Development and Psychometric Evidence of a Brief Instrument to Measure Pornography Addiction in Mexican Adults

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RESUMEN

Introducción: el consumo de pornografía se ha generalizado en la última década. En México se carece de instrumentos confiables y válidos para medir esta adicción. **Objetivo:** desarrollar y validar la Escala Breve de Adicción a la Pornografía (EBAP). **Método:** tras el desarrollo de los ítems, 230 participantes, en su mayoría hombres, completaron la EBAP. La validez y confiabilidad se evaluaron a partir del Análisis Factorial Exploratorio (AFE) y el alfa de Cronbach, respectivamente. **Resultados:** el valor de Kaiser-Meyer-Olkin fue de .866, y el test de esfericidad de Bartlett mostró resultados significativos (X^2 = 929.37; *gl* = 21; $p < .001$). Se produjo un sólo factor llamado "Dependencia", y mostró un alfa de Cronbach estimado aceptable (α = .90). **Discusión y conclusiones:** la EBAP es una escala de evaluación breve compuesta por 7 ítems con buenas propiedades psicométricas para medir la dependencia de la pornografía en hombres.

Palabras clave: adicción conductual, pornografía, escala de medición, sexo, México.

ABSTRACT

Introduction: pornography consumption has been widespread during the last decade. There is a lack of reliable and valid instruments to measure pornography addiction in Mexico. **Objective:** therefore, this study aimed to develop and validate the Brief Pornography Addiction Scale (BPAS). **Method:** after the development of the scale items, 230 participants, mostly men, completed the BPAS. Validity and reliability were assessed with an Exploratory Factor Analysis (AFE) and Cronbach's alpha, respectively. **Results:** the Kaiser-Meyer-Olkin value was .866, and Bartlett's test of sphericity showed significant results (X^2 = 929.37; *df* = 21; $p < .001$). A single factor called "Dependence" was produced and showed an acceptable Cronbach's alpha estimate (α = .90). **Discussion and conclusions:** the BPAS is a brief assessment scale composed of 7 items with good psychometric properties to measure pornography dependence in men.

Keywords: behavioral addiction, pornography, measuring scale, sex, Mexico.

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INTRODUCTION

Pornography has been defined as any sexually explicit material produced with the goal of sexually arousing the viewer (Peter & Valkenburg, 2010). The consumption of this material is a phenomenon that has become normalized and widespread in the last 10 years (Hald & Mulya, 2013). According to reports within the most visited pornography page in the world (Pornhub.com, 2022), Mexico has positioned itself as the fifth country with the most visits. In addition, national surveys have shown a significant increase in pornography consumption after the COVID-19 pandemic, with pornography consumption and sexual behaviors present in 38% of the population.

Another notable change after the pandemic is the increase in consumption by 36.8% of men (Asociación Mexicana para la Salud Sexual [AMSSAC], 2020), which calls for attention from a gender perspective, since findings have shown that 93% of men consume pornography, in contrast to 71% of women (Rosemblat, 2016).

Findings on the self-perceived effects of pornography consumption indicate a greater presence of negative effects in men than in women, such as having unrealistic sexual expectations, relationship problems, and problems with community morality (Al Mamun et al., 2019; Hald & Malamuth, 2008). From a neurobiological point of view, it has been shown that excessive pornography consumption shares similar mechanisms with substance addictions and other behavioral addictions (Gola et al., 2017); this could be because pornography consumption is a "supranormal" stimulus (Hilton, 2013). The debate of developing an addiction to pornography is still under discussion.

Along the same lines, the concept of "problematic use of pornography" has been considered under the premise that not all pornography use is problematic (Bőthe et al., 2020; Monferrer & Flor, 2015), and this should be considered in conjunction with the results of self-reports and clinical interviews for the assessment of addiction (Ross et al., 2012). Taking the previous information into consideration, experts have argued that pornography addiction is a compulsive sexual behavior mediated by dopaminergic activity in the nucleus accumbens that reinforces said behavior and results in a behavioral addiction to pornography consumption (Vargas & Nevarez, 2022).

According to Griffiths (2005), behavioral addiction consists of six components: salience, mood modification, tolerance, withdrawal, conflict, and relapse. This model has been used to operationalize pornography addiction (Bőthe et al., 2018; Vargas & Nevarez, 2022), however, the criteria for diagnosing this problem as a disorder are currently lacking.

Nevertheless, compulsive pornography use has been considered one of the characteristic sexual acts of compulsive sexual behavior disorder (CSBD) in the International Classification of Diseases 11th Edition ([ICD-11]; Coleman, 1992; Derbyshire & Grant, 2015; World Health Organization [WHO], 2023). This disorder is characterized by a persistent pattern of poor control, salience, escalation of use despite negative consequences, tolerance, and conflict.

Around the world, different instruments have been developed to measure attitude, problematic use, and consumption of pornography. A systematic review by Fernández and Griffiths (2019) on psychometric instruments to measure problematic pornography use allows the observation of a comparison between the concepts and components of pornography addiction. The results of this study show a greater frequency in the components of salience, poor control, mood modification, interpersonal conflict, and general life conflict. Furthermore, these same findings mention the Problematic Pornography Use Scale (PPUS), developed by Kor et al. (2014), as the instrument that assesses the greatest number of the core components of addiction and measures seven of the nine criteria for the diagnosis of CSBD.

Psychometric instruments have also been developed and adapted to measure pornography addiction in the Spanish-speaking population. The Attitudes Towards Pornography Scale was developed in Spain; it consists of 32 items and has shown a Cronbach's alpha of .94 (Monferrer & Flor, 2015). Furthermore, Velezmoro et al. (2012) adapted the Problematic Use of Pornography Scale in the Peruvian population. This scale consists of 23 items and has shown an alpha of .84.

In the Mexican population, the Measurement Scale for Pornography Addiction (MAPA) was developed with 56 Yucatecan participants, and it consists of 26 items in 5 components: emotion, difficulties with control, arousal, tolerance, and abstinence. The MAPA has shown a Cronbach's alpha of .95 (Vargas & Nevarez, 2022). The development of this instrument was conducted with an insufficient sample to carry out the pertinent analyses, which calls into question the reliability of its estimates. Furthermore, the theoretical framework used (Griffiths, 2005) lacks established international guidelines for measuring pornography addiction.

Therefore, the lack of adequate instruments to measure pornography addiction in the Mexican population based on international guidelines for a diagnosis is evident, which is why the present study aims to develop a scale that measures pornography addiction based on the main components of a behavioral addiction (Griffiths, 2005) and the CSBD criteria.

METHOD

Design

Non-experimental-instrumental research was conducted. It consisted of developing and providing first psychometric evidence of a brief pornography addiction evaluation scale in Mexican adults.

Participants

The sample consisted of 230 Mexican adults who consumed pornography at least once every two months, of which 193 (83.9%) were men, 32 (13.9%) were women, and 5 (2.2%) did not specify sex. The participants were between 18 and 58 years old, with a mean of 24.73 (*SD* = 10.06). The inclusion criteria were pornography consumption, age between 18 and 65, and Mexican nationality. An intentional non-probabilistic sampling method was used based on in-person and remote dissemination, mainly in Monterrey, Nuevo León. Participation in this study was anonymous, voluntary, and confidential.

Procedure and instrument construction

The construction of the Brief Pornography Addiction Scale (BPAS) was based on the CSBD criteria (World Health Organization [WHO], 2023) and on the behavioral addiction components of Griffiths (2005) to study pornography addiction. After the analysis of said criteria and components, the method of natural semantic networks and the respective statistical analysis mentioned by Hinojosa (2008) were used for greater appropriation and cultural adaptation of the items and their dimensions to the Mexican population. After analyzing and adapting the criteria and components, five dimensions were produced: Impaired control, Salience, Mood modification, Conflict, and Tolerance.

Subsequently, after analyzing the dimensions produced, instruments corresponding to the study variable were reviewed (Bőthe et al., 2018; Cacioppo et al., 2018; Grubbs et al., 2010; Kor et al., 2014; Vargas and Nevarez, 2022), and a battery of 63 items was developed to preliminarily measure and evaluate pornography addiction. This instrument was created with a response system with a Likert-type scale, which is answered from "1. Disagree" to "5. Agree" (Appendix A).

To evaluate the content validity of the battery of items developed, the judge review method was used to obtain the Content Validity Index ([CVI]; Yusoff, 2019). Subsequently, under the criteria of Polit et al. (2007), non-relevant items were eliminated, and the remaining items were used for the application of a pilot test. This test was applied both in person and remotely through dissemination, which consisted of requesting participation on social networks and in person in Monterrey, Nuevo León. A survey designed on the Google Forms platform was used and a QR code was shared to facilitate access.

Data analysis

The statistical program Statistical Package for the Social Sciences (SPSS) version 28 was used to analyze the data. Firstly, a descriptive analysis of the items was conducted to observe the behavior of the items. Kurtosis, the Kaiser-Meyer-Olkin (KMO) index, and Bartlett's test of sphericity were used to evaluate the normality of the data, adequacy of the sample, and feasibility of the factor analysis, and items with outlier data were eliminated. Later, Exploratory Factor Analysis (EFA) with maximum likelihood extraction with oblique rotation (Direct Oblimin) was used to evaluate evidence of validity on the internal structure of the instrument. Considering the sample size (10 participants per item; Costello & Osborne, 2005) and that the assumptions of the EFA were met, items with a factor loading double or less than .40 were eliminated (Hair et al., 2010). Finally, a reliability analysis was performed to obtain Cronbach's alpha of the resulting instrument.

Ethical considerations

The bases of article 100 of the Declaration of Helsinki were considered to ensure research on human beings in accordance with ethics (Asociación Médica Mundial [AMM], 2009) while conducting this study. Furthermore, based on the Ethical Principles of Psychologists and Code of Conduct (Universidad de Buenos Aires [UBA], 2010), section 4.01 was considered to maintain the confidentiality of the participants as a primary obligation. Likewise, section 8.02 was taken into consideration for the development of a relevant informed consent format, to make sure that participants made informed and voluntary decisions about their involvement.

Table 1
Factor matrix: loading table

Items content	*Dependency*	α
Continúo viendo pornografía a pesar de tener intenciones de dejarlo [I continue to watch pornography even though I intend to stop]	.821	.875
Siento que tengo dificultades para controlar o reducir mi consumo de pornografía [I feel like I have difficulty controlling or reducing my pornography consumption]	.788	.878
Sigo consumiendo pornografía a pesar de sentir culpa [I continue to consume pornography despite feeling guilty]	.776	.878
He intentado sin éxito dejar de consumir pornografía [I have tried without success to stop consuming pornography]	.742	.884
Me siento culpable después de consumir pornografía [I feel guilty after consuming pornography]	.716	.883
Siento que la pornografía es como una droga para mí [I feel like pornography is like a drug to me]	.711	.888
Me siento incómodo después de ver pornografía [I feel uncomfortable after watching pornography]	.663	.889
Cronbach's alpha		.90
% Explained variance		55.79

Note: Extraction method: maximum likelihood. α = Cronbach's alpha if the item is deleted. English version in brackets.

RESULTS

After evaluating the content validity of the battery of items, 41 of them that were not relevant according to the CVI were eliminated, and the remaining 22 were used to evaluate the structure and reliability of the instrument through a pilot test.

A descriptive analysis of the distribution was conducted with the resulting instrument, which allowed the purification of items that did not meet the kurtosis criteria, and three of them were eliminated (8, 16 and 19). After that, the EFA was used with maximum likelihood extraction with oblique rotation (Direct Oblimin) and 12 items were eliminated (6, 7, 11, 12, 13, 14, 15, 17, 18, 20, 21 and 22), which did not meet the minimum item-total correlation (r = 0.40). The eliminated items can be seen in Appendix B.

The EFA was used again with the remaining 7 items. The KMO index was .866 and Bartlett's test of sphericity showed significant results (X^2 = 929.37; gl = 21; p < .001). The EFA produced a factor which explains 56% of the variance (Table 1). The factor produced was called "Dependency" and it is defined as little or no control over pornography consumption due to a strong and intense desire, which causes changes in mood and conflict in life in general. The mean score for this factor was 12.69 (SD = 8.12), with a range of responses from 7 to 28. Table 1 shows the factor loadings of each of the items on the factor produced.

Finally, the Cronbach's alpha coefficient of the scale was calculated in the event that an item was eliminated in order to evaluate the value of each item for the scale, and none showed a coefficient greater than .90 (Table 1). Therefore, a final value of .90 was obtained for this estimate.

DISCUSSION AND CONCLUSIONS

The present study was born due to the need of a tool to measure pornography addiction in the Mexican population, based on diagnostic criteria and international standards on account of the lack of this type of instrument. Therefore, the BPAS was developed, and psychometric properties were obtained. Psychometric evidence supports its use to evaluate the intensity of dependence on pornography. Starting from a score range of 7-28, higher scores would indicate greater intensity of dependence on pornography, and vice versa.

The components of said addiction were also explored. In discrepancy with the five factors of the Vargas and Nevarez (2022) instrument, only one factor was obtained, which coincides in its definition with the Control Difficulties factor of the MAPA scale. These differences may be a consequence of the sample size, since the MAPA study has a participant-item ratio of 2:1, which could affect the probability of inference errors regarding

the structure of the instrument (Costello & Osborne, 2005).

Likewise, the structure of the instrument differs from the components of Griffiths' (2005) model, producing only one factor. Some items, however, seem to fall within the definitions of the Mood Modification component. These disparities could also be due to sample differences, since the study was carried out in a non-clinical population and the identification of diagnostic elements could be confusing. It is possible that the instrument was used in people without addiction, so only one Dependency factor would be measured.

These results introduce the possibility of a new perspective to evaluate pornography addiction based on dependence, which includes lack of control and emotional repercussions.

Regarding the CSBD, the items of the produced factor seem to measure the inability to control sexual impulses, repetitive sexual behavior, and discomfort in different areas of functioning, which are characteristics of the ICD-11 criteria (Kraus et al., 2018). The duration of the repetitive sexual behavior and the other criteria for a diagnosis must be considered, so the instrument is a preliminary tool.

In conclusion, the BPAS offers a new opportunity to evaluate pornography addiction based on dependence. Its brevity and ease of self-report format makes preliminary assessment of pornography addiction possible. The psychometric properties obtained indicate adequate reliability for use in the adult population of Mexican men.

Limitations of the Study

Because a non-probabilistic sample was used, it is possible that the results are not representative of the Mexican population. Furthermore, only one component was obtained, and the existence of others cannot be ruled out, since the definition of pornography addiction is still the subject of research and the existence of different components has previously been demonstrated. Likewise, the sample consisted mostly of men, so it is important to highlight that the use of the instrument is more reliable in men. Finally, it is important to highlight that, because pornography addiction cannot be evaluated with self-report alone (Ross et al., 2012), this instrument turns out to be only a preliminary tool for diagnosis.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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AUTHORS CONTRIBUTION

EVR: review of existing literature, data collection, publication tracking, verification of compliance with publication standards, manuscript writing and statistical analysis. ACTCH: review of existing literatura, data collection, verification of compliance with writing standards and manuscript writing. AMA: review of existing literatura, data collection and verification of compliance with writing standards. CMG: data collection and verification of compliance with writing standards.

REFERENCES

Al Mamun, M., Yasir, S., Ambiatunnahar, M., & Griffiths, M. (2019). Attitudes and Risk Factors of Pornography Consumption Among Bangladeshi University Students: An Exploratory Study. *International Journal of Mental Health and Addiction, 17*, 323-335. https://doi.org/10.1007/s11469-018-0021-7

Asociación Mexicana para la Salud Sexual [AMSSAC]. (2020). *Sexualidad y COVID-19 Resultados de la Encuesta Amssac. Amssac Asociación*. Recovered from https://www.amssac.org/sexualidad-y-covid-19-resultados-de-la-encuesta-amssac/

Asociación Médica Mundial [AMM]. (2009). Declaración de Helsinki de la Asociación Médica Mundial.Principios éticos para las investigaciones médicasen seres humanos. *Anales del Sistema Sanitario de Navarra, 24*(2), 209-212. https://doi.org/10.23938/ASSN.0522

Bőthe, B., Tóth, I., Potenza, M., Orosz, G., & Demetrovics, Z. (2020). High-Frequency Pornography Use May Not Always Be Problematic. *The Journal of Sexual Medicine, 17*(4), 793-811. https://doi.org/10.1016/j.jsxm.2020.01.007

Bőthe, B., Tóth-Király, I., Zsila, A., Griffiths, M., Demetrovics, Z., & Orosz, G. (2018). The Development of the Problematic Pornography Consumption Scale (PPCS). *The Journal of Sex Research, 55*(3), 395-406. https://doi.org/10.1080/00224499.2017.1291798

Cacioppo, M., Gori, A., Schimmenti, A., Baiocco, R., Laghi, F., & Caretti, V. (2018). Development of a new screening tool for cyber pornography: Psychometric properties of the Cyber Pornography Addiction Test (CYPAT). *Clinical Neuropsychiatry: Journal of Treatment Evaluation, 15*(1), 60-65.

Coleman, E. (1992). Is Your Patient Suffering from Compulsive Sexual Behavior? *Psychiatric Annals, 22*(6), 320-325. https://doi.org/10.3928/0048-5713-19920601-09

Costello, A., & Osborne, J. (2005). Best practices in exploratory factor analysis: four recommendations for getting the most from your analysis. *Practical Assessment, Research, and Evaluation, 10*(1), 7. https://doi.org/10.7275/jyj1-4868

Derbyshire, K., & Grant, J. (2015). Compulsive sexual behavior: A review of the literature. *Journal of Behavioral Addictions, 4*(2), 37-43. https://doi.org/10.1556/2006.4.2015.003

Fernandez, D., & Griffiths, M. (2019). Psychometric Instruments for Problematic Pornography Use: A Systematic *Review. Evaluation & Health Professions, 44*(2), 111-141. https://doi.org/10.1177/0163278719861688

Gola, M., Wordecha, M., Sescousse, G., Lew-Starowicz, M., Kossowski, B., Wypych, M., Makeig, S., Potenza, M., & Marchewka, A. (2017). Can Pornography be Addictive? An fMRI Study of Men Seeking Treatment for Problematic Pornography Use. *Neuropsychopharmacology, 42*(10), 2021-2031. https://doi.org/10.1038/npp.2017.78

Griffiths, M. (2005). A 'components' model of addiction within a biopsychosocial framework. *Journal of Substance Use, 10*(4), 191-197. https://doi.org/10.1080/14659890500114359

Grubbs, J., Sessoms, J., Wheeler, D., & Volk, F. (2010). The Cyber Pornography Use Inventory: The Development of a New Assessment Instrument. *Sexual Addiction & Compulsivity, 17*(2), 106-126. https://doi.org/10.1080/10720161003776166

Hair, J., Black, W., Babin, B., & Anderson, R. (2010). *Multivariate Data Analysis.* Pearson.

Hald, G., & Malamuth, N. (2008). Self-perceived effects of pornography consumption. *Archives of Sexual Behavior, 37*(4), 614-625. https://doi.org/10.1007/s10508-007-9212-1

Hald, G., & Mulya, T. (2013). Pornography consumption and non-marital sexual behavior in a sample of young Indonesian university students. *Culture, Health & Sexuality, 15*(8), 981-996. https://doi.org/10.1080/13691058.2013.802013

Hilton, D. (2013). Pornography addiction – a supranormal stimulus considered in the context of neuroplasticity. *Socioaffective Neuroscience & Psychology, 3*(1), 1-8. https://doi.org/10.3402/snp.v3i0.20767

Hinojosa, G. (2008). El tratamiento estadístico de las redes semánticas naturales. *Revista Internacional de Ciencias Sociales y Humanidades, 18*(1), 133-154.

Kor, A., Zilcha, S., Fogel, Y., Mikulincer, M., Reid, R., & Potenza, M. (2014). Psychometric development of the Problematic Pornography Use Scale. *Addictive Behaviors, 39*(5), 861-868. https://doi.org/10.1016/j.addbeh.2014.01.027

Kraus, S., Krueger, R., Briken, P., First, M., Stein, D., Kaplan, M., Voon, V., Abdo, C., Grant, J., Atalla, E., & Reed, G. (2018). Compulsive sexual behavior disorder in the ICD-11. *World Psychiatry, 17*(1), 109-110. https://doi.org/10.1002/wps.20499

Monferrer, M., & Flor, P. (2015). Elaboración y validación de una escala de actitudes hacia la pornografía. *Àgora de Salut, 2*(19), 191-201. http://dx.doi.org/10.6035/AgoraSalut.2015.2.19

Peter, J., & Valkenburg, P. (2010). Processes Underlying the Effects of Adolescents' Use of Sexually Explicit Internet Material: The Role of Perceived Realism. C*ommunication Research, 37(*3), 375-399. https://doi.org/10.1177/0093650210362464

Polit, D., Beck, C., & Owen, S. (2007). Is the CVI an acceptable indicator of content validity? Appraisal and recommendations. *Research in Nursing & Health, 30(*4), 459-467. https://doi.org/10.1002/nur.20199

Pornhub.com. (2022). *The 2022 Year in Review - 8 de diciembre*. Recovered from https://www.pornhub.com/insights/2022-year-in-review

Rosemblat, S. (2016). Consumo de pornografía en Internet en Argentina. *Observatorio de Internet en Argentina [OIA]*. Recovered from https://inter.net.ar/pornografia/img/Consumo-de-pornografi%CC%81a-en-Internet-en-Argentina_OIA.pdf

Ross, M., Månsson, S., & Daneback, K. (2012). Prevalence, Severity, and Correlates of Problematic Sexual Internet Use in Swedish Men and Women. *Archives of Sexual Behavior, 41*(2), 459-466. https://doi.org/10.1007/s10508-011-9762-0

Universidad de Buenos Aires [UBA]. (2010). *American Psychological Association. Principios éticos de los psicólogos y código de conducta APA enmienda 2010.* Universidad de Buenos Aires. Recovered from https://www.colibri.udelar.edu.uy/jspui/handle/20.500.12008/18938

Vargas, S., & Nevarez, J. (2022). Propuesta de instrumento para medir de forma preliminar la adicción a la pornografía en población mexicana. *Revista Internacional de Investigación en Adicciones, 8*(1), 40-50. https://doi.org/10.28931/riiad.2022.1.05

Velezmoro, R., Negy, C., & Livia, J. (2012). Online Sexual Activity: Cross-National Comparison Between United States and Peruvian College Students. *Archives of Sexual Behavior, 41*(4), 1015-1025. https://doi.org/10.1007/s10508-011-9862-x

World Health Organization [WHO]. (2023). *Clasificación Internacional de las Enfermedades*. Recuperado de https://icd.who.int/browse11/l-m/es

Yusoff, M. (2019). ABC of Content Validation and Content Validity Index Calculation. *Education in Medicine Journal, 11*(2), 49-54. https://doi.org/10.21315/eimj2019.11.2.6

SUPPLEMENTARY INFORMATION

The authors of this article provided a supplementary material which are available online at:

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