



Problematic Pornography Use in Adolescents: From Prevention to Intervention

Giulia Testa¹ · Gemma Mestre-Bach¹ · Carlos Chiclana Actis^{1,2} · Marc N. Potenza^{3,4,5,6}

Accepted: 16 February 2023 / Published online: 29 March 2023
© The Author(s), under exclusive licence to Springer Nature Switzerland AG 2023

Abstract

Purpose of the Review Pornography use is common among adolescents. Adolescents may use pornography for sex education. Early exposure to pornography may have negative consequences and elevate risk of problematic pornography use (PPU). Thus, there is a need for better understanding of and effective interventions for youth viewing of pornography. This article reviews studies investigating prevention and treatment of PPU in adolescents, discussing current issues and future directions.

Recent Findings Prevention studies include pornography education based on media-literacy approaches. These programs are aimed at helping young people develop critical thinking and understanding of the nature of pornography. Some recommendations for pornography-education programs have emerged from the prevention literature such as the relevance of using age-appropriate content and participatory teaching and learning methods that involve appropriately trained staff. Treatment studies of PPU in adolescents are lacking, although the preliminary efficacy of cognitive behavioral therapy and mindfulness-based approaches has been shown in adults with PPU. Online therapeutic approaches may have benefits with adolescents.

Summary The current state of evidence indicates only a limited number of prevention studies addressing pornography education and an absence of studies evaluating PPU treatments in adolescents. There is a call for future evidence-based research to tailor PPU interventions for adolescents and to evaluate their effectiveness.

Keywords Problematic pornography use · Prevention · Adolescents · Treatment · Compulsive sexual behavior · Addictive behavior · Compulsive behavior

Introduction

Pornography consumption has increased over the past two decades during expansion of the internet [1, 2]. Online pornography is easily available, accessible, affordable, and

often perceived to be anonymous, and these factors that may contribute to early exposure to pornography [3].

Concerns have emerged regarding how pornography may impact adolescents' attitudes and behaviors [4]. An important aspect to consider is that pornography has become an informal source of sex education for adolescents, especially in the relative absence of other sources [5]. Other reasons why adolescents may search for pornography include curiosity, sexual arousal, masturbation, entertainment, and to keep up with their peers [4, 6, 7]. However, adolescents are at an important stage of development regarding self-identities, sexual arousal templates, and brain structure and function [8]. Negative consequences of early exposure to pornography have been suggested, although varying views have been reported. Pornography use in adolescents has been related to various dimensions of sexual practices, permissive sexual attitudes, instrumental attitudes toward sex, and gender-related stereotyped thinking [9]. Other authors have described an association between pornography use and feeling unsure about one's sexual self and body image [10, 11].

✉ Marc N. Potenza
marc.potenza@yale.edu

¹ Universidad Internacional de La Rioja, Logroño, La Rioja, Spain

² Unidad de Sexología Clínica y Salud Sexual, Consulta Dr. Carlos Chiclana, Madrid, Spain

³ Departments of Psychiatry, Neuroscience and Child Study, Yale University School of Medicine, New Haven, CT, USA

⁴ Connecticut Council On Problem Gambling, Wethersfield, CT, USA

⁵ Connecticut Mental Health Center, New Haven, CT, USA

⁶ Wu Tsai Institute, Yale University, New Haven, CT, USA

Bearing these considerations in mind, a first level of intervention may involve prevention-oriented approaches, such as programs for pornography education or pornography literacy. A second level of intervention may include treatment-oriented approaches to reduce problematic pornography use (PPU), which involves use of pornography that produces significant distress or impairment to the individual at personal, relational, social, educational, or occupational levels [12].

The purpose of the present narrative review was to examine the literature on the prevention and intervention programs focused on pornography use and PPU in adolescents. The literature search was conducted on PubMed, Google Scholar, and PsychINFO. Case studies and those articles unrelated to the objectives of the review were excluded.

Findings are presented and critically discussed, highlighting the current issues and future directions for therapeutic approaches at initial and subsequent levels of intervention that may be tailored to adolescents.

Pornography Education for Adolescents

Internet pornography is often readily available to adolescents, with limited enforcement of age verification permitting them to access it as a source of informal sexual education [13, 14]. Families represent a potential source of information about sexuality and pornography. However, parents do not always feel prepared or comfortable discussing sexuality generally or pornography specifically with their children [15]. Moreover, they may lack knowledge about the nature of pornography and its potential effects [16]. Prohibition of pornography access to minors using filtering software or personal identification systems appears relevant but sub-optimal since adolescents often find ways of bypassing such control systems [17, 18].

A better way to prevent possible consequences of pornography exposure in minors may involve empowering them with appropriate resources regarding how to consider pornographic material, such as a critical understating of the nature of pornography [18]. Such an approach has been termed pornography education, also called pornography literacy, which could be provided by schools or other nonschool institutions as part of age-appropriate curricula [5, 19]. However, sex education in schools often does not include pornography literacy curriculum, although there are some proposed programs. Pornography literacy derives from critical media literacy, which is an educational approach to helping young people to develop critical thinking and skepticism toward media messages and to understand misrepresentations of reality often present in media. Media-literacy interventions have been shown to promote healthier choices among adolescents [20, 21] and, when adopted in sexual-health-education programs, shown

to reduce sexually risky behaviors (e.g. unprotected sex) and increase sexual-health-related knowledge [22–24].

Qualitative research has investigated core contents and elements that could be relevant for pornography-literacy programs (see Table 1). Some of these studies were conducted among young adults (ranging from 18 to 29 years old) using thematic analyses of pornography-related discussions [25, 26]. Others have included samples of participants from 14 to 29 years old [27, 28]. One such study tested the usability of a health-education website covering pornography and sexting [27]. Thematic analysis of the interviews of people having used the website suggested the relevance of the website and provided information on elements that could be improved (see Table 1 for details). Another study including vulnerable adolescents and young adults used a participatory action method to codesign a digital tool for pornography literacy [28]. Vulnerability was defined as including at least one of the following: receiving a fragmented school education, having limited education regarding sex or sexuality, being from nonmajority cultural and/or linguistic backgrounds, or undergoing family breakdowns.

Overall, results deriving from qualitative research highlighted some relevant topics to address in programs such as reducing shame associated with pornography use, discussing sexual consent, comparing pornography with real sex, discussing physical safety and sexual consent, exploring concerns about body-image comparisons, and considering pornography as a gateway to risk behaviors [25, 26, 28]. Furthermore, some important elements to consider when designing online tools for adolescents included using age-appropriate content and language, reducing text, increasing audiovisual aspects, giving credibility to resources, and proposing real stories [27].

Notwithstanding, quantitative research providing evidence for the efficacy of pornography education programs is limited (see Table 2). A first study was conducted on a large sample of adolescents and young adults, involving a longitudinal evaluation of their exposure to sexually explicit internet material (SEIM), sexual objectification of women, and self-perceived learning about SEIM in their sexual-education programs at school [29]. Results showed that the more the youth had learned about SEIM at school, the less strong relationships existed between the frequency of SEIM exposure and sexist attitudes. This was the first evidence of the potential positive effects of introducing information about pornography (e.g., learning about SEIM) into sex-education school programs.

The second quantitative study specifically explored the efficacy of a five-session pornography-literacy program in adolescents [30]. Core concepts of the program included the history of SEIM, pornography and norms related to gender and sex, the unreal representation of

Table 1 Qualitative studies of pornography-education programs

Authors & years	Objectives	Samples	Methods	Core content, elements, and topics
Dawson et al., 2020 [26]	Identifying relevant curriculum content for pornography literacy	<i>n</i> = 54 young individuals (age range: 18–29 years)	Thematic analysis of group discussion	<ul style="list-style-type: none"> - Increasing acceptance and reducing stigma regarding pornography - Sexual consent and communication - Body-image comparisons - The unrealistic representation of sex in pornography versus the reality of sex in the real world - Sexual pleasure and orgasm - Physical safety - Sexual and gender-based violence - The role of pornography as an educational source - Sexualizing and fetishizing of LGBTQ+ groups - Reducing shame of use of pornography - Discussing sexual consent - Body and genital image - The realities of sex - Pleasure and orgasm - Physical safety and sex - The role of pornography as an educational source - The sexualization of LGBTQ+ groups
Davis et al., 2020 [28]	Identifying the core concepts to codesign a digital tool for pornography literacy in vulnerable youths	<i>n</i> = 17 vulnerable youth (age range: 14–23 years)	Participatory action	<ul style="list-style-type: none"> - Importance of the credibility of the sources (e.g., providing direct access to research) - A clear and accessible language without being “childish” - Including real stories form young people is valued as enhancing the acceptability and relevance of the resources - Potential barriers of real stories were identified (e.g., embarrassment, disingenuous if using stock images) - The usability could be improved by targeting content by age and developmental stages, reducing text, using headlines to communicate key points, and increasing audiovisual aspects
Davis et al., 2019 [27]	Testing the usability of a resource about online pornography and sexting among young people	<i>n</i> = 17 young individuals (age range: 15–29 years)	Framework analysis of semistructured interviews	<ul style="list-style-type: none"> - Unrealistic representation of sex - Pornography as a gateway to risk behaviors - Exploitation of pornography performers
Goldstein et al., 2019 [25]	Examining pornography-related narratives to extract relevant topics	<i>n</i> = 27 young individuals (age range: 18–25 years)	Thematic analysis of focus groups	<ul style="list-style-type: none"> - Exploitation of pornography performers

LGBTQ + lesbian, gay, bisexual, transgender, queer, and other nonheterosexual

Table 2 Quantitative studies evaluating the efficacy of pornography-education programs

Authors & years	Aims	Sample	Program structure	Assessments	Study designs	Key findings
Mass et al., 2022	To evaluate the feasibility and effectiveness of a brief intervention (Pop-Porn) for public school staff	n = 79 school staff (teachers, health educators, counsellors and social workers)	<ul style="list-style-type: none"> 1 session (4 h) covering: <ul style="list-style-type: none"> - The new sexual environment - Gendered sexual culture - Teens' online sexual experiences - Sexual violence and the internet (IBSA in the school environment) 	<ul style="list-style-type: none"> - Knowledge of online sexual experiences in youth - SASSY 	Single group pre-post design	<ul style="list-style-type: none"> - Increased staff knowledge of and efficacy in addressing student's pornography use - Reductions in perpetration of IBSA and harmful sexual double-standard attitudes and related problems
Rothman et al., 2018	To evaluate the efficacy of a pornography-literacy program	n = 27 adolescents (age range: 14–18 years)	<ul style="list-style-type: none"> 5 sessions (90–120 min) covering: <ul style="list-style-type: none"> - The rationale for pornography literacy - The history of sexually explicit images in society - Pornography and norms related to gender and sex - Potential harms of pornography exposure on adolescent development - Unreal representations of sex in pornography and links to commercial sexual exploitation - Healthy intimacy - Occupational safety and health in the pornography industry - The nonconsensual dissemination of pornography/sexual imagery - How to talk with parents and peers about pornography 	<ul style="list-style-type: none"> Survey on pornography-related: <ul style="list-style-type: none"> - Knowledge - Attitudes - Behavioral intentions - Behaviors 	Single group pre-post design	<ul style="list-style-type: none"> - Pornography-related knowledge increased from pre- to post-test - Changes in pornography-related attitudes - Changes in pornography-related behavioral intentions - Pornography-related behavior did not change from pre- to post-test
Vanderbosch & van Oosten, 2017	To assess the role of pornography-literacy education in schools in the relationships between the use of SEIM and views of women as sex objects	<ul style="list-style-type: none"> n = 1007 adolescents (age range: 13–17 years) n = 940 young adults (age range: 18–25 years) 	<ul style="list-style-type: none"> Pornography literacy was part of a wider media literacy educational school program 	<ul style="list-style-type: none"> - Frequency of intentional exposure to SEIM (last 2 months) - Views of women as sexual objects - Self-perceived learning about SEIM during pornography literacy 	<ul style="list-style-type: none"> Longitudinal two-way panel study 	<ul style="list-style-type: none"> - Higher self-perceived learning about SEIM led to weaker relationships between SEIM frequency and views of women as sexual objects - No gender or age differences were present

SEIM Sexually Explicit Internet Material, IBSA Image-based Sexual Abuse, SASSY Scale for the Assessment of Sexual Standards Among Youth

sex in pornography, the potential harms of pornography exposure, the nonconsensual dissemination of pornography/sexual imagery, and healthy sexual relationships. From pre- to postsurvey, there were significant increases in pornography-related knowledge and changes in some pornography-related attitudes (e.g., more likely to agree that pornography promotes unhealthy expectations of male and female sexuality). Likewise, changes in some of the pornography-related behavioral intentions were detected (e.g., more likely to agree to ask for advice if they needed help with too much pornography use). However, no direct changes were observed in adolescents' behaviors related to pornography (e.g., feeling fine about watching pornography).

Finally, the third quantitative study evaluated the feasibility and efficacy of pornography literacy training for school staff to provide them with skills to talk about pornography with adolescents [31]. The short training consisted of one class of 4 h covering issues related to new sexual environments, teens' online sexual experiences, gender-related roles, and sexual violence in school environments. Posttraining there was increased knowledge about online pornography and perceived self-efficacy in discussing pornography and sexual harassment with students. In addition, decreased scores on the Scale for the Assessment of Sexual Standards Among Youth [32] suggested changes in the beliefs about gender-related sexual roles among youth.

The existing pornography-education programs should be considered a starting point to conduct evidence-based research on adolescents. However, the limited number of studies makes it difficult to establish the quality and feasibility of pornography education, which may represent a first stage of intervention to reduce the risk of PPU in adulthood.

From Prevention to Intervention: PPU in Adolescents

High frequency of pornography viewing in adolescence may be associated with its problematic use [33, 34]. PPU may be considered one form of a compulsive sexual behavior disorder (CSBD) as described in the 11th edition of the International Classification of Diseases [ICD-11; 35]. PPU and other forms of CSBD are typically characterized by repetitive and intense preoccupations with sexual fantasies, urges, and behaviors, leading to clinically significant distress or impairment in social and occupational functioning and other adverse consequences [35, 36]. CSBD, including PPU, has been proposed as a nonsubstance or behavioral addiction, although its classification and symptomatology remain debated [37–41].

Early identification of problems related to sexuality and pornography use in adolescents is important and often challenging. Initial attempts to define CSBD among adolescents have been based on adult criteria [42, 43]. Subsequent empirical studies have suggested that CSBD in adolescents is associated with some factors, such as sex/gender, religiosity, temperament, anxious attachment orientations, external locus of control, greater loneliness, higher frequency of pornography use, and more sex-related online activities [44, 45]. Regarding PPU, the adaptation and validation of self-reported measures have been conducted among adolescents [46, 47]. However, PPU and CSBD remain underexamined in adolescents.

Studies evaluating psychological treatments for PPU and CSBD have been conducted in adults [48•, 49••]. Cognitive behavioral therapy (CBT) has empirical support [50–54, 55••, 56], as do mindfulness-based approaches [57–59]. Regarding adolescents, therapies involving family members have been proposed as potentially useful in the treatment of PPU [12]. However, it is worth noting that there is a lack of studies evaluating treatments for PPU or CSBD in adolescents, possibly due to potential legal (e.g., regarding informed consent) and clinical barriers (e.g., limited self-awareness).

Evidence from studies in adolescents with behavioral addictions (e.g., internet gaming disorder) suggests that CBT, family therapy, or a combination of both may be particularly promising [60, 61]. In addition to traditional forms of psychotherapy, online interventions (i.e., web- or app-based) appear promising in the prevention and treatment of behavioral and substance addictions among adults and adolescents [62•, 63•]. Regarding web-based interventions for PPU, “Hands-off” is a six-week program based on principles of CBT, mindfulness, and motivational interviewing [54] that has shown promising results in a two-arm randomized controlled trial (RCT) in adults [55••, 64]. Given the current gap in the literature on the treatment of adolescents with PPU, future studies are needed to evaluate treatment programs tailored to this population.

Future Directions in Preventing and Treating PPU in Adolescents

Despite the existing programs on pornography education for adolescents, much work remains to be done, taking into account the following aspects. First, there appears consensus that content of pornography education should be age-appropriate and delivered in a safe, inclusive, and supportive environment [65•]. It is recommended to integrate elements of sex and relationship education by discussing topics related to physical safety and health intimacy, under a perspective that is sensitive to gender

and different sexual orientations. Other core topics of pornography education include the unrealistic representation of sex in pornography compared to real life, body-image considerations in pornography, and sexual, often gender-based or race-based violence [25–27, 66].

Participatory teaching and learning perspectives may be helpful. One challenge is to adopt methods to educate young people about pornography without directly exposing them to sexually explicit material. To this end, alternative methods have been proposed, such as using games that generate debates or discussions [67, 68]. Some research has suggested that young people should be informed about risks associated with viewing pornography [69]. It is possible that the best approach to prevention should include psychoeducation regarding pornography and its potential effects as a part of pornography-literacy programs. Evidence from the efficacy of psychoeducational approaches derives from other prevention programs for risk behaviors in adolescents [70]. Thus, introducing and evaluating the efficacy of psychoeducation as part of pornography-education programs represent a future avenue for research on prevention.

Finally, pornography education should be provided by appropriately trained personnel, since certain risks may arise when talking to young people about pornography (e.g., lack of confidence and knowledge, incitement to viewing). Therefore, another important step toward prevention is to assess the feasibility and effectiveness of training programs on pornography education targeting school staff or clinical staff.

Regarding treatments for PPU, there is a current gap in the literature on adolescents. More research is needed to develop or adapt and evaluate interventions such that they are tailored to young people.

Early identification of PPU among youth is one important first challenge. It is recommended in future research to use validated instruments for assessing PPU that have been adapted for adolescents [46, 47].

There is preliminary evidence for the effectiveness of CBT and mindfulness-based therapies for reducing PPU in adults [52, 55••, 57]. It is likely that feasible options for treatment of adolescents may involve adaptations and validation of these protocols. Moreover, several advantages could be derived from using online-based interventions in adolescents with PPU. First, it may reduce barriers to treatment, such as feelings of shame or stigmatization related to pornography use that could be particularly present among youth. Second, flexibility of and potentially free access to these programs could help facilitate a wider diffusion of interventions and data collection across countries. As a final methodological consideration, longitudinal studies including a control group, and possibly RCT, are strongly recommended.

Conclusions

The present narrative review is aimed at analyzing interventions to prevent and treat PPU in adolescents and to discuss the current state of the art and the future directions in this field. Regarding prevention, a variety of pornography-education programs have been proposed even though there appear only three published quantitative studies on pornography education [29–31]. Findings from these studies have indicated that learning about pornography at school may be related to less sexist attitudes over time [29] and that providing a specific pornography-literacy curriculum may help increase knowledge and promote changes in attitudes and behavioral intentions related to pornography [30]. Furthermore, delivering a short training on pornography education to school staff has been shown to improve teachers' knowledge and confidence in addressing pornography-related problems [31].

Concerning psychological treatment for PPU and CSBD, promising results of CBT and mindfulness-based therapies derive from studies in adults. However, the lack of studies involving adolescents with PPU precludes an assessment of the effectiveness of these approaches in young people, as has been shown for other behavioral addictions [60, 61].

In conclusion, prevention research to reduce potential negative consequences of pornography use in adolescents is in early stages. Likewise, adolescent-oriented treatment studies are needed to provide empirical support for interventions designed to help adolescents with PPU. In this sense, online treatments are potentially attractive to young people and may be considered good candidates for future research.

Funding Dr. Potenza's involvement was supported by the Connecticut Council on Problem Gambling and the National Institutes of Health (RF1 MH128614). Dr. Mestre-Bach was supported by a FUNCIVA postdoctoral grant.

The Editor-in-Chief of Current Addiction Reports is Marc Potenza, and the Section Editors for the topical collection Sex Addiction are Giulia Testa and Gemma Mestre-Bach. Please note that Marc Potenza, Giulia Testa and Gemma Mestre-Bach were not involved in the editorial process of this article as they are co-authors.

Declarations

Conflict of Interest The authors declare no competing interests. Dr. Potenza has consulted for Opiant Pharmaceuticals, Idorsia Pharmaceuticals, AXA, Game Day Data, Baria-Tek, and the Addiction Policy Forum; has been involved in a patent application with Yale University and Novartis; has received research support (to Yale) from Mohegan Sun Casino and the National Center for Responsible Gaming; has participated in surveys, mailings or telephone consultations related to drug addiction, impulse-control disorders, or other health topics; has consulted for and/or advised gambling and legal entities on issues related to impulse-control/addictive disorders; has provided clinical care in a problem gambling services program; has performed grant reviews for research-funding agencies; has edited journals and journal sections; has given academic lectures in grand rounds, CME events, and other clinical or scientific venues; and has generated books or book chapters for publishers of mental health texts.

References

Papers of particular interest, published recently, have been highlighted as:

- Of importance
- Of major importance

1. Short MB, Black L, Smith AH, Wetterneck CT, Wells DE. A review of Internet pornography use research: methodology and content from the past 10 years. *Cyberpsychol Behav Soc Netw*. 2012;15:13–23. <https://doi.org/10.1089/CYBER.2010.0477>.
2. Fisher WA, Barak A. Internet pornography: a social psychological perspective on internet sexuality. *J Sex Res*. 2010;38:312–23. <https://doi.org/10.1080/00224490109552102>.
3. Cooper AL. Sexuality and the Internet: surfing into the new millennium. *Cyberpsychol Behav*. 1998;1:187–93. <https://doi.org/10.1089/CPB.1998.1.187>.
4. Peter J, Valkenburg PM. Adolescents and pornography: a review of 20 years of research. *J Sex Res*. 2016;53:509–31. <https://doi.org/10.1080/00224499.2016.1143441>.
5. Albury K. Porn and sex education, porn as sex education. *Porn Stud*. 2014;1:172–81. <https://doi.org/10.1080/23268743.2013.863654>.
6. Arrington-Sanders R, Harper GW, Morgan A, Ogunbajo A, Trent M, Fortenberry JD. The role of sexually explicit material in the sexual development of same-sex-attracted black adolescent males. *Arch Sex Behav*. 2015;44:597–608. <https://doi.org/10.1007/S10508-014-0416-X/TABLES/3>.
7. Chen AS, Leung M, Chen CH, Yang SC. Exposure to Internet pornography among Taiwanese adolescents. *Soc Behav Pers*. 2013;41:157–64. <https://doi.org/10.2224/SBP.2013.41.1.157>.
8. Brown JA, Wisco JJ. The components of the adolescent brain and its unique sensitivity to sexually explicit material. *J Adolesc*. 2019;72:10–3. <https://doi.org/10.1016/J.ADOLESCENCE.2019.01.006>.
9. Mestre-Bach G, Chiclana-Actis C. Factors associated with adolescent pornography use: a narrative review. *Psicosomática y Psiquiatría*. 2022;21. <https://doi.org/10.34810/PsicosomPsiquiatnum210502>.
10. Peter J, Valkenburg PM. Adolescents' use of sexually explicit Internet material and sexual uncertainty: the role of involvement and gender. *Commun Monogr*. 2010;77:357–75. <https://doi.org/10.1080/03637751.2010.498791>.
11. Maheux AJ, Roberts SR, Evans R, Widman L, Choukas-Bradley S. Associations between adolescents' pornography consumption and self-objectification, body comparison, and body shame. *Body Image*. 2021;37:89–93. <https://doi.org/10.1016/J.BODYIM.2021.01.014>.
12. Gibbons I, Bernard J, Bean RA, Young B, Wolfgramm M. Addressing problematic pornography use in adolescent/young adult males: a literature review and recommendations for family therapists. *Am J Fam Ther*. 2020;49:57–73. <https://doi.org/10.1080/01926187.2020.1848481>.
13. Kubicek K, Beyer WJ, Weiss G, Iverson E, Kipke MD. In the dark: young men's stories of sexual initiation in the absence of relevant sexual health information. *Health Educ Behav*. 2010;37:243–63. <https://doi.org/10.1177/1090198109339993>.
14. Allen L. "Looking at the Real Thing": Young men, pornography, and sexuality education. *Discourse Stud Cult Polit Educ*. 2007;27:69–83.
15. Malacane M, Beckmeyer JJ. A review of parent-based barriers to parent–adolescent communication about sex and sexuality: implications for sex and family educators. *Am J Sex Educ*. 2016;11:27–40. <https://doi.org/10.1080/15546128.2016.1146187>.
16. Rasmussen EE, Ortiz RR, White SR. Emerging adults' responses to active mediation of pornography during adolescence. *J Child Media*. 2015;9:160–76. <https://doi.org/10.1080/17482798.2014.997769>.
17. Çankaya S, Odabaşı HF. Parental controls on children's computer and Internet use. *Procedia - Soc Behav Sci*. 2009;1:1105–9. <https://doi.org/10.1016/J.SBSPRO.2009.01.199>.
18. Yar M. Protecting children from internet pornography? A critical assessment of statutory age verification and its enforcement in the UK. *Policing*. 2020;43:183–97. <https://doi.org/10.1108/PIJPSM-07-2019-0108/FULL/XML>.
19. Allen, L. Young people and sexuality education: rethinking key debates. Palgrave Macmillan. 2011.
20. Vahedi Z, Sibalis A, Sutherland JE. Are media literacy interventions effective at changing attitudes and intentions towards risky health behaviors in adolescents? *Meta-Analytic Rev J Adolesc*. 2018;67:140–52. <https://doi.org/10.1016/J.ADOLESCENCE.2018.06.007>.
21. Bergsma LJ, Carney ME. Effectiveness of health-promoting media literacy education: a systematic review. *Health Educ Res*. 2008;23:522–42. <https://doi.org/10.1093/HER/CYM084>.
22. Pinkleton BE, Austin EW, Chen YCY, Cohen M. The role of media literacy in shaping adolescents' understanding of and responses to sexual portrayals in mass media. *J Health Commun*. 2012;17:460–76. <https://doi.org/10.1080/10810730.2011.635770>.
23. Scull T, Malik C, Morrison A, Keefe E. Promoting sexual health in high school: a feasibility study of a web-based media literacy education program. *J Health Commun*. 2021;26:147. <https://doi.org/10.1080/10810730.2021.1893868>.
24. Scull T, Malik C, Keefe E, Schoemann, ● Alexander Evaluating the short-term impact of media aware parent, a web-based program for parents with the goal of adolescent sexual health promotion. *J Youth Adolesc*. 2019;48:1686–706. <https://doi.org/10.1007/s10964-019-01077-0>.
25. Goldstein A. Beyond porn literacy: drawing on young people's pornography narratives to expand sex education pedagogies. *Sex Educ*. 2019;20:59–74. <https://doi.org/10.1080/14681811.2019.1621826>.
26. Dawson K, Nic Gabhainn S, MacNeela P. Toward a model of porn literacy: core concepts, rationales, and approaches. *J Sex Res*. 2020;57:1–15. <https://doi.org/10.1080/00224499.2018.1556238>.
27. Davis AC, Wright CJC, Temple-Smith MJ, Hellard ME, Lim MSC. A Health Education Website Developed to Meet Young People's Information Needs About Web-Based Pornography and Sharing of Sexually Explicit Imagery (SCOPE): Usability Study. *JMIR Form Res*. 2019;3(3):e12824. <https://doi.org/10.2196/12824>.
28. Davis AC, Wright CJC, Murphy S, Dietze P, Temple-Smith MJ, Hellard ME, Lim MSC. A digital pornography literacy resource co-designed with vulnerable young people: development of "The Gist." *J Med Intern Res*. 2020;22:e15964. <https://doi.org/10.2196/15964>.
29. Vandenbosch L, van Oosten JMF. The relationship between online pornography and the sexual objectification of women: the attenuating role of porn literacy education. *J Commun*. 2017;67:1015–36. <https://doi.org/10.1111/JCOM.12341>.
30. Rothman EF, Adhia A, Christensen TT, Paruk J, Alder J, Daley N. A pornography literacy class for youth: results of a feasibility and efficacy pilot study. *Am J Sex Educ*. 2018;13:1–17. <https://doi.org/10.1080/15546128.2018.1437100>.
31. Maas MK, Gal T, Cary KM, Greer K. Popular culture and pornography education to improve the efficacy of secondary school staff response to student sexual harassment. *Am J Sex*

- Educ. 2022. <https://doi.org/10.1080/15546128.2022.2076757>.
32. Emmerink PMJ, van den Eijnden RJJM, ter Bogt TFM, Vanwesenbeeck I. A scale for the assessment of sexual standards among youth: psychometric properties. *Arch Sex Behav*. 2017;46:1699–709. <https://doi.org/10.1007/S10508-017-1001-X/TABLES/6>.
 33. Rousseau A, Bóthe B, Štulhofer A. Theoretical antecedents of male adolescents' problematic pornography use: a longitudinal assessment. *J Sex Res*. 2020;58:331–41. <https://doi.org/10.1080/00224499.2020.1815637>.
 34. Donevan M, Mattebo M. The relationship between frequent pornography consumption, behaviours, and sexual preoccupation among male adolescents in Sweden. *Sex Reprod Healthc*. 2017;12:82–7. <https://doi.org/10.1016/J.SRHC.2017.03.002>.
 35. International Statistical Classification of Diseases and Related Health Problems 11th ed.; ICD-11; World Health Organization, 2019.
 36. Kraus SW, Krueger RB, Briken P, First MB, Stein DJ, Kaplan MS, Voon V, Abdo CHN, Grant JE, Atalla E, et al. Compulsive sexual behaviour disorder in the ICD-11. *World Psychiatry*. 2018;17:109. <https://doi.org/10.1002/WPS.20499>.
 37. Bóthe B, Koós M, Demetrovics Z. Contradicting classification, nomenclature, and diagnostic criteria of compulsive sexual behavior disorder (CSBD) and future directions: commentary to the debate: "Behavioral addictions in the ICD-11." *J Behav Addict*. 2022;11:204–9. <https://doi.org/10.1556/2006.2022.00030>.
 38. Gola M, Lewczuk K, Potenza MN, Kingston DA, Grubbs JB, Stark R, Reid RC. What should be included in the criteria for compulsive sexual behavior disorder? *J Behav Addict*. 2020. <https://doi.org/10.1556/2006.2020.00090>.
 39. Sassover E, Weinstein A. Should compulsive sexual behavior (CSB) be considered as a behavioral addiction? A debate paper presenting the opposing view. *J Behav Addict*. 2020;11:166–79. <https://doi.org/10.1556/2006.2020.00055>.
 40. Kraus SW, Voon V, Potenza MN. Should compulsive sexual behavior be considered an addiction? *Addiction*. 2016;111:2097–106. <https://doi.org/10.1111/ADD.13297>.
 41. Potenza MN, Gola M, Voon V, Kor A, Kraus SW. Is excessive sexual behaviour an addictive disorder? *The Lancet Psychiatry*. 2017;4:663–4. [https://doi.org/10.1016/S2215-0366\(17\)30316-4](https://doi.org/10.1016/S2215-0366(17)30316-4).
 42. Adelson S, Bell R, Graff A, Goldenberg D, Haase E, Downey JJ, Friedman RC. Toward a definition of "hypersexuality" in children and adolescents. *Psychodyn Psychiatry*. 2012;40:481–504. <https://doi.org/10.1521/PDPS.2012.40.3.481>.
 43. De Crisce, D. Sexual addiction and hypersexual behaviors in adolescents. *Clin. Handb. Adolesc. Addict*. 2013, 362–76. <https://doi.org/10.1002/9781118340851.ch37>.
 44. Efrati Y, Gola M. Understanding and predicting profiles of compulsive sexual behavior among adolescents. *J Behav Addict*. 2018;7:1004–14. <https://doi.org/10.1556/2006.7.2018.100>.
 45. Efrati Y. Adolescent Compulsive Sexual Behavior: Is It a Unique Psychological Phenomenon? *J Sex Marital Ther*. 2018;44:687–700. <https://doi.org/10.1080/0092623X.2018.1452088>.
 46. Bóthe B, Vaillancourt-Morel MP, Dion J, Štulhofer A, Bergeron S. Validity and reliability of the short version of the Problematic Pornography Consumption Scale (PPCS-6-A) in adolescents. *Psychol Addict Behav*. 2021;35:486–500. <https://doi.org/10.1037/ADB0000722>.
 47. Doornwaard SM, van den Eijnden RJJM, Baams L, Vanwesenbeeck I, ter Bogt TFM. Lower psychological well-being and excessive sexual interest predict symptoms of compulsive use of sexually explicit Internet material among adolescent boys. *J Youth Adolesc*. 2016;45:73–84. <https://doi.org/10.1007/S10964-015-0326-9/TABLES/3>.
 - 48.● Borgogna NC, Garos S, Meyer CL, Trussell MR, Kraus SW. A review of behavioral interventions for compulsive sexual behavior disorder. *Curr Addict Reports*. 2022;9(9):99–108. <https://doi.org/10.1007/S40429-022-00422-X>. **Overview of the findings of recently published behavioral interventions for compulsive sexual behavior disorder.**
 - 49.●● Antons S, Engel J, Briken P, Krüger THC, Brand M, Stark R. Treatments and interventions for compulsive sexual behavior disorder with a focus on problematic pornography use: a pre-registered systematic review. *J Behav Addict*. 2022;11:643–66. <https://doi.org/10.1556/2006.2022.00061>. **Comprehensive, high-quality review of therapeutic approaches to compulsive sexual behavior and problematic pornography use.**
 50. Hallberg J, Kaldo V, Arver S, Dhejne C, Öberg KG. A cognitive-behavioral therapy group intervention for hypersexual disorder: a feasibility study. *J Sex Med*. 2017;14:950–8. <https://doi.org/10.1016/j.jsxm.2017.05.004>.
 51. Sadiza J, Varma R, Jena SPK, Singh TB. Group cognitive behaviour therapy in the management of compulsive sex behaviour. *Int J Crim Justice Sci*. 2011;6:309–25.
 52. Minarcik, J. Proposed treatment of problematic pornography use: A cognitive-behavioral approach. University of Arkansas (Doctoral Dissertation). 2016 Retrieved from ProQuest Dissertations and These database. (UMI No. 10042888)
 53. Orzack MH, Voluse AC, Wolf D, Hennen J. An ongoing study of group treatment for men involved in problematic internet-enabled sexual behavior. *Cyberpsychol Behav*. 2006;9:348–60. <https://doi.org/10.1089/CPB.2006.9.348>.
 54. Bothe B, Baumgartner C, Schaub MP, Demetrovics Z, Orosz G. Hands-off: Study protocol of a two-armed randomized controlled trial of a web-based self-help tool to reduce problematic pornography use. *J Behav Addict*. 2020;9:433–45. <https://doi.org/10.1556/2006.2020.00037>.
 - 55.●● Bothe B, Baumgartner C, Schaub MP, Demetrovics Z, Orosz G. Hands-off Feasibility and preliminary results of a two-armed randomized controlled trial of a web-based self-help tool to reduce problematic pornography use. *J Behav Addict*. 2022;10:1015–35. <https://doi.org/10.1556/2006.2021.00070>. **Randomised controlled trial to test the efficacy of an online treatment for problematic pornography use.**
 56. Hardy SA, Ruchty J, Hull TD, Hyde R. A preliminary study of an online psychoeducational program for hypersexuality. *Sex Addict Compulsivity*. 2010;17:247–69. <https://doi.org/10.1080/10720162.2010.533999>.
 57. Crosby JM, Twohig MP. Acceptance and commitment therapy for problematic Internet pornography use: a randomized trial. *Behav Ther*. 2016;47:355–66. <https://doi.org/10.1016/j.beth.2016.02.001>.
 58. Twohig MP, Crosby JM. Acceptance and commitment therapy as a treatment for problematic Internet pornography viewing. *Behav Ther*. 2010;41:285–95. <https://doi.org/10.1016/j.beth.2009.06.002>.
 59. Holas P, Draps M, Kowalewska E, Lewczuk K, Gola M. A pilot study of mindfulness-based relapse prevention for compulsive sexual behaviour disorder. *J Behav Addict*. 2021;9:1088–92. <https://doi.org/10.1556/2006.2020.00075>.
 60. Lampropoulou P, Siomos K, Floros G, Christodoulou N. Effectiveness of available treatments for gaming disorders in children and adolescents: a systematic review. *Cyberpsychology, Behav Soc Netw*. 2022;25:5–13. <https://doi.org/10.1089/cyber.2021.0067>.
 61. Malinauskas R, Malinauskiene V. A meta-analysis of psychological interventions for Internet/smartphone addiction among

- adolescents. *J Behav Addict*. 2019;8:613–24. <https://doi.org/10.1556/2006.8.2019.72>.
62. ● Boumparis N, Loheide-Niesmann L, Blankers M, Ebert DD, Korf D, Schaub MP, Spijkerman R, Tait RJ, Riper H. Short- and long-term effects of digital prevention and treatment interventions for cannabis use reduction: a systematic review and meta-analysis. *Drug Alcohol Depend*. 2019;200:82–94. <https://doi.org/10.1016/j.drugalcdep.2019.03.016>. **Updated overview of online interventions in the field of behavioral addiction.**
63. Boumparis N, Haug S, Abend S, Billieux J, Riper H, Schaub MP. Internet-based interventions for behavioral addictions: A systematic review. *J Behav Addict*. 2022;11(3):620–42.
64. Bothe B, Baumgartner C, Schaub MP, Demetrovics Z, Orosz G. Hands-off: study protocol of a two-armed randomized controlled trial of a web-based selfhelp tool to reduce problematic pornography use. *J Behav Addict*. 2020;9:433–45. <https://doi.org/10.1556/2006.2020.00037>.
65. ● Crabbe M, Flood M. School-based education to address pornography's influence on young people: a proposed practice framework. *Am J Sex Educ*. 2021;16:1–37. **Detailed account of a proposed practical framework for school-based approaches to pornography education.**
66. West CM. Pornography consumers of color and problematic pornography use: clinical implications. *Curr Addict Reports*. 2022;9:126–32. <https://doi.org/10.1007/S40429-022-00410-1/METRICS>.
67. Bengry-Howell A. Planet porn: a resource pack for working with teens around porn. *Sex Educ*. 2012;12:1–3. <https://doi.org/10.1080/14681811.2012.668420>.
68. Rogers, V. We need to talk about pornography: A resource to educate young people about the potential impact of pornography and sexualised images on relationships, body image and self-esteem. Jessica Kingsley Publishers, 2016.
69. Baker KE. Online pornography – should schools be teaching young people about the risks? An exploration of the views of young people and teaching professionals. *Sex Educ*. 2015;16:213–28. <https://doi.org/10.1080/14681811.2015.1090968>.
70. Boustani MM, Frazier SL, Becker KD, Bechor M, Dinizulu SM, Hedemann ER, Ogle RR, Pasalich DS. Common elements of adolescent prevention programs: minimizing burden while maximizing reach. *Adm Policy Ment Heal Ment Heal Serv Res*. 2015;42:209–19.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Springer Nature or its licensor (e.g. a society or other partner) holds exclusive rights to this article under a publishing agreement with the author(s) or other rightsholder(s); author self-archiving of the accepted manuscript version of this article is solely governed by the terms of such publishing agreement and applicable law.