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A public health issue?

After extensive research The Reward Foundation has concluded that the ready availability of and access to internet pornography is directly contributing to the rise in mental health problems among adolescents, physical health problems such as sexual dysfunction in men under forty and to porn-induced behavioural addiction in general. This constitutes a public health issue. The unprecedented rise in sex crime, especially child-on-child sexual abuse and possession of child abuse imagery, is driven in part by pornography addiction. It is making society less safe and contributing to more relationship breakdown as a whole.

Mind Geek, the owner of Pornhub, the world's largest provider of this material, is based in Canada. The UK is Pornhub's second largest market. Our soon-to-be-published analysis shows that Pornhub currently streams about 7 million sessions of pornography per day into the UK, a country with 64 million people. What is happening in Canada affects the UK and the world.

The level of use of pornographic imagery of all kinds is facilitated by the ease of access, especially among children and adolescents, to streaming internet videos (Mead 2016). With printed material or DVDs users had to invest considerable time, resources and effort to purchase it, often needing to visit suppliers in large cities and spending much money if they wanted a significant quantity. Printed material functions effectively as a sexual stimulus on the first viewing, but quickly becomes boring. Online supply has removed these limitations, making material effectively free, available everywhere there is fast internet and offering endless novelty.

Impact of pornography on people, particularly adolescents

Pornographic videos depicting all genres and interests are instantly available to every consumer in a few clicks. The social, health and learning harms have been discussed in various reviews such as those led by Owens (2012), Peter (2016) and Lim (2016).

Internet pornography has become the default source of sex education. It can reduce inhibitions and barriers to more risky behaviour. In modelling sex, the activities depicted in pornography generally ignore health issues, displaying condom-free performances and featuring multiple partners. The performers are often physically enhanced and they usually behave in an exaggerated way. There is evidence correlating the increased levels of hetero anal sex in real life with its very frequent depiction in popular pornography. Sexual health clinics have reported a rise in related injuries, especially in young women.

A long list of harms is under investigation including social isolation, depression, lethargy, copying of coercive violence, erectile dysfunction and a declining interest in real partners. Early internet pornography use correlates with early sexual debut and a wide range of anti-social markers (Pullman and Seto 2012; Ma and Shek 2013; Matthebo 2014, Kastbom et al 2015; Pratt and Fernandes 2015; Rothman et al 2015; Walker et al 2015).

Free access to internet pornography can see virgin consumers viewing for years before they engage in partnered sex. For some it can become a substitute for partnered sex. Through unconscious sexual conditioning it can also encourage the development of tastes for voyeurism and fetishes and may lead to escalation to different genres, potentially including illegal child sexual exploitation material. Escalation

may be driven in part by the need to feel sexually aroused when porn- induced erectile dysfunction sets in (Wilson and Jack 2014). This results from desensitization, a characteristic of addiction. Heavy consumption can also lead to confusion over sexual orientation as bored users escalate to genres of pornography at odds with their natural orientation. For example, straight people viewing gay porn and gay people viewing straight porn, to make themselves sexually aroused (Downing et al 2016).

At the very end of 2015, the first-ever meta-analysis (a study of studies to gain a bigger sample size) of the impact of pornography as a driver for sexual aggression appeared. This study only looked at the impact on the general population, rather than on children. No equivalent research on under-18s has been published. The meta-analysis found that...

“Consumption was associated with sexual aggression in the United States and internationally, among males and females, and in cross-sectional and longitudinal studies. Associations were stronger for verbal than physical sexual aggression, although both were significant. The general pattern of results suggested that violent content may be an exacerbating factor” (Wright et al 2015).

The newest area of concern is on the potential for internet pornography addiction to affect heavy users (Wilson and Jack 2014). According to a review into internet addictions (Love et al. 2015), compulsive use of internet pornography fits the definition of an addictive behaviour set down by the American Society of Addiction Medicine. Research from the University of Cambridge (Voon et al 2014) indicates that compulsive use of internet pornography causes the same brain changes as those seen in cocaine addicts and alcoholics. Porn consumption may be free, but it is not risk free.

Implications of ease of access for sex offenders

Another consideration arising from unlimited access to online pornography across society is its ongoing, potentially negative effect on some sex offenders, and their safe membership of civil society. The majority of internet sex offenders...

“recognise a desensitisation process and a strong addiction process in their Internet behaviour ... The proliferation of internet pornography allows offenders to direct and tailor their searches for indecent, deviant and disturbing scenes. In this world, flow and addiction come together in ways that are different from conventional, real world sexual offending. This can give rise to important barriers to offender treatment which, if unrecognised and unaddressed, will, in the opinion of the authors, more likely lead the individual back around to offend again.” (Davies, Sharpe and Wilcox, 2017: 124)

A key point to understand in regard to possession of child abuse imagery is that as men escalate to more shocking genres in order to get a “hit”. With drugs people need more of the substance to maintain the level of their high; with pornography, they need new and more shocking to become sexually aroused as the brain desensitises and dependence grows. At the same time the frontal lobes that help inhibit risky behaviour temporarily shut down and stop signalling. So the ability to recognise how far down the route to illegality they have gone is lost if they start to venture into child sexual exploitation material.

The role of understanding neuroscience in effective prevention strategies

Mary Sharpe has focused on prevention strategies to avoid pornography consumption-related health issues by discouraging use in the first place. These strategies revolve around different educational interventions in the home and at school (Sharpe 2016).

Any educational approach adopted for legislation should be based around improving citizen's understanding of the way the brain works. This provides a common basis for considering the harms of consuming online violent and degrading sexually explicit material across all age groups, genders, sexualities and ethnicities. Using a brain model has the power to remove contentious religious, moral and social barriers, allowing harms to be addressed without guilt or shame.

The reward system is the part of brain where all addiction develops to substances and behaviours. Adolescents are the most vulnerable to addiction because of their unique stage of brain development. The reward system is also the part of the brain where we bond with others, show compassion and fall in love. That is what becomes damaged in the process of addiction. Most mental health problems start developing during adolescence too with huge consequences for loss of productivity and healthcare resources in adulthood. Pupils appreciate learning the science behind these issues rather than just being told to not do them.

The Reward Foundation has been doing talks in schools (so far for 14-18 year olds) on the vulnerability of the adolescent brain to harms from internet pornography. We emphasise how the brain is primed by evolution at this stage to seek out sexual experiences and become sexually conditioned as the sexual arousal template develops according to experience. Hyper stimulating pornographic material characterized in the main by coercive, aggressive acts of violence against women is not the best basis for sexual arousal in anyone, least of all sexually inexperienced adolescents. We point to recovery strategies emphasising that neuroplasticity means the brain can recover sensitivity and heal.

Risk management

The cornerstone of risk management is the precautionary principle. Where there is an as yet, unproven risk, the burden of proof that a thing is not harmful falls on those taking an action which might be harmful. Allowing adolescents to consume internet pornography falls into this category. Thus precautions should be taken to avoid the possible risk until when and if internet pornography is proven by research to be either harmless, or an acceptably low-risk. All the research to-date points the other way, to negative health effects for users, especially young people (Mead 2016).

Prevention strategies

A suggested programme to mitigate harms from online material at government level could be to establish federal legislation mandating the delivery of short automated health warnings to all people with Canadian IP addresses when they log onto commercial porn sites. This approach has potential to be a relatively cheap and effective way of encouraging people to consider the health effects of their use of online sexually explicit material.

The mechanism

Technology to play what is effectively an advertisement at the start of video is now well developed and involves negligible cost. YouTube, Vimeo and other streaming sites use it all the time. The specific warning for any session could be randomly allocated from a list of possible warnings. The health warnings could cover a range of issues, for example:

- asking viewers if they feel that they are watching too much internet pornography
- offering contacts for counselling services if they have concerns
- offering assistance on recovery
- providing links to pornography harm research
- delivering warnings not to escalate to illegal material, such as child sexual exploitation material.

The porn-harm advertisements could be placed by the commercial pornography sites themselves, or by ISPs delivering content through to consumers based upon common porn site IP addresses. There is potential for Canada to establish a lead in helping to set an international standard for pornography health labelling.

Recommendations

1. Develop a public health awareness campaign on how the brain's reward system creates addictions, especially to internet pornography. Support the campaign by including this knowledge in compulsory sex education in schools.
2. The Canadian government should consider funding research to determine the health implications of consumption of online pornography.
3. Commercial suppliers of pornography should be legally obliged to provide consumers with health warnings at the start of all viewing sessions.

The Reward Foundation

The Reward Foundation – Our Brain on Love and Sex is a Scottish Charitable Incorporated Organisation established on 23 June 2014. Our aims are to advance education by furthering public understanding of the reward circuitry of the brain and how it interacts with the environment, and to improve health by furthering public understanding of building resilience to stress. We teach and campaign mainly around the harms created by the overconsumption of internet pornography. Our website (www.rewardfoundation.org) provides a lay person's guide to the legal, health, educational and relationship implications of pornography use, particularly harm prevention and recovery strategies. Our target audiences are teachers, healthcare and criminal justice professionals, parents, and others interested in how internet pornography may be affecting our behaviour.

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