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Review Article

Internet pornography usage among today's adolescents: Clinical implications, assessment, and management

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Abstract

The youth of today is hooked to the Internet via various devices exploring a plethora of agencies, mostly in an unsupervised manner. The growing, inquisitive mind and body of adolescents pave an easy way of exposure to sexually explicit material on the internet. Traditionally, such acts are looked down upon and usually stigmatized in our society. This article purports to look into recent literature regarding the effect of Internet pornography on adolescents' sexual attitudes, behaviors, underlying neurobiological implications, and provide an overview of clinical assessment and current understandings about the management of this problematic behavior.

Keywords: Pornography, Adolescent, Internet.

Introduction

Adolescence is derived from the Latin word 'adolescere' meaning 'to grow up'. Uniquely characterized by a myriad of biological, psychological, and cognitive transitions, it is a critical period of human development. By 3 years of age, a child identifies their gender, followed by the subsequent understanding of gender role and gender-specific behaviors (Kar et al., 2015). Biological (genetic & neuro-hormonal), psychological (individual temperament or personality), vis-à-vis social (parenting, peer, and cultural) factors have a major role in the development of adolescent sexuality (Sales et al., 2013). A multitude of other factors- legal, spiritual, philosophical, political, ethical, moral values, etc. also play significant roles. One salient factor that shapes the sexual beliefs, attitudes, and behavior of today's media-saturated adolescents is sexually-explicit material (SEM) on digital media/ pornography.

The proliferation of internet-enabled technology over the last few decades has facilitated easy and ubiquitous access to the internet, bringing internet pornography to the mainstream. This has brought about a definite change in the way people encounter

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and consume SEM. Even though people of all ages are exposed to these, recent research shows a significant increase in the number of adolescents who are being exposed to SEM online, either accidentally or intentionally and they consume, create, as well as distribute SEM on the internet (Owens et al., 2012). Statistical data from numerous countries show that more than 90% of adolescents use the internet daily; their online activity being majorly unmonitored and portable (Owens et al., 2012). This ease of access to a plethora of sexually explicit material (SEM) combined with the lack of risk attenuation in most adolescents, underlines the important effects of internet pornography on adolescent sexuality. Because of the widespread easy access of SEM to this large vulnerable section of our societies, it becomes imperative to study its impact on adolescent sexuality in a systemic manner, because it plays an important role in cognitive, social, physical and emotional growth as well. This article aims to look into current literature elucidating the effect of problematic pornography usage on adolescent sexual behavior, in light of clinical implications & neurobiological underpinnings and also provide an overview of clinical assessment and management of such adolescents.

Sexually explicit material (SEM) is described as content *"that depicts sexual activities in unconcealed ways, often with close-ups with (aroused) genitals and of oral, anal, or vaginal penetration"* (Peter and Valkenburg, 2009). Pornographic internet sites (Tsitsika et al., 2009) have been described as *"illicit sites portraying sexual behaviors and practices"*. Pornography has been defined by the U. S Attorney General Commission as *"any material that is predominantly sexually explicit and intended primarily for sexual arousal"* (Mc Manus, 1986). Again, later on, it was described (Reid et al., 2011) as *"any material that (a) elicits sexual feelings or thoughts, and (b) contains explicit images or descriptions of sexual acts involving the genitals"*.

The ubiquitous presence of the internet and its frequent use in daily life makes it difficult to delineate the thin line where internet use turns from purposeful to excessive to compulsive. Problematic patterns of compulsive use of the internet and other compulsive behaviors related to internet pornography use has emerged to be a global trend (Delmonico and Griffin, 2008, Lam et al., 2009), noted across diverse geographical and cultural regions.

Impact of internet pornography on adolescents

Various authors have documented the impact of internet pornography exposure on sexual behavior, attitudes, and beliefs of adolescents.

a. **On sexual attitudes and beliefs:** Even though exposure to pornographic material on the internet can be considered as a normative experience to the majority of growing adolescents, a sense of sexual uncertainty arises due to conflict between sexual beliefs propagated by family and those through pornography. Adolescents exposed to SEM may develop 'unrealistic' attitudes towards sex and 'misleading' attitudes toward relationships (Tsitsika et al., 2009). Also, who are more frequently exposed to SEM unhealthily considers these as a useful source of information about sex and even perceives real-world sex as being 'more casual and primarily physical', rather than 'affectionate and relational', i.e. in light of pornographic depictions. A study (Peter and Valkenburg, 2008) on 962 Dutch adolescents found an increased frequency of viewing SEM to be associated with more sexual preoccupancy *("chronically accessible sex-*

related cognitions"). Also, SEM exposure has been established to be a cause and a consequence of believing that women are 'sex objects'. It reinforces an unrealistic 'pornographic script' for body type and sexual performance for own as well as a sexual partner(s) (Löfgren-Mårtenson and Månsson, 2010).

However, some studies on adolescents demonstrated a relationship between exposure to SEM and positive attitudes toward premarital and extramarital sex (Lo and Wei, 2005), whereas numerous studies demonstrated a positive attitude towards casual sex (Owens et al., 2012).

b. **On sexual behavior:** A study (Lo and Wei, 2005) on adolescents in Taiwan found that exposure to SEM promoted adolescents' acceptance and engagement in sexually permissive behaviors. Similar findings were reported in other studies as well (Braun-Courville and Rojas, 2009, Brown and L'Engle, 2009). Pornography consumption was also positively associated with high-risk sexual behavior, viz. anal sex, intercourse with multiple partners, sex under the influence of substances, etc. (Braun-Courville and Rojas, 2009, Häggström-Nordin et al., 2005). Also, male internet pornography consumers were reported to have earlier initiation to first sexual intercourse and oral sex as compared to controls (Kraus and Russell, 2008). However, another study did not find any association between SEM use and risky sexual behaviors but states a connection with adolescents' sociosexual development, sexual beliefs, and attitudes (Koletic et al., 2019).

c. **Sexual aggression and violence:** Studies show established link of pornography exposure with sexual aggression, harassment, sexual violence as well as an attitude about violence towards women and even bestiality (Malamuth and Huppin, 2005, Brown and L'Engle, 2009, Alexy et al., 2009). However, an interplay of a multitude of risk factors determines the likelihood of an adolescent acting in a sexually aggressive manner following pornography exposure. A national survey conducted at the University of New Hampshire (Ybarra and Mitchell, 2005) found no established link with sexual aggression for the majority of males. However, they found supporting evidence that male users who have 'predisposing risk levels' for sexual aggression and are frequent SEM users, actually exhibit more than four times greater levels of sexual aggression. And interestingly, adolescents who were exposed to nonviolent SEM were found to be 'equally likely' to exhibit sexually aggressive behavior as compared to those who had no exposure to nonviolent material (Ybarra et al., 2011).

d. **On social behavior:** An Israeli study (Mesch, 2009) on adolescents aged 13-18 years found an inverse relationship between the degree of social interaction and bonding with the consumption of sexually explicit material. Also, more pornography consumption had a significant correlation with a lesser degree of social integration, specifically related to school, family, society, and religion. SEM consumption was found to be associated with delinquency, depressive symptoms, and emotional maladjustment (Ybarra and Mitchell, 2005). When exposed to pornography in early adolescence, it contributes to antisocial behavior, truancy, manipulative behavior and forced sexual intercourse (Alexy et al., 2009).

It would not be overzealous to mention hereby, that, majority of the current evidence reinstate the hazardous impact that is traditionally and culturally associated with exposure of adolescents to Internet pornography.

Neurobiological implications

1. Pathological impulsive behaviors such as internet use, gaming, pornography, compulsive sexual behavior, and gambling share neural processes similar to substance addiction. They affect the dopaminergic neurons of the 'reward circuit', involving the ventral tegmental area and nucleus accumbens (NAc). Dopamine level dysfunction in this tract is associated with impulsive and risk-taking acts.

- 'Supernormal stimuli'-Response to an artificially created stimuli overrides an evolutionarily developed genetic response (Love et al., 2015). Chronic internet pornography overuse is highly stimulating. It activates our reward system to levels which are higher than that were typically encountered by our ancestors in course of evolution. This kick-starts the circuit of addiction; and these processes, in turn, induce neuroplasticity in the reward circuitry.

- Common reward-seeking behaviors exhibited by adolescents (like the pursuit of money, novelty, social connections, sexual activity, and substance use) promote growth and learning. So, excess of reward-seeking temperamental tendencies may be associated with a vulnerability to the development of high-risk behaviors (Casey and Jones, 2010).

2. An MRI study (Kühn and Gallinat, 2014) revealed that longer exposure and more hours/ week of internet pornography correlated with a lower volume of grey matter in the right caudate nucleus, while subjects with more years and more hours of use had lower activity in left putamen in response to sexual images. In light of earlier fMRI studies that show putaminal activation during sexual arousal, the authors propose that these putamen changes may reflect tolerance brought about by desensitization to sexual stimuli. The subjects with more amount of SEM consumption had less connectivity between the right caudate nucleus and left DLPFC (dorsolateral prefrontal cortex)- this finding has been noted in heroin addicts (Wang et al., 2013).

3. As compared to the adult brain, adolescents have been found to have functional differences (fMRI) in the frontal cortices and in the striatum, the regions associated with executive control and affect regulation, respectively.

- Adolescents lack the maturation of frontal cortical circuitry to exert adequate cognitive control to suppress inappropriate sexual thoughts and behaviors elicited as a result of SEM exposure.

- Deficits in executive function, decision-making capacity, impulsivity, and affective regulation has been demonstrated, but any conclusive link is yet to be found (Owens et al., 2012).

- Earlier maturation of limbic systems as compared to the prefrontal cortex (PFC)in adolescents, which has been proposed to create a bias for stimuli that provoke prominent emotions (i.e., emotionally salient stimuli) over inhibitory control (exerted by the PFC) (Casey et al., 2011). Also, dysfunction in the prefrontal top-down control over the subcortical limbic system causing

hyper-activation of the ventral striatal motivational circuit has been demonstrated (Galvan et al., 2006).

4. Other neuropathways involved:

- Sexual arousal elicited by visual pornographic stimuli activates other neural pathways mediating other functions like- cognition, motivation, emotional arousal, and somatosensory experiences (Redouté et al., 2000).
- Picture-superiority effect- Cortical processing and encoding of pictorial stimuli in a more prominent manner when compared to other stimuli; has been found among adolescents (White house et al., 2006). This facilitates the recognition and retention of visual information over other kinds of stimuli.

Clinical assessment

An adolescent with problematic consumption of internet pornographic material can present to a clinical setting with this very problem or with prominent behavioral complaints or problematic pornographic viewing might emerge as a coincidental finding in course of the assessment of other psychological/ psychiatric ailment.

The primary method of assessment constitutes a detailed and in-depth clinical interview. Detailed assessment of the pattern, extent, and consequences of use and resulting impairment if any should be enquired. Detailed history, mental status examination, and detailed physical examination should help in the identification of medical or psychiatric comorbidities (depression, anxiety, obsessive-compulsive, or other impulse control disorders). A bio-psycho-social formulation should provide relevant information about factors impacting the problematic use. This can be followed by a motivational interview if the adolescent fulfills the criteria for internet addiction.

Diagnosis

Since pornography addiction is yet to be included in any classification system, a meticulous clinical assessment is the mainstay of diagnosing the problem. Here, the diagnostic criteria for Internet addiction and compulsive sexual behavior disorder are briefly discussed to aid in clinical assessment.

a. A proposed **internet addiction diagnostic criteria** (Tao et al., 2010) consists of 3 criteria: symptom criterion (seven clinical symptoms), functional and psychosocial impairment criterion, course criterion (at least 3 months, with at least 6 hours of non-essential internet usage per day) and exclusion criterion (related to psychotic disorders).

   A score of 2 + 1, i.e., the first two symptoms (preoccupation and withdrawal symptoms) and at least one out of the five other symptoms (tolerance, lack of control, continued excessive usage despite knowledge of negative effects/affects, loss of interests excluding internet use, and use of the internet to escape or relieve a dysphoric mood)is necessary for a diagnosis.

b. **Compulsive sexual behavior disorder** has been proposed as an impulse control disorder in the ICD-11. It is characterized by a persistent pattern of failure to control intense, repetitive sexual impulses or urges, resulting in repetitive sexual behavior over an extended period (6 months) that causes marked distress or functional impairment.

   The behavioral pattern is manifested by one or more of a) engaging in repetitive sexual activities has become a central focus of the person's life resulting in neglect of health and personal care or other interests and responsibilities; b) numerous unsuccessful efforts to control the behavior; c) continues to engage in repetitive sexual behavior despite adverse

consequences; or d) continues to engage in the activity even while they derive little or no satisfaction from it.

c. **Rating scales** can help in assessing the severity of the problem. Internet Addiction Test-a 20 item scale; can help assessing specific impairment in areas of an individual's life due to excessive internet use. Other scales available are- Internet Sex Screening Test - Adolescent (ISST-A), Problematic Internet Use Questionnaire, Compulsive Internet Use Scale, Chen Internet Addiction Scale, Internet-Related Addictive Behavior Inventory and Pathological Internet Use Scale (Pezoa-Jares et al., 2012).

Management

1. Practical considerations

Working with teenagers itself poses a big challenge, even more so while working with such sensitive issue of pornography addiction. The practitioner should attempt to normalize the encountered issues by minimizing shame, and being supportive and nonjudgmental about the problem; this can go a long way in establishing rapport and provide necessary psychoeducation. Being sensitive and aware of adolescents' religious, cultural, and traditional norms is a necessary step. One should never make assumptions or be judgemental about their clients' values.

The adolescent should be guided to understand and establish their sexual boundaries while providing a safe and trusting environment. It will facilitate them taking well-informed decisions while facing real-life situations related to their sexual life. Inclusion of family members or guardians in treatment by teaching behavioral techniques such as filtering or blocking devices, limiting usage time, establishing rules for internet use, is often helpful. Also, if the professional identifies an addiction, the problem should be managed in lines of motivational enhancement therapy.

2. Non-pharmacological treatment

I. Cognitive Behaviour Therapy (CBT)- Recording and identifying triggers, examining distorted perceptions and beliefs, and recognizing consequences of the behavior has shown benefits in reducing problematic behavior, social interaction, and online time management (Delmonico and Griffin, 2008).

ii. Multimodal school-based CBT- This involves 3 domains: 1) Group CBT for patients; 2) Psychoeducating the teachers; 3) Group cognitive-behavioral parent training. It has shown improvement in emotion and behavioral regulation in adolescents with Internet addiction.

iii. Some researchers had also integrated the principles of motivational interviewing in their studies (Orzack et al., 2006).

iv. Reality Therapy: This therapy assumes that people are responsible for their lives and their actions, feelings, and thoughts. If one is addicted to a behavior, this is because of choice. So, by changing our action and thinking, we can change behavior. It exhibited improvement in addictive behavior and self-esteem in patients (Pezoa-Jares et al., 2012).

v. Multimodal Psychotherapy : It is a combination of various psychotherapeutic approaches and has shown the best evidence till now (Pezoa-Jares et al., 2012).

3. Pharmacological treatment

Not much data could be retrieved from the literature regarding the pharmacological management of excessive/addictive pornography

consumption. However, some studies have evaluated the efficacy of Escitalopram, Naltrexone, and the combination of Citalopram and Quetiapine in treating internet addicts (Pezoa-Jares et al., 2012). Bupropi on has been reported to reduce the craving for internet gaming disorder. Also, methylphenidate is the agent of choice for comorbid ADHD and internet video game addiction; it has been shown to significantly reduce internet addiction scores and usage times.

Preventive strategies

1) Open communication and dialogue between parents and adolescents regarding internet use and sexual behaviors.
2) Involvement of extended families, schools, etc. to educate adolescents about safe internet use through modeling of appropriate and responsible behavior.
3) Promotion of school-based and family-based programs for proper education and prevention of undesirable behavior.
4) Using filtering or blocking devices by parents to prevent inappropriate exposure
5) Changes in governmental policies, laws, and enforcement regarding internet pornography.

Conclusion

Every aspect of human life in the current generation is dependent on technology. Growing adolescents, with their immature brain and technologically-charged culture, are easily lured into the proliferating world of internet pornography. Though merits and de-merits of pornography exposure in itself have continued to be a matter of many a debate, we can conclude that the deleterious impact of excessive internet pornography/ SEM exposure on adolescents i.e., impulsive, compulsive and delinquent behavior, is a global phenomenon as evidenced by the multitude of studies which are not restricted to any specific socio-cultural or religious domain. The behavioral, attitudinal, and social consequences of such exposure have been proven to be detrimental and warrant serious attention. The lack of proper guidelines to diagnose pornography addiction poses a problem for clinicians. Also, questions as to the cut-off where usage becomes excessive, and, in turn, sexually compulsive/ addictive remain unanswered. However, more longitudinal studies focussing on the prospective outcomes in adolescents, exposed to internet pornography, and more qualitative research involving case-studies are necessary for establishing more conclusive findings. Mental health professionals play a pivotal role in safeguarding cyberspace security of adolescents.

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