



# PORNOGRAPHY & PUBLIC HEALTH

## Research Summary



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## Introduction

Pornography is a social toxin that destroys relationships, steals innocence, erodes compassion, breeds violence, and kills love. The issue of pornography is ground zero for all those concerned for the sexual health of our loved ones, communities, and society as a whole. As the following points illustrate, the breadth and depth of pornography's influence on popular culture has created an intolerable situation that impinges on the freedoms and wellbeing of countless individuals.

- **Young Age of First Exposure:** A study of university students found that 93% of boys and 62% of girls had seen Internet pornography during adolescence. The researchers reported that the degree of exposure to paraphilic and deviant sexual activity before age 18 was of "particular concern."<sup>1</sup> Another sample has shown that among college males, nearly 49% first encountered pornography before age 13.<sup>2</sup>

A study in Australia of 941 15–29 year olds, reported the median age for first viewing pornography was 13 years for males and 16 years for females. This same study reported that 100% of males and 82% of females reported they had ever viewed pornography. Among those who had viewed pornography within the last 12 months prior to the survey, 84% of males and 19% of females used pornography on a weekly or daily basis.<sup>3</sup> Australian reports from the early to mid-2000s showed that the rates of lifetime exposure to pornography had been 73–93% for adolescent boys and 11– 62% for adolescent girls.<sup>4</sup>

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<sup>1</sup>Chiara Sabina, Janis Wolak, and David Finkelhor, "The Nature and Dynamics of Internet Pornography Exposure for Youth," *CyberPsychology & Behavior* 11, no. 6 (2008): 691–693.

<sup>2</sup>Chyng Sun, Ana Bridges, Jennifer Johnson, and Matt Ezzell, "Pornography and the Male Sexual Script: An Analysis of Consumption and Sexual Relations," *Archives of Sexual Behavior* 45, no. 4 (May, 2016): 983–94.

<sup>3</sup> Megan S. C. Lim, Paul A. Agius, Elise R. Carroette, et al., "Young Australians Use of Pornography and Associations with Sexual Risk Behaviours," *Australian and New Zealand Journal of Public Health* 41, no. 4 (2017): 438–443.

<sup>4</sup> Ibid.



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- **Pervasive Use:** A nationally representative survey found that 64% of young people, ages 13–24, actively seek out pornography weekly or more often.<sup>5</sup> A popular tube site reports that in 2016, people watched 4.6 billion hours of pornography on its site alone;<sup>6</sup> 61% of visits occurred via smartphone.<sup>7</sup> Eleven pornography sites are among the world’s top 300 most popular Internet sites. The most popular such site, at number 18, outranks the likes of eBay, MSN, and Netflix.<sup>8</sup>
- **Infringement on Individual Rights:** The pornification of culture (i.e. softcore, hypersexualized imagery) is widespread and evident everywhere, from the grocery store checkout lane to advertising, popular entertainment, unsolicited email, and beyond. It’s becoming increasingly difficult—if not impossible—to live a porn-free life.
- **Both Genders:** While hardcore pornography users are typically male, use among younger females use is increasing. Teenage girls and young women are significantly more likely to actively seek out porn than women 25 years old and above.<sup>9</sup>
- **Unmanageable at the Individual Level:** The pervasive depictions of softcore and hardcore pornography in popular culture, and their easy accessibility via streaming and mobile devices, produce problems and significant risks outside the ability of individuals and families to manage on their own.
- **Private Behavior with Public Consequences/Porn Users Shape Culture:** The large-scale private use of hardcore pornography by millions of people has public ramifications. The attitudes, beliefs, and behaviors shaped by pornography use have a profound impact on not only users’ private relationships, but also their professional and social relationships. Pornography use, to varying degrees, shapes the lens by which users view, interact, and construct the world.

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<sup>5</sup> Barna Group, *The Porn Phenomenon: The Impact of Pornography in the Digital Age*, (Ventura, CA: Josh McDowell Ministry, 2016).

<sup>6</sup> Pornhub, “Pornhub’s 2016 Year in Review,” (2016).

<sup>7</sup> Ibid.

<sup>8</sup> Jonathan Marciano, “Top 300 Biggest Websites: Based on Both Mobile and Desktop Data for the First Time!” Similar Web (July 19, 2016), <https://www.similarweb.com/blog/new-website-ranking> (accessed July 24, 2016).

<sup>9</sup> Barna Group, “News Conference on Barna’s New Study: ‘The Porn Phenomenon,’” (January 15, 2016), <https://www.barna.org/blog/culture-media/barna-group/porn-press-conference#.VrS9OrSjndl> (accessed June 27, 2016).



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- **Pornography is Prostitution for Mass Consumption:** The medium by which the prostitution is conveyed—photographs, magazines, books, videos, and the Internet—allows for masses of individuals to derive sexual stimulation and gratification from the acts of prostitution that they portray.

Drawing from recent, peer-reviewed, research literature, as well as the latest reports and surveys, the research summary below presents evidence supporting the view that pornography constitutes a public health crisis. While independently these studies do not prove that pornography *causes* harm, taken in totality, the converging evidence overwhelming suggests that pornography is correlated with a broad array of harms that adversely impact the public health of the nation. These include higher incidence of STIs, increased verbal and physical sexual aggression, acceptance of rape myths, risky sexual behaviors among adolescents, reduced impulse control and reckless decision making, increased sexual dysfunction, and more.

Like the tobacco industry, the pornography industry has created a public health crisis. However, despite tobacco's former widespread use and acceptance in American culture, once its harms became apparent, society took action and adopted dramatic new policies to limit the harmful effects of smoking. Similarly we believe that people need to be protected from pornography exposure and made aware of the risks associated with its use.

In light of the mounting evidence of harm documented below, we call on the general public, educators, health professionals, corporate executives, and elected officials to recognize pornography as a public health crisis.

## RESEARCH SUMMARY

### Impact on Sexual Violence and Exploitation

- **Hardcore Pornography Portrays Paraphilic Disorders and Extreme Sex:** Since the 1950s, the distribution and availability of pornography has become increasingly normalized.<sup>10</sup> Pornography exposure among college males is now almost universal.<sup>11</sup> Boys and men are consuming hardcore pornography, which may include depictions of sex with persons who look like children or teens, scenarios portraying incest, and other paraphilic interests such as sex with animals (i.e. zoophilia), excretory activities (i.e. coprophilia/urophilia), and violence against women, including rape (i.e. biastophilia) and torture (i.e. algolania).<sup>12</sup> Today “. . . mainstream commercial pornography has coalesced around a relatively homogenous script involving violence and female degradation.”<sup>13</sup>
- **Teaches Users that Women Enjoy Sexual Violence and Degradation:** A content analysis of 172 videos from the website PornHub.com examined the influence of age (teenage performer vs. adult performer) on aggression and pleasure depicted in popular heterosexual pornographic videos uploaded to the site between the years 2000 and 2016. One hundred and seventeen videos exhibited “adult” performers, 55 “teenage” performers. To determine “age,” researchers used a variety of cues including: 1) performers’ self-declaration of their age, 2) titles of the videos, 3) the categories in which videos were classified, and 4) tags ascribed to each video. The findings were as follows:
  - 43% of videos included what the researchers categorized as “visible aggression” and 15% included “nonconsensual aggression.”
  - Teenagers were more likely to experience particular forms of aggression and

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<sup>10</sup> Gail Dines, *Pornland: How Porn Has Hijacked Our Sexuality*, (Boston, MA: Beacon Press, 2010), 1–23.

<sup>11</sup> John D. Foubert, Matthew W. Brosi, and R. Sean Bannon, “Effects of Fraternity Men’s Pornography Use on Bystander Intervention, Rape Myth Acceptance and Behavioral Intent to Commit Sexual Assault,” *Sexual Addiction & Compulsivity: The Journal of Treatment & Prevention* 18, no. 4 (2011): 212–231.

<sup>12</sup> Robert Peters, “How Adult Pornography Contributes to Sexual Exploitation of Children” (September 2009); Foubert, *ibid*; Ana Bridges, Robert Wosnitzer, Erica Scharrer, Chyng Sun, and Rachael Liberman, “Aggression and Sexual Behavior in Best-Selling Pornography Videos: A Content Analysis Update,” *Violence Against Women* 16, no. 10 (2010): 1065–1085; Gail Dines, *ibid*.

<sup>13</sup> Sun, *ibid*.



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degrading or risky sex acts. Specifically, teenagers were more than twice as likely as adults (21.8 vs 9.4%) to be in videos featuring anal penetration, and about five times more likely (12.7 vs. 2.5%) to be in videos featuring forceful anal penetration with an apparent intent to cause pain. Yet, when broadly considering aggression in pornography, teenagers were subject to similar levels of aggression experienced by older performers.

- Teenagers were also more likely to be in pornography in which the male ejaculated in their mouth or on their face than adults (65.4 vs. 45.3%).
- 90% of teenage females in videos containing visible aggression displayed pleasure, compare to 54% when visible aggression was not present.
- 40% of teenagers displayed sexual climax in videos containing aggression, compared to 8.5% when visible aggression was not present.
- Teenagers were significantly more likely to display pleasure in videos that included spanking, forced vaginal or anal penetration, and forced gagging than in videos that did not include these acts.
- Females of all ages were more likely to display pleasure in videos featuring physical aggression than those that did not.

In response to these findings, the researcher noted that the prevalence of aggressive and demeaning acts in videos featuring teenagers, “may signal to viewers of all ages that these acts are not only normative and legitimate, but perhaps even expected,” thus creating social pressure on both young women and men to re-enact them with their sexual partners. Of further concern, it was noted that “the high prevalence of unprotected anal intercourse in such videos may lead female teenagers to engage more frequently in unprotected anal sex,” thus increasing their risk for various STDs.<sup>14</sup>

In a separate content analysis of free, Internet pornography, researchers found that nearly half of all videos in which two or more persons were present ended with the act of ejaculation on the face or mouth of a female by one or more males.<sup>15</sup>

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<sup>14</sup> Eran Shor, “Age, Aggression, and Pleasure in Popular Online Pornographic Videos,” *Violence Against Women* (2018): 1–19, doi: 10.1177/1077801218804101. Of note, videos including more than two participants were not included in the analysis.

<sup>15</sup> Stacy Gorman, Elizabeth Monk-Turner, and Jennifer N. Fish, “Free Adult Internet Web Sites: How Prevalent Are Degrading Acts?” *Gender Issues* 27, no. 3–4 (2010): 131–45, doi:10.1007/s12147-010-9095-7.



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A 2010 analysis of the 50 most popular pornographic videos (those bought and rented most often) found that 88% of scenes contained physical violence, and 49% contained verbal aggression.<sup>16</sup> Eighty-seven percent of aggressive acts were perpetrated against women, and 95% of their responses were either neutral or expressions of pleasure.<sup>17</sup>

- **Committing Sexual Offenses and Accepting Rape Myths:** A meta-analysis of 46 studies reported that the effects of exposure to pornographic material are “clear and consistent,” and that pornography use puts people at increased risk for committing sexual offenses and accepting rape myths.<sup>18</sup>
- **Increased Verbal and Physical Aggression:** A 2015 meta-analysis of 22 studies from seven countries found that internationally the consumption of pornography was significantly associated with increases in verbal and physical aggression, among males and females alike.<sup>19</sup>
- **Sibling Sexual Abuse:** In a study that analyzed 166 cases of males aged 13-17 who were referred to a residential sex offender program in the Midwestern United States from 1994-2005, the cases were divided into two groups: sibling perpetrator (biological, half, step, foster, or adopted; n=100) or non-sibling (n=66). According to the study, compared to those in the non-sibling group, sibling abusers had higher rates of previous sexual abuse (58% to 35%), physical abuse (49.5% to 44.6%), neglect (33% to 21%), domestic violence exposure (58% to 20%) and had higher rates of pornography exposure (58% to 24%). The study concluded that, “Exposure to domestic violence and a sexualized home environment (in this case, exposure to pornography and/or child sexual abuse) may render adolescents particularly at risk for sexual violence.” Researchers also suggested that, “exposure to pornography may negatively impact the sibling-victim in addition to the sibling-offender,” and “early

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<sup>16</sup> Ana J. Bridges, Robert Wosnitzer, Erica Scharrer, Chyng Sun, and Rachael Liberman, “Aggression and Sexual Behavior in Best-Selling Pornography Videos: A Content Analysis Update,” *Violence against Women* 16, no. 10 (2010): 1065–1085.

<sup>17</sup> Ibid.

<sup>18</sup> Elizabeth Paolucci-Oddone, Mark Genuis, and Claudio Violato, “A Meta-Analysis of the Published Research on the Effects of Pornography,” *The Changing Family and Child Development*, ed. Claudio Violato, Elizabeth Paolucci, and Mark Genuis (Aldershot, England: Ashgate Publishing, 2000), 48–59.

<sup>19</sup> Paul J. Wright, Robert S. Tokunaga, and Ashley Kraus, “A Meta-Analysis of Pornography Consumption and Actual Acts of Sexual Aggression in General Population Studies,” *Journal of Communication* 66, no. 1 (February 2016): 183–205.



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exposure to pornography may impact a child's view of what is normative and impair the ability to avoid, deter, or negotiate from dangerous situations . . . ."<sup>20</sup>

- **Link to Harmful/Problem Sexualized Behavior in Youth:** A study of 950 child patients presenting for suspected child abuse (primarily sexual abuse, but also some cases of severe physical abuse) to a Child Advocacy Center in the Midwestern U.S., examined intake and self-reported assessment data collected in 2015. The children ranged in age from 3 to 18; 74% were female. Analysis found that children who disclosed exposure to pornography were at 3.3 times greater likelihood of engaging in problem sexualized behavior (PSB) compared to those who did not disclose pornography exposure.

The researchers explained: "Having exposure to pornography at a young age may not only introduce children to behaviors they may eventually acquire, but the children may have those behaviors reinforced by seeing the models (e.g. the individuals shown in the pornography medium, the person who exposed the child to pornography, etc.) being rewarded by the behavior. If the benefits of such sexual behavior are reinforced for the child, they may have a higher likelihood of adopting the behavior themselves."<sup>21</sup>

In a separate qualitative study of children with harmful sexual behavior (HSB), 14 young people aged 16-21 years old participated in one-hour, semi-structured interviews. The participants were past clients of a government-funded treatment program for youth in Victoria, Australia. Six treatment-providing staff members were also interviewed. From the study:

- Eighty-six percent (n=12) of youth reported being exposed to pornography and 21% (n=3) described pornography as one of the factors that triggered their HSB. One young person told how he was introduced to pornography at age 11 at school and started to view it at home when his parents were gone. Another boy expressed that watching pornography at his grandmother's house and discussing it with his cousin lead him to later sexually abuse his

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<sup>20</sup> Natasha E. Latzman, Jodi L. Viljoen, Mario J. Scalora, and Daniel Ullman, "Sexual Offending in Adolescence: A Comparison of Sibling Offenders and Nonsibling Offenders Across Domains of Risk and Treatment Need," *Journal of Child Sexual Abuse* 20, no. 3 (2011): 245-263.

<sup>21</sup> Rebecca Dillard, Kathryn Maguire-Jack, Kathryn Showalter, et al., "Abuse Disclosures of Youth with Problem Sexualized Behaviors and Trauma Symptomology," *Child Abuse & Neglect* 88 (2019): 201-211, doi: 10.1016/j.chiabu.2018.11.019.



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cousin. Youth workers also agreed that pornography was a factor in the harmful sexual behavior exhibited by these, and other, youth. One worker said: “So from a young age they’ve accessed pornography . . . and they’re exposed to this idea that sex and aggression is linked and they’re exposed to these ideas that you don’t necessarily need consent, and that ‘no’ might mean ‘try harder.’”

- The study suggested that the issue of pornography is spiraling out of the ability of individuals and families to control and that there is “merit in government taking an active role in holding industry to account for the harms of pornography against children and young people.” Specifically, the researchers recommended government regulation of pornography and telecommunication industries, as well as an adjustment of sexually abusive treatment models to take pornography into account.<sup>22</sup>
- **Increased Female Sexual Victimization:** A study of 14- to 19-year-olds found that females who watched pornographic videos were at significantly greater likelihood of being victims of sexual harassment or sexual assault.<sup>23</sup>
- **Increased Likelihood of Selling and Buying Sex:** A Swedish study of 18-year-old males found that frequent users of pornography were significantly more likely to have sold and bought sex than other boys of the same age.<sup>24</sup>
- **Fuels Demand for Sexual Exploitation:** Some pornography consumers use pornography to build sexual excitement in advance of purchasing sex from prostituted persons; others seek to reenact pornographic scenes on prostituted persons.<sup>25</sup> An

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<sup>22</sup> Gemma McKibbin, Cathy Humphreys, and Bridget Hamilton, “‘Talking About Child Sexual Abuse Would Have Helped Me’: Young People Who Sexually Abused Reflect on Preventing Harmful Sexual Behavior,” *Child Abuse & Neglect* 70, (2017): 210-221.

<sup>23</sup> Silvia Bonino, Silvia Ciairano, Emanuela Rabagliette, and Elena Cattelino, “Use of Pornography and Self-Reported Engagement in Sexual Violence among Adolescents,” *European Journal of Developmental Psychology* 3, no. 3 (2006): 265-288.

<sup>24</sup> Carl Göran Svedin, Ingrid Åkerman, and Gisela Priebe, “Frequent Users of Pornography. A Population Based Epidemiological Study of Swedish Male Adolescents,” *Journal of Adolescence* 34, no. 4 (2011): 779-788.

<sup>25</sup> Mimi H. Silbert and Ayala M. Pines, “Pornography and Sexual Abuse of Women,” *Sex Roles* 10, no. 11/12 (1984): 857-868; Rachel Durchslag and Samir Goswami, *Deconstructing the Demand for Prostitution: Preliminary Insights from Interviews with Chicago Men Who Purchase Sex*, (Chicago, IL: Chicago Alliance Against Sexual Exploitation, 2008); Victor Malarek, *The Johns: Sex for Sale and the Men Who Buy It* (New York: NY Arcade Publishing, Inc. 2009).



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analysis of 101 sex buyers, compared to 100 men who did not buy sex, found that sex buyers masturbate to pornography more often than non-sex buyers, masturbate to more types of pornography, and reported that their sexual preferences changed so that they sought more sadomasochistic and anal sex.<sup>26</sup> Other research also demonstrates an association between purchase of commercial sex acts and pornography use.<sup>27</sup>

- **Interconnectivity of Mainstream, Deviant, and Child Sexual Abuse Images:** A survey from a general population of Internet pornography users found that users of pornography depicting sexual abuse of children also consume both hardcore pornography (featuring ostensibly adult performers), as well as animal pornography. There were *no* consumers of child sexual abuse images who *only* collected child sexual abuse images.<sup>28</sup>

A separate study examining 231 Swiss men charged in a 2002 case for possession of child sexual abuse images (i.e. child pornography), found that 60% percent also used pornography that depicted sexual acts with animals, excrement, or brutality; 33% consumed at least three or more types of deviant pornography. Researchers also found that those convicted for possessing child sexual abuse images were more likely to subscribe to commercial websites containing legal (according to Swiss law) pornographic material (19% vs. 4%).<sup>29</sup>

- **Intent to Rape:** Fraternity men who consumed *mainstream* pornography expressed a greater intent to commit rape if they knew they would not be caught than those

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<sup>26</sup> Farley et al., "Comparing Sex Buyers with Men Who Don't Buy Sex: 'You Can Have a Good Time with the Servitude' vs. 'You're Supporting a System of Degradation.'" Paper presented at Psychologists for Social Responsibility Annual Meeting July 15, 2011, Boston, MA. San Francisco: Prostitution Research & Education (2011).

<sup>27</sup> Steven Stack, Ira Wasserman, and Roger Kern, "Adult Social Bonds and Use of Internet Pornography," *Social Science Quarterly* 85 (2004): 75–88; Martin A. Monto and Nick McRee, "A Comparison of the Male Customers of Female Street Prostitutes With National Samples of Men," *International Journal of Offender Therapy and Comparative Criminology* 49, no. 5 (2005): 505–529; Martin A. Monto, "Summary Report for National Institute of Justice Grant #97-IJ-CX-0033 'Focusing on the Clients of Street Prostitutes: A Creative Approach to Reducing Violence Against Women'" (October 30, 1999); Durchslag, *ibid*.

<sup>28</sup> Kathryn C. Seigfried-Spellar and Marcus K. Rogers, "Does Deviant Pornography Use Follow a Guttman-like Progression," *Computers in Human Behavior* 29 (2013): 1997–2003.

<sup>29</sup> Endrass et al., "The Consumption of Internet Child Pornography and Violent and Sex Offending," *BMC Psychiatry* 9, no. 43 (2009).



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who did not consume pornography. Those who consumed *sadomasochistic* pornography expressed significantly less willingness to intervene in situations of sexual violence, greater belief in rape myths, and greater intent to commit rape. Among those who consumed *rape-themed* pornography, the researchers described “serious effects” including less bystander willingness to intervene, greater belief in rape myth, and greater intent to commit rape. In other words, there was *no* type of pornography that did not result in a greater intent to commit rape by a user if they knew they would not be caught.<sup>30</sup>

- **Pornography as a Form of Sexual Exploitation:** “Pornography may meet the legal definition of trafficking to the extent that the pornographer recruits, entices, or obtains the people depicted in pornography for the purpose of photographing commercial sex acts.”<sup>31</sup>

## Impact on Adolescents

- **Harm to Young Brains:** A survey of 813 U.S. teens and young adults (13–25), found that 26% of adolescents aged 13–17 actively seek out pornography weekly or more often.<sup>32</sup> Research has demonstrated that children are more susceptible than adults to addictions and to developmental effects on the brain.<sup>33</sup>
- **Emotional Bond with Caregivers:** A nationally representative survey of youth ages 9–17 reported that online pornography users were significantly more likely to report a poor emotional bond with their caregiver than adolescents who viewed pornography offline or not at all.<sup>34</sup> A poor emotional bond between caregiver and child is also associated with sexually aggressive behavior.<sup>35</sup>

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<sup>30</sup> Foubert, *ibid.*

<sup>31</sup> Farley et al., “Comparing Sex Buyers with Men Who Do Not Buy Sex: New Data on Prostitution and Trafficking,” *Journal of Interpersonal Violence*, (2015).

<sup>32</sup> Barna Group, *The Porn Phenomenon: The Impact of Pornography in the Digital Age*, (Ventura, CA: Josh McDowell Ministry, 2016).

<sup>33</sup> Frances E. Jensen with Amy Ellis Nutt, *The Teenage Brain: A Neuroscientist’s Survival Guild to Raising Adolescents and Young Adults*, (New York: Harper Collins, 2015); Tamara L. Doremus-Fitzwater, Elena I. Varlinskaya, and Linda P. Spear, “Motivational Systems in Adolescence: Possible Implications for Age Differences in Substance Abuse and Other Risk-Taking Behaviors,” *Brain and Cognition* 71, no. 1 (2010):114–123.

<sup>34</sup> Michele L. Ybarra and Kimberly Mitchell, “Exposure to Internet Pornography among Children and Adolescents: A National Survey,” *CyberPsychology & Behavior* 8, no. 5 (2005): 473–486.

<sup>35</sup> *Ibid.*



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- **Women as Sex Objects:** Internet pornography is shown to normalize the notion that women are sex objects among both adolescent boys and girls.<sup>36</sup>
- **Sexual Uncertainty and Casual Sexual Exploration:** More frequent use of sexually explicit Internet material is shown to foster greater sexual uncertainty in the formation of sexual beliefs and values, as well as a shift away from sexual permissiveness with affection to attitudes supportive of uncommitted sexual exploration.<sup>37</sup>
- **Sending Sexually Explicit Images:** A survey of 4,564 adolescents aged 14–17 in five European countries found that viewing Internet pornography is significantly associated with an increased probability of having sent sexual images and messages (sexting) among boys.<sup>38</sup> A separate survey of 617 college freshman found that 30% of participants sent nude pictures at some time during high school; 45% had received nude pictures on their cell phones. The most important motivation for sexting was coercion such as blackmail or threats. About half of all sexting may be coercive.<sup>39</sup>

In a systematic review and meta-analysis of 14 cross-sectional studies about young people aged 10-24 years, sexting was strongly correlated with having had sexual intercourse, recent sexual activity, alcohol and other drug use before sexual intercourse, as well as having multiple recent sexual partners.<sup>40</sup>

- **Risky Sexual Behaviors:** Internet pornography use is linked to increases in problematic sexual activity at younger ages, and a greater likelihood of engaging in risky

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<sup>36</sup> Jochen Peter and Patti Valkenburg, "Adolescent's Exposure to a Sexualized Media Environment and Their Notions of Women as Sex Objects," *Sex Roles* 56 (2007): 381–395; Jane D. Brown and Kelly L. L'Engle, "X-Rated: Sexual Attitudes and Behaviors Associated with U.S. Early Adolescents' Exposure to Sexually Explicit Media," *Communication Research* 36, no. 1 (February 2009): 129–151.

<sup>37</sup> Jochen Peter and Patti M. Valkenburg, "Adolescents' Exposure to Sexually Explicit Internet Material, Sexual Uncertainty, and Attitudes toward Uncommitted Sexual Exploration, Is There a Link?" *Communications Research* 35, no. 5 (2008): 579–601.

<sup>38</sup> Nicky Stanley et al., "Pornography, Sexual Coercion and Abuse and Sexting in Young People's Intimate Relationships: A European Study," *Journal of Interpersonal Violence* (2016): 1–26.

<sup>39</sup> Elizabeth Englander, *Low Risk Associated with Most Teenage Sexting: A Study of 617 18-Year-Olds*, (Massachusetts Aggression Reduction Center, 2012).

<sup>40</sup> Lucy Watchirs Smith, Bette Liu, Louisa Degenhardt, Juliet Richters, George Patton, Handan Wand, Donna Cross, et al., "Is Sexual Content in New Media Linked to Sexual Risk Behaviour in Young People? A Systematic Review and Meta-Analysis," *Sexual Health*, August 11, 2016, doi:10.1071/sh16037.



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sexual behavior, such as hookups, multiple sex partners, anal sex, group sex, and using substances during sex as young adolescents.<sup>41</sup> A recent UK survey found that 44% of males aged 11–16 who viewed pornography reported that online pornography gave them ideas about the type of sex they wanted to try.<sup>42</sup>

- **Physical and Sexual Victimization:** A nationally representative survey of pornography use among youth aged 9–17, found that those with increased exposure to Internet pornography were significantly more likely to report physical and sexual victimization.<sup>43</sup>
- **Association with Adolescent Delinquency, Sexually Aggressive/Coercive, and Other Criminal Behavior:** A 36-month longitudinal study published in 2011 surveyed 1,588 youth (ages 10-15 years old) about their exposure to “X-rated” material and linkages to sexually aggressive behavior. Participants were 49% male, 51% female, and an average of 12.6 years old. The survey consisted of questions about their exposure to X-rated material, the medium of exposure (online, magazine, etc.), and sexual behaviors the youth engaged in. Results found that:
  - Exposure to pornography was relatively common with 23% of youth reporting intentional exposure to X-rated material. The researchers noted that prevalence rates were likely underestimates of actual behaviors.
  - Youth who reported intentional exposure to violent X-rated material over time were nearly six times more likely than those who did not consume X-rated material to self-report sexually aggressive behavior. This association

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<sup>41</sup> Debra K. Braun-Courville and Mary Rojas, “Exposure to Sexually Explicit Web Sites and Adolescent Sexual Attitudes and Behaviors,” *Journal of Adolescent Health* 45 (2009): 156–162; C. Marston and R. Lewis, “Anal Heterosex among Young People and Implications for Health Promotion: A Qualitative Study in the UK,” *BJM Open* 4 (February 4, 2016): 1–6; Emily R. Rothman, et al., “Multi-Person Sex among a Sample of Adolescent Female Urban Health Clinic Patients,” *Journal of Urban Health: Bulletin of the New York Academy of Medicine* 89, no. 1 (2011): 129–137; E. Häggström-Nordin, U. Hanson, and T. Tydén, “Association between Pornography Consumption and Sexual Practices among Adolescents in Sweden,” *International Journal of STD & AIDS* 16 (2005): 102–107.

<sup>42</sup> Elena Martellozzo et al., “‘I Wasn’t Sure It Was Normal To Watch It . . .’ A Quantitative and Qualitative Examination of the Impact of Online Pornography on the Values, Attitudes, Beliefs and Behaviours of Children and Young People,” London: Middlesex University (2016), [https://www.mdx.ac.uk/\\_data/assets/pdf\\_file/0021/223266/MDX-NSPCC-OCC-pornography-report.pdf](https://www.mdx.ac.uk/_data/assets/pdf_file/0021/223266/MDX-NSPCC-OCC-pornography-report.pdf) (accessed August 7, 2016).

<sup>43</sup> Ybarra, *ibid.*



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remained significant even after controlling for other factors that may contribute to sexually aggressive behavior (e.g., sexual aggression victimization, alcohol and drug use, witnessing family violence, and general aggressive behavior). The study hypothesized that “viewing pornography that portrays sexual aggression as rewarding may reinforce an individual’s own proclivity toward sexually aggressive behavior.”<sup>44</sup>

- In a meta-analysis of eight studies, male adolescent sex offenders reported more exposure to sex or pornography than non-sex offenders.<sup>45</sup>
- A study of sexually reactive children and adolescents (SRCAs) found that those who used pornography compared to those who did not use pornography were more likely to engage in a prominent pattern of lying, a persistent pattern of theft/stealing, to be truant, to frequently con/manipulate others, to engage in arson/fire setting behaviors, to engage in coerced vaginal penetration and forced sexual acts such as oral or digital penetration, to express sexually aggressive remarks (obscenities), and to engage in sex with animals.<sup>46</sup> Other research also demonstrates an association between pornography consumption and adolescent delinquent behavior.<sup>47</sup>
- **Impact of Young Exposure:** Research has found that among males the younger their age of first exposure to pornography, the higher their current consumption of pornography, as well as their greater integration of pornography into sexual activity, and less enjoyment of partnered sex.<sup>48</sup>
- **Future Use of Deviant Pornography:** A 2013 survey of a general population of Internet pornography users revealed that those who intentionally sought pornogra-

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<sup>44</sup> Michele L. Ybarra, Kimberly J. Mitchell, Merle Hamburger, et al., “X-Rated Material and Perpetration of Sexually Aggressive Behavior among Children and Adolescents: Is There a Link?” *Aggressive Behavior* 37 (2011): 1–18, doi: 10.1002/ab.20367.

<sup>45</sup> Michael C. Seto and Martin L. Lalumière, “What Is So Special About Male Adolescent Sexual Offending? A Review and Test of Explanations through Meta-Analysis,” *Psychological Bulletin* 136, no. 4 (2010): 526–575.

<sup>46</sup> Eileen M. Alexy, Ann W. Burgess, and Robert A. Prentky, “Pornography Use as a Risk Marker for an Aggressive Pattern of Behavior among Sexually Reactive Children and Adolescents,” *Journal of the American Psychiatric Nurses Association* 14, no. 4 (2009): 442–453.

<sup>47</sup> Ybarra, *ibid.*

<sup>48</sup> Sun, *ibid.*



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phy at a younger age were significantly more likely to be users of pornography exhibiting the sexual abuse of animals and children.<sup>49</sup>

- **Sex with Younger Adolescents:** In a cross-sectional study of 710 Norwegian 18- to 19-year-olds, 19.1% of males who indicated some likelihood of having sex with a 13- to 14-year old also reported more high-frequency use of pornography and having more friends with an interest in child pornography and violent pornography.<sup>50</sup>
- **Sexual Satisfaction:** In a longitudinal study of 1,052 Dutch adolescents aged 13-20, research revealed that exposure to sexually explicit Internet material consistently reduced adolescents' satisfaction with their sexual lives. The negative influence of sexually explicit Internet material was equally strong among both males and females.<sup>51</sup>

### Impact on Females

- **Negative Body Image and Pressure to Perform Pornographic Acts:** As a result of viewing pornography, women reported lowered body image, criticism from their partners regarding their bodies, increased pressure to perform acts seen in pornographic films, and less actual sex. Men reported being more critical of their partner's body and less interest in actual sex.<sup>52</sup>
- **Acceptance of Rape Myths:** Women who were exposed to pornography as children were more likely to accept rape myths and to have sexual fantasies that involved rape.<sup>53</sup>

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<sup>49</sup> Seigfried-Spellar, *ibid.*

<sup>50</sup> Kristinn Henga, Svein Mossige, and Lars Wichstrom, "Older Adolescents' Positive Attitudes toward Younger Adolescents as Sexual Partners," *Adolescence* 39, no. 156, (2004): 627–651.

<sup>51</sup> Jochen Peter and Patti M. Valkenburg, "Adolescents' Exposure to Sexually Explicit Internet Material and Sexual Satisfaction: A Longitudinal Study" *Communications Research* 35, no. 5 (2009): 171–194. doi:10.1111/j.1468-2958.2009.01343.x.

<sup>52</sup> Julie M. Albright, "Sex in America Online: An Exploration of Sex, Marital Status, and Sexual Identity in Internet Sex Seeking and Its Impacts," *Journal of Sex Research* 45 (2008): 175–186, doi: 10.1080/00224490801987481.

<sup>53</sup> Shawn Corne, John Briere, and Lillian M. Esses, "Women's Attitudes and Fantasies about Rape as a Function of Early Exposure to Pornography," *Journal of Interpersonal Violence* 7, no. 4 (1992): 454–461.



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- **Domestic Violence & Sexual Abuse:** The use of pornography by batterers significantly increased a battered woman's odds of being sexually abused. Pornography use alone increased the odds by a factor of almost 2, and the combination of pornography and alcohol increased the odds of sexual abuse by a factor of 3.<sup>54</sup> Other research has found that pornography use by batterers is associated with learning about sex through pornography, imitation of behaviors seen in pornography, comparison of women to pornography performers, introduction of other sexual partners, filming sexual acts without consent, and the broader culture of pornography (e.g., fetishes).<sup>55</sup>
- **Increased Marital Rape:** Males who use pornography and go to strip clubs were found to engage in more sexual abuse, stalking, and marital rape than abusers who did not use pornography and go to strip clubs.<sup>56</sup>
- **Sexual Satisfaction and Softcore Pornography:** In a cross-sectional study of 200 sexually active married women, women who did not watch soft-core pornography were more satisfied with their sexual life when compared to their counterparts. Researchers also found that soft-core pornography affects the sex lives of females by increasing sexual boredom in both men and women, causing relational difficulties.<sup>57</sup>
- **Anal Sex:** Women who reported an experience of anal sex were more likely to watch pornography more frequently than those who had not.<sup>58</sup>
- **Sexually Aggressive Behavior:** Girls who reported consumption of violent X-rated material were equally likely as boys to report sexually aggressive behavior. The longitudinal study showed that girls and boys were more than five times more likely to exhibit sexually aggressive behavior if violent X-rated material consumption was reported. The researchers suggested that X-rated material may have a similar effect

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<sup>54</sup> Janet Hinson Shope, "When Words Are Not Enough: The Search for the Effect of Pornography on Abused Women," *Violence Against Women* 10, no. 1 (2004): 56–72.

<sup>55</sup> Walter S. DeKeseredy and Amanda Hall-Sanchez, "Adult Pornography and Violence against Women in the Heartland: Results from a Rural Southeast Ohio Study," *Violence against Women* (May 2016), 1–20.

<sup>56</sup> C. Simmons, P. Lehmann, and S. Collier-Tenison, "Linking Male Use of the Sex Industry to Controlling Behaviors in Violent Relationships: An Exploratory Analysis," *Violence Against Women* 14, no. 4 (2008): 406–417.

<sup>57</sup> Abd El-Rahman, Eman M. Sanad, and Hanaa H. Bayomy, "Effect of Soft-Core Pornography on Female Sexuality," *Human Andrology* 6, no. 2 (June 2016): 60–64, doi:10.1097/01.xha.0000481895.52939.a3.

<sup>58</sup> Lim, et al., *ibid.*

regardless of sex and that studies examining sexual violence perpetration among youth should ask both boys and girls questions about perpetration as well as victimization experiences.<sup>59</sup>

## Impact on Males

- **Lower Sexual Satisfaction and Sexual Dysfunction:** A 2015 study of online sexual activities among males found 20.3% reported that “one motive for their porn use was to maintain arousal with their partner.” It also found that pornography use was linked to higher sexual desire, but lower overall sexual satisfaction, and lower erectile function.<sup>60</sup> Other research has correlated pornography use with “negative effects on partnered sex, decreased enjoyment of sexual intimacy, less sexual and relationship satisfaction.”<sup>61</sup>
- **Negative Body Image:** A 2015 study found that men’s frequency of pornography use is positively linked to body image insecurity regarding muscularity and body fat, and to increased anxiety in romantic relationships.<sup>62</sup>
- **Pornography Induced Erectile Dysfunction:** Historically, erectile dysfunction (ED) has been viewed as an age-dependent problem, with rates in men ages 18–59 as low as 2–5%.<sup>63</sup> In the early 2000s, the Global Study of Sexual Attitudes and Behavior (GSSAB) reported that the ED rate among men aged 40–80 was approximately 13%.<sup>64</sup> In 2011, among males aged 18–40 the GSSAB found ED rates of 14–28%.<sup>65</sup> This dramatic increase in ED rates among young men coincides with the sharp increase in the availability and accessibility of Internet pornography tube sites.

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<sup>59</sup> Ybarra, et al., 2011.

<sup>60</sup> Aline Wéry and Joel Billieux, “Online Sexual Activities: An Exploratory Study of Problematic and Non-Problematic Usage Patterns in a Sample of Men,” *Computers in Human Behavior* 56 (2016): 257–266.

<sup>61</sup> Brian Y. Park et al., “Is Internet Pornography Causing Sexual Dysfunctions? A Review with Clinical Reports,” *Behavioral Sciences* 6, no. 17 (2016): 1–25.

<sup>62</sup> Wéry, *ibid.*

<sup>63</sup> Park, *ibid.*

<sup>64</sup> Alfredo Nicolosi et al., “Sexual Behavior and Sexual Dysfunctions after Age 40: The Global Study of Sexual Attitudes and Behaviors,” *Urology* 64 (2004): 991–997.

<sup>65</sup> Ivan Landripet and Aleksandar Štulhofer, “Is Pornography Use Associated with Sexual Difficulties and Dysfunctions among Younger Heterosexual Men?” *The Journal of Sexual Medicine* 12 (2015): 1136–1139.



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A 2-year longitudinal study of sexually active young males (n=180) aged 16–21 published in 2016 (which did not assess pornography use), found high rates of sexual dysfunction among young males. Specifically, the study found:

- low sexual satisfaction (47.9%)
- low desire (46.2%)
- problems in erectile function (45.3%)<sup>66</sup>

Another study reported that one in four patients seeking medical help for new onset ED were under 40, with severe ED rates being 10% higher than those in men over 40.<sup>67</sup>

A study on men (mean age 36) seeking help for excessive sexual behavior—frequent use of pornography and masturbation—found that ED combined with low desire for partnered sex is a common observation in clinical practice.<sup>68</sup>

An investigation examining subgroups of men struggling with sexual compulsivity, found that among those who reported seven or more hours of pornography viewing (or seven episodes of masturbation) per week, 71% reported sexual dysfunctions, and 33% reported delayed ejaculation.<sup>69</sup>

A Cambridge University study that was evenly divided between men with compulsive sexual behavior (CSB) and those without, found that 60% of those with CSB experienced diminished libido or erectile function in physical relationships with women.<sup>70</sup>

In a study of gay men recruited from bathhouses, bars, and STI clinics, 50% of the men (average age 29) reported erectile dysfunction with video pornography. The

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<sup>66</sup> Lucia F. O’Sullivan et al., “A Longitudinal Study of Problems in Sexual Functioning and Related Sexual Distress among Middle to Late Adolescents,” *The Journal of Adolescent Health* 59 (2016): 318–324.

<sup>67</sup> Paolo Capogrosso, et al., “One Patient Out of Four with Newly Diagnosed Erectile Dysfunction Is a Young Man—Worrisome Picture from the Everyday Clinical Practice,” *The Journal of Sexual Medicine* 10 (2013): 1833–1841.

<sup>68</sup> Verena Klein, Tanja Jurin, Peer Briken, and Aleksandar Štulhofer, “Erectile Dysfunction, Boredom, and Hypersexuality among Couple Men from Two European Countries,” *The Journal of Sexual Medicine* 12, no. 11 (2015): 2160–2167.

<sup>69</sup> Katherine S. Sutton et al., “Patient Characteristics by Type of Hypersexuality Referral: A Quantitative Chart Review of 115 Consecutive Male Cases,” *Journal of Sex & Marital Therapy* 41, no. 6 (2015): 563–580.

<sup>70</sup> Valerie Voon et al., “Neural Correlates of Sexual Cue Reactivity in Individuals with and without Compulsive Sexual Behaviors,” *PLOS ONE* 9, no. 7 (2014): 1–10.



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men spent considerable amounts of time in environments where pornography was omnipresent and continuously playing. The men explained that high exposure to sexually explicit media resulted in a lower responsiveness to “vanilla sex” media and an increased need for novelty and variation. This is evidence of tolerance, a key indicator of addiction. Researchers revised the experiment allowing the men to choose many more varieties of pornography. In the new experiment, 25% of men still could not become aroused to the pornography of their choice.<sup>71</sup>

In a clinical study of 35 men with erectile dysfunction or anorgasmia, a French psychiatrist found that addictive masturbation is often associated with cyber-pornography. Most of the men viewed pornography, and some were addicted to it, with the study pointing to it as a key player in these problems. With treatment, which included the removal of pornography, participants saw a reduction of symptoms and were able to enjoy satisfactory sexual activity.<sup>72</sup>

- **Correlated to Male Sexual Objectification of Women and Attitudes Supporting Violence against Women:** Among collegiate men, frequency of exposure to men’s lifestyle magazines, reality TV programs that objectify women, and pornography, predicted more objectified cognitions about women and stronger attitudes supportive of violence against women.<sup>73</sup>
- **Risky Behaviors and Other Harms:** For males, increased pornography use is correlated with more sex partners, more alcohol use, more binge drinking, greater acceptance of sex outside of marriage for married individuals, greater acceptance of sex before marriage, and less child centeredness during marriage.<sup>74</sup>
- **Pornography as Sex Ed:** A study of male high school seniors in Sweden found that nearly 70% of those who frequently used pornography reported that pornography

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<sup>71</sup> Erick Janssen. *The Psychophysiology of Sex*. Bloomington: Indiana University Press, 2007.

<sup>72</sup> R. Porto, “Habitudes Masturbatoires et Dysfonctions Sexuelles Masculines,” *Sexologies* 25, no. 4 (August 17, 2016): 160-65, doi:10.1016/j.sexol.2016.03.004.

<sup>73</sup> Paul J. Wright and Robert S. Tokunaga, “Men’s Objectifying Media Consumption, Objectification of Women, and Attitudes Supportive of Violence against Women,” *Archives of Sexual Behavior* 45, no. 4 (2015): 955–64, doi: 10.1107/s10508-015-0644-8.

<sup>74</sup> Jason S. Carroll et al., “Generation XXX: Pornography Acceptance and Use Among Emerging Adults,” *Journal of Adolescent Research* 23, no. 1 (2008): 6–30; Svedin, *ibid*.



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made them want to try out what they had seen compared to 42% of boys in a reference group.<sup>75</sup> Frequent users of pornography viewed all forms of pornography more often, especially advanced or more deviant forms of pornography including violence and sexual abuse of children and animals.<sup>76</sup>

- **Sexual Harassment and Coercion:** A study of 804 Italian males and females aged 14 to 19, found that males who viewed pornography were significantly more likely to report having sexually harassed a peer or forcing someone to have sex.<sup>77</sup>
- **Psychological Symptoms:** An online survey of 71 homosexual males showed strong correlations between cybersex addiction symptoms and indicators of coping by sexual behaviors and psychological symptoms. These psychological symptoms included emotional avoidance, loss of control/time management, and social problems.<sup>78</sup>
- **Addiction:** In a study of 360 undergraduate students in the United States, researchers discovered a significant correlation between being male and being clinically addicted to cybersex, with 19% of men in the sample scoring in the clinical range.<sup>79</sup>

A study analyzing the brainwaves of 52 men aged 18-30 found that pornography use may downregulate sexual arousal—i.e., cause habituation or desensitization. These symptoms are signs of addiction.<sup>80</sup>

- **Interpersonal Satisfaction:** In a meta-analysis of fifty studies encompassing cross-sectional and longitudinal surveys, as well as experimental research methods, pornography consumption was associated with lower interpersonal outcomes. The meta-analysis, which collectively included more than 50,000 participants from 10 countries, revealed a significant negative association between pornography consumption and interpersonal satisfaction. Specifically, male viewers of pornography reported significantly lower sexual and relational satisfaction.<sup>81</sup>

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<sup>75</sup> Svedin, *ibid.*

<sup>76</sup> *Ibid.*

<sup>77</sup> Bonino, *ibid.*

<sup>78</sup> Christian Laier, Jaro Pekal, and Matthias Brand, "Sexual Excitability and Dysfunctional Coping Determine Cybersex Addiction in Homosexual Males," *Cyberpsychology, Behavior, and Social Networking* 18, no. 10 (2015): 575–80.

doi:10.1089/cyber.2015.0152.

<sup>79</sup> Amanda L. Giordano and Craig S. Cashwell, "Cybersex Addiction among College Students: A Prevalence Study," *Sexual Addiction & Compulsivity*, 2017, 1-11, doi:10.1080/10720162.2017.1287612.

<sup>80</sup> Sajeew Kunaharan et al., "Conscious and Non-Conscious Measures of Emotion: Do They Vary with Frequency of Pornography Use?" *Applied Sciences* 7, no. 5 (2017): 493, doi:10.3390/app7050493.

<sup>81</sup> Paul J. Wright, Robert S. Tokunaga, Ashley Kraus, and Elyssa Klannm, "Pornography Consumption and Satisfaction: A



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- **Impulsivity/Discounting Long-term Consequences:** In a study of 122 undergraduate students, male participants exposed to pictures of “sexy” women were more likely to discount the future (i.e., a tendency to prefer smaller, immediate gains to larger, future ones) and were more inclined to make cyber-delinquent choices (e.g., cyberbullying, cyber fraud, cyber theft, and illegal downloading), compared with those exposed to less sexy opposite-sex pictures. In a second experiment within the same study of 72 males, participants exposed to sexual primes showed a greater willingness to purchase a wide range of counterfeit rather than authentic products online and experienced a higher likelihood of logging into the other person’s Facebook webpage (i.e., invading online privacy). These sexual primes may engender a “short-sighted” self-state in men, which leads to them yielding to short-term gains while failing to consider the long-term costs of delinquent behavior.<sup>82</sup>

## Impact on Mental Health

- **Loneliness:** The results of a study revealed that the association between loneliness and viewing pornography was positive and significant. Survey data of 1,247 participants seeking help for pornography use, revealed that those who viewed pornography were more likely to experience loneliness, and that those who were experiencing loneliness were more likely to view pornography.

The researchers explained:

*Conceptualizing the potential for pornography viewing and the sexual response to be employed as a maladaptive coping strategy fits the behavioral and psychological contours of addiction. The sexual response cycle, with its twin aspects of intense, preoccupying physical pleasure during the arousal phase, followed by comforting, soothing experience during the resolution phase, mediated by the brain’s dopaminergic reward structure in part by oxytocin, allows for the possibility of a two-stage drug-like experience providing both euphoric and narcotic brain effects, permitting temporary escape into “fantasy” and/or “obliviousness” to real-world concerns and stressors. A person may experience palliative relief from distressing experience through the preoccupying, distracting euphoria or fantasy accompanying pornography and sexual arousal. Pornography use readily becomes a tightly*

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Meta-Analysis,” *Human Communication Research*, 2017, doi:10.1111/hcre.12108.

<sup>82</sup> Wen Cheng, and Wen-Bin Chiou, “Exposure to Sexual Stimuli Induces Greater Discounting Leading to Increased Involvement in Cyber Delinquency among Men,” *Cyberpsychology, Behavior, and Social Networking*, 2017, doi:10.1089/cyber.2016.0582.



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*integrated component of that recurring compulsive, addictive pattern. In this manner, pornography may provide a self-soothing, autoerotic narcosis from real life circumstances, an experience that mirrors a drug-like intoxication. . . .*

*Emotional attachment, and other demands of relational pair-bond sexuality help ground sexual expression and can help circumvent (though not entirely) it being formed and fitted to maladaptive purpose and addictive use. . . .*

*Pornography use that is only temporarily palliative while failing to address root causes of loneliness, and which in turn intensifies triggering conditions qualifies as a maladaptive coping strategy.<sup>83</sup>*

- **Mood & Anxiety Disorder/Impulse-control Disorders:** In a U.S. study utilizing a convenience sample of 103 male patients seeking treatment for compulsive pornography use and sexual promiscuity, 70% self-identified as gay, 17% heterosexual, 6% bisexual, and 8% transgendered. More than half (51.5%) reported only using pornography compulsively, and the remainder (48.5%) reported compulsive pornography use and frequent anonymous sex with strangers. Using results from a scale of compulsivity adapted for compulsive sexual behavior, researchers found that two-thirds of the men reported moderate to severe levels of obsessive and compulsive symptoms related to their underlying pornography use or sex with strangers. Similar to other studies, this study found frequent co-occurring mood (71%), anxiety (40%), substance-use (41%), and impulse-control disorders such as pathological gambling (24%) among patients. The researchers therefore stress the importance of careful psychiatric assessment of individuals with compulsive sexual behavior, and screening for CSB in psychiatric patients.<sup>84</sup>
- In a cross-sectional study of 792 emerging adults from college campuses, researchers observed that higher pornography use was significantly associated with less self-worth and more depressive symptoms. This was consistent after controlling for age, religiosity, impulsivity, race, and parent's marital status.<sup>85</sup>

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<sup>83</sup> Mark H. Butler et al., "Pornography Use and Loneliness: A Bi-Directional Recursive Model and Pilot Investigation," *Journal of Sex & Marital Therapy*, March 7, 2017, doi:10.1080/0092623x.2017.1321601.

<sup>84</sup> Shane W. Kraus, Marc N. Potenza, Steve Martino, and Jon E. Grant, "Examining the Psychometric Properties of the Yale-Brown-Obsessive-Compulsive Scale in a Sample of Compulsive Pornography Users," *Comprehensive Psychiatry* 59 (2015): 117–122, doi: 10.1016/j.comppsy.2015.02.007.

<sup>85</sup> Brian J. Willoughby et al., "Associations between Relational Sexual Behaviour, Pornography Use, and Pornography Acceptance among US College Students," *Culture, Health & Sexuality* 16, no. 9 (2014): 1052–69, doi:10.1080/13691058.2014.927075.



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- A study in Australia of 941 15–29 year olds reported that those who reported mental health problems during the previous six months were 65% more likely to report watching pornography less than monthly and 52% more likely to watch pornography weekly or more frequently compared to those that did not report mental health problems.<sup>86</sup>

### Impact on the Brain/Evidence of Addiction

- **Detrimental Impacts on the Brain:** Since 2011, there have been 30 peer-reviewed studies which reveal pornography use has negative and detrimental impacts on the brain.<sup>87</sup>
- **Similarity to Substance or Behavioral Addictions:** A functional MRI (fMRI) study of men seeking clinical treatment for problematic pornography use (PPU) found that those with pornography addictions share similar brain reactions to other behavioral addictions such as gambling or substance abuse. PPU is often accompanied by excessive masturbation and is a form of compulsive sexual behavior. Researchers also extrapolated that, when compared to those addicted to gambling or drugs, problematic pornography users experience more powerful and faster conditioning to anything associated with their use (computer, being alone, pop-ups, etc.).<sup>88</sup>

In a fMRI study of 23 men with problematic hypersexual behavior (PHB) and 22 men without PHB, researchers found alterations and activation patterns in the prefrontal cortex which matched those observed in drug addicts. They had greater cue-reactivity (i.e. physiological and subjective reactions to presentations of addiction-related stimuli) to sexual images, yet inhibited response to other normal stimuli.<sup>89</sup>

In a study of 20 men with compulsive sexual behavior (CSB) and 20 men without CSB, the neural correlates of appetitive conditioning and neural connectivity were

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<sup>86</sup> Lim, et al., *ibid.*

<sup>87</sup> Your Brain on Porn, "Brain Studies on Porn Users," (2014) <http://yourbrainonporn.com/brain-scan-studies-porn-users> (accessed July 13, 2016).

<sup>88</sup> Mateusz Gola et al., "Can Pornography be Addictive? An fMRI Study of Men Seeking Treatment for Problematic Pornography Use," *Neuropsychopharmacology*, 2017, doi:10.1038/npp.2017.78.

<sup>89</sup> Ji-Woo Seok, and Jin-Hun Sohn, "Neural Substrates of Sexual Desire in Individuals with Problematic Hypersexual Behavior," *Frontiers in Behavioral Neuroscience* 9 (November 30, 2015), doi:10.3389/fnbeh.2015.00321.



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altered in the CSB group. According to the researchers, the first alteration—heightened amygdala activation—might reflect facilitated conditioning (greater “wiring” to previously neutral cues predicting porn images). The second alteration—decreased connectivity between the ventral striatum and the prefrontal cortex—could be a marker for impaired ability to control impulses. The findings of greater amygdalar activation to cues (sensitization) and decreased connectivity between the reward center and the prefrontal cortex (hypofrontality) are two of the major brain changes seen in substance addiction.<sup>90</sup>

- **Decreased Brain Matter in the Right Caudate of the Caudate Nucleus:** A 2014 fMRI study of 64 pornography users found that increased pornography use (i.e. pornography dosage) is linked to decreased grey matter in brain regions associated with motivation and to less brain activation for sexual images. The authors speculate that the brain structural volume deficit and reduced activation “may reflect the results of tolerance after desensitization to sexual stimuli.”<sup>91</sup>
- **Enlargement of the Amygdala:** Structural MRI data comparing healthy adult males to those with compulsive sexual behaviors (CSB) concluded that there was increased volume of amygdala grey matter in the brains of those with CSB. The amygdala plays a key role in processing emotions, including response to stress, enlarging under moderate to severe stress. Perhaps the chronic stress related to compulsive porn use stimulates amygdala hypertrophy. The study also reported poorer connectivity between the amygdala and the prefrontal cortex, mirroring findings in drug addicts, reflecting reduced ability to control impulsive behaviors.<sup>92</sup>
- **Hijacks the Brain’s Reward System:** Motivation and reward are regulated by the mesolimbic system. There is ample evidence that the mesolimbic system is activated in response to both substance abuse and natural rewards such as sex.<sup>93</sup> Addiction occurs when the pleasure/rewards pathways of the brain are hijacked by drugs

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<sup>90</sup> Tim Klucken et al., “Altered Appetitive Conditioning and Neural Connectivity in Subjects with Compulsive Sexual Behavior,” *The Journal of Sexual Medicine* 13, no. 4 (2016): 627–36, doi:10.1016/j.jsxm.2016.01.013.

<sup>91</sup> Simone Kühn and Jürgen Gallinat, “Brain Structure and Functional Connectivity Associated with Pornography Consumption,” *JAMA Psychiatry* 71, no. 7 (2014): 827–834.

<sup>92</sup> Casper Schmidt et al., “Compulsive Sexual Behavior: Prefrontal and Limbic Volume and Interactions,” *Human Brain Mapping* 38, no. 3 (October 27, 2016): 1182–190, doi:10.1002/hbm.23447.

<sup>93</sup> K.S. Frohmader et al., “Methamphetamine Acts on Subpopulations of Neurons Regulating Sexual Behavior in Male Rats,” *Neuroscience* 166, (2010): 771–784.



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such as cocaine or by natural process vital to survival such as eating and sex.<sup>94</sup> The constant novelty of Internet pornography, as well as properties such as violation of expectations, anticipation of reward, and the act of seeking (i.e. surfing) stimulate mesolimbic dopamine activity.<sup>95</sup>

Growing evidence suggests that pornography use hijacks the brain's reward system in the same way that drug use does. For instance, a study of 19 men with compulsive sexual behavior (CSB) and 19 men without CSB, the same brain activity pattern in pornography addicts (CSB subjects) was seen as in drug addicts and alcoholics. The study also identified a dissociation between desiring or wanting but not liking sexually explicit materials—a finding consistent with theories of incentive motivation underlying drug addiction.<sup>96</sup>

- **Interference and Desensitization:** A study of sexually active individuals found that higher sexual compulsivity scores correlated with greater interference (increased distraction) during a task. Additionally, more years of “compulsive sexual activity” lead to greater habituation or a general numbing of the pleasure response (desensitization).<sup>97</sup>
- **The Addiction Gets Worse:** Using functional MRI, a 2015 study from Cambridge found that compulsive sexual behavior is characterized by novelty-seeking, conditioning, and habituation to sexual stimuli in males—meaning users need more extreme content over time in order achieve the same level of arousal.<sup>98</sup>
- **Addictive Potential:** Longitudinal research has found that among Internet activities, searching for pornography has the most addictive potential and should be regarded as the most important risk factor for the development of Compulsive Internet Use (also referred to as Internet addiction).<sup>99</sup>

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<sup>94</sup> Donald L. Hilton, Jr., and Clark Watts, “Pornography Addiction: A Neuroscience Perspective.” *Surgical Neurology International* 2, no. 19 (2011). doi:10.4103/2152-7806.76977.

<sup>95</sup> Park, *ibid.*

<sup>96</sup> Voon, *ibid.*

<sup>97</sup> Ian P. Albery, et al., “Exploring the Relationship between Sexual Compulsivity and Attentional Bias to Sex-Related Words in a Cohort of Sexually Active Individuals,” *European Addiction Research* 23, no. 1 (November 14, 2016): 1–6, doi:10.1159/000448732.

<sup>98</sup> Voon, *ibid.*

<sup>99</sup> G.J. Meerkerk, R. J. J. M. V. D. Eijnden, and H.F.L. Garresten, “Predicting Compulsive Internet Use: It’s All about Sex!” *CyberPsychology & Behavior* 91, no. 9 (2006): 95–103.



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- **Working Memory Performance:** In a study of 28 healthy, heterosexual men, researchers found that viewing pornographic pictures significantly negatively affected working memory (WM) performance. WM performance was not significantly impacted by neutral pictures (e.g. unmoved faces, people at work, walking in a street), negative pictures (e.g. a mugging, a person with a weapon, harassment), nor positive pictures (e.g. laughing people, a bride, sport awards). WM is responsible for the short-term holding, processing, and manipulation of information. It is essential for understanding, reasoning, problem solving, learning and development of speech, and decision making.<sup>100</sup>

## Impact on Sexually Transmitted Infections

- **Pornography and STI's:** Pornography use among adult males in America is associated with increased engagement in sexual behaviors that increase the risk of STIs. Internet pornography consumption has been positively associated with having sex with multiple partners, engaging in paid sex, and having had extramarital sex.<sup>101</sup>
- **Increased STI's Among Adolescent Minority Females:** Exposure to X-rated movies among Black females 14 to 18 years old was associated with being more likely to have negative attitudes toward using condoms, to have multiple sex partners, to have sex more frequently, to have not used contraception during the last intercourse, to have not used contraception in the past 6 months, to have a strong desire to conceive, and to test positive for chlamydia.<sup>102</sup>
- **Condom Use:** In a systematic review and meta-analysis of cross-sectional studies about young people aged 10-24 years, exposure to sexually explicit websites was correlated with condomless sexual intercourse.<sup>103</sup>

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<sup>100</sup> Christian Laier, Frank P. Schulte, and Matthias Brand, "Pornographic Picture Processing Interferes with Working Memory Performance," *Journal of Sex Research* 50, no. 7 (2013): 642–52, doi:10.1080/00224499.2012.716873.

<sup>101</sup> Paul J. Wright and Ashley K. Randall, "Internet Pornography Exposure and Risky Sexual Behavior among Adult Males in the United States," *Computers in Human Behavior* 28 (2012): 1410–1416.

<sup>102</sup> Gina M. Wingood et al., "Exposure to X-Rated Movies and Adolescent's Sexual and Contraceptive-Related Attitudes and Behaviors," *Pediatrics* 107, no. 5 (2001): 1116–1119.

<sup>103</sup> Smith, *ibid.*

### Impact on Relationships and Sexual Behaviors

- **Earlier Sexual Debut, Multiple Partners, and Risky Sexual Practices:** Pornography consumption is linked to initiating sex at an earlier age, multiple sexual partners, more frequent practice of anal sex, use of psychoactive substances, and lack of protection against STIs.<sup>104</sup> Bulot, Leurent, and Collier (2015) report that, “All the work done in this area is in fact unanimous in concluding that pornography is a pervasive influence on young people.”<sup>105</sup>
- **Casual Sexual Behavior:** Longitudinal research has found that pornography exposure was associated with a nearly twofold increase in the odds of casual sexual behavior. This association was found even after controlling for age, ethnicity, religiosity, education, and gender. Casual sex increases the risk of undesirable outcomes such as physical and sexual aggression, STIs, and unwanted pregnancies.<sup>106</sup>
- **Dissatisfaction with Partners:** Research has demonstrated that the more pornography a man watches, the more likely he is to deliberately conjure images of pornography during sex to maintain arousal, and to experience decreased enjoyment of intimate behaviors with a partner.<sup>107</sup>

A separate cross-sectional study of 405 sexually active men and women who had viewed pornography, frequency of pornography consumption was directly related to a relative preference for pornographic rather than partnered sexual excitement. This preference, as well as devaluing sexual communication, was associated with less sexual satisfaction for both men and women.<sup>108</sup>

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<sup>104</sup> C. Bulot, B. Leurent, and F. Collier, “Pornography Sexual Behavior and Risk Behaviour at University,” *Sexologies* 24, (2015): 78–83; Debra K. Braun-Courville and Mary Rojas, *ibid*; Jane D. Brown and Kelly L. L’Engle, *ibid*; Elizabeth M. Morgan, “Associations between Young Adults’ Use of Sexually Explicit Materials and Their Sexual Preference, Behaviors, and Satisfaction,” *The Journal of Sex Research* 48, no. 6 (2011): 520–530; Shane W. Kraus and Brenda Russell, “Early Sexual Experiences: The Role of Internet Access and Sexually Explicit Material,” *Cyberpsychology & Behavior* 11, no. 2 (2008): 162–168.

<sup>105</sup> Bulot, Leurent, and Collier, *ibid*.

<sup>106</sup> Paul J. Wright, “A Longitudinal Analysis of US Adults’ Pornography Exposure. Sexual Socialization, Selective Exposure, and the Moderating Role of Unhappiness,” *Journal of Media Psychology* 24, no. 2 (2012): 67–76.

<sup>107</sup> Chyng Sun, Ana Bridges, Jennifer Johnason, and Matt Ezzell, “Pornography and the Male Sexual Script: An Analysis of Consumption and Sexual Relations,” *Archives of Sexual Behavior* 45, no. 4 (2014): 983–994.

<sup>108</sup> Paul J. Wright et al., “Associative Pathways between Pornography Consumption and Reduced Sexual Satisfaction,” *Sexual and Relationship Therapy*, (2017): 1-18, doi:10.1080/14681994.2017.1323076.



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- **Negative Impact on Marriage Formation:** Researchers report that declining rates of marriage formation bring demographic and socio-economic changes that negatively impact society, while marriage formation creates substantial socio-economic improvements. Pornography has been shown to significantly negatively impact marriage formation, and in light of robust controls, the effect is likely causal.<sup>109</sup>
- **Negative Impact on Marital Quality:** A longitudinal study of married couples found that those who used pornography more often reported lower satisfaction with their sex-life and decision-making as a couple. Pornography use was strongly and negatively related to marital quality over time. “The findings provide qualified support for the notion that more frequent pornography viewing—rather than simply being a proxy for the participants’ dissatisfaction with sex-life or marital decision-making—may negatively influence marital quality over time.”<sup>110</sup>
- **Extramarital Affairs:** A study found that persons who have had an extramarital affair were more than 3 times more apt to have used Internet pornography than ones who had lacked affairs.<sup>111</sup> Other research affirms that pornography consumption is associated with more positive attitudes towards extramarital affairs.<sup>112</sup>
- **Romantic Breakups:** A longitudinal study of Americans found those who viewed pornography at all in 2006 were nearly twice as likely as those who never viewed pornography to report experiencing a romantic breakup by 2012. Additionally, a statistically significant relationship was found between frequently viewing pornography and experiencing a breakup. Researchers also extrapolated that earlier pornography use significantly predicts relational instability, particularly for men.<sup>113</sup>

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<sup>109</sup> Michael Malcolm and George Naufal, “Are Pornography and Marriage Substitutes for Young men?” *Eastern Economic Journal* 42 (2016): 317–334.

<sup>110</sup> Samuel L. Perry, “Does Viewing Pornography Reduce Marital Quality Over Time? Evidence from Longitudinal Data,” *Archives of Sexual Behavior*, (2016).

<sup>111</sup> Steven Stack, Ira Wasserman, and Roger Kern, “Adult Social Bonds and Use of Internet Pornography,” *Social Science Quarterly* 85 (2004): 75–88.

<sup>112</sup> Paul J. Wright, Robert S. Tokunaga, and Soyoung Bae, “More Than a Dalliance? Pornography Consumption and Extramarital Sex Attitudes among Married U.S. Adults,” *Psychology of Popular Media Culture* 3, no. 2 (2014): 97–109.

<sup>113</sup> Samuel L. Perry and Joshua T. Davis, “Are Pornography Users More Likely to Experience A Romantic Breakup? Evidence from Longitudinal Data,” *Sexuality and Culture*, [https://www.academia.edu/32868948/Are\\_Pornography\\_Users\\_More\\_Likely\\_to\\_Experience\\_A\\_Romantic\\_Breakup\\_Evidence\\_from\\_Longitudinal\\_Data](https://www.academia.edu/32868948/Are_Pornography_Users_More_Likely_to_Experience_A_Romantic_Breakup_Evidence_from_Longitudinal_Data).



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- **Divorce Rates:** In a nationally representative longitudinal study, researchers found the probability of divorce roughly doubles for men and women who begin viewing pornography. Conversely, women who quit using pornography were significantly less likely to get divorced.<sup>114</sup>
- **Sexual Dissatisfaction:** In a study of 832 French men and women, researchers discovered that, even when controlling for perceived addiction to cyberpornography and overall sexual functioning, cyberpornography use was directly associated with sexual dissatisfaction. Additionally, cyberpornography use had a significant negative indirect effect on sexual satisfaction through increased sexual dysfunction and sexual avoidance. Sexual dysfunction encompassed the quality of sex drive, arousal, vaginal lubrication/penile erection, ability to reach orgasm, satisfaction from orgasm, and pain during sex.<sup>115</sup>

In a study of 15,246 Americans, a symmetrical relationship was revealed between men and women as a result of viewing pornography. Women reported more negative consequences, including: lowered body image; that their partner was more critical of their body; increased pressure to perform acts seen in pornography; and less actual sex. Meanwhile, men reported being more critical of their partners' bodies and less interest in actual sex. The findings also suggest that males are more likely to use Internet pornography as a solitary, autoerotic activity.<sup>116</sup>

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<sup>114</sup> Samuel L. Perry and Cyrus Schleifer, "Till Porn Do Us Part? A Longitudinal Examination of Pornography Use and Divorce," *The Journal of Sex Research*, 2017, 1-13, doi:10.1080/00224499.2017.1317709.

<sup>115</sup> Sarah Blais-Lecours et al., "Cyberpornography: Time Use, Perceived Addiction, Sexual Functioning, and Sexual Satisfaction," *Cyberpsychology, Behavior, and Social Networking* 19, no. 11 (2016): 649-55, doi:10.1089/cyber.2016.0364.

<sup>116</sup> Albright, *ibid.*

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