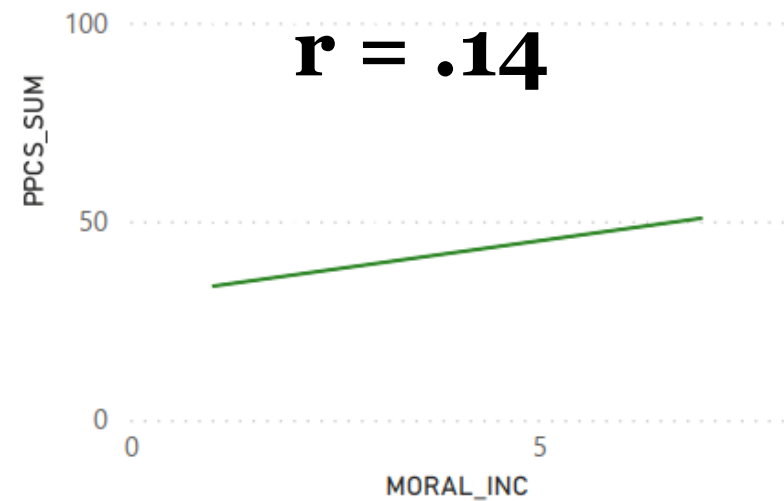
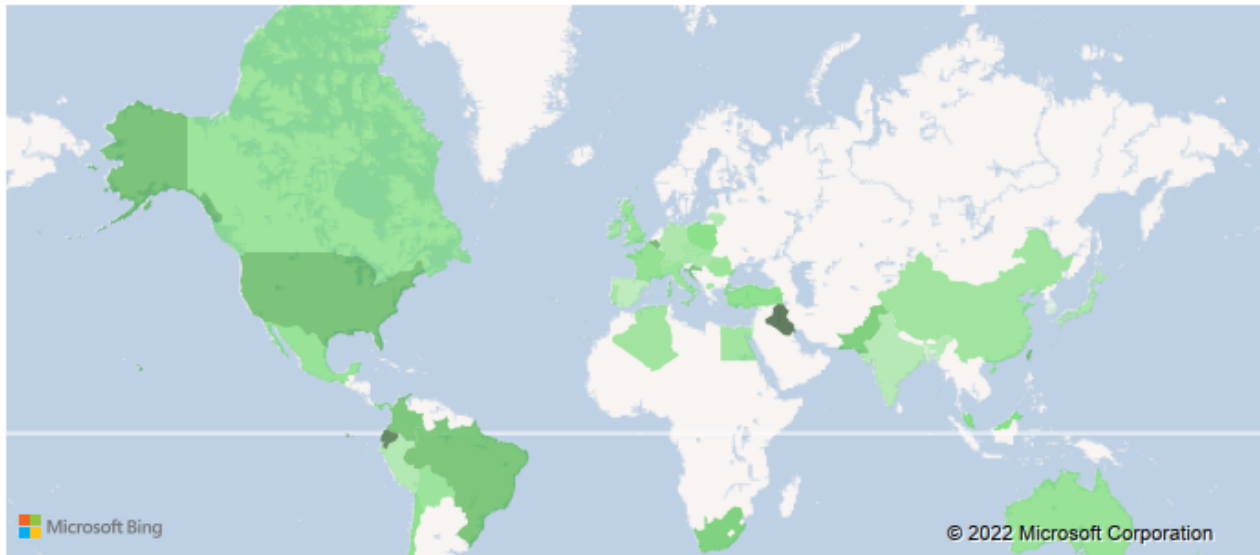
PPU = 3.2%

Country	n	Religiosity	Standard dev.	Belief that pornography is morally wrong	Standard dev.	Pornography use frequency	Standard dev.	PPCS score	Standard dev.
Bangladesh	373	15.67	4.82	4.62	2.31	2.45	3.22	36.74	25.85
Algeria	24	10.63	6.39	4.00	2.31	5.63	3.15	45.83	24.97
Iraq	99	10.94	5.20	4.12	2.38	4.00	3.54	40.70	23.34
Egypt	54	13.20	5.40	5.12	2.14	5.28	3.23	53.43	26.68
Pakistan	125	15.12	4.32	5.20	1.99	5.27	2.81	52.34	25.11
Malaysia	1170	10.33	5.17	3.12	1.89	5.01	3.24	37.76	20.21
Brazil	3579	10.86	5.91	2.56	1.86	5.10	3.15	36.18	20.35
China	2428	9.20	4.54	2.69	1.62	3.11	3.02	39.14	24.61
India	194	11.28	5.81	2.84	1.93	5.24	3.32	39.68	20.76
France	1706	6.70	4.65	2.32	1.64	4.33	3.08	30.83	16.77
South Korea	1464	6.54	4.94	3.12	1.78	4.77	3.18	33.84	19.51
Taiwan	2668	11.62	3.92	2.31	1.38	4.94	3.11	43.41	23.69
Japan	562	8.90	4.60	2.08	1.45	6.23	2.89	33.55	18.11
Turkey	820	6.48	4.67	1.98	1.48	5.04	2.76	36.49	20.46
South Africa	1849	10.92	6.33	3.09	1.97	4.04	3.12	31.96	17.65
Bolivia	385	9.04	5.10	3.09	1.83	4.86	3.10	33.64	18.49
Panama	333	10.18	5.50	2.60	1.70	5.01	3.27	30.09	17.25
Romania	162	8.53	5.02	3.08	1.80	4.58	2.66	33.26	17.31
Chile	1173	6.79	4.58	2.54	1.69	4.77	3.13	30.05	16.49
Belgium	644	6.23	4.01	2.00	1.33	4.55	3.16	31.98	17.20
Ecuador	276	9.49	5.49	2.88	1.80	4.50	3.11	31.24	17.92
Gibraltar	64	8.69	5.80	2.40	1.85	3.92	3.06	26.00	15.11
Australia	639	7.16	5.27	2.26	1.59	4.77	2.98	31.58	17.08
United States of America	2398	8.22	5.52	2.24	1.71	5.09	3.09	31.45	17.06
Canada	2541	6.39	4.59	2.10	1.54	5.06	2.94	30.14	15.35
Slovakia	1134	9.69	5.90	3.04	1.85	4.68	2.98	30.87	16.32
New Zealand	2834	6.61	4.66	2.32	1.59	4.65	2.95	29.78	15.10
Lithuania	2015	8.53	4.80	2.87	1.76	3.71	2.93	28.12	14.21
Switzerland	1144	6.43	4.33	2.32	1.57	4.10	2.95	28.64	14.57
Hungary	11992	7.33	4.83	2.56	1.64	4.87	2.86	32.42	17.35
Ireland	1702	7.28	4.92	2.63	1.70	4.11	3.04	28.48	15.34
Peru	2672	9.36	5.05	2.65	1.71	4.28	3.06	28.65	14.80
Mexico	2137	8.28	4.89	3.17	1.91	3.70	3.03	25.70	12.78
Colombia	1913	10.85	5.56	2.74	1.67	3.00	2.87	26.21	14.32
United Kingdom	1412	6.78	4.76	2.34	1.61	4.17	3.03	28.62	15.28
North Macedonia	1251	9.94	5.30	2.27	1.63	3.94	3.07	28.88	16.30
Spain	2327	6.81	4.95	3.24	2.02	3.86	3.07	26.33	13.75
Germany	3271	7.37	4.80	2.12	1.43	3.73	3.02	27.37	13.48
Czech Republic	1640	7.55	4.57	2.09	1.35	3.18	2.84	28.46	14.42
Austria	746	6.70	4.46	2.14	1.36	4.28	2.85	28.03	13.76
Israel	542	6.53	4.92	3.12	1.94	3.43	3.05	27.24	13.98
Italy	2401	7.45	4.61	1.89	1.36	3.72	3.04	26.97	13.18
Croatia	2390	7.57	5.00	2.20	1.63	4.07	2.68	27.54	13.71
Poland	9892	7.06	4.63	2.19	1.35	3.45	2.61	25.32	12.34
Portugal	2262	7.75	5.01	2.22	1.60	3.15	2.69	26.13	12.97

RELIGIOSITY & PPU



MORAL INCONGRUENCE & PPU



PORNOGRAPHY USE FREQUENCY & PPU

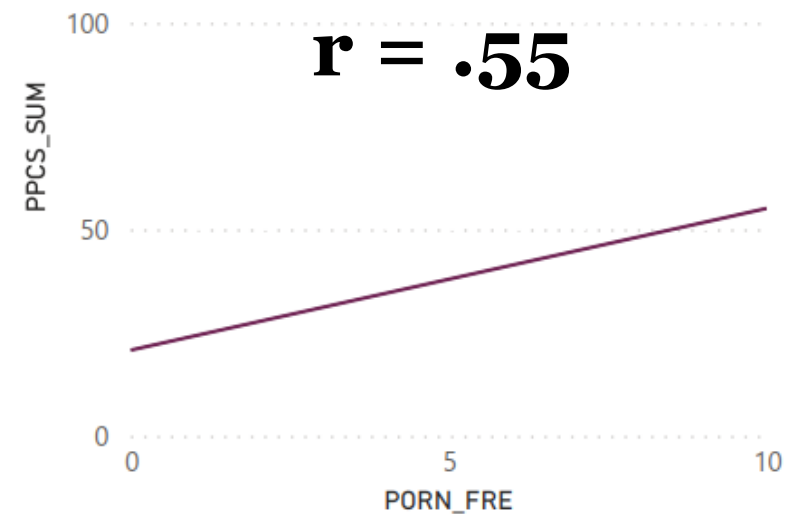
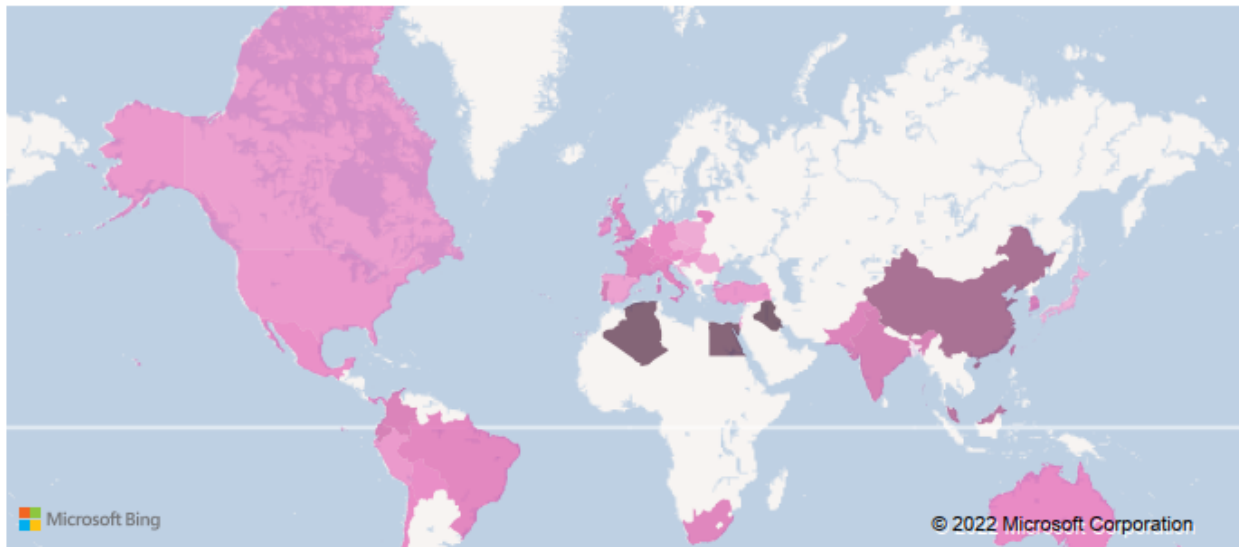
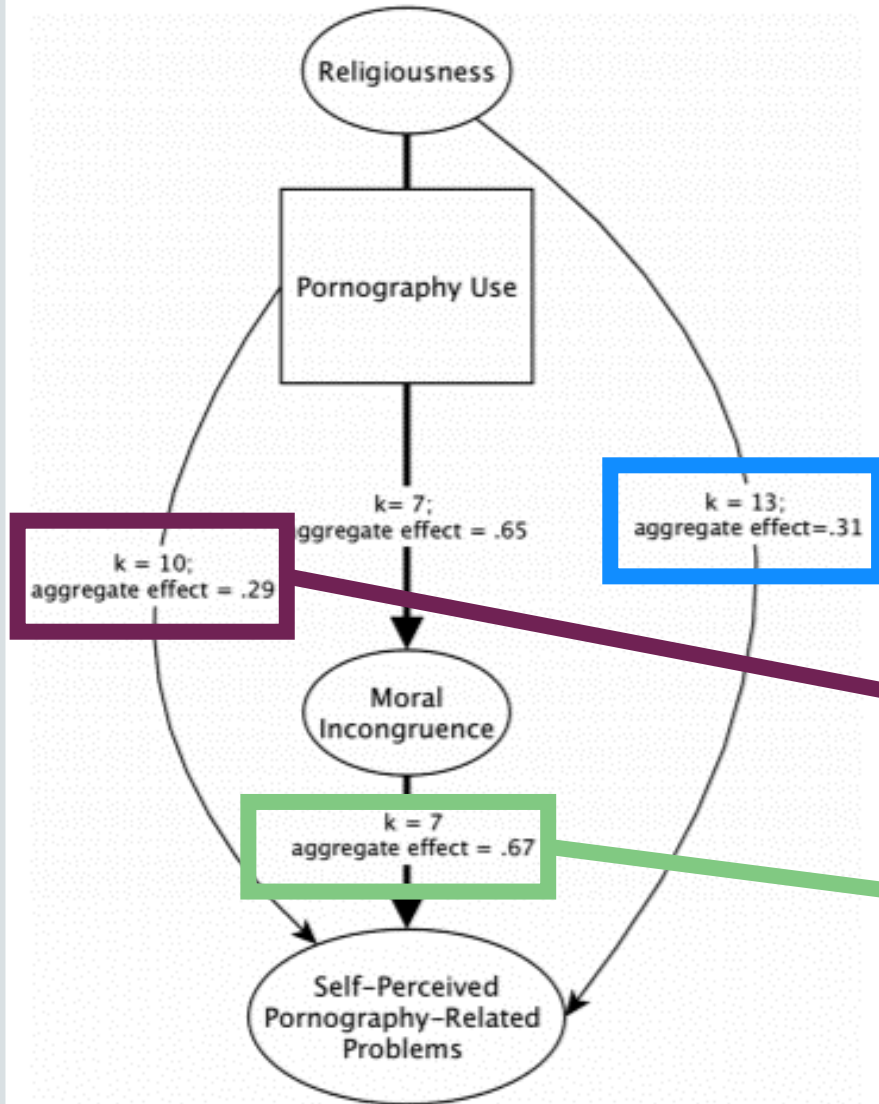
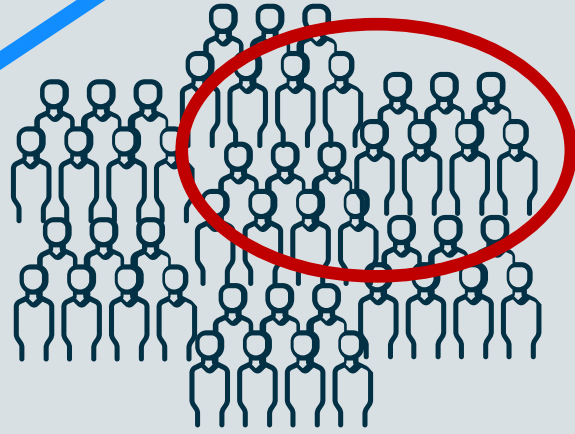


Fig. 3 Model of pornography problems due to moral incongruence with meta-analytic effects. Effects represent Fisher's aggregate Z. Associations are drawn directionally (i.e., religiosity leading to moral incongruence) to demonstrate the proposed model



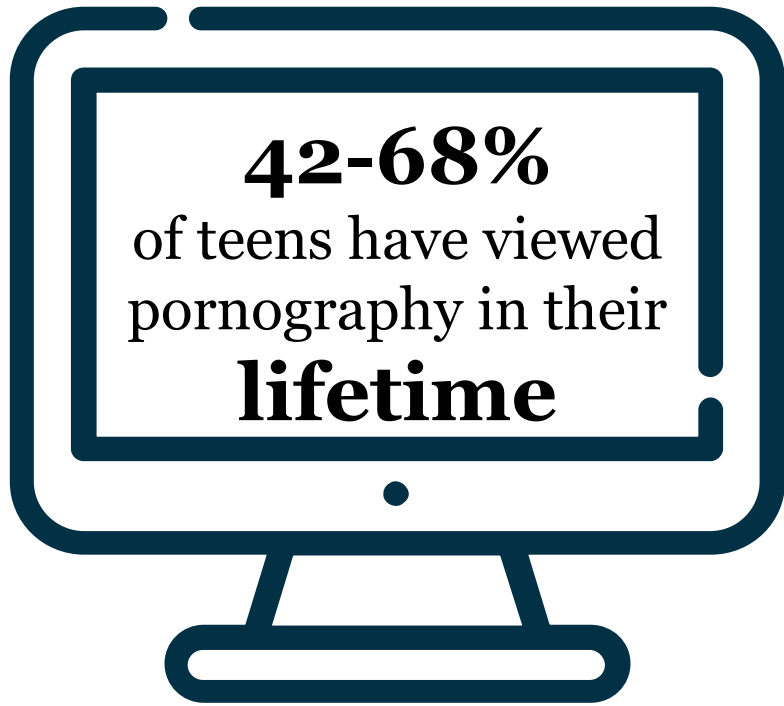
Cultural differences?

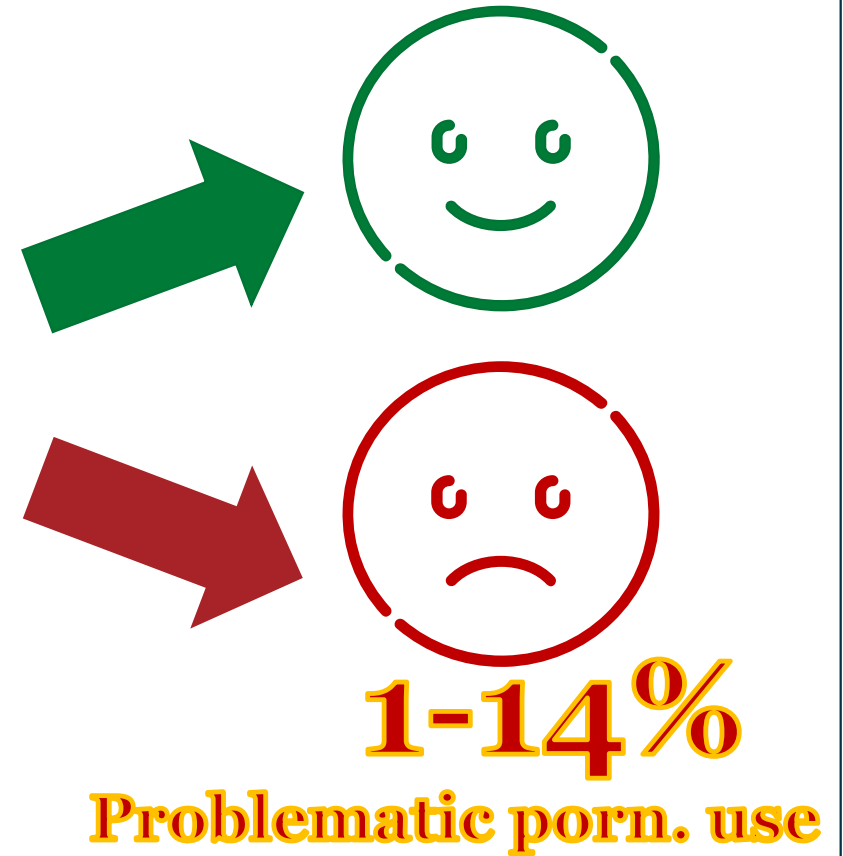
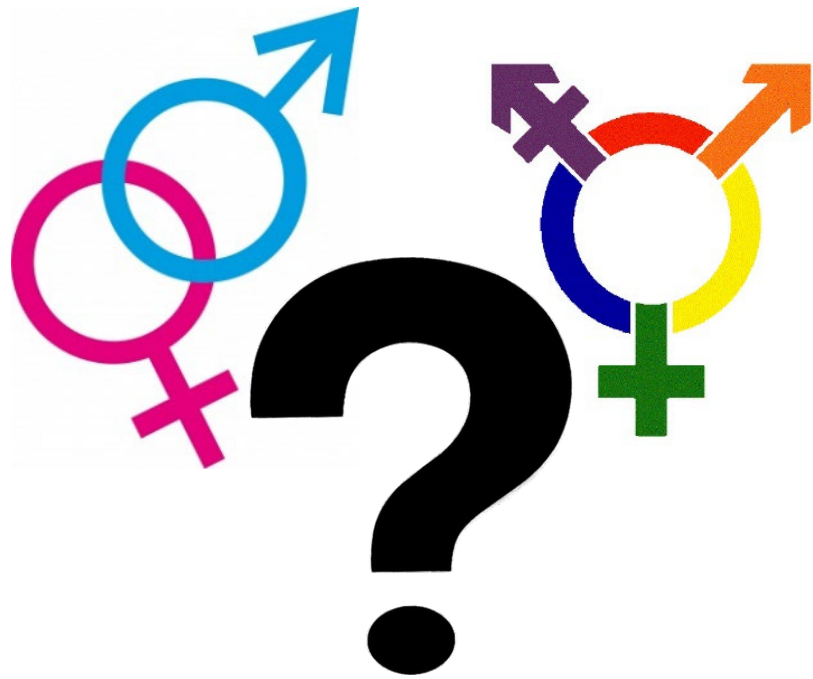


No cultural differences?

Cultural differences?

III.4. ADOLESCENTS' PROBLEMATIC AND NON-PROBLEMATIC PORNOGRAPHY USE





1. **Examine and compare** sexual and gender minority and heterosexual, cisgender adolescents' **pornography use characteristics**
2. **Identify** teens potentially at risk of **problematic pornography use (PPU)**
3. **More** frequent and more problematic pornography use during the **COVID-19 pandemic?**



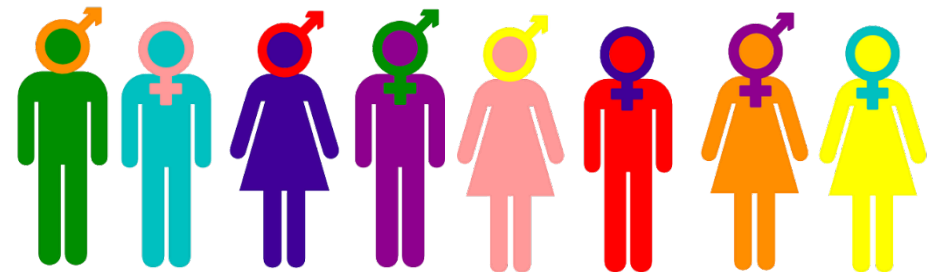
Presay Study

Précurseurs des Relations Sexuelles et Amoureuses des Jeunes

- Part of an ongoing bicenter Canadian **longitudinal** study on adolescents' sexual health
- Data collection at baseline, 12 months, and 24 months later
- 35-minute self-report, anonymous **survey** (Qualtrics Research Suite)
- **Compensation:** 10\$ gift card after the completion of each survey

Baseline: 2,904 adolescents

- $M = 14.5$ years ($SD = 0.6$) (range: 14 to 18 years)
- Heterosexual, cisgender (HC) boys = 1,195 (41.2%)
- Heterosexual, cisgender (HC) girls = 1,150 (39.7%)
- Sexual and gender minority (SGM) boys = 156 (5.4%)
- Sexual and gender minority (SGM) girls = 319 (11.0%)
- Non-binary individuals = 18 (0.6%)



Study 1 (Time 1) – Group comparisons

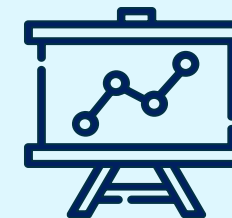
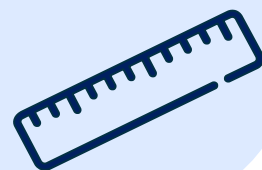
- Lifetime pornography use
- Age at first pornography use
- Frequency of pornography use in the past 3 months

Study 2 (Time 2) – Identifying at-risk teens

- Frequency of pornography use in the past 3 months
- Problematic Pornography Consumption Scale (Böthe et al., 2018)
- Correlates (i.e., masturbation, sexual interest, arousal, and distress)

Study 3 (Times 2 & 3) – COVID-19-related changes

- Frequency of pornography use in the past 3 months
- Problematic Pornography Consumption Scale (Böthe et al., 2018)



Study 1

- Chi-square test
- One-way analysis of variance (ANOVA)
- Kruskal-Wallis H-test

Study 2

- Confirmatory factor analysis
- Measurement invariance tests
- Latent profile analysis

Study 3

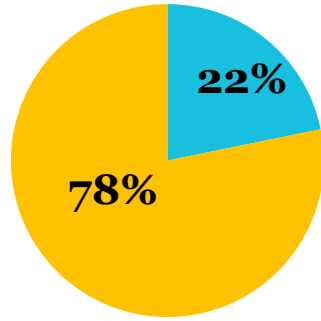
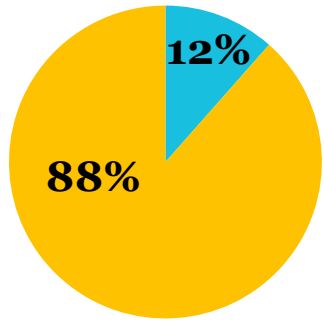
- Latent change models

EVER VIEWED PORNOGRAPHY

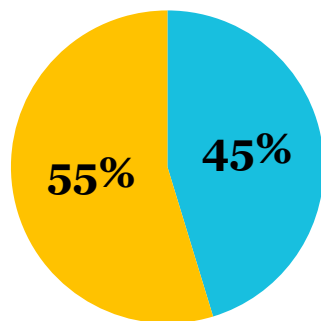
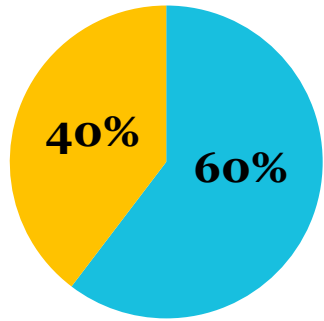
YES

NO

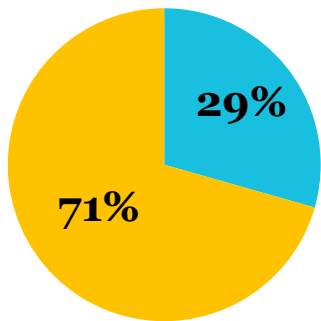
1. HC boys ($n = 1,195$) 2. SGM boys ($n = 156$)



3. HC girls ($n = 1,150$) 4. SGM girls ($n = 319$)



5. SGM non-binary individuals ($n = 18$)



(Bóthe et al., 2020)

All groups differed significantly ($\chi^2(4, N=2,825)=631.31, p<.001$)



AGE AT FIRST PORNOGRAPHY USE

1. HC boys
($n = 1,028$)



2. SGM boys
($n = 120$)



3. HC girls
($n = 437$)



4. SGM girls
($n = 172$)



5. Non-binary
ind. ($n = 12$)



11.9 years^{3,4}
($SD = 1.6$)

11.6 years^{3,4}
($SD = 1.7$)

12.9 years^{1,2,4}
($SD = 1.5$)

12.4 years^{1,2,3}
($SD = 1.7$)

12.5 years
($SD = 1.0$)

$F(4, 1768)=39.01, p<.001$

Superscript numbers (^{1,2,3,4,5}) indicate significant difference between the given group and the indexed group.

FREQUENCY OF PORNOGRAPHY USE

1. HC boys
($n = 1,049$)



2. SGM boys
($n = 121$)



3. HC girls
($n = 450$)



4. SGM girls
($n = 174$)



5. Non-binary
ind. ($n = 12$)



Many
times per
week^{3,4,5}

Many
times per
week^{3,4,5}

Less than
once a
month^{1,2,4}

Once a
month^{1,2,3}

Less than
once or once
a month^{1,2}

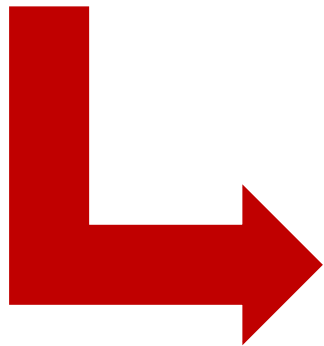
$\chi^2(4)=499.68, p<.001$

Superscript numbers (^{1,2,3,4,5}) indicate significant difference between the given group and the indexed group.

**At-risk problematic
pornography users
(10.3%)**

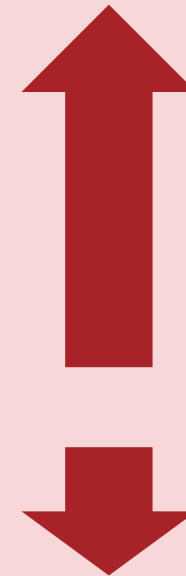


**Low-risk
pornography users
(89.7%)**



Boys vs. girls
Frequency of pornography use
Frequency of masturbation
Sexual interest
Sexual arousal
Sexual distress

Age at first pornography use



No significant differences in the ratio of heterosexual and sexual minority adolescents in the two groups

Before the COVID-19 pandemic

Nov 2019 – March 11, 2020

During the COVID-19 pandemic

Oct 2020 – June 2021



Less than once a month



Less than once a month



Less than once a month



Less than once a month



Many times per week



Many times per week

Before the COVID-19 pandemic

Nov 2019 – March 11, 2020

During the COVID-19 pandemic

Oct 2020 – June 2021



$M = 1.22$ ($SD = 0.57$)
1-7 scale



$M = 1.25$ ($SD = 0.51$)
1-7 scale



$M = 1.07$ ($SD = 0.15$)
1-7 scale



$M = 1.17$ ($SD = 0.29$)
1-7 scale

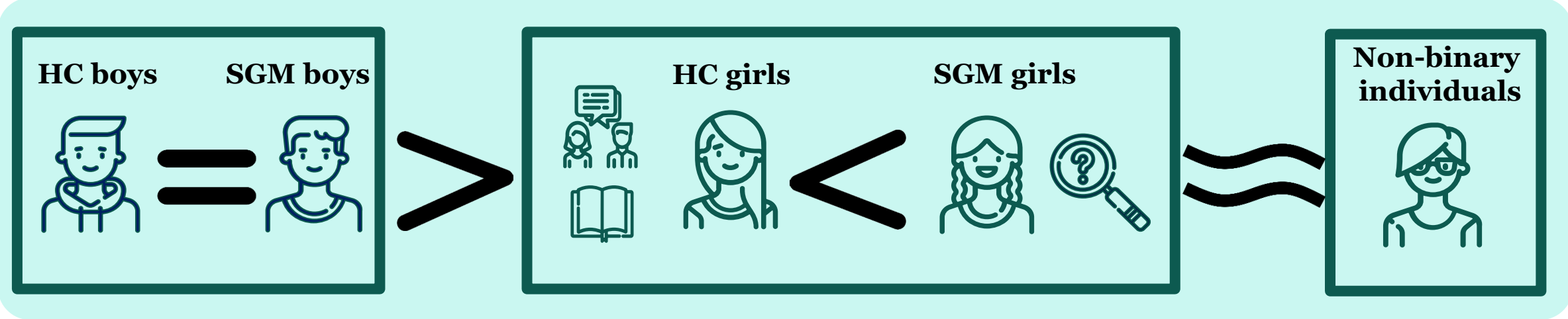


$M = 1.78$ ($SD = 0.89$)
1-7 scale



$M = 1.75$ ($SD = 0.94$)
1-7 scale

CONCLUSIONS



10%

A pink rounded square containing the text '10%' in large yellow and red font. Below the text are two red icons: a sad face and a warning sign.

LET'S TALK
SEX

A chalkboard with the text 'LET'S TALK' in white and 'SEX' in large pink letters. To the left are a purple female symbol and a blue male symbol. To the right is a rainbow flag with a black transgender symbol in the center.

COVID-19

A light gray rounded square containing the text 'COVID-19' in blue. Below the text is a blue icon of a coronavirus particle.

**IV. THE IMPORTANCE OF THE
CONTEXT IN THE OUTCOMES OF
SEXUAL BEHAVIORS**

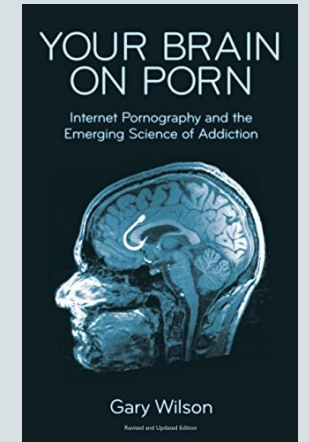
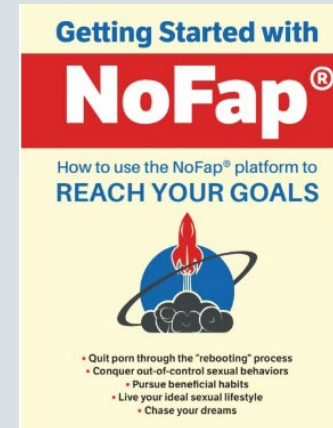
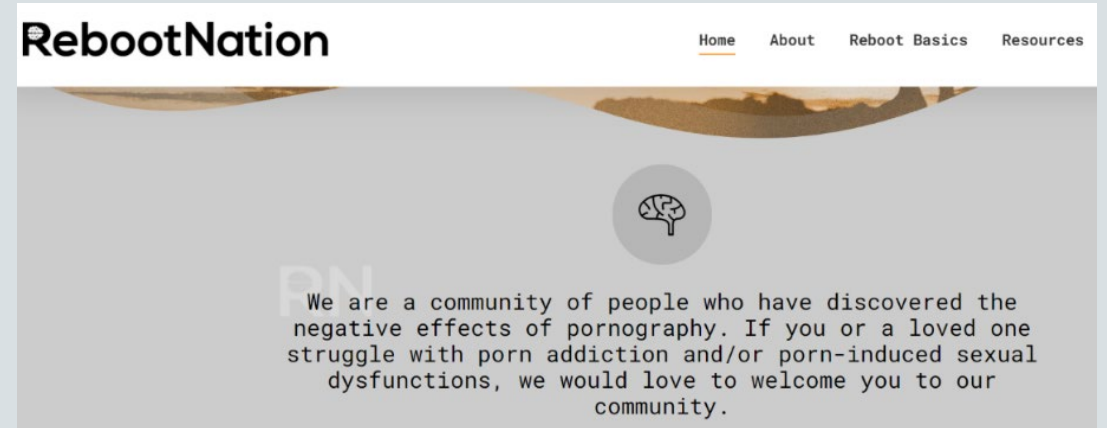
IV.1. THE ROLE OF PORNOGRAPHY USE IN SEXUAL WELL-BEING

IS PORNOGRAPHY USE RELATED TO SEXUAL WELL-BEING?

Popular media reports suggest that **sexual well-being problems** may be becoming more prevalent among younger adults (especially men) **due to pornography use**



Empirical, scientific studies have reported **inconsistent associations between pornography use and sexual well-being**, when considering different aspects of pornography use (e.g., PPU, frequency of pornography use), or potential gender-related differences



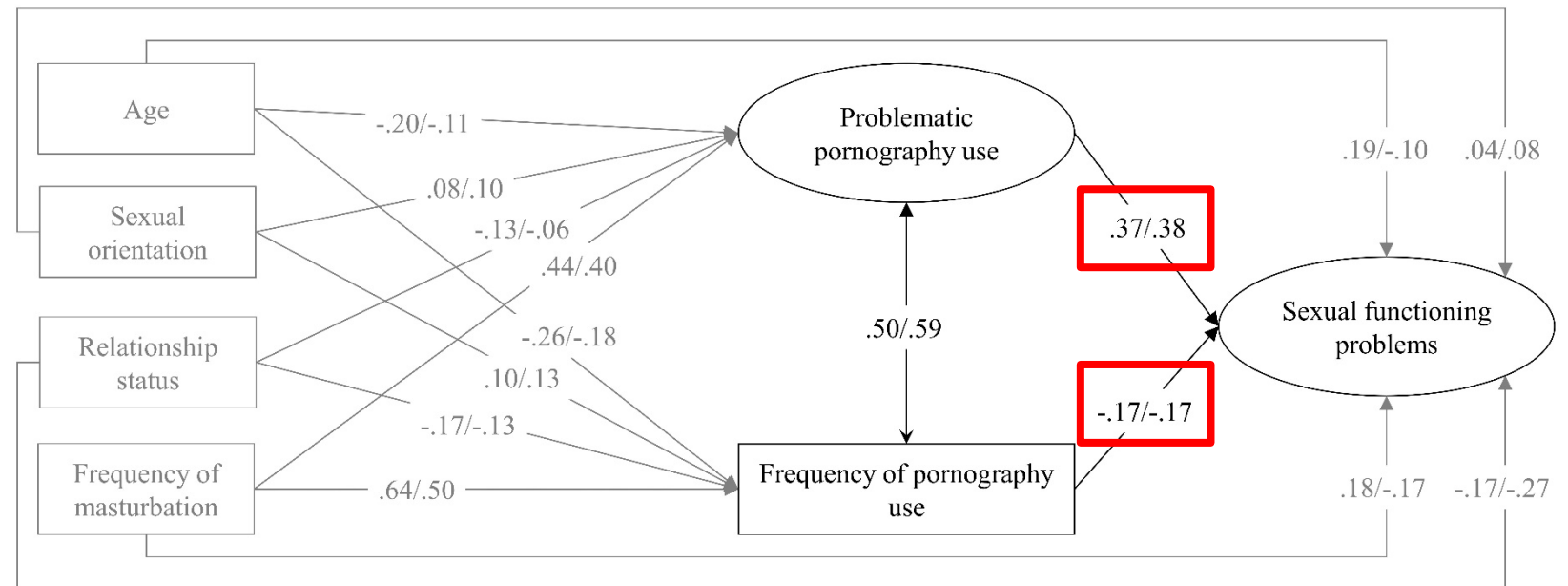
ASSOCIATIONS BETWEEN PORNOGRAPHY USE AND POTENTIAL OUTCOMES IN CROSS-SECTIONAL STUDIES WITH INDIVIDUALS

Roles of pornography use frequency and PPU in sexual function

(Bóthe et al., 2021e)

- Integrative Model of Engagement (Billieux et al., 2012, 2019)
- $N = 14,581$
- 30% women
- $M_{age} = 33.6, SD = 11.0$

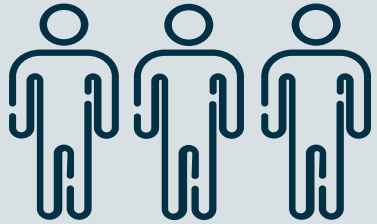
Multi-group path analysis in the structural equation modeling framework



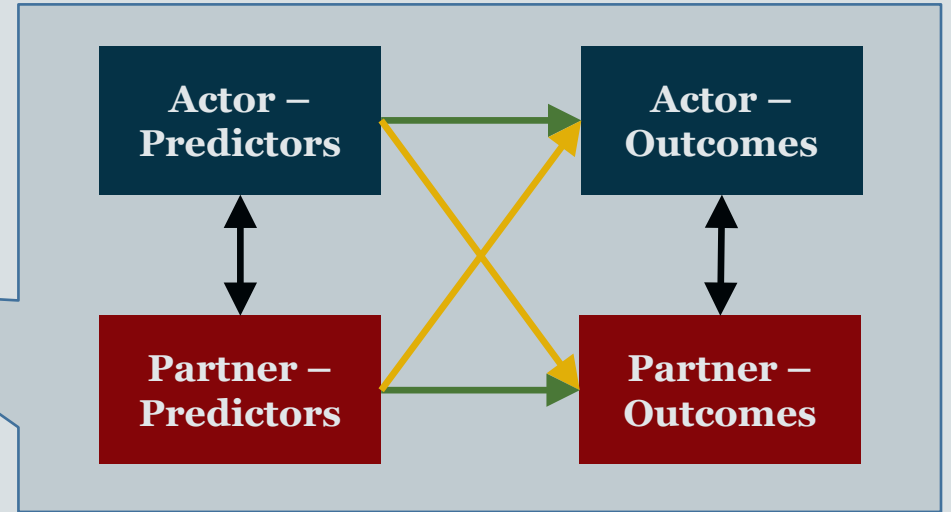
✓ The **context** of pornography use (e.g., problematic vs. non-problematic use) may **differentiate** between its positive and negative outcomes

LIMITATIONS OF PREVIOUS STUDIES

Individuals,
mostly men



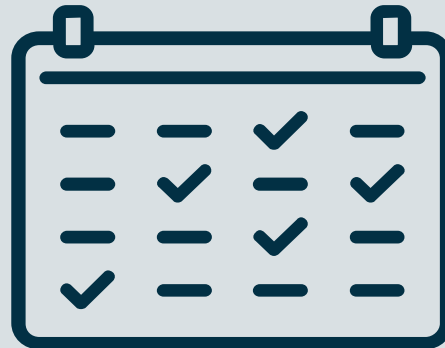
Mixed-sex/gender
couples



Single indicator of
sexual wellbeing



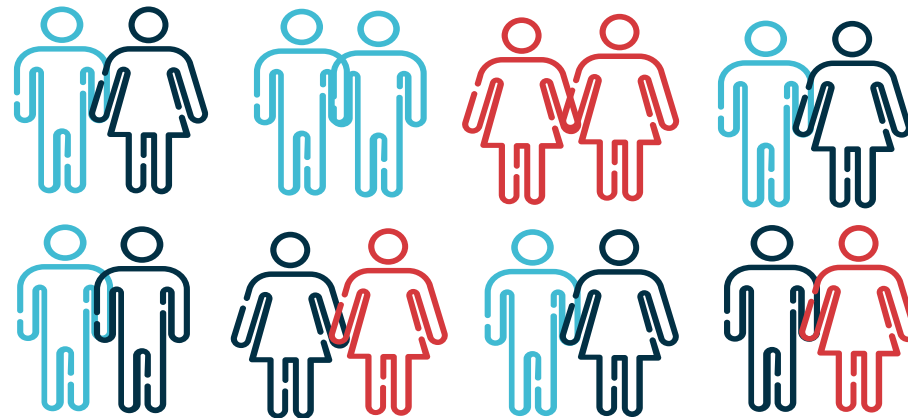
Only pornography
use frequency



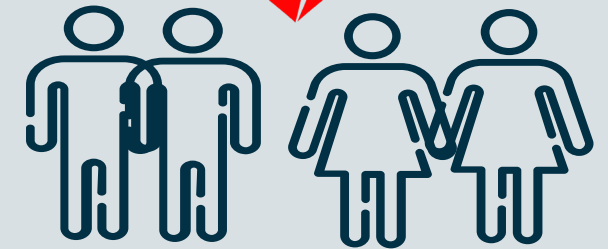
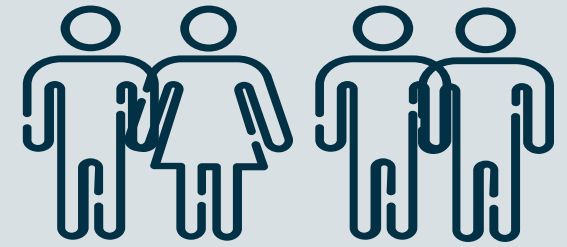
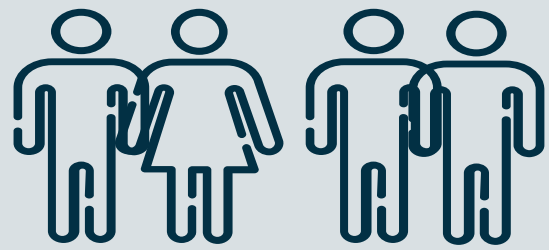


70 to 94%
of people have viewed
pornography in their lifetime

71 to 92%
of men have viewed
pornography in romantic
relationships



34 to 83%
of women have viewed
pornography in romantic
relationships

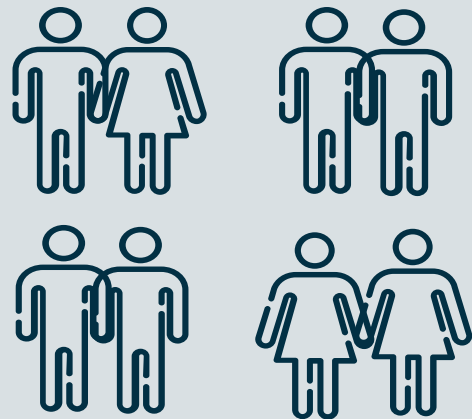
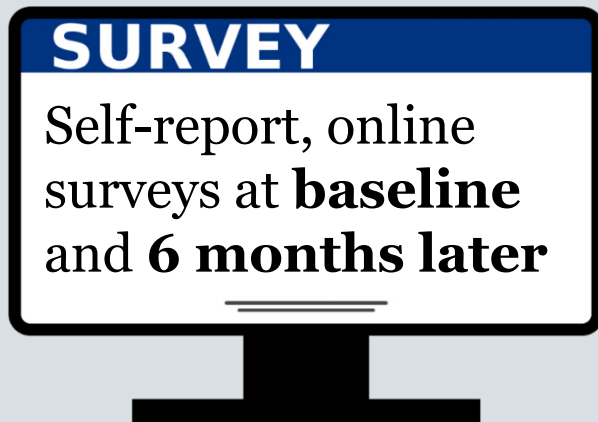


**Complex associations may exist between both partners' pornography use
and sexual well-being**

PARTICIPANTS AND PROCEDURE

- **Part of a larger longitudinal project**
- **Compensation:** 10\$ Amazon gift card after the completion of each survey
- **Eligibility criteria:**
 - both partners were at least 18 years old
 - understood written and spoken English or French
 - living together for at least one year
 - being sexually active at least once in the past three months

- **$N = 329$ couples:** 283 man-woman couples, (86.0%), 46 sexually and gender diverse couples (i.e., same-gender couples or couples including non-binary individuals) (14.0%)
- **Gender:** 337 women (51.2%), 308 men (46.8%), 13 non-binary individuals (2.0%)
- **Age:** $M = 32.7$ years ($SD = 9.6$)
- **Length of relationship:** $M = 7.1$ years ($SD = 6.6$)
- **Highest levels of education:** 63% had a university degree
- **Cultural background:** 67% were French Canadian



MEASURES AND STATISTICAL ANALYSIS

Pornography use:

- Individual pornography use frequency
- Problematic Pornography Consumption Scale (Bóthe et al., 2018)

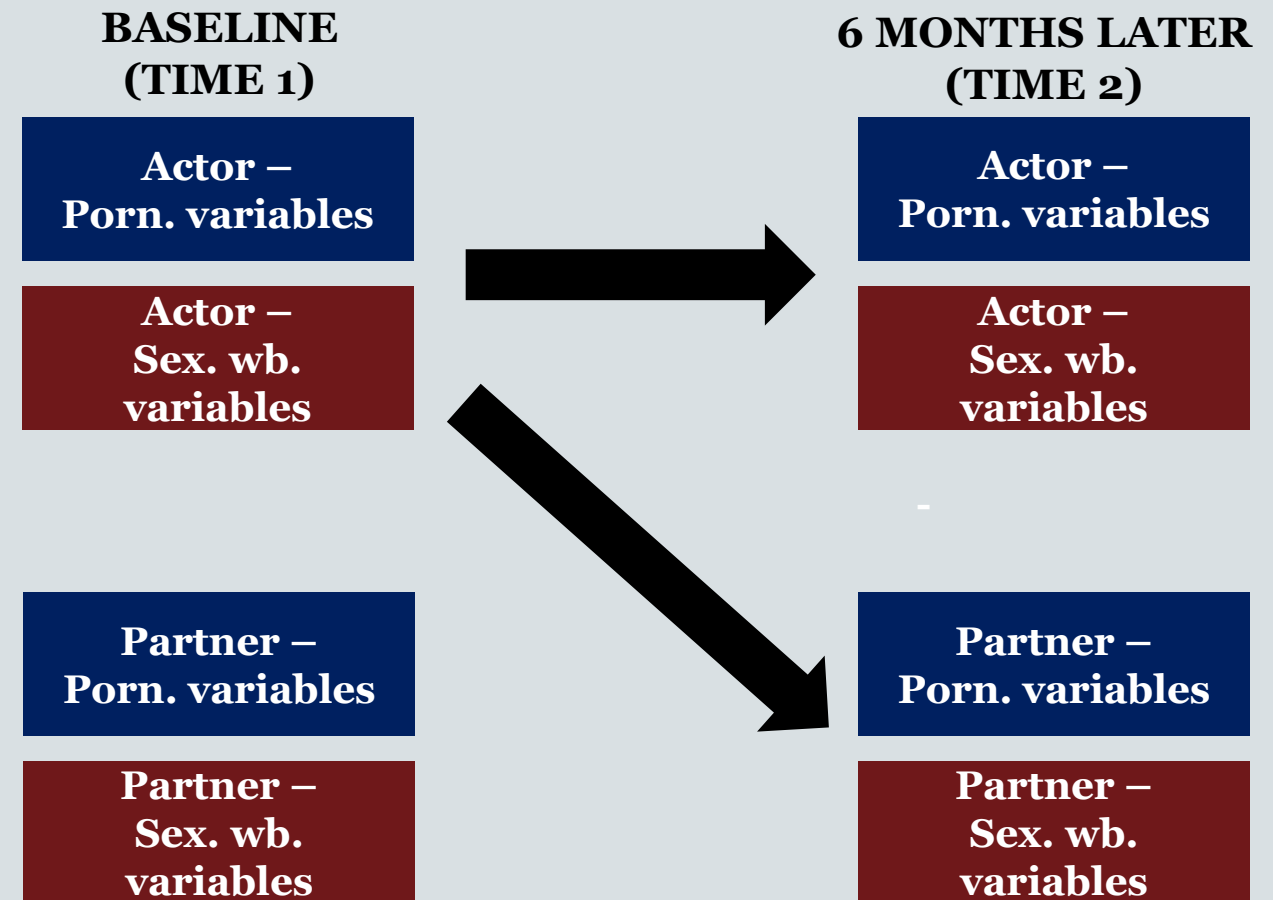
Sexual well-being:

- Global Measure of Sexual Satisfaction (Lawrance & Byers, 1998)
- Sexual Distress Scale (Derogatis et al., 2002)
- International Index of Erectile Function (Rosen et al., 1997)
- Female Sexual Function Index (Rosen et al., 2000)

Control variables:

- masturbation frequency, moral incongruence, depression and anxiety symptoms

Autoregressive cross-lagged analysis within an actor-partner interdependence framework, using gender as a moderator



**BASELINE
(TIME 1)**

**Actor –
Porn. use frequency**

**Actor –
Problematic porn. use**

**Actor –
Sexual function**

**Actor –
Sexual satisfaction**

**Actor –
Sexual distress**

**No partner
effects**

**No gender
differences**

**6 MONTHS LATER
(TIME 2)**

**Actor –
Porn. use frequency**

**Actor –
Problematic porn. use**

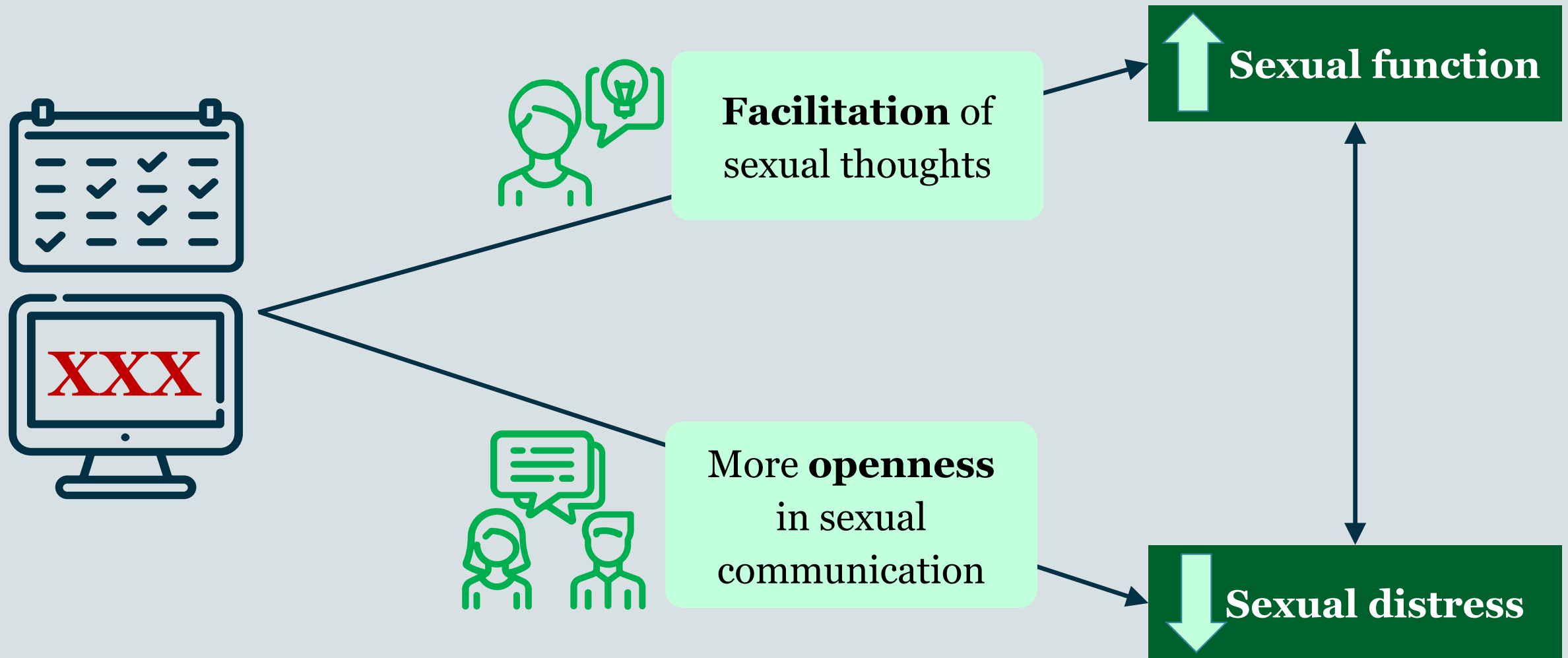
**Actor –
Sexual function**

**Actor –
Sexual satisfaction**

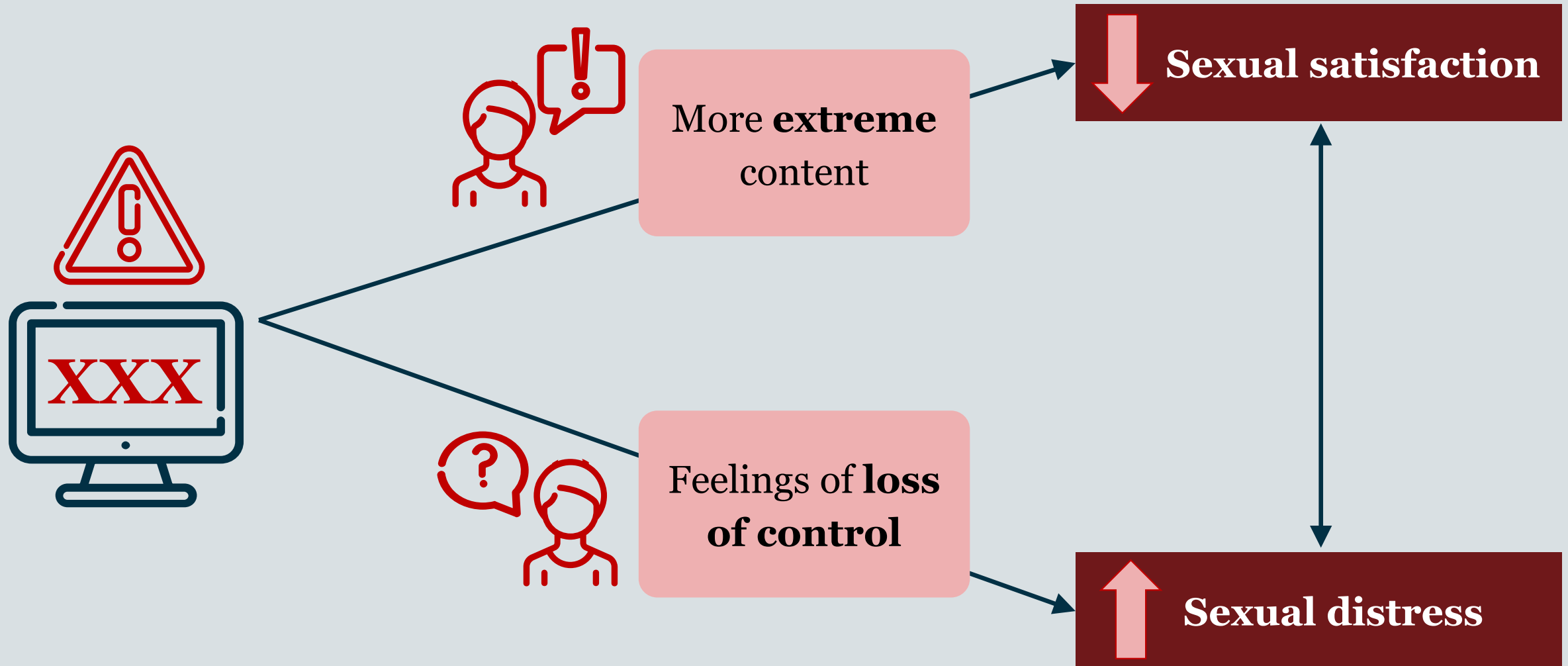
**Actor –
Sexual distress**

*Note. *p < .05; **p < .01*

PORNOGRAPHY USE FREQUENCY → SEXUAL WELL-BEING



PROBLEMATIC PORNOGRAPHY USE → SEXUAL WELL-BEING

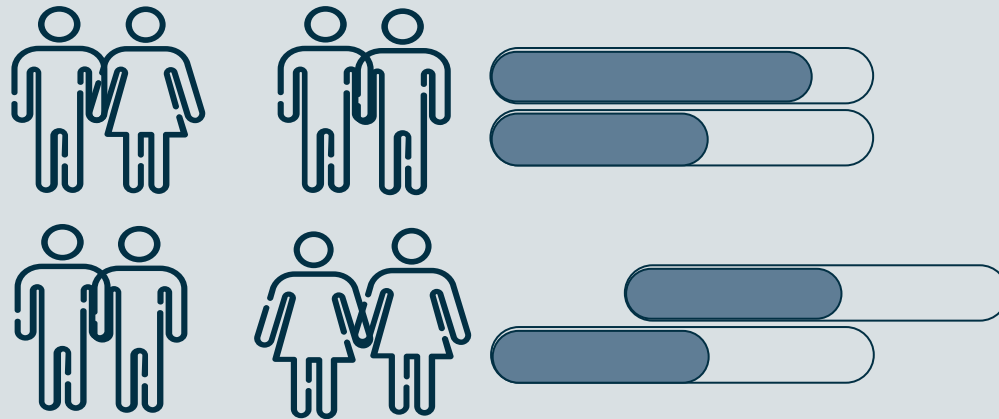


SEXUAL FUNCTION → PORNOGRAPHY USE FREQUENCY

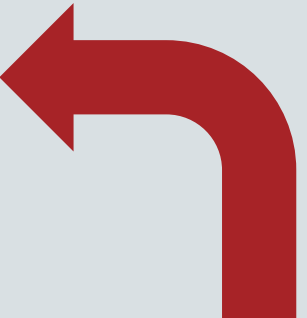
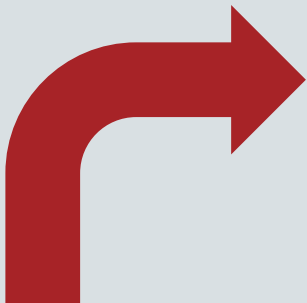
Sexual function

- *sexual desire*
- **sexual arousal**
- **pain**
- **orgasm**

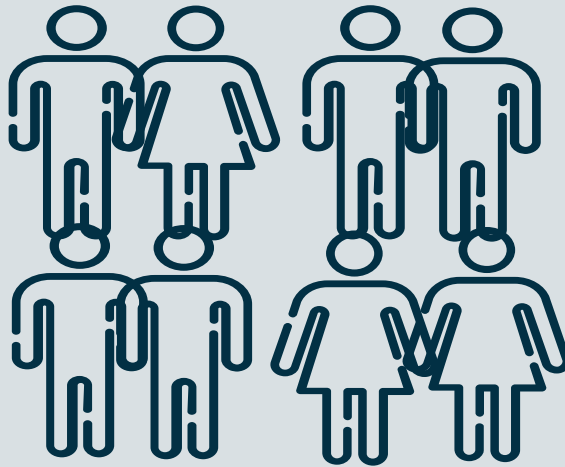
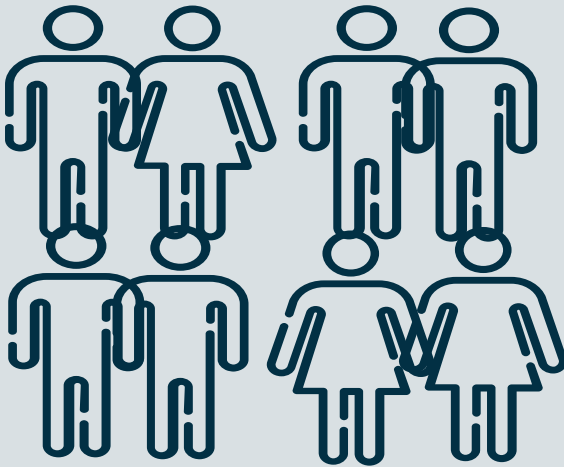
Discrepancy
between partners'
sexual desire



CONCLUSIONS



**COMPLEX ASSOCIATIONS
+ CONTEXT MATTERS**
(Bóthe et al., 2020; Campbell & Kohut, 2017; Kohut et al., 2021)



**V. LATEST FINDINGS ABOUT
INTERVENTIONS FOR CSBD AND PPU**

LACK OF HIGH-QUALITY TREATMENT STUDIES

- CSBD: 11 studies + PPU: 8 studies + CSBD-PPU: 5 studies = **24 studies**
- **Relative lack of rigorous, systematic research** using gold-standard approaches (e.g., only 4 randomized controlled trials) → Evidence is mostly based on **case reports and uncontrolled studies**
- High **variance** in **assessment** tools for symptom severity, **criteria for diagnoses**, and **treatments** make it difficult to attribute significant treatment effects to specific treatment approaches
- Literature on treatments in **women and sexual minorities is limited**
- Cannot be said if **specific forms of interventions** (e.g., individual therapy vs. group-therapy, digital vs. non-digital, and guided vs. self-help approaches) are more effective
- Currently, the absence of effective treatment protocols for CSBD reflects **significant gaps in healthcare for treatment-seeking individuals**
- **Need for quality, empirically-based treatment**

POSSIBILITY OF THERAPEUTIC BIAS

- Evidence that **both client and therapist** individual differences might influence the application of the CSBD diagnosis
- Religious social workers and therapists are more likely to see **sexual behaviors as addictive or compulsive**
- Therapists need to be particularly **self-aware** of how personal beliefs and values might influence their conceptualizations of clients → not limited to the treatment of CSBD, but CSBD is an area that might be particularly prone to such biases, and mental health professionals should be aware of such a possibility as they seek to assess and treat clients reporting issues with CSBD
- Mental health professionals were more likely to **view sexual behaviors as compulsive or pathologically excessive in heterosexual men and women than they were in gay men or women** → clinical evaluations were influenced strongly by whether or not a client identified as a sexual minority, with many therapists expecting these individuals to be naturally more compulsive

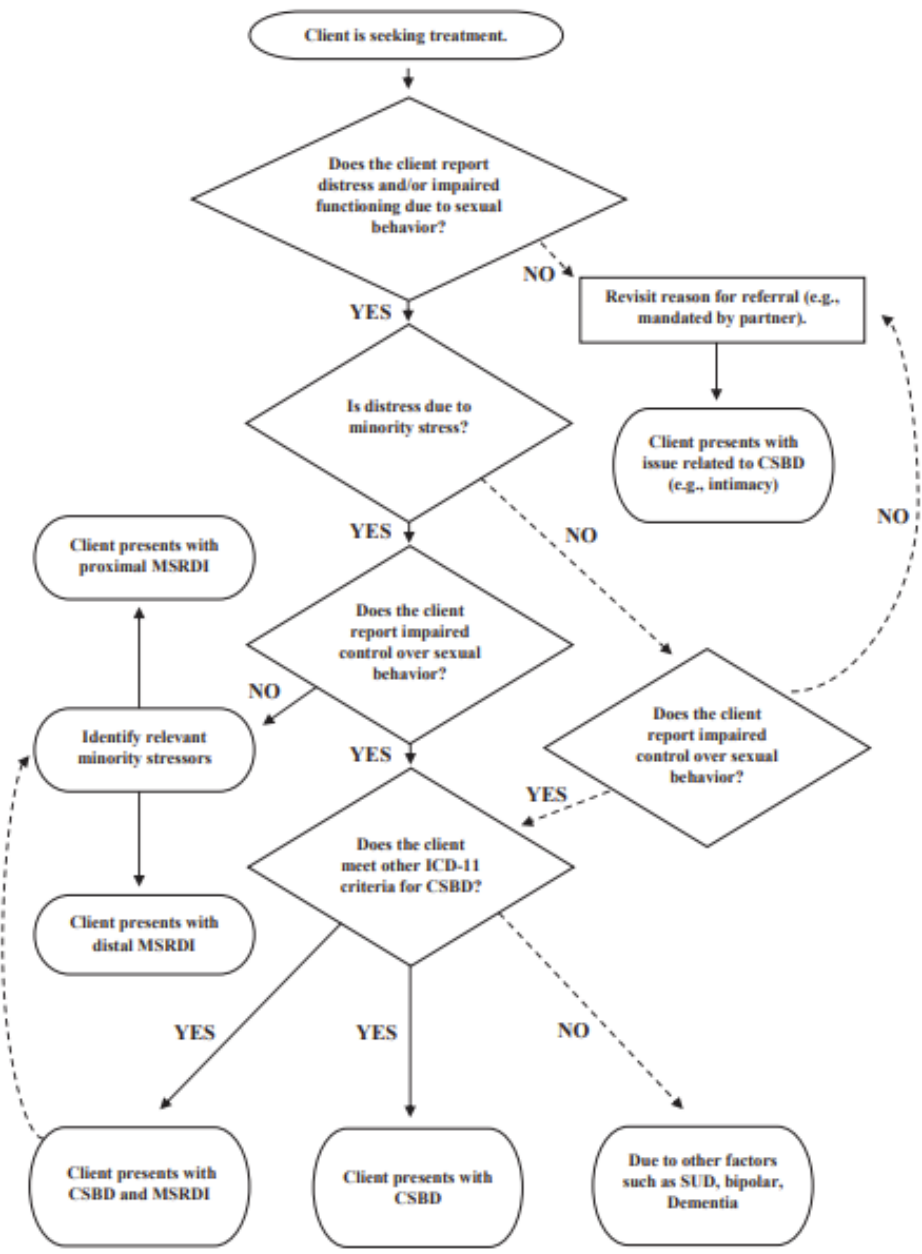


Fig. 1. CSBD differential diagnosis algorithm for LGBTQ+ clients

- The risk of **misdiagnosis of CSBD** may be particularly high for **LGBTQ+ clients**, given the confounding influences of multiple minority stress variables, clinician bias, and measurement concerns
- **Unique sociocultural contexts** of diverse populations may complicate the accurate assessment of CSBD and result in misdiagnosis → inaccurate diagnoses may **compromise the quality of health care**
- **Minority stress-related distress** and impairment experienced by LGBTQ+ clients may be mistaken for CSBD, leading to misdiagnosis
 - Example: To avoid misdiagnosis of CSBD among LGBTQ+ clients, clinicians must accurately identify whether adverse consequences associated with sexual behavior arise from prejudice (i.e., distal stressor) or dysregulated sexual behavior
- Understanding of CSBD research thus far has been primarily **limited to the GB** in LGBTQ+

V.1. MEDICAL TREATMENT

CHARACTERISTICS AND FINDINGS OF PSYCHOPHARMACOLOGICAL STUDIES

- Psychopharmacological therapy: 7 studies
- Psychopharmacological therapy + psychotherapy: 3 studies
- Medications used:
 - Opioid-antagonist: Naltrexone
 - Selective serotonin reuptake inhibitor (SSRI): Citalopram, fluoxetine, sertraline, paroxetine, fluvoxamine
 - Serotonin antagonist and reuptake inhibitor (SARI): Nefazodone
 - Psychostimulants: Methylphenidate, dextroamphetamine
- Significant effects on symptom severity in the treatment group
- Double-blind placebo-controlled RCT demonstrated that **paroxetine and naltrexone are safe and well-tolerated by men with CSBD**

V.2. PSYCHOTHERAPY

CHARACTERISTICS AND FINDINGS OF PSYCHOTHERAPEUTIC STUDIES

- Most studies used psychotherapy interventions (n = 18) integrating **classical and new-wave CBT components** (e.g., psychoeducation, motivation, cognitive restructuring, mindfulness, and identification of values or commitment)
 - **Significant effects of treatment on symptom severity** in the treatment group, and these effects remained stable in all studies at three- and six-month follow-ups
 - Some studies reported improvements in level of depression or quality of life
 - The waitlist control groups did not show any changes in behavior enactment
- Further approaches were art therapy (n = 1), experiential therapy (n = 1), and a 12-steps approach (n = 3)
- Most psychotherapy intervention were conducted in **groups**
- It was not always clear whether **full abstinence or a controlled use/behavior** execution was the treatment aim

V.3. ONLINE INTERVENTIONS

DEVELOPMENT AND FEASIBILITY OF AN ONLINE INTERVENTION REDUCING PPU

Hands ff



Hands ff
Porn Intervention Program

Porn can lead to problems in various areas of life. Many regular users would like to reduce their watching or even stop entirely. Not everyone has an easy time doing this.

Hands Off offers support to achieve your goal.

All your information will be kept strictly confidential. The course is anonymous, lasts 6 weeks and is carried out via internet.

[Learn more](#) about this program.

Register a new account

This programme is currently part of an evaluation study. By taking part in this programme you will also take part in a study. Please [read the study information carefully](#)

A program made by  a new



Already have an account?

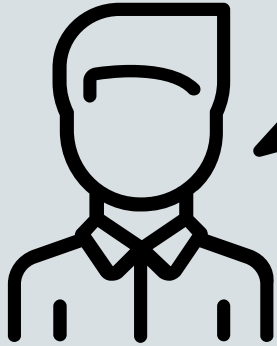
Username *

Password *

Log in

Developing and testing the **feasibility** and **initial efficacy** of a web-based intervention (Hands-off) for **problematic pornography use** (Bóthe et al., 2020, 2021)

- Motivational interviewing (Rollnick & Miller, 1995)
- Cognitive-behavioural therapy (Meichenbaum, 1977),
- “Wise” social psychological interventions (Walton, 2014)
- Mindfulness techniques (Altman, 2014)



*“Before starting this module my use of porn was increasing rapidly. I had managed through willpower to look at porn once every week or two but over the last 2 months I was losing the battle again. I was feeling like I would never learn to control the urges. This negative thinking overcame my willpower. I was feeling very pessimistic when I started this program. **I now feel incredibly positive that I can overcome this addiction.** Thank you.”*

After the follow-up, participants in the **intervention group** (compared to the control group) reported **significantly** (all Cohen d s > 0.4):

- lower PPU
- lower pornography use frequency
- lower self-perceived pornography addiction
- lower levels of pornography craving
- higher pornography avoidance self-efficacy

- ✓ Adequate **feasibility** and **preliminary efficacy**
- ✓ Ways to **strengthen the intervention** were identified
- ✓ **First step** in rigorous treatment studies

VI. SUMMARY

1. **Well-validated**, publicly available screening tools for **CSBD** and **PPU**

2. **At-risk populations** and **risk and protective factors** of **CSBD** and **PPU** have been identified in diverse populations

3. Empirically supported targets for improving **prevention** and **intervention** programs

4. **Basis for evidence-based** interventions for **CSBD** and **PPU**

OTHER RESEARCHERS WORK FROM THE FIELD



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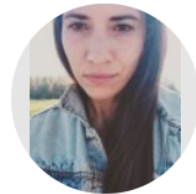
[Compulsive Sexual Behavior](#) [Pornography](#) [Behavioral Addictions](#) [Gambling](#) [Addiction](#)



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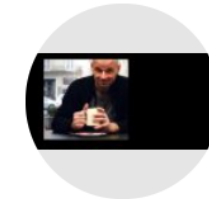


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|| 20.39 · Ph.D

THANK YOU FOR YOUR ATTENTION!

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October 6, 2022

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