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The relationship between pornography use and sexual violence in Australian men

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Acronyms and abbreviations

ABS	Australian Bureau of Statistics
AIC	Australian Institute of Criminology
BSCS	Brief Self-Control Scale
CI	confidence intervals
FMI	fraction of missing information
HS	Hostile Sexism
IORW	inverse odds ratio weight
IRC	instantaneous rate of change
LGBTQIA+	lesbian, gay, bisexual, transsexual, queer, intersex, asexual plus
LOTE	language other than English
OR	odds ratio
SE	standard error
SOI-R	Revised Sociosexuality Orientation Inventory

Abstract

The production and availability of pornography has increased dramatically over the past few decades. Concerns have been raised regarding pornography's influence on sexual violence, particularly among men, who constitute the majority of its audience. While a vast body of research has examined the association between pornography use and sexual violence, questions remain regarding the strength of this association, including among Australian men, and its underlying mechanisms.

Drawing on the survey responses of almost 2,000 Australian heterosexual cisgender men, the current study examined the association of intentional pornography viewing across the life course and self-reported sexual violence perpetration in the 12 months preceding survey completion. It also examined the extent to which this association is mediated by pornography's effect on respondents' attitudes towards sex and women. Findings show that more frequent intentional viewing of violent pornography is associated with a small but statistically significant increase in the probability of having perpetrated sexual violence. Meanwhile, the probability of perpetrating sexual violence does not significantly change with an increase in the intentional viewing of any (ie violent or non-violent) pornography. Furthermore, a portion of the relationship between the frequency of intentional violent pornography viewing and sexual violence perpetration is mediated by the degree to which respondents exhibit a promiscuous, emotionally detached orientation towards sex and hostile attitudes towards women. However, the importance of these mediators varies between respondents. This study provides valuable information to inform measures to prevent and counteract any potential negative impacts of violent pornography on sexual behaviour.

Executive summary

The growing availability of pornography over the past few decades has prompted concerns about its influence on understandings, attitudes and behaviours regarding sex and relationships. The most common criticism of pornography is its purported association with the perpetration of sexual violence. Australia's *National Plan to End Violence against Women and Children 2022–2032* (Australian Department of Social Services 2022) identifies sexual violence as a primary form of gender-based violence, and singles out pornography, particularly violent pornography, as a key area of concern in efforts to address it.

An extensive body of research spanning the past 40 years has empirically examined pornography's association with sexual violence. Broadly, the findings offer stronger evidence for the role of pornography depicting violence in increasing one's likelihood of ever perpetrating sexual violence. Theories attempting to understand this relationship have centred on learning and conditioning processes, and the role they play in translating ongoing pornography exposure into cognitions, attitudes and desires that can underpin decisions to engage in violent sexual behaviour. One of the most detailed theoretical treatments of pornography's role in sexual violence sits within the confluence model of sexual violence (Malamuth & Briere 1986; Malamuth, Heavey & Linz 1996, 1993; Malamuth et al. 2021). It specifies two individual factors which are hypothesised to operate synergistically to increase men's proclivity for sexual violence against women: a promiscuous and emotionally detached orientation towards sex (ie impersonal sex), and negative attitudes towards women and a sexual interest in controlling and dominating them (ie hostile sexism). Pornography is seen by the confluence model as adding 'fuel to the fire' (Malamuth 2018: 80) by further exacerbating these risk factors. Specifically, encompassed within this model are two propositions regarding the relationship of pornography use to sexual violence:

- Pornography use increases the likelihood of sexual violence indirectly by exacerbating individual orientations towards impersonal sex and hostile sexism.
- The effect of pornography use is greater in those who already have stronger orientations towards impersonal sex and hostile sexism to begin with.

The first point, in statistical terms, posits an indirect relationship between pornography use and sexual violence in which impersonal sex and hostile sexism explains, or mediates, the effect of the former on the latter. The second suggests that the strength of this indirect effect depends on someone's pre-existing orientations towards impersonal sex and hostile sexism. Research has examined the extent to which the association of pornography with sexual violence varies based on men's orientation towards impersonal sex and hostile sexism (Baer, Kohut & Fisher 2015; Huntington, Pearlman & Orchowski 2020; Kohut & Fisher 2024; Kohut, Landripet & Štulhofer 2021; Malamuth, Addison & Koss 2000; Malamuth, Hald & Koss 2012; Malamuth et al. 2021; Wright, Paul & Herbenick 2021; Wright, Tokunaga & Herbenick 2024). Fewer studies have examined the mediating role of hostile sexism and an impersonal orientation towards sex, and those that do report mixed results (eg Bhuptani, Cashin & Orchowski 2024; Demaré, Lips & Briere 1993; Malamuth et al. 2021; Wright & Tokunaga 2016; Zhang et al. 2025).

Understanding the underlying mechanisms of pornography's association with sexual violence is important not just from an academic perspective but to efforts to address it. While a number of measures in Australia and internationally are currently focused on restricting access to pornography, there are unavoidable gaps in these measures. This highlights the importance of concurrent efforts to interrupt and reverse the pathways through which pornography can influence sexual violence, which in turn necessitates a thorough understanding of these pathways.

The current study examines the association of pornography use and sexual violence using an online survey of almost 2,000 heterosexual cisgender men aged 20–45 years in Australia. It addresses the following questions:

- To what extent is the intentional viewing of pornography associated with the perpetration of sexual violence?
- To what extent is any association between intentional pornography viewing and the perpetration of sexual violence due to impersonal sex and hostile sexism?

Results

Conclusion 1: The intentional viewing of any pornography, and the frequency with which it is intentionally viewed, is not associated with an increased likelihood of perpetrating sexual violence in heterosexual cisgender men.

Respondents who indicated having intentionally viewed any (ie violent and non-violent) pornography more than 12 months prior to survey completion were not significantly more likely to have perpetrated sexual violence in the 12 months preceding survey completion than those who had not intentionally viewed any pornography during this period. Additionally, respondents who intentionally viewed it more frequently were no more likely to have perpetuated sexual violence than those who had intentionally viewed it less frequently.

Conclusion 2: The more frequent intentional viewing of violent pornography is associated with a small increase in men's likelihood of perpetrating sexual violence.

Comparing respondents who had and had not intentionally viewed violent pornography specifically more than 12 months prior to survey completion, the former are over twice as likely to have perpetrated sexual violence in the 12 months preceding survey completion, and this is statistically significant. However, this difference shrinks considerably, and becomes statistically non-significant, when other factors are accounted for, suggesting that this difference is largely due to other factors. Importantly, as the frequency with which respondents intentionally viewed violent pornography increases, so too does their probability of having perpetrated sexual violence. This increase remains statistically significant when other factors are accounted for, although it is, in absolute terms, small.

Conclusion 3: The increased likelihood of perpetrating sexual violence among men who intentionally viewed violent pornography more frequently is due, in part, to violent pornography's strengthening of their promiscuous, emotionally detached orientation towards sex and their hostile attitudes towards women.

Results of mediation analysis show that a little under half of the total effect of frequency of intentional violent pornography viewing on sexual violence perpetration (ie Conclusion 2) is indirect through impersonal sex (measured using the Revised Sociosexual Inventory; Penke & Asendorpf 2008) and hostile sexism (measured using the Hostile Sexism sub-scale of the Ambivalent Sexism Inventory; Glick & Fiske 1996).

Conclusion 4: The strengthening of a promiscuous, emotionally detached orientation towards sex and hostile attitudes towards women may be more important to explaining the association between more frequent intentional violent pornography viewing and sexual violence perpetration in men at lower risk of sexual violence than those at higher risk.

Among respondents who had not previously (ie more than 12 months prior to survey completion) perpetrated sexual violence, more than half of the total effect of frequent intentional violent pornography viewing on sexual violence is accounted for by impersonal sex and hostile sexism. Meanwhile, for respondents who had previously perpetrated sexual violence, impersonal sex and hostile sexism did not account for any of this effect.

Implications

Overall, findings suggest that the more frequent intentional viewing of violent (not just any) pornography can increase the risk of perpetrating sexual violence in heterosexual cisgender men. They also shed some light on how and for whom it may do so. While the design of this research precludes the making of any causal claims, the findings do strengthen the groundwork for such claims in concert with prior research. Importantly, the results also suggest that the effect on sexual violence is likely to be small in absolute terms.

The findings emphasise the importance of addressing pornography's influence on sexual violence as part of broader and holistic efforts that address all relevant individual, interpersonal, community and societal factors. This is evident in Australia's *National Plan to End Violence against Women and Children 2022–2032* (Australian Department of Social Services 2022), which highlights the need for a coordinated, whole-of-society and multi-sectoral approach to addressing this violence, and identifies pornography as one of a number of key areas of focus. Findings also provide some justification for efforts to mitigate pornography's potential to ingrain problematic attitudes, thoughts and desires regarding sex and relationships, alongside those focused on controlling access to this material. However, they suggest more targeted and intensive measures specifically for higher risk individuals could be at least as important. These targeted measures could include blocks or filters on personal devices or probation and parole restrictions which obstruct access to pornography for these individuals, as well as dedicated psychoeducational and therapeutic measures.

Introduction

Pornographic depictions of nudity and sexual activity feature throughout recorded human history, and have evolved with new methods of disseminating information (Byrne & Kelley 1984). Developments in information and communication technology over the past 50 years, including the advent of the internet and mobile phones, have allowed for quicker and easier access to pornography than ever before (Bridges 2019; Ferguson & Hartley 2009; McKee, Albury & Lumby 2008; Nowak 2011). The ease with which pornographic material can now be produced and distributed has also led to enormous growth in the amount of it available for consumption (Bridges 2019; Shor & Seida 2022). In Australia, recent nationally representative surveys suggest that around four-fifths of men and around half of women have viewed pornography (Men's Project & Flood 2020; Rissel et al. 2017).

The growing availability of pornography has raised questions about its influence on understandings, attitudes and behaviours regarding sex and relationships. Supporters have highlighted its contribution to liberalising harmfully stringent sexual attitudes, providing new avenues for exploring sexual interests and desires, and enriching people's sex lives (eg McNair 2013). Indeed, studies have shown that pornography can help some people achieve sexual empowerment and autonomy, improve their enjoyment of sexual activity and find representation, particularly among marginalised communities (eg Hakkim et al. 2022; Komlenac & Hochleitner 2022; Lim, Carrotte & Hellard 2016; Litsou et al. 2020; McKee et al. 2022). Critics, meanwhile, emphasise pornography's harmful effects. Moral conservative (Strub 2011) and feminist (Brownmiller 1980; Coy & Tyler 2022; Cawston 2019; DeKeseredy & Corsianos 2015; Dworkin 1981; Eaton 2007; MacKinnon 1989) critiques of pornography have been put forward. The former revolve around concerns regarding pornography's corrupting influence on children and families. The latter argue that pornography encourages or enables hostile and degrading attitudes towards women, while also reproducing and reinforcing broader societal gender inequality. Empirical research has found that pornography can contribute to poor understandings of sex and sexuality, engagement in risky sexual behaviours, problems with sexual functioning and addiction in consumers (eg; Behun & Owens 2020; de Alarcón et al. 2019; Hakkim et al. 2022; Lim, Carrotte & Hellard 2016; Peter & Valkenburg 2016). Research also points to practices in parts of the pornography industry which can cause or enable harm to those working in it, particularly women (eg McVey, Tyler & Gurrieri 2022).

However, among the most common criticisms of pornography is its purported association with the perpetration of sexual violence. Australia's *National Plan to End Violence against Women and Children 2022–2032* (Australian Department of Social Services 2022) identifies sexual violence as a primary form of gender-based violence, perpetrated largely by men and against women. An estimated one in five adult women have disclosed sexual violence victimisation since the age of 15 years, compared with one in 15 men (Australian Bureau of Statistics (ABS) 2023a), while an estimated one in four men have perpetrated sexual violence and/or harassment at some point in their adulthoods, compared with one in six women (Doherty & Dowling 2024). Importantly, the National Plan identifies pornography, particularly pornography depicting violence and non-consensual sexual activity, as a key area of concern in efforts to address sexual violence against women. A range of strategies being used to target pornography's potential influence on sexual violence include:

- controls on access to pornography, including through age assurance processes (eSafety Commissioner 2023c);
- more comprehensive sex, consent and respectful relationships education and awareness-raising initiatives (Australian Department of Education 2024), including initiatives that address pornography specifically to develop 'porn literacy' (Crabbe & Flood 2021); and
- efforts within the pornography industry to produce 'feminist' and other ethical forms of pornography which emphasise the wellbeing of performers, the empowering portrayal of women, and the depiction of sex across a wider variety of more realistic scenarios (McKee, Dawson & Kang 2023; Penley et al. 2013; Taormino 2013; Tarrant 2016).

Many of these measures have been particularly targeted at young people. Pornography's greater availability and ease of access extends to young people, and indeed is probably exaggerated by the significant portion of their time spent online (eSafety Commissioner 2021). Recent Australian research suggests that over four-fifths of men and two-thirds of women aged 15–20 years have viewed pornography in their lifetimes (Crabbe, Flood & Adams 2024). Concerns have been raised that any negative impacts of pornography will be exaggerated in younger consumers, who are in the formative years of their sexual development, and whose understandings of sex are more malleable and susceptible to outside influence (Owens et al. 2012). These concerns are further fuelled by the growth in the volume and availability of violent pornography in particular (Bridges et al. 2010; Vera-Gray et al. 2021). Together, these factors highlight the pressing need for consideration of the evidence regarding the connection between pornography use and sexual violence against women.

Research on the relationship between pornography and sexual violence

There is a substantial body of research examining the association of pornography use and sexual violence. Studies fall into one of three methodological categories: population research, experimental research and observational research. Each are reviewed separately below. Given the amount of research on this topic, a number of systematic reviews, including meta-analyses, have been produced synthesising its results. For brevity, the below review focuses principally on the findings of these reviews, although individual studies and variations between them are discussed where relevant. Importantly, this review does not specifically focus on research examining the impact of child sexual abuse material, or the impact of pornography on the sexual abuse of children.

Population research

Population research examines changes in the rate of sexual violence within a population that correspond with increases in the availability or use of pornography. In the pre-internet era, Kutchinsky (1991) examined the rate of pornography use and recorded sexual offences in Denmark, Sweden, Germany and the United States in the 1970s, finding that pornography use was associated with constant or decreased recorded sexual offences in all countries other than the United States, where court challenges to pornography censorship were ongoing at the time. More recent analysis of this relationship within the United States (Ferguson & Hartley 2009), as well as Japan (Diamond & Uchiyama 1999), Hong Kong (Ng & Ma 2001) and the Czech Republic (Diamond, Jozifkova & Weiss 2011), have found that as the availability of pornography increased throughout the 1990s and mid-2000s, rates of recorded sexual violence decreased (although decreases have not always been statistically significant; see Ferguson & Hartley 2022 for a meta-analysis of this research). Importantly, as in many studies of this kind, it is difficult to disentangle the effects of specific reforms from other concurrent, and likely related, societal-level developments, including improved gender equality, stronger policing and legal responses to sexual crimes, more open and liberal attitudes towards sex, better sex education, and general improvements in public and personal safety (eg McNair 2014). Given this significant methodological limitation, this body of findings cannot, on its own, be taken as indicative of a negative association between pornography viewing and sexual violence.

Experimental research

A number of studies throughout the 1970s, 1980s and 1990s used experimental methods to more rigorously test for the existence of a causal relationship between pornography use and sexual violence. Participants in these studies were randomly assigned to either pornography exposure or control groups and their proclivity for sexual or general aggression was subsequently assessed in a controlled laboratory setting. Importantly, these studies also began to consider the impacts of different types of pornography, including violent pornography. Allen, D'Alessio and Brezgel's (1995) meta-analysis of experimental studies found that exposure to pornography, particularly violent pornography, increased non-sexual aggressive behavioural responses, intentions to engage in sexual violence and attitudes supporting sexual violence shortly afterwards. A later meta-analysis of experimental studies by Ferguson and Hartley (2022) found a small (statistically non-significant) positive relationship between non-violent pornography use and aggressive behaviour, and a slightly larger but still non-significant positive relationship between violent pornography use and aggressive behaviour. The authors note substantial variability between the findings of studies used to generate the latter finding in particular.

Importantly, while experimental studies are undertaken in controlled environments with potential confounding factors accounted for, making it easier to obtain an unfiltered view of any causal relationship between pornography use and aggression (Seto, Maric & Barbaree 2001), findings rarely reflect the influence of pornography in the real world (Davis et al. 2014; Ferguson & Hartley 2009; Fisher et al. 2013). Relatedly, ethical requirements further limit these studies to examining only non-sexual aggressive behaviours or intentions to engage in sexual violence post-exposure (Bridges 2019; Davis et al. 2014). Finally, the findings of these studies speak largely to the influence of pornography on attitudes, intentions and behaviours immediately following one-off or shorter term exposure, saying little about the more persistent effects of longer term exposure.

Observational research

The largest body of work on the association between pornography use and sexual violence employs observational designs, which include cross-sectional and longitudinal designs. Observational studies involve either comparisons of individuals reporting different levels of pornography use and their likelihood of reporting violent sexual fantasies, violence-supportive attitudes or sexually violent behaviours, or comparisons of detected sexual offenders and non-offenders on their levels of pornography use. Variables are measured either at one (ie cross-sectional) or multiple (ie longitudinal) points in time, with the latter better placed to offer causal conclusions.

While the results of this research vary significantly, findings tend towards a small positive association between violent pornography use and sexual violence, while the contribution of non-violent pornography, and the contribution of pornography to attitudes and fantasies, is less clear. In Allen, D'Alessio and Brezgel's (1995) meta-analysis, which separately examined non-experimental studies, pornography use was not associated with attitudes supportive of sexual violence. In their critique of this study, Hald, Malamuth and Yuen (2010) undertook a revised meta-analysis focusing solely on non-experimental studies. They found evidence of an association between pornography use and attitudes supporting violence against women, particularly when looking at violent pornography, but that inconsistencies between studies indicated the likely presence of one or more moderating variables.

The findings of Wright, Tokunaga and Kraus' (2016) meta-analysis of observational studies suggest a small but statistically significant positive association between pornography use and sexual violence, although they similarly note inconsistencies in findings on the strength of this relationship and on the conditions under which it exists. Mellor and Duff's (2019) systematic review of research concerning sexual offenders specifically reports that there is no clear evidence of an association between pornography use and recorded sexual offending overall, but notes that it may predict sexual recidivism in high-risk offenders. Ferguson and Hartley's (2022) meta-analyses of cross-sectional and longitudinal studies suggest no associations between non-violent pornography use and sexual violence. In contrast, their meta-analysis of cross-sectional studies examining violent pornography use suggests it has a statistically significant, but small, positive association with sexual violence. However, after adjusting for potential publication bias in these studies (ie the tendency in a body of evidence for results that are statistically significant to more often be published), the effect size fell just below the threshold set by the authors for practical significance. While Ferguson and Hartley (2022) were not able to undertake meta-analysis of longitudinal studies examining violent pornography use, a number of individual longitudinal studies have found a small association between the viewing of violent pornography at earlier times and sexually violent behaviours at later times (eg D'Abreu & Krahé 2014; Ybarra et al. 2011). Most recently, Mestre-Bach, Villena-Moya and Chiclana-Actis's (2024) systematic review reports mixed findings across studies regarding the association of pornography with rape myth acceptance and attitudes supporting violence towards women.

Observational studies have the advantage of examining the extent to which pornography use is related to sexual violence outside of a controlled setting, and they tend to focus on longer term patterns in its use and effects. Limitations of these studies include a reliance on self-reported information (and consequently, on the recall and honesty of participants), the greater potential for confounding and, in relation to cross-sectional research specifically, challenges in establishing the direction of any detected relationship between pornography use and sexual violence. Critically, while a sizeable body of observational research has examined the differential effects of general, violent and non-violent pornography viewing, 'violent' and 'non-violent' pornography are not always clearly defined or distinguished from one another in this research (Ashton, McDonald & Kirkman 2019; Flood 2016). This ambiguity leaves room for pornography depicting acts which may not be widely understood as violent, but which are intended to humiliate, degrade or objectify, to be interpreted as non-violent by research participants. It also obscures the context of any violence shown, making it difficult to discern illegal pornography depicting the actual use of non-consensual force or coercion from other legal forms, including that depicting consensual bondage, discipline, sadistic and masochistic (BDSM) activities.

Summary

On the surface, these findings paint a somewhat inconclusive picture of pornography's association with sexual violence, although closer analysis of the findings reveals an emerging narrative. While the availability of pornography within a population has been associated with a *decrease* in recorded rates of sexual violence, the broader social, political and cultural shifts which have tended to accompany, and possibly prompt, measures allowing pornography to become more easily available are probably responsible for this. Coupled with findings to the contrary in other methodological bodies of research, these results should not be taken as an indication that pornography reduces sexual violence.

Experimental and observational research offers mixed evidence regarding the association of non-violent pornography with sexual violence, and sexually violent fantasies and attitudes, but more consistent evidence that the longer term viewing of violent pornography slightly increases the likelihood of perpetrating sexual violence. Experimental research is best placed to detect any causal effect of pornography on sexual violence, although these results largely reflect its impacts immediately following one-off or shorter term exposure, and for ethical reasons these studies are not able to examine effects on actual sexually violent behaviours. Observational research is better suited to examining the effects of longer term pornography use in the real world, and its effects on actual sexual violence, but results are more susceptible to bias due to the greater potential for confounding and, in the case of cross-sectional research, uncertainty around the direction of association.

Explaining the association of pornography and sexual violence

The findings summarised above concern the overall effect of pornography use on sexual violence. On their own, these overall effects offer little insight into *how* pornography might contribute to sexual violence. Furthermore, a narrow focus on overall effects ignores the significant variation in effects across study samples, and across individuals within these samples. This variation points to the fact that pornography, as with almost all factors influencing human behaviour, likely operates differently on different individuals and across different contexts. In other words, not all individuals will be equally impacted by pornography use or impacted in the same ways. To this end, a number of theories have been proposed to explain pornography's effect on sexual violence by unravelling the mechanisms underlying this relationship.

Theories on the relationship between pornography and sexual violence

Reflecting the emergence of experimental research on pornography in the 1970s, an early theory of its short-term impact on sexual violence emphasised its physiological effects. Excitation transfer theory draws on the idea that certain stimuli can trigger physiological arousal which then influences behaviour in later situations (Zillmann 1971). This theory predicts that individuals encountering provocative situations shortly after viewing pornography are more physiologically primed to respond aggressively (Seto, Maric & Barbaree 2001). The arousal experienced in response to pornography, cognitively interpreted as sexual originally, is reinterpreted in response to a subsequent provocation as aggressive. A number of experimental studies have tested this theory, finding that aggressive responses were more likely among those exposed to pornography only when they had been provoked prior to pornography exposure (Allen, D'Alessio & Brezgel 1995). More recent work has also been undertaken to clarify how instances of pornography use physiologically and cognitively prime individuals for sexual violence immediately afterwards (eg Wortley 2001). These theories are concerned principally with understanding the impact of pornography use on transitory emotional or psychological states which can motivate sexual violence.

However, most theories have concentrated on understanding how longer term pornography use could lead to sexual violence by fostering a more stable proclivity for it. These theories have, explicitly or implicitly, centred on learning and conditioning processes, and the role they play in translating ongoing pornography exposure into cognitions, attitudes and desires that underpin violent sexual behaviour. Conditioning processes involve learning to repeat or refrain from behaviours based on past experiences in which they have been either rewarded or punished, respectively. Earlier learning theories (eg Laws & Marshall 1990) contend that violent pornography can increase the likelihood of sexual violence if it comes to be psychologically and physiologically associated with pleasure, typically through repeated instances of masturbation to orgasm. This can condition an enduring sexual preference for violence, leading one to seek out similar experiences in real life. Social learning theory (Bandura 1977) draws on a more comprehensive model of learning in which people come to behave in certain ways by observing and imitating others, and based on the outcomes of their own behaviours. This theory suggests that viewers of violent pornography can learn to expect rewards similar to those depicted in it if they mimic the behaviours portrayed (Seto, Maric & Barbaree 2001). The extent to which violent pornography increases the likelihood of sexual violence is further thought to depend on the frequency of one's exposure to it, the nature and intensity of any rewards and punishments for violence observed, the extent to which one values these rewards and is averse to these punishments, and one's perceived likelihood of realising these rewards and punishments if they enact violence.

Feminist theories of pornography's influence on sexual violence have learning processes at their core, in that they argue that widespread pornography use encourages men to view women as sexual objects available at all times for their pleasure (Baron & Straus 1987; Brownmiller 1980; Dworkin 1981; MacKinnon 1989). However, these theories focus more on the role of pornography within broader cultures of misogyny and gender inequality. Additionally, they emphasise the potential for all pornography, not just violent pornography, to contribute to sexual violence. These theories posit that it is pornography's objectification of women which desensitises society to violence against women, and underpins informal and formal responses to this violence which treat it as less serious. Essentially, feminist theories contend that pornography contributes to laying the groundwork for higher rates of sexual violence against women by fostering a cultural tolerance of violence and mistreatment towards women generally.

Sexual script theories of pornography's influence on sexual violence elaborate on the mechanisms underpinning the learning processes discussed above, while also incorporating ideas from feminist theories. They argue that cognitive schema (ie mental 'scripts') guide how individuals behave sexually (Gagnon & Simon 1973; Simon & Gagnon 1998; Wright 2014, 2011). Cultural scripts are adapted from societal norms and media representations of sexuality, like pornography, and shape what an individual believes to be acceptable, realistic and desirable sexual conduct (Simon & Gagnon 1998). These in turn influence interpersonal scripts guiding how an individual navigates their own sexual encounters, and intrapsychic scripts informing individuals' sexual desires. Importantly, empirical examinations of sexual script theories have suggested that pornography's objectification of women and distorted or unrealistic representations of consent, and not just its depiction of sexual violence towards women, can contribute to individual scripts for sexual violence (eg Wright & Tokunaga 2016).

Pornography in the confluence model of sexual violence

One of the more developed theoretical treatments of pornography's role in sexual violence sits within the confluence model of sexual violence against women (Malamuth & Briere 1986; Malamuth, Heavey & Linz 1996, 1993; Malamuth et al. 2021). At the core of this model are two individual factors which are hypothesised to operate synergistically to increase men's proclivity for sexual violence against women: impersonal sex and hostile sexism. The former constitutes a promiscuous and emotionally detached orientation towards sex, and the latter comprises negative attitudes towards women and a sexual interest in controlling and dominating them. These factors are believed to make men more willing or open to using violence in pursuit of sex. These risk factors for sexual violence, in interaction with one another, mediate the influence of risk factors for antisocial behaviour generally, which encompass stable personality traits (eg poor self-regulation, low agreeableness, narcissism and psychopathy) and early life experiences (eg an abusive home, association with delinquent adolescent peers). In other words, risk factors for criminal and antisocial behaviour generally increase the risk of sexual violence by strengthening or reinforcing impersonal sex and hostile sexism, which are risk factors specific to sexual violence.

Alongside these general and specific risk factors, the confluence model hypothesises that several secondary risk factors can also play a role in sexual violence. This is where pornography, and particularly violent pornography, are brought in (Malamuth 2018), alongside other factors like excessive social alcohol consumption and peer support for sexual violence. Pornography is seen as adding 'fuel to the fire' (Malamuth 2018: 80), exacerbating the pre-existing risk factors for sexual violence outlined above, with individuals already at higher risk being more susceptible to its influence. Importantly, encompassed within this model are two propositions regarding the relationship of pornography use to sexual violence:

- Pornography use increases the likelihood of sexual violence indirectly by exacerbating individual orientations towards impersonal sex and hostile sexism.
- The effect of pornography use is greater in those who already have stronger orientations towards impersonal sex and hostile sexism to begin with.

The first point, in statistical terms, posits an indirect relationship between pornography use and sexual violence in which impersonal sex and hostile sexism explains, or mediates, the effect of the former on the latter. The second suggests that the strength of this indirect effect depends on someone's pre-existing orientations towards impersonal sex and hostile sexism. That is, the more an individual exhibits impersonal sex and hostile sexism at initiation of pornography use, the more these characteristics will be affected by ongoing pornography viewing and the stronger the indirect effect will be.

Empirical research has more often focused, deliberately or inadvertently, on the second proposition. These studies have operationalised a statistical interaction between pornography use, impersonal sex and/or hostile sexism to examine the extent to which the effect of the former on sexual violence is greater at higher levels of the latter (Baer, Kohut & Fisher 2015; Huntington, Pearlman & Orchowski 2020; Kohut & Fisher 2024; Kohut, Landripet & Štulhofer 2021; Malamuth, Addison & Koss 2000; Malamuth, Hald & Koss 2012; Malamuth et al. 2021; Vega & Malamuth 2007; Wright, Paul & Herbenick 2021; Wright, Tokunaga & Herbenick 2024). That is, these studies ask: does the effect of pornography on sexual violence vary according to levels of impersonal sex and hostile sexism? Some (Baer, Kohut & Fisher 2015; Kohut & Fisher 2024; Malamuth, Addison & Koss 2000; Malamuth, Hald & Koss 2012; Vega & Malamuth 2007) support the existence of this interaction, while others have found no effect (Huntington, Pearlman & Orchowski 2020; Kohut, Landripet & Štulhofer 2021; Malamuth et al. 2021; Wright, Tokunaga & Herbenick 2024) or even an inverse interaction effect (Wright, Paul & Herbenick 2021). Importantly, these studies do not provide much clarity on the extent to which impersonal sex and hostile sexism mediate or explain the effect of pornography on sexual violence, only whether the total effect of pornography on sexual violence is stronger for individuals higher in impersonal sex and hostile sexism at the time of measurement. Fewer studies have examined the mediating role of sexist attitudes and an impersonal orientation towards sex, and they report mixed results (eg Bhuptani, Cashin & Orchowski 2024; Demaré, Lips & Briere 1993; Malamuth et al. 2021; Wright & Tokunaga 2016; Zhang et al. 2025). Critically, no studies have examined the synergistic role of these variables in mediating the relationship between pornography viewing and sexual violence together, or the extent to which this indirect effect varies across individuals.

Importance of understanding pornography's effect on sexual violence

Understanding the underlying mechanics of pornography's effect on sexual violence, and how these function across different individuals, is important not just from an academic perspective but also to efforts to address this effect. Recently, there has been a push in Australia to trial and strengthen new age assurance mechanisms for limiting young people's access to pornography and other harmful online content (Albanese et al. 2024). These mechanisms restrict access to certain websites and online platforms based on the age of users, which is validated against personal identification documents (ie age verification) or an age range estimated from biometric and online behavioural data (ie age estimation; eSafety Commissioner 2023c).

Alongside this, a series of industry codes and standards have been developed, under which certain sections of the online industry are required to ensure that end users of their services are not exposed to harmful content. These codes and standards are registered with Australia's online safety regulator, the eSafety Commissioner, which also has the power to investigate and require the removal of illegal and restricted content from websites and online platforms. Phase 1 of the development of these codes and standards focused on child sexual abuse material and terrorist content (eSafety Commissioner 2023b), with phase 2 (ongoing at the time of writing) focusing on other high-impact material like pornography (eSafety Commissioner 2024). On the end user side, functions available on mobile devices and computers can block or filter the display of certain content, including pornography. Finally, and at the other end of the prevention spectrum, restrictions on accessing pornography have also been incorporated into probation and parole conditions, and relapse prevention plans, for some sexual offenders on their release from custody (eg Holt et al. 2024).

In essence, these measures aim to eliminate the negative effects of pornography use, particularly among young and high-risk people, by reducing and blocking access to it in the first place. While the logic here is obvious, and functioning optimally these measures could eliminate any harmful effects of pornography, a certain level of access to pornography, including violent pornography and among young people, may need to be assumed. Many of the above measures focus only on restricting young people's access to pornography. While this is important, the evidence reviewed shows that pornography can continue influencing cognitions, attitudes, desires and behaviours into adulthood. Additionally, the sheer range of avenues through which pornographic content can become available—including private messaging applications, online group chats, video games and private social media groups—coupled with these measures being dependent on caregiver vigilance, make it unlikely that they will completely restrict access to pornography for all young people (Chittick 2024; eSafety Commissioner 2023c).

This highlights the importance of concurrent efforts to interrupt and reverse the pathways through which pornography may influence sexual violence, which in turn necessitates a thorough understanding of these pathways. In Australia, extensive attention is being given to the impact of pornography on people's understanding of sex, consent and relationships (eSafety Commissioner 2023a; Our Watch 2020). Under the Department of Education's consent and respectful relationships education measure, governments across Australia are working to improve sex and respectful relationships education for school students (Australian Department of Education 2024). The Australian Government's Department of Social Services has also launched a new community awareness campaign to improve understandings of consent and respectful relationships among adults (Rishworth & Elliot 2024), which includes a dedicated website (https://www.consent.gov.au/). These operate as part of a larger patchwork of similar initiatives (eg National Association for Prevention of Child abuse and Neglect 2024; Our Watch 2022a, 2022b) and are increasingly addressing pornographic content in a direct and explicit manner (Ollis 2016).

Alongside this are efforts by some in the pornography industry itself to produce feminist and other ethical forms of pornography which emphasise women's enjoyment and depict safe, consensual and diverse sexual activities (McKee, Dawson & Kang 2023; Penley et al. 2013; Taormino 2013; Tarrant 2016). Several Australian (eg Bright Desire, Permission 4 Pleasure, Poison Apple Productions) and international (eg PinkLabel.TV, Sex School, Lust Cinema, MakeLoveNotPorn) companies, along with independent performers, have signalled a commitment to the production of such content (McKee, Dawson & Kang 2023). While made primarily to open pornography up to a wider audience (particularly women and LGBTQIA+ people) and to ensure the wellbeing of performers, the potential of feminist and ethical pornography to positively influence its viewers' understandings and practices of consent and sex, and to counter depictions of gender inequality, has also been discussed (eg Eaton 2017; Taormino 2013, 2005). Importantly, these discussions are balanced by several critiques of feminist and ethical pornography, with some emphasising its continued depiction of violence and misogyny (Whisnant 2016), and others highlighting a lack of clarity in how these forms of pornography can combat the influence of mainstream pornography (eg McGlynn 2021) or even doubting whether pornography can be 'feminist' (eg Langton 1993; Malone 2024).

Current study

The current study examines the association of pornography use and sexual violence in heterosexual cisgender men. It does so with a nationally representative sample of Australian adults aged 20–45 years, and includes an examination of violent pornography specifically. Critically, it encompasses a quantitative investigation of the causal pathways through which pornography influences sexual violence that have been proposed in the confluence model of sexual violence (Malamuth & Briere 1986; Malamuth, Heavey & Linz 1996, 1993; Malamuth et al. 2021), examining the role of an impersonal orientation towards sex and hostile attitudes towards women.

This study addresses the following questions:

- To what extent is the intentional viewing of pornography associated with the perpetration of sexual violence?
- To what extent is any association between intentional pornography viewing and the perpetration of sexual violence due to impersonal sex and hostile sexism?

Method

Data collection

Data for this report were drawn from an online survey of Australian residents aged 18–45 years. The full survey is available as a separate file. The survey was administered online by Roy Morgan Research between 9 May and 9 June 2023. Proportional quota-based sampling was used to ensure the sample was representative of the spread of the Australian population aged 18–45 years. Quotas were based on the Australian population stratified by sex, age and usual place of residence, derived from ABS data (ABS 2023). Respondents were first recruited to complete the survey from Roy Morgan Research's Single Source panel, which comprises individuals who have been recruited into the panel to regularly receive surveys on a variety of topics through a rigorous cluster sampling approach. The raw completion rate for invitations sent to this panel was 2.2 percent; however, there is no way of verifying how many of these invitations were seen by panellists. Roy Morgan Research also subcontracted Pureprofile to recruit respondents from its non-probability panel to complete the survey. A completion rate for Pureprofile panellists was unable to be calculated as the number of invitations sent to members of this panel was unavailable.

Respondents were informed at the beginning of the survey of the focus of the research, the nature of the questions and how their responses would be used. They were also alerted to the sensitive nature of some of the questions and reminded at the beginning of the survey and throughout that they could pull out of the research at any time up until the survey completion date. Respondents were not asked to provide any identifying information, and Roy Morgan Research did not pass on any identifying information to researchers at the Australian Institute of Criminology. At the beginning, end and throughout the survey, respondents were provided with a list of support services that they could contact.

After panel providers removed duplicates and respondents with nonsensical and poor-quality responses, the initial sample consisted of 5,076 respondents. It is not possible to estimate design weights for non-probability panels because the probability of an individual opting in to the panel is unknown (Pennay et al. 2023). Post-stratification weights based on ABS (2023b) data were applied to reduce non-coverage errors in some quotas.

Information on the analytic sample is provided under the heading *Analytic strategy* below. (see page 20)

Measures

Independent variables: Intentional viewing of pornography

The key independent variables in this study concern the intentional viewing of any pornography (ie violent or non-violent) and violent pornography up until 12 months prior to survey completion. In relation to violent pornography, respondents were asked about their intentional viewing of pornography depicting any of the following behaviours:

- one or more people being restrained in a way that appears to be against their will;
- one or more people having their hair pulled;
- one or more people being hit, punched, slapped, pushed, rough handled, shoved or kicked;
- one or more people being choked, bitten, scratched or gagged;
- one or more people being insulted, made fun of or humiliated/degraded in some other way;
- one or more people looking like they are being subjected to forceful penetration;
- one or more people looking like they are being forcefully subjected to unprotected penetration;
- one or more people looking like they are experiencing pain or being hurt in some other way;
- one or more people being threatened with violence;
- apparent attempts by one or more of the people to escape or avoid certain sexual acts eg, pushing away; and
- one or more people behaving as though they were distressed, upset or unhappy at being in the situation or performing a sexual act.

Importantly, 'violent pornography' is defined here based purely on the depiction of the behaviours listed above, and does not account for the framing or context of this behaviour (see *Limitations* below).

The frequency with which any pornography and violent pornography was intentionally viewed during this period were measured using a seven-point scale ranging from 0='Never' to 6='Several times a day'. Two new binary variables were also operationalised based on these, indicating whether respondents reported ever intentionally viewing any pornography and violent pornography during this period.

Dependent variable: Perpetration of sexual violence in the past 12 months

The dependent variable in this report indicates whether respondents had perpetrated sexual violence in the 12 months preceding completion of the survey. This variable was based on a series of questions asking respondents whether they had perpetrated any one of several forms of sexual violence, including:

- Sexual harassment and coercion
  - making repeated requests to go out on dates with someone, to 'hang out', or to engage in sexual activity with them even after they said they were not interested;
  - pressuring or insisting someone else take drugs or alcohol, or take more drugs or alcohol than they wanted to, before requesting sexual activity with them;
  - pressuring or repeatedly asking someone to engage in unprotected sexual activity (eg without the use of condoms or other forms of contraception), even after they said they were not interested;
  - threatening or blackmailing someone (eg by threatening to harm them or to share intimate images of them) as a way of trying to get them to engage in sexual activity; and
  - emotionally or psychologically manipulating or coercing someone to try and get them to engage in sexual activity;
- Sexual assault
  - kissing someone when they did not want to be kissed;
  - touching, groping, fondling, grabbing, pinching, or rubbing against someone else when they did not want to be touched; and
  - having penetrative sex with someone without their consent.

A binary dependent variable was operationalised indicating whether respondents had perpetrated any of the behaviours listed above in the 12 months preceding completion of the survey. A small number of other forms of sexual violence asked about in the survey, including image-based sexual abuse and sexual health abuse, were not examined as they do not encompass the direct use of violence or coercion to force someone into sexual activity.

Importantly, items used to examine sexual violence were informed by a review of the literature and existing data collection tools for sexual violence perpetration (Koss et al. 2006; Krahé & Berger 2013; Mosher & Anderson 1986; Rueff & Gross 2017; Struckman-Johnson, Struckman-Johnson & Anderson 2003), and modified for the purpose of this survey (eg use of gender-neutral language). As the use of terminology implying greater culpability (eg 'sexual assault' and 'rape') is associated with lower response rates (Flood et al. 2022), questions were asked about specific sexual behaviours using non-stigmatising language. This also ensured that the behaviours about which respondents were being asked were as unambiguous as possible.

Mediating variables

Impersonal sex

Impersonal sex was measured with the Revised Sociosexual Orientation Inventory (SOI-R; Penke & Asendorpf 2008). The SOI-R measures sociosexuality, or an orientation towards promiscuous, uncommitted and impersonal sexual activities. The SOI-R has shown strong validity and reliability across multiple demographic groups and socio-cultural contexts (eg Barrada et al. 2017; Bártová et al. 2021; Nascimento et al. 2018; Penke & Asendorpf 2008; Romero et al. 2023). It comprises nine items, three each across sociosexual Behaviour, Attitude and Desire sub-scales. Responses to items on the Attitude and Desire sub-scales are each recorded on a five-point Likert scale ranging from 1='Strongly disagree' to 5='Strongly agree'. The SOI-R in its original form records responses to items on the Desire sub-scale on a five-point scale ranging from 'Never' to 'Nearly every day'. Response scales for these items were changed in the survey on the advice of the survey provider in order to minimise non-response and improve response accuracy. Items on the Desire sub-scale were amended slightly so that respondents were asked to indicate how strongly they agreed or disagreed with statements regarding the frequent experience of certain fantasies or states. Respondents were required to indicate a number of sexual partners in response to items on the Behaviour sub-scale. Numeric responses were recoded into a five-point scale as follows: 1=zero, 2=one, 3=two to three, 4=four to seven, 5=eight or more.

Responses were summed across the nine items for each respondent to derive a global score for impersonal sex, with higher scores indicating a stronger orientation towards impersonal sex. The minimum possible score was subtracted from these scores to rescale them, so that possible scores range from zero to 36. Responses to the question 'I don't want to have sex with a person until I am sure that we will have a long-term, serious relationship' (Q91_3) were reverse coded prior to summing.

Hostile sexism

Hostile sexism, or an antipathy to and disparaging view of women, was measured using the Hostile Sexism (HS) sub-scale of the Ambivalent Sexism Inventory (Glick & Fiske 1996). This inventory distinguishes hostile from benevolent sexism, with its sub-scale for the latter assessing paternalistic and patronising, as opposed to antagonistic, feelings and attitudes towards women. The HS sub-scale comprises 11 items, with responses to each recorded on a five-point Likert scale ranging from 1='Strongly disagree' to 5='Strongly agree'. Like the SOI-R, the HS sub-scale has shown strong validity and reliability across multiple demographic groups and socio-cultural contexts (eg Cross & Overall 2019; de Oliveira Laux, Ksenofontov & Becker 2015; Glick et al. 2000; Glick & Fiske 1996; Masser & Abrams 1999).

Responses were summed across the 11 items for each respondent to derive an overall score, with higher scores indicating stronger hostile sexism. The minimum possible score was subtracted from these scores to rescale them, so that possible scores range from zero to 44. Responses to questions 86_4 ('Feminists are not seeking for women to have more power than men'), 86_10 ('There are actually very few women who get a kick out of teasing') and 86_11 ('Feminists are making entirely reasonable demands of men') were reverse coded prior to summing.

Covariates

The following were also included as covariates in all models.

Prior perpetration of sexual violence

This variable is based on survey questions that asked respondents about different forms of sexual violence they had perpetrated in the 12 months preceding completion of the survey. These questions also included response options for violence perpetrated from when respondents turned 18 years of age up until 12 months preceding completion of the survey. A binary variable was operationalised indicating whether respondents had perpetrated any of the forms of sexual violence listed above during this earlier period (ie prior perpetration of sexual violence).

Prior sexual violence victimisation

Alongside questions on the perpetration of sexual violence, respondents were also asked about their experiences of sexual victimisation. A binary variable was operationalised indicating whether respondents had been victims of any of the forms of sexual violence listed above from when they turned 18 years of age up until 12 months preceding completion of the survey.

Changes in the intentional viewing of pornography

Independent variables represent the historical, as opposed to recent, intentional viewing of pornography, but it is important to account for any influence that recent intentional viewing of pornography may have had. Respondents' intentional viewing of any pornography and violent pornography in the 12 months preceding completion of the survey were examined using the same scales as those used to examine the independent variables. These scales were binarised for inclusion as covariates in models examining the effect of ever having intentionally viewed any pornography or violent pornography on the likelihood of perpetrating sexual violence.

Additionally, respondents were separately asked how they felt their intentional viewing of any pornography and violent pornography had changed in the 12 months preceding completion of the survey compared with their intentional viewing more than 12 months ago. Respondents were given the option of indicating that it had increased, decreased or stayed the same or that their intentional viewing of any/violent pornography had commenced less than 12 months prior. Two binary variables were created indicating whether respondents' intentional viewing of any pornography and violent pornography had increased across the two time periods. Those who started intentionally viewing any/violent pornography in the 12 months preceding completion of the survey were recorded as having increased their intentional viewing, having gone from not intentionally viewing it at all to intentionally viewing it. Those who indicated never having intentionally viewed any/violent pornography across both time periods were recorded as not having increased their intentional viewing. These were included as covariates in a number of the models examining the effect of frequent intentional viewing of any pornography or violent pornography on the likelihood of perpetrating sexual violence.

Self-control

Self-control, or the ability to change and inhibit undesirable internal impulses and refrain from acting on them, was measured with the Brief Self-Control Scale (BSCS; Tangney, Baumeister & Boone 2004). The BSCS constitutes a condensed version of the larger 36-item Self-Control Scale developed by the same authors and consists of 13 items. Responses are recorded on a five-point Likert scale ranging from 1='Strongly disagree' to 5='Strongly agree'. While the BSCS exhibits strong reliability and validity across multiple demographic and socio-cultural groups (eg Brevers et al. 2017; Lindner, Nagy & Retelsdorf 2015; Maloney, Grawitch & Barber 2012; Malouf et al. 2014; Nebioglu et al. 2012; Tangney, Baumeister & Boone 2004), debate regarding its factor structure pervades much of this research. More recent research supports both unidimensional and multidimensional factor structures, with a unidimensional approach to scoring considered appropriate for the prediction of outcomes (Manapat et al. 2021).

Responses were summed across the 13 items for each respondent to derive a global self-control score, with higher scores indicating stronger self-control. The minimum possible score was subtracted from these scores to rescale them, so that possible scores range from zero to 52. Responses to questions 87_2 ('I have a hard time breaking bad habits'), 87_3 ('I am lazy'), 87_4 ('I say inappropriate things'), 87_5 ('I do certain things that are bad for me, if they are fun'), 87_7 ('I wish I had more self-discipline'), 87_9 ('Pleasure and fun sometimes keep me from getting work done'), 87_10 ('I have trouble concentrating') and 87_12 ('Sometimes I can't stop myself from doing something, even if I know it is wrong') were reverse coded prior to summing.

Support for and perpetration of abuse among family and friends

The strength of pro-abuse influences in respondents' family and friendship networks were measured with items based on two short scales developed by DeKeseredy and Schwartz (1998). The first examines pro-abuse advice and asks whether anyone in respondents' family or friendship networks had ever made one or more comments to them that were supportive of physical, sexual or psychological violence against dates or partners. The second examines physical, sexual or psychological violence against dates or partners that respondents had actually witnessed those in their family or friendship networks engage in. Four binary variables were operationalised indicating whether respondents had ever been exposed to pro-abuse advice or witnessed abusive behaviour by anyone in their family or friendship networks.

Demographic and personal information

The following respondent characteristics were included in all models as covariates:

- Age—a categorical variable coded as follows: 1=20–24 years, 2=25–29 years, 3=30–34 years, 4=35–39 years, and 5=40–45 years;
- Immigrant status—a binary variable indicating whether respondents had been born outside of Australia;
- Language other than English (LOTE) spoken at home—a binary variable indicating whether respondents spoke a language other than English at home most of the time;
- Residence outside of a major city—a binary variable indicating whether respondents resided outside of a state/territory capital (ie Sydney, Melbourne, Brisbane, Perth, Adelaide, Hobart) or Canberra, Australia's national capital. These are also generally Australia's largest urban centres by population. This question was developed by the survey provider to facilitate the quota sampling process, and Darwin—the capital city of the Northern Territory—was not specified as a separate response option from the rest of the Northern Territory;
- Relationship history—a categorical variable coded as follows: 0=never been in a romantic, intimate or sexual relationship with another person; 1=have been in a romantic, intimate or sexual relationship with another person but not in a relationship at the time of completing the survey; and 2=in a romantic, intimate or sexual relationship at the time of completing the survey. This variable was formed based on two survey questions asking, first, whether respondents had ever been in a romantic, sexual or intimate relationship, and second, what their relationship status was at the time of completing the survey.

Analytic strategy

Analytic sample

The analytic sample was limited to respondents in the full sample who described themselves as heterosexual cisgender men (ie men whose gender identity matched their sex recorded at birth) who were 20 years of age or over at the time of completing the survey. Gender and sexual identity were self-reported. The survey included data items from the ABS (2020) Standard for Sex, Gender, Variations of Sex Characteristics and Sexual Orientation Variables. Sixty-two respondents, or 1.2 percent of the entire sample, did not provide information on their gender or sexuality and were excluded from analysis. Additionally, a small number of respondents who indicated never having viewed pornography intentionally or unintentionally (3.8%, *n*=77) or who provided no response (1.8%, *n*=36) were also excluded so that the base categories for independent variables only included those who had never *intentionally* viewed pornography. This left an analytic sample of 1,915 respondents.

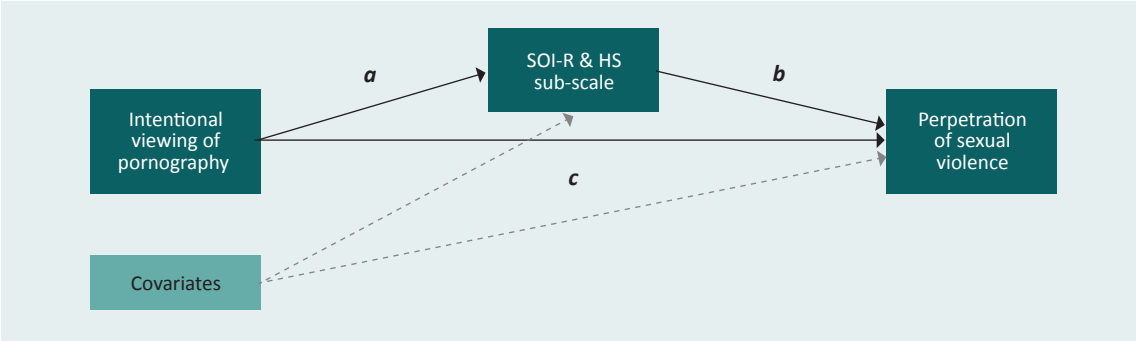
Data setup and multiple imputation

All data cleaning, setup and analyses were run in Stata 16.1. Multiple imputation was used to estimate missing data. Multiple imputation estimates multiple plausible values based on observed data to fill in missing data (Carpenter et al. 2023). In effect, it creates multiple copies of a dataset, each with different sets of imputed values. Statistical analyses are run on each dataset and the results are pooled to generate an overall result (Rubin 1988). Multiple imputation avoids the significant loss of data and potential biases in results that would occur if large numbers of cases with missing data were simply omitted. Additionally, because it generates a range of possible values for missing responses, reflecting the predictive distribution of these responses given observed data, it incorporates the uncertainty in what these responses might have been into measures of precision (ie standard errors and confidence intervals) around estimates of interest. Missing responses were imputed in this report using multiple imputation by chained equations (Raghunathan et al. 2001), which allows for the imputation of missing values across different variable types and accommodates conditional logic (ie survey questions that are only asked if certain responses are given to previous questions) in data collection tools. Forty imputations were generated. More information on this can be found in *Appendix A*. All results presented hereafter, unless otherwise indicated, have been pooled from across multiple imputed datasets.

Analyses

The analysis proceeded in three phases and centred on examining the causal model outlined in Figure 1, which is derived from the confluence model of sexual violence explained above.

Figure 1: Hypothesised causal model for intentional pornography viewing and sexual violence perpetration



Phase 1: Overall effects of intentional pornography viewing

After preliminary descriptive and bivariate analyses, the first phase of the analysis used logistic regression models to examine the extent to which the intentional viewing of pornography up until 12 months prior to survey completion is associated with a change in the likelihood of having perpetrated sexual violence in the 12 months preceding survey completion (ie the total effect of pornography on sexual violence perpetration; *ab*+*c* in Figure 1). The perpetration of any sexual violence was modelled on the prevalence and frequency of intentionally viewing any pornography and violent pornography, along with covariates.

Phase 2: Mediation analysis

The mediation analysis built on the analysis in phase 1 by examining how, if at all, the intentional viewing of pornography might lead to the perpetration of sexual violence. Statistically, this involved decomposing the total effect of pornography on sexual violence perpetration identified in phase 1 into direct and indirect effects (ie *c* and *ab* in Figure 1, respectively). The indirect effect is the portion of a predictor's total effect on an outcome that is exerted through the predictor's influence on some intervening, or mediator, variable(s) (Hayes 2022). It constitutes the change that occurs in an outcome variable with a one-unit change in a predictor variable through a corresponding change of *x* units in one or more mediating variable(s). The direct effect is the portion of the total effect remaining once the indirect effect is accounted for. This decomposition is achieved in the current report through the use of inverse odds ratio weights (IORW; Nguyen et al. 2015; Tchetgen Tchetgen 2013), which condense information on the association of a predictor with one or more mediators into a weight. Models of an outcome on a predictor corrected with IORWs effectively control for any indirect effects through specified mediators, allowing for estimation of the direct effect. This is then subtracted from the total effect to derive the indirect effect. The IORW approach to mediation analysis accommodates multiple types of predictor, mediator and outcome variables, and, critically for this analysis, allows for the estimation of an indirect effect through multiple mediators, including interacting mediators.

The mediation analysis was run in the following steps:

1. The total effect of intentional pornography viewing on sexual violence perpetration was estimated, controlling for covariates (ie the models run in phase 1 of the analysis);
2. The intentional viewing of pornography was modelled on SOI-R and HR sub-scale scores, along with covariates, and the resulting coefficients were used to assign IORWs to respondents at each level of intentional pornography viewing (those who had never intentionally viewed pornography were assigned an IORW of 1);
3. Existing sampling weights were multiplied by IORWs, which were used to weight models predicting sexual violence perpetration from the intentional viewing of pornography, controlling for covariates, to derive the direct effect;
4. The indirect effect of intentional pornography viewing was calculated by subtracting the direct effect from the total effect;
5. The above procedure was bootstrapped (5,000 replications) to derive standard errors and confidence intervals for total, direct and indirect effects, as well as covariates.

The extent to which SOI-R and HR scores mediate the effect of intentional pornography viewing on the perpetration of sexual violence was ascertained based on the extent to which indirect effects differed from zero. Mediation analyses were run to examine the mediating effect of SOI-R and HR scores combined and separately.

Phase 3: Moderated mediation analysis

The third phase of the analysis examined whether the indirect effect of intentional violent pornography viewing identified in phase 2 of the analysis depends on, or is moderated by, respondents' pre-existing risk of sexual violence. This phase of the analysis essentially examined whether the indirect effect of intentional violent pornography viewing is as important to explaining sexual violence in higher risk individuals as in lower risk individuals. Given the absence of information on respondents' risk of sexual violence prior to intentionally viewing violent pornography, a proxy measure of this was required. Respondents' perpetration of sexual violence from when they turned 18 years of age up until 12 months preceding completion of the survey was used for this purpose. As will be shown, this variable emerged as the strongest predictor, by far, of sexual violence perpetration in the past 12 months across all models after controlling for prior and more recent intentional pornography viewing, and other individual and experiential factors.

Mediation analyses were run following the same steps outlined in phase 2, except the models run in steps 1 and 3 included an intentional viewing of pornography by prior perpetration of sexual violence interaction, which was used to derive the total and direct effects of the former at each level of the latter. The model in step 2 also included prior perpetration of sexual violence by SOI-R and HR score interactions. These were then used, as in step 5 above, to obtain the indirect effect of intentional pornography viewing on sexual violence perpetration based on whether respondents had a prior history of sexual violence perpetration.

Measuring the effect of pornography

The multivariate analyses described above used marginal effects based on marginal probabilities as the key measure of pornography's effect on sexual violence perpetration. Marginal probabilities represent the probability of an outcome adjusted for covariates (Muller & MacLehose 2014). In this study, marginal effects represent differences in the marginal probabilities of sexual violence perpetration between those who do and do not intentionally view pornography, or between those who intentionally view it with different levels of frequency. Bootstrap confidence intervals of 95% and 90% are used to assess the degree of uncertainty in the estimates of marginal effects derived from these multivariate models. Narrower intervals suggest less uncertainty in the magnitude of effects. Intervals that do not cross zero (ie lower and upper values are both positive or both negative) suggest less uncertainty in the direction of effects, and are used to assess statistical significance. Confidence intervals of 95% that do not cross zero mean that an effect is statistically significant at $p<0.05$, while 90% confidence intervals that do not cross zero mean that an effect is statistically significant at $p<0.10$. Importantly, given appropriate measures and sufficient sample sizes and representativeness, overlapping confidence intervals for outcome estimates across levels of a predictor variable are suggestive of small or no differences across this variable in the outcome.

Marginal effects are used in place of the more commonly used odds ratios to provide a more tangible and practically relevant understanding of the effect of intentional pornography viewing on sexual violence. Odds ratios are the odds of an outcome (in this study, the perpetration of sexual violence) with an intervention or exposure (in this study, intentional pornography viewing) compared to the odds of this outcome in the absence of, or less frequent contact with, an intervention or exposure (Menard 2002). Odds ratios greater than 1.0 indicate that the odds of sexual violence perpetration are higher among those who intentionally view, or more frequently view, pornography, and odds ratios between 0 and 0.99 indicate that the odds of sexual violence perpetration are lower among these individuals. Odds ratios and marginal effects are different but related effect size measures in that they present the same results on different scales. All results are presented as odds ratios in *Appendix C*.

Limitations

This research relies on self-reported data volunteered in response to survey questions. Some of these questions asked about sensitive information, and information concerning behaviours or experiences that occurred a long time ago or over a long period of time. Limitations regarding respondents' reluctance or inability to answer these questions accurately, honestly or at all are acknowledged. Regarding the former, questions regarding pornography viewing, sexual violence perpetration and other sensitive topics were worded in a neutral, non-stigmatising and behaviourally-focused manner to encourage honest responses and minimise ambiguity. Furthermore, multiple imputation partially addresses the issue of non-response, as does the omission of nonsensical and poor-quality responses.

Importantly, while proportional quota-based sampling and sample weights were used to maximise the representativeness of the sample, it is noted that the completion rate for one of the panels used (2.2%) is slightly lower than that of other online panels (Pennay et al. 2023; Tourangeau & Yan 2007). While the completion rate for the other panel is unknown, it is likely that a larger number of people from this panel who were invited to participate declined as well given the sensitive nature of the questions asked in this survey. Furthermore, while the representativeness of the survey regarding age, gender and place of residence is known, its representativeness in relation to other characteristics is not. As such, some care should be taken in generalising these results.

The definition of 'violent pornography' in this study is based on the depiction of a variety of specific violent behaviours. The framing and context of these behaviours by the material's creators, performers and distributors is not considered in this definition. This means that the term, as it is defined, could cover the intentional viewing of material ranging from illegal content showing non-consensual sexual activity through to legal content, including that showing consensual BDSM activities. There is little research scrutinising the different types of pornography that depict violence, and it is unknown whether they are differentially associated with sexual violence perpetration and other problematic behaviours. Nevertheless, the breadth of the definition adopted in this study is acknowledged as a limitation.

In its description of hostile sexism, the confluence model includes both a generalised hostility to women and an interest in sexually controlling and dominating them. The latter, which could be construed as a sexual interest in or preference for violence, is not specifically captured in the measure of hostile sexism used in this study. As such, findings may underestimate the indirect effect of intentional pornography viewing on sexual violence perpetration.

This study examines the relationship between prior intentional pornography viewing and more recent sexual violence using data on both collected at a single point in time. The limitations of this approach to establishing the temporal precedence of these two phenomena compared with a longitudinal survey are acknowledged. Relatedly, it is not possible to temporally sequence mediating and outcome variables with these data. In phase 3 of the analysis, prior perpetration of sexual violence is strongly associated with the more recent perpetration of sexual violence, after accounting for other individual and contextual covariates. This supports its use as a measure of prior individual risk for the purposes of moderated mediation analysis. However, it is not possible to disentangle the portion of this association that is due to the stronger propensity for sexual violence that a respondent already had before engaging in it from the portion due to the respondent's habituation to sexual violence after engaging in it (eg Clarke & Cornish 1985; Thornberry & Krohn 2005). This, too, is acknowledged as a limitation.

Results

Sample characteristics and preliminary analyses

Table 1 summarises the characteristics of the analytic sample. Statistics based on imputed and non-imputed data are presented. Tables B1–B4 in *Appendix B* present bivariate statistics for sample characteristics by intentional pornography viewing and sexual violence perpetration.

Table 1: Sample characteristics

	Imputed[a]	Non-imputed
Frequency of intentional viewing of any pornography more than 12 months ago (%)[b]		
Never	12.6	12.6
Once a month or less	16.5	15.3
Several times a month	21.5	21.9
Once a week	14.5	14.7
Several times a week	28.0	28.5
Once a day	4.4	4.5
Several times a day	2.4	2.5
Frequency of intentional viewing of violent pornography more than 12 months ago (%)[c]		
Never	55.2	54.6
Once a month or less	22.2	21.8
Several times a month	9.3	9.6
Once a week	6.0	6.3
Several times a week	4.9	5.3
Once a day	1.2	1.3
Several times a day	1.1	1.1
Intentionally viewed any pornography in the past 12 months (%)[d]	87.8	89.1
Intentionally viewed violent pornography in the past 12 months (%)[e]	43.0	48.4
Increase in frequency of intentional viewing of any pornography in the past 12 months (%)[f]	8.0	7.3
Increase in frequency of intentional viewing of violent pornography in the past 12 months (%)[g]	5.9	5.1
Perpetration of sexual violence in the past 12 months (%)[h]	12.7	12.1
Perpetration of sexual violence more than 12 months ago (%)[h]	23.4	22.8

Table 1: Sample characteristics (cont.)

	Imputed[a]	Non-imputed
Sexual victimisation more than 12 months ago (%)	45.2	44.7
SOI-R (*M*)[i]	16.9	17.0
HS sub-scale (*M*)[j]	21.5	21.8
BSCS (*M*)[k]	28.2	28.4
Pro-abuse advice from family members (%)[l]	5.0	4.5
Pro-abuse advice from friends (%)[l]	6.7	6.4
Abusive family members (%)[m]	16.8	22.3
Abusive friends (%)[n]	21.1	26.3
Age in years (%)[o]		
20–24	17.8	17.8
25–29	19.2	19.2
30–34	20.0	20.0
35–39	21.1	21.1
40–45	21.9	21.9
Born overseas (%)[p]	22.0	21.8
Language other than English at home (%)[p]	10.2	10.3
Residence outside of a major city (%)[o]	28.9	28.9
Relationship history (%)[q]		
Never	7.9	7.5
Previously in a relationship but not currently	26.5	26.2
Currently in a relationship	65.6	66.3

a: *n*=1,915

b: Non-imputed statistic excludes 191 respondents who did not provide this information

c: Non-imputed statistic excludes 260 respondents who did not provide this information

d: Non-imputed statistic excludes 102 respondents who did not provide this information

e: Non-imputed statistic excludes 177 respondents who did not provide this information

f: Non-imputed statistic excludes 151 respondents who did not provide this information

g: Non-imputed statistic excludes 214 respondents who did not provide this information

h: Non-imputed statistic excludes 225 respondents who did not provide information for one or more of the items used to generate this variable

i: Non-imputed statistic excludes 375 respondents who did not provide information for one or more items on this scale

j: Non-imputed statistic excludes 432 respondents who did not provide information for one or more items on this scale

k: Non-imputed statistic excludes 157 respondents who did not provide information for one or more items on this scale

l: Non-imputed statistic excludes 70 respondents who did not provide this information

m: Non-imputed statistic excludes 155 respondents who did not provide information for one or more items on this scale

n: Non-imputed statistic excludes 146 respondents who did not provide information for one or more items on this scale

o: Not imputed, as there were no missing data

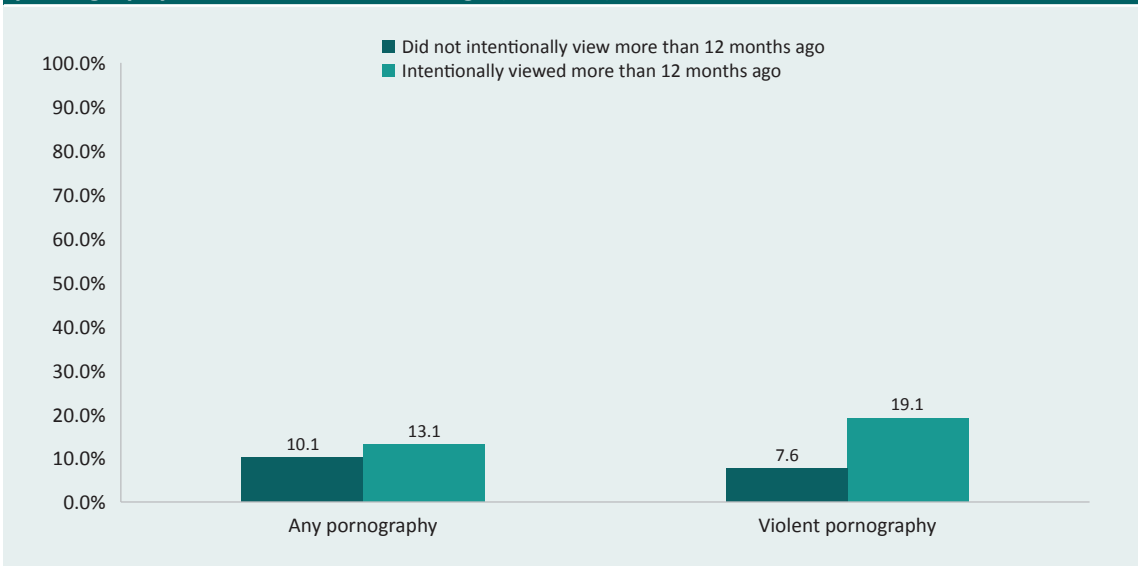
p: Non-imputed statistic excludes 5 respondents who did not provide this information

q: Non-imputed statistic excludes 11 respondents who did not provide this information

Source: AIC Pornography Use and Sexual Aggression Survey 2023 [computer file] [imputed and weighted data]

Figure 2 plots the raw percentages (ie unadjusted for covariates) of respondents who had perpetrated sexual violence in the past 12 months by whether they had intentionally viewed any pornography and violent pornography more than 12 months prior to survey completion. Those who had intentionally viewed any pornography were 30 percent more likely to have perpetrated sexual violence than those who had not, although this only represents a three percentage point difference. Furthermore, this was not statistically significant (p=0.220). Meanwhile, those who had intentionally viewed violent pornography were over twice as likely to have perpetrated sexual violence as those who had not. This represents a more substantial difference of 11.5 percentage points and is statistically significant (p<0.001).

Figure 2: Percentage of respondents who had perpetrated sexual violence in the past 12 months, by whether they had intentionally viewed any pornography and violent pornography more than 12 months ago (n=1,915)

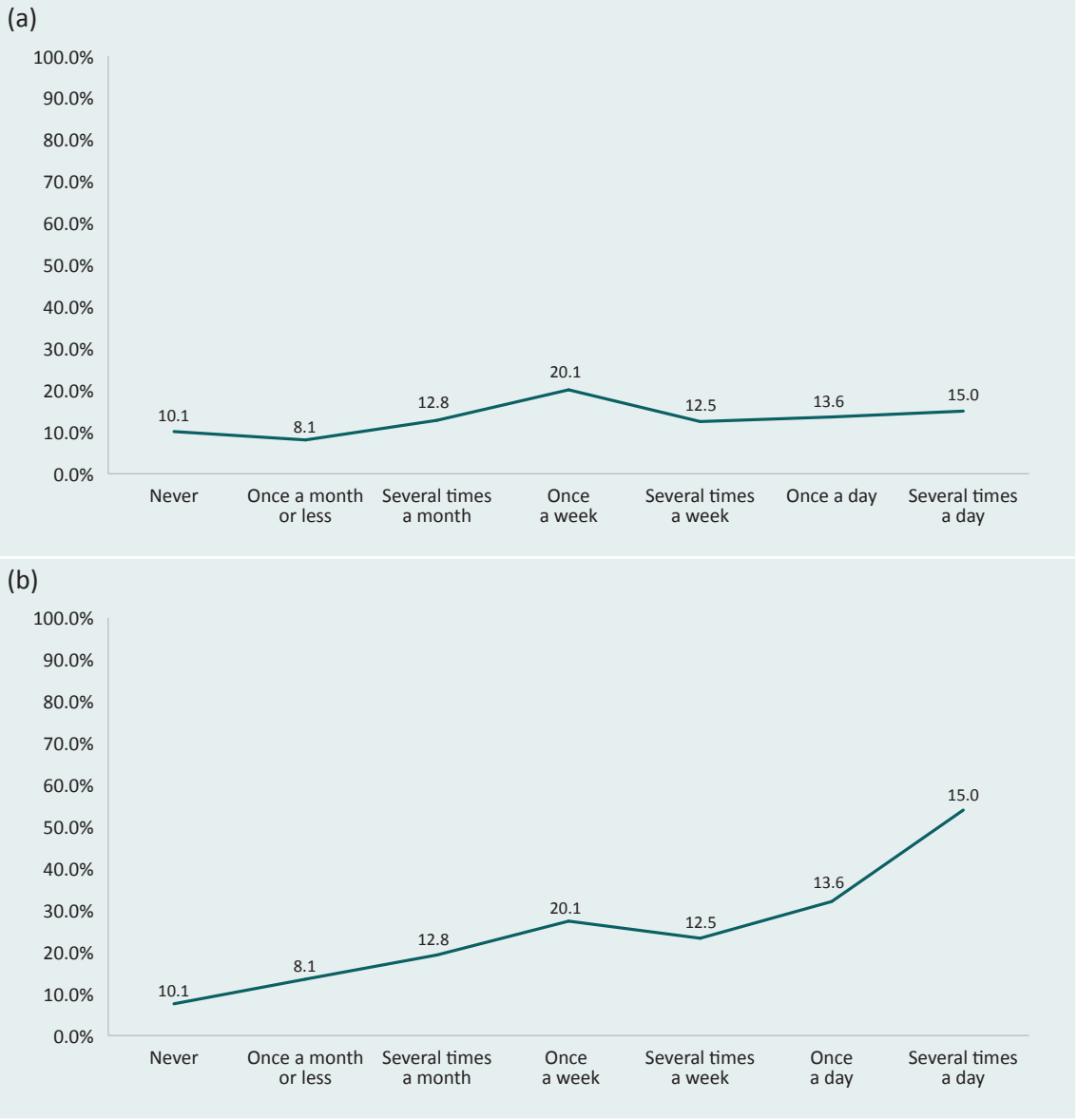


Source: AIC Pornography Use and Sexual Aggression Survey 2023 [computer file] [imputed and weighted data]

Figure 3 plots the raw percentages of respondents who had perpetrated sexual violence in the past 12 months based on how frequently they indicated intentionally viewing any pornography and violent pornography more than 12 months prior to survey completion. Focusing on the intentional viewing of any pornography, Figure 3(a) shows that the percentage of respondents who had perpetrated sexual violence ranged from 10.1 percent of those who indicated never having viewed it to 15.0 percent of those who indicated viewing it several times a day. Aside from a spike in this proportion among those who intentionally viewed any pornography once a week to 20.1 percent, these percentages only exhibit a small increase as frequency of viewing increases, and the association is not statistically significant (p=0.124).

Turning to the intentional viewing of violent pornography, the percentage of respondents who had perpetrated sexual violence ranged from 7.6 percent of those who indicated never having viewed it to 54.0 percent of those who indicated viewing it several times a day. Again, there is a spike among those who intentionally viewed violent pornography once a week to 27.4 percent, although percentages mostly continue increasing after this. This association is statistically significant (p<0.001).

Figure 3: Percentage of respondents who had perpetrated sexual violence in the past 12 months, by frequency of intentional viewing of (a) any pornography and (b) violent pornography more than 12 months ago (*n*=1,915)



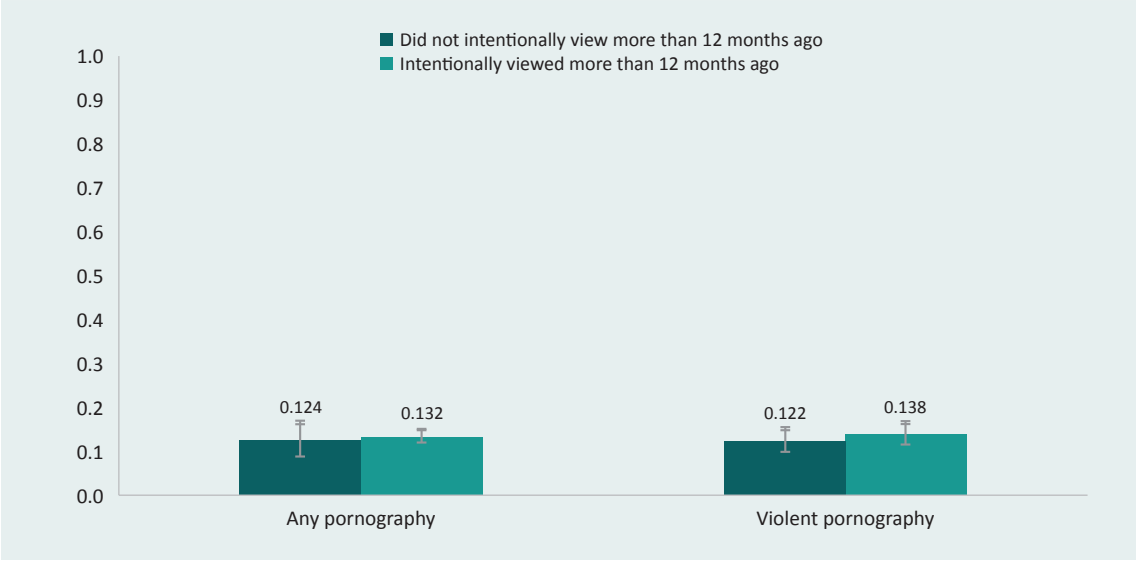
Source: AIC Pornography Use and Sexual Aggression Survey 2023 [computer file] [imputed and weighted data]

Phase 1: Total effect of intentional pornography viewing

Marginal (ie adjusted for covariates) probabilities of sexual violence perpetration in the past 12 months by whether respondents had ever intentionally viewed any pornography and violent pornography more than 12 months ago are presented in Figure 4.

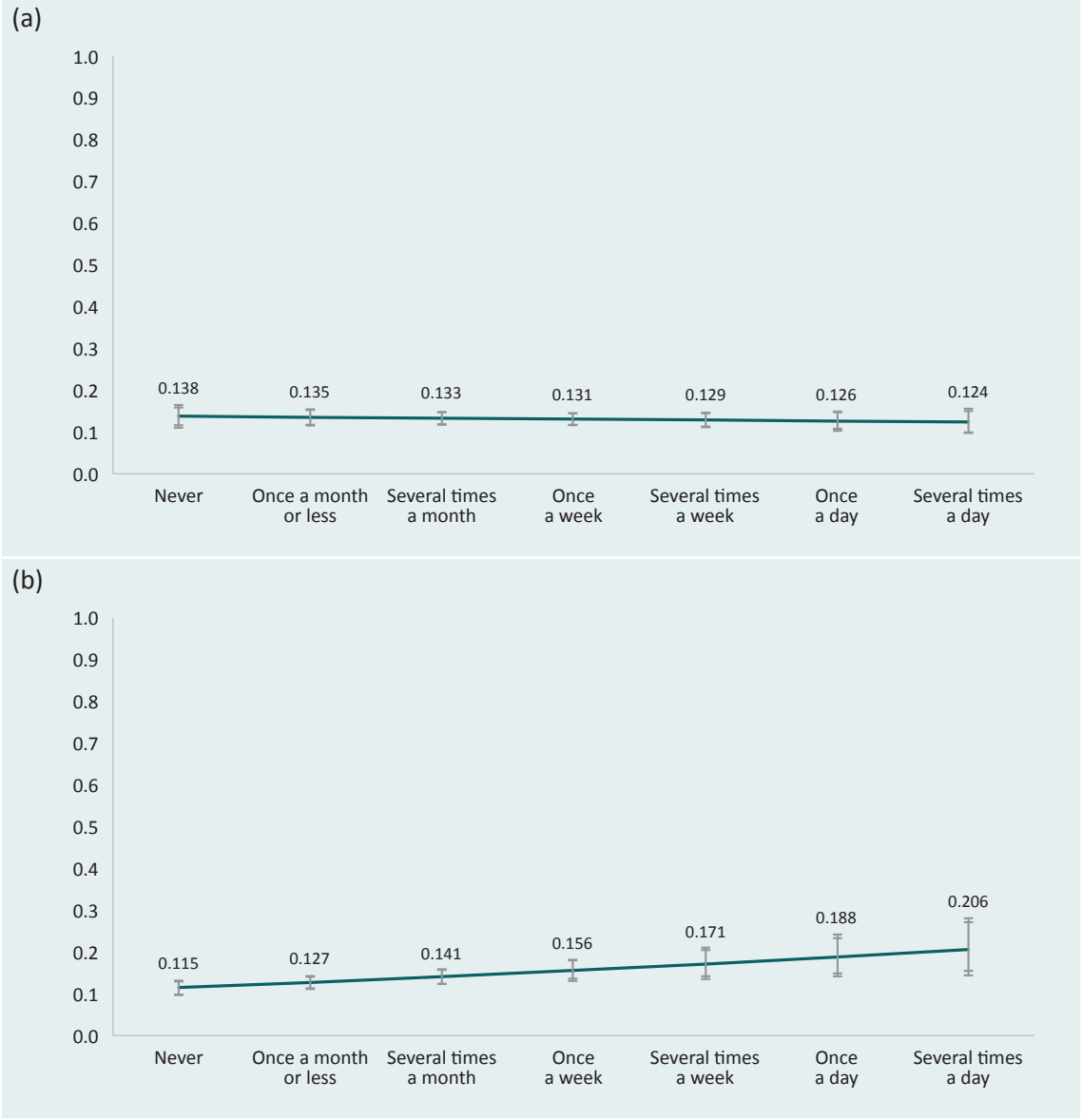
Figure 5 plots the marginal probabilities of sexual violence perpetration in the past 12 months by frequency of intentional pornography viewing more than 12 months ago. The marginal probabilities of sexual violence perpetration for those who had never intentionally viewed any pornography and violent pornography differ across Figures 4 and 5 due to differences in how pornography variables are operationalised (factor vs continuous). Full model results are presented in *Appendix C* (Tables C1–C4). The intentional viewing of any pornography in the last 12 months was omitted from the model predicting sexual violence perpetration based on whether respondents had intentionally viewed any pornography more than 12 months ago (Table C1, *Appendix C*) as no respondents who had intentionally viewed any pornography more than 12 months ago reported having ceased doing so in the preceding 12 months. The frequency of viewing any pornography and violent pornography were entered as continuous variables into these models. The unadjusted results presented above suggest a predominantly linear relationship between the frequency of intentionally viewing any pornography and violent pornography and sexual violence perpetration. Modelling of a quadratic relationship between these variables and sexual violence perpetration resulted in poorer model fit. Treating these as continuous variables also allowed for the instantaneous rate of change (IRC) to be derived as a summary measure of the marginal effect of frequent intentional pornography viewing. In this analysis, the IRC represents the average change in the marginal probability of sexual violence perpetration per unit increase in the frequency of intentional pornography viewing, adjusted for covariates. Positive IRCs represent an average increase in the probability of sexual violence perpetration as the frequency of intentional pornography viewing increases, and negative IRCs represent an average decrease.

Figure 4: Marginal probability of respondents having perpetrated sexual violence in the past 12 months, by whether they had intentionally viewed any pornography and violent pornography more than 12 months ago (*n*=1,915)



Note: Error bars depict 95% (outer cap) and 90% (inner cap) confidence intervals
Source: AIC Pornography Use and Sexual Aggression Survey 2023 [computer file] [imputed and weighted data]

Figure 5: Marginal probability of respondents having perpetrated sexual violence in the past 12 months, by frequency of intentional viewing of (a) any pornography and (b) violent pornography more than 12 months ago (*n*=1,915)



Note: Error bars depict 95% (outer cap) and 90% (inner cap) confidence intervals
Source: AIC Pornography Use and Sexual Aggression Survey 2023 [computer file] [imputed and weighted data]

The marginal probabilities of sexual violence perpetration among those who had ever intentionally viewed any pornography and those who had not were almost equal (0.124 vs 0.132). This represents an increase of only 0.008, or 6.4 percent. Furthermore, narrow and strongly overlapping confidence intervals indicate that this difference is statistically non-significant (95% CI [0.116, 0.148] vs [0.085, 0.167]; 90% CI [0.119, 0.146] vs [0.091, 0.160]). Furthermore, the marginal probability of sexual violence perpetration among those who had intentionally viewed violent pornography was only 0.016, or 13.2 percent, higher than among those who had not (0.138 vs 0.122), with narrow and strongly overlapping confidence intervals also indicating that this difference is statistically non-significant (95% CI [0.114, 0.165] vs [0.096, 0.150]; 90% CI [0.118, 0.160] vs [0.100, 0.146]).

The marginal probabilities of respondents having perpetrated sexual violence vary little across different frequencies of intentional viewing of any pornography. The IRC is only −0.002, which represents a very slight decrease in the probability of sexual violence perpetration with a one-unit increase in the frequency with which any pornography is viewed, and is not statistically significant (95% CI [−0.011, 0.007]; 90% CI [−0.009, 0.005]). On the base level probability, this represents a decrease of 1.5 percent in the marginal probability of sexual violence with a one-unit increase in frequency. Comparing marginal probabilities at the highest ('Several times a day') and lowest ('Never') points on the frequency scale, results show a small 0.014, or 10.2 percent, overall decrease in the marginal probability of sexual violence perpetration. Meanwhile, the marginal probability of respondents having perpetrated sexual violence increases as the frequency of intentionally viewing violent pornography increases. The IRC is 0.013, which is statistically significant (95% CI [0.003, 0.021]; 90% CI [0.005, 0.020]). On the base level probability, this represents an increase of 11.3 percent in the marginal probability of sexual violence with each one-unit increase in frequency. Additionally, there is an increase of 0.091, or 79.1 percent, in the marginal probability of sexual violence perpetration from the lowest to the highest points on the frequency scale.

Phase 2: Mediation analysis

Based on the results of phase 1 of the analysis, and guided by the results of prior research, phases 2 and 3 were limited to an examination of the frequency with which violent pornography was intentionally viewed. There is a statistically significant (unadjusted) association between SOI-R and HS scores and the perpetration of sexual violence (Table B5, *Appendix B*), along with the frequency with which violent pornography was intentionally viewed (Table B3, *Appendix B*). Respondents who indicated having perpetrated sexual violence in the past 12 months scored, on average, about two points higher on the SOI-R and HS sub-scale. The intentional viewing of violent pornography was similarly associated with higher scores on both.

Results of the mediation analysis are presented in Table 2. Of the total effect of frequency of intentional violent pornography viewing more than 12 months ago on sexual violence perpetration in the preceding 12 months (0.013), results show that 0.005, or a little under half, is accounted for by the former's association with SOI-R and HS sub-scale scores together, with 0.008 left unaccounted for. This is statistically significant at 95% confidence intervals. Results also show that SOI-R scores (0.005) and HS sub-scale scores (0.005) separately account for a similar portion of the total effect. The indirect effect of the SOI-R is non-significant at 95% confidence intervals but significant at 90% confidence intervals, while the indirect effect of the HS sub-scale is significant at both.

Table 2: Mediation of the association between the frequency of intentional violent pornography viewing more than 12 months ago and the probability of respondents having perpetrated sexual violence in the past 12 months by SOI-R and HS sub-scale scores (*n*=1,915)

	IRC (SE)	95% CI	90% CI
Total	0.013 (0.004)	0.003, 0.021	0.005, 0.020
SOI-R and HS sub-scale			
Indirect	0.005 (0.002)	0.001, 0.010	0.001, 0.009
Direct	0.008 (0.004)	−0.001, 0.016	0.001, 0.015
SOI-R			
Indirect	0.005 (0.002)	−0.001, 0.010	0.001, 0.008
Direct	0.008 (0.004)	−0.001, 0.017	0.001, 0.015
HS sub-scale			
Indirect	0.005 (0.002)	0.001, 0.010	0.002, 0.010
Direct	0.008 (0.004)	−0.001, 0.016	0.001, 0.014

Note: IRC=instantaneous rate of change, SE=standard error, CI=confidence interval, SOI-R=Revised Sociosexual Orientation Inventory, HS=Hostile Sexism sub-scale

Source: AIC Pornography Use and Sexual Aggression Survey 2023 [computer file] [imputed and weighted data]

Phase 3: Moderated mediation analysis

As the results so far show, the prior (ie from 18 years of age up to 12 months ago) perpetration of sexual violence is a strong predictor of sexual violence perpetration in the past 12 months. Prior sexual violence perpetration also exhibits a significant bivariate association with the frequency of intentional violent pornography viewing (Table B3, *Appendix B*) and with SOI-R scores (but not HS sub-scale scores; Table B6, *Appendix B*).

Results of the moderated mediation analysis are presented in Table 3. This analysis was undertaken with both SOI-R and HS sub-scale scores included as mediators only. Looking first at the total effect, the marginal probability of respondents with no prior perpetration of sexual violence having perpetrated sexual violence in the past 12 months increases as the frequency of intentionally viewing of violent pornography more than 12 months ago increases. The IRC is 0.010, which is statistically significant (95% CI [0.001, 0.018]; 90% CI [0.003, 0.016]). Meanwhile, the marginal probability of having perpetrated sexual violence in the past 12 months among respondents with a history of sexual violence perpetration also increases as the frequency of intentionally viewing of violent pornography more than 12 months ago increases. The IRC is 0.024, which is not statistically significant at 95% confidence intervals (−0.004, 0.049), but is at 90% confidence intervals (0.001, 0.045).

Table 3: Mediation of the association between the frequency of intentional violent pornography viewing more than 12 months ago and the probability of respondents having perpetrated sexual violence in the past 12 months by SOI-R and HS sub-scale scores, moderated by perpetration of sexual violence longer than 12 months ago (*n*=1,915)

	IRC (SE)	95% CI	90% CI
Total			
No prior perpetration	0.011 (0.004)	0.002, 0.019	0.003, 0.017
Prior perpetration	0.024 (0.014)	−0.004, 0.049	0.001, 0.045
SOI-R and HS sub-scale			
Indirect			
No prior perpetration	0.005 (0.003)	−0.001, 0.013	0.001, 0.011
Prior perpetration	0.001 (0.009)	−0.016, 0.021	−0.013, 0.018
Direct			
No prior perpetration	0.005 (0.004)	−0.004, 0.013	−0.003, 0.012
Prior perpetration	0.023 (0.016)	−0.012, 0.052	−0.006, 0.048

Note: IRC=instantaneous rate of change, SE=standard error, CI=confidence interval, SOI-R=Revised Sociosexual Orientation Inventory, HS=Hostile Sexism sub-scale

Source: AIC Pornography Use and Sexual Aggression Survey 2023 [computer file] [imputed and weighted data]

Of the total effect of frequency of intentional violent pornography viewing more than 12 months ago on sexual violence perpetration in the past 12 months for those with no prior sexual violence perpetration, results show that 0.005, or around half, was accounted for by the former's association with SOI-R and HS sub-scale scores together. This just falls outside the bounds of statistical significance at 95% confidence intervals (−0.001, 0.012) but is statistically significant at 90% confidence intervals (0.001, 0.011). Meanwhile, the indirect effect of intentional violent pornography viewing through SOI-R and HS sub-scale scores for those with a history of sexual violence perpetration (0.001) is close to zero and statistically non-significant (95% CI [−0.016, 0.021]; 90% CI [−0.013, 0.018]). Given the non-significance of this indirect effect, and its imprecision, significance testing of the difference between the indirect effects of those with and without a history of sexual violence perpetration was not undertaken.

Discussion

The current study examined the association of pornography use with sexual violence in a nationally representative sample of heterosexual cisgender men. It addressed the following questions:

- To what extent is the intentional viewing of pornography associated with the perpetration of sexual violence?
- To what extent is any association between intentional pornography viewing and the perpetration of sexual violence due to impersonal sex and hostile sexism?

Key findings and conclusions, and their implications, are discussed below.

Summary of key results and conclusions

The intentional viewing of pornography is common among Australian heterosexual cisgender men aged 20–45 years, with almost 90 percent having intentionally viewed it up until 12 months prior to survey completion, and around half having intentionally viewed it at least once a week during this period. Comparing those who had and had not intentionally viewed any pornography across this period, the former are only slightly more likely to have perpetrated sexual violence in the 12 months prior to survey completion, a difference that shrinks even further when other factors are accounted for. These differences are not statistically significant. Turning to the frequency of intentional viewing, results similarly suggest little association with sexual violence perpetration. When other factors were accounted for, results suggest that the probability of sexual violence perpetration barely changes as the frequency of intentional pornography viewing increases. These results suggest that:

1. The intentional viewing of any pornography, and the frequency with which it is intentionally viewed, is not associated with an increased likelihood of perpetrating sexual violence in heterosexual cisgender men.

Almost half of the sample reported having intentionally viewed pornography depicting violence in the period up until 12 months prior to completing the survey, and a little over a tenth indicated intentionally viewing it at least once a week. Comparing those who had and had not intentionally viewed violent pornography across this period, the former are over twice as likely to have perpetrated sexual violence, and this is statistically significant. However, this difference shrinks considerably, and becomes statistically non-significant, when other factors were accounted for, suggesting that a substantial portion of the difference here is due to factors other than the intentional viewing of violent pornography. Importantly, as the frequency with which the intentional viewing of violent pornography increases, so too does the probability of perpetrating sexual violence, albeit by a small, but still statistically significant, amount when other factors are accounted for. Together, these results suggest:

2. The more frequent intentional viewing of violent pornography is associated with a small increase in men's likelihood of perpetrating sexual violence.

Further analyses were undertaken of the association between the frequency of intentional violent pornography viewing and sexual violence perpetration to better understand possible causal pathways. Mediation analysis was used to examine the confluence model's (Malamuth & Briere 1986; Malamuth, Heavey & Linz 1996, 1993; Malamuth et al. 2021) assertion that pornography (particularly violent pornography) use increases the likelihood of sexual violence by intensifying one's promiscuous and emotionally detached orientation towards sex (ie impersonal sex, measured with the SOI-R (Penke & Asendorpf 2008)) and hostility to women (ie hostile sexism, measured with the HS sub-scale of the Ambivalent Sexism Inventory (Glick & Fiske 1996)). SOI-R and HS sub-scale scores are positively correlated, and both are significantly and positively associated with the perpetration of sexual violence and the frequency with which violent pornography was intentionally viewed, although these associations are generally small. Results of the mediation analysis show that a little under half of the total effect of frequency of intentional violent pornography viewing on sexual violence perpetration is accounted for by SOI-R and HS scores. Similar portions of this total effect are accounted for by each of these scores individually. Together, these results suggest:

3. The increased likelihood of perpetrating sexual violence among men who intentionally viewed violent pornography more frequently is due, in part, to violent pornography's strengthening of their promiscuous, emotionally detached orientation towards sex and their hostile attitudes towards women.

Finally, in a further examination of this indirect effect, moderated mediation analysis examined whether it is as important in higher risk individuals as in lower risk individuals. This extends from the confluence model's assertion that those already at higher risk of sexual violence will be more susceptible to the influence of pornography (particularly violent pornography). In the absence of data on respondents' individual risk of sexual violence perpetration before starting to intentionally view violent pornography, their prior perpetration of sexual violence was used as a proxy. In apparent contrast to the confluence model's contention, but somewhat consistent with some prior research (eg Wright, Paul & Herbenick 2021), results show that over half of the total effect for respondents who had not previously perpetrated sexual violence is mediated by SOI-R and HS sub-scale scores (although this was only statistically significant at 90% confidence intervals), while the total effect for respondents who had perpetrated sexual violence is almost completely unexplained by these factors. These results suggest:

4. The strengthening of a promiscuous, emotionally detached orientation towards sex and hostile attitudes towards women may be more important to explaining the influence of more frequent intentional violent pornography viewing on sexual violence perpetration in men at lower risk of sexual violence than those at higher risk.

Implications

Overall, findings support the potential for pornography depicting violence to increase the risk of perpetrating sexual violence in heterosexual cisgender men who view it. While the design of this research precludes the making of any causal claims on the basis of these findings alone, the findings do strengthen the groundwork for such claims in concert with prior research. However, there are several qualifications to this. First, the effect observed in the findings appears limited to the frequent viewing of violent pornography. This is largely consistent with the existing evidence, which is less ambiguous in its support for the contention that violent pornography, and the frequent use of it, matters most to explaining any effects of pornography on sexual violence. It is also consistent with learning and conditioning theories, which assert that pornography's entrenchment of sexually violent attitudes, desires and behaviours depends on the strength (ie frequency) and salience of one's exposure to violence and its rewards in this material. Put simply, the results suggest that pornography use will influence an individual's likelihood of ever perpetrating sexual violence where it involves frequent, intentional viewing of material that unambiguously depicts violence.

Second, the association between the frequent intentional viewing of violent pornography and the likelihood of perpetrating sexual violence observed in this research is, in absolute terms, small. This is not surprising given the complex array of factors that underpin people's decisions to perpetrate it. These findings, like those of prior research, emphasise the importance of addressing pornography's potential to influence sexual violence as part of broader and holistic efforts which address all relevant individual, interpersonal, community and societal factors. This is evident in Australia's *National Plan to End Violence against Women and Children 2022–2032* (Australian Department of Social Services 2022), which highlights the need for a coordinated, whole-of-society and multi-sectoral approach to addressing this violence, and identifies pornography as but one of a number of key areas of focus.

Third, the results suggest that a notable portion of violent pornography's association with sexual violence is indirect, through its fostering of a promiscuous, emotionally detached orientation towards sex and hostile attitudes towards women, making men more willing or open to using violence in pursuit of sex with women. This provides some support for the assertions of the confluence model of sexual violence against women regarding pornography (Malamuth & Briere 1986; Malamuth, Heavey & Linz 1996, 1993; Malamuth et al. 2021). It is interesting that the indirect effects of each separately are not additive to the indirect effect of both together in the analysis. This tentatively points to the confluence model's assertion that it is through the synergistic operation of both, rather than the separate operation of each, that pornography increases the likelihood of sexual violence. Importantly, a notable proportion of the total effect of intentional viewing of violent pornography on sexual violence perpetration was not explained by these factors. It is important to emphasise the current study's omission of other potential individual-level mediators, including violent sexual preferences (as distinct from a more general hostility to women), the sexual objectification of women, problematic understandings of sex and consent, and any physiological factors such as heightened arousal and sex drive, which could explain portions of this effect as well (Brownmiller 1980; Dworkin 1981; Gagnon & Simon 1973; Laws & Marshall 1990; MacKinnon 1989; Simon & Gagnon 1998; Wright 2014, 2011). Nevertheless, these findings provide some justification for the pursuit of broader efforts that focus on mitigating pornography's potential to ingrain problematic attitudes and cognitions regarding sex and relationships with women, including sex and healthy relationships educational initiatives and efforts within the pornography industry to increase the availability of feminist and ethically produced material.

Finally, and contrary to expectations, findings suggest that, while the association of intentional violent pornography viewing with sexual violence perpetration is similar across men at higher and lower pre-existing risk of sexual violence, impersonal sex and hostile sexism are far less important to explaining violent pornography's association with sexual violence perpetration among men at higher risk than men at lower risk. As noted, it is not possible to verify the extent to which prior sexual violence perpetration represents inherent individual risk (ie individual risk preceding initial perpetration of sexual violence) versus risk extending from habituation to sexual violence based on positively perceived early experiences perpetrating it (eg Clarke & Cornish 1985; Thornberry & Krohn 2005). If predominantly the former, the findings suggest that, contrary to the confluence model's assertions, impersonal sex and hostile sexism may actually be more important mechanisms for violent pornography's effect on sexual violence in individuals lower in these traits to begin with. If predominantly the latter, the findings suggest that impersonal sex and hostile sexism become less important as mechanisms for violent pornography's effect only after initially perpetrating sexual violence. This second interpretation leaves the way open for the confluence model to operate as hypothesised in the lead-up to initial perpetration, before diminishing in relevance with subsequent perpetration.

Nevertheless, the findings do point broadly to impersonal sex and hostile sexism becoming less important to violent pornography's effect on one's likelihood of sexual violence beyond a certain point. They also tentatively suggest that some of the measures discussed throughout this report for mitigating pornography's potential to ingrain certain problematic attitudes and cognitions could be less effective for higher risk individuals. This makes sense, given that they have been implemented, overwhelmingly, as primary prevention measures. More targeted and intensive measures which obstruct access to pornography for these individuals (eg blocks or filters on personal devices, probation and parole restrictions), as well as dedicated psychoeducational and therapeutic measures which address other potential mechanisms (eg Roza et al. 2024), may be more important in these instances.

This study has examined the association of pornography use and sexual violence in Australian heterosexual cisgender men. The findings build on an already extensive body of academic research examining this association, while also contributing to broader efforts in Australia and internationally to reduce violence against women.

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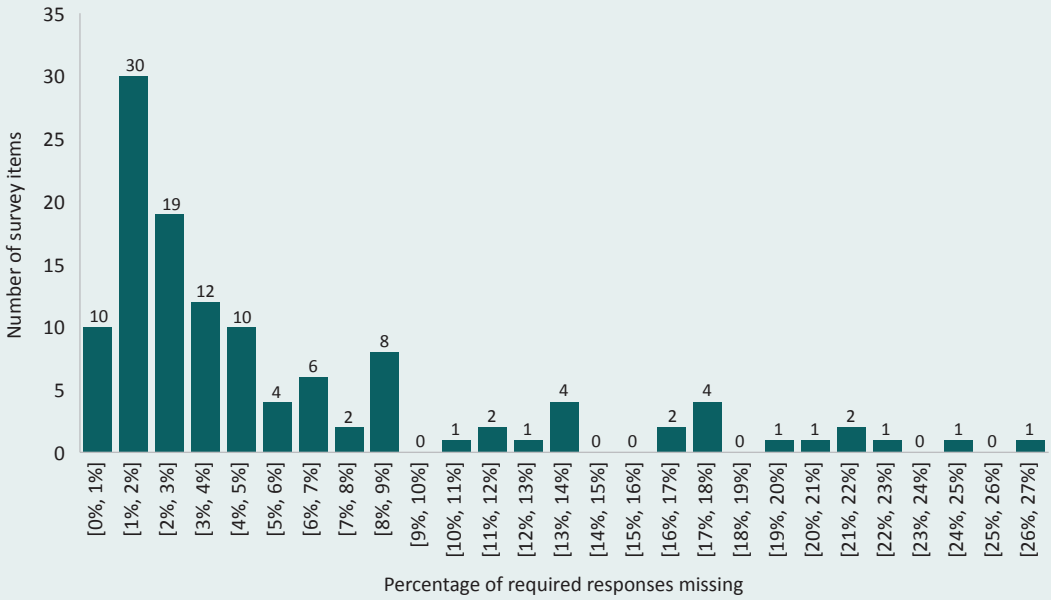
Appendix A: Multiple imputation

Missing responses were imputed across the entire sample (*n*=5,076) for most of the questions in the survey (*n*=122). This was done both to maximise the amount of observed data on which to base imputed values, and to ensure the availability of imputed data for other research.

Extent and patterns of missing data

The proportion of respondents with 'true' missing responses (ie information that should have been provided by respondents but was not) on each of the survey questions imputed ranged from zero to 27 percent (Figure A1). Two-thirds (66%) of these questions were missing five percent of required responses or fewer, and 17 percent were missing more than 10 percent of required responses. The latter mostly comprise questions about respondents' sexual activity (Q89, Q90) and perpetration of sexual violence (Q71), their viewing of ethical pornography (Q15_1, Q15_2, Q15_3, Q18_1, Q18_2, Q18_3, Q23_1, Q23_2, Q23_3, Q25_1, Q25_2, Q25_3), their viewing of violent pornography (Q17, Q20), and their initial exposure to pornography (Q9, Q11), with a handful of others across some of the scales used (Q26_5, Q86_10).

Figure A1: Percentage of required responses identified as missing across survey items (*n*=122)



Note: Because respondents had the option of recording more than one response to Q15A, Q17A, Q25, Q28 and Q30, these questions were disaggregated into dichotomous variables in the dataset, one for each response option, all of which were used in the multiple imputation procedure described later in this *Appendix*. However, because responses are missing consistently across disaggregated variables within each of these questions, they are aggregated back up to one variable per question for the purposes of analysing the extent and patterns of missing data

Source: AIC Pornography Use and Sexual Aggression Survey 2023 [computer file]

Seventy-four percent of respondents (*n*=3,757) were missing required responses for at least one survey question. Within this subset of the sample, 2,613 unique patterns of missing data were identified. Two-thirds (64%) of these patterns were, in turn, unique to individual respondents. The most commonly occurring pattern, evident in the responses of around three percent of respondents with missing data (around 2% of the entire sample; *n*=116) comprised a missing response to Q71. The next most common, also evident in the responses of around three percent of respondents with missing data (around 2% of the entire sample; *n*=102) comprised a missing response to Q9. The median number of questions missing required responses across all missing data patterns is six (range=1–89), and the median number across patterns shared by two or more respondents is two (1–22).

Multiple imputation procedure

Multiple imputation was undertaken with the *mi impute chained* command in Stata 16.1 (StataCorp 2019). A number of imputation equations were specified to accommodate the conditional logic used throughout the survey. Specifically, where and as required, these equations use conditional imputation, which distinguishes true missing responses that require imputation from 'false' missing responses reflecting the non-applicability of certain questions to some respondents.

Predictive mean matching was used to impute missing data across all variables. Predictive mean matching identifies, for each respondent with a missing response on a given variable, other respondents with similar linear predictors based on the fitted imputation model, and randomly selects a response from one of them to use as the imputed value for that respondent on that variable. Evidence suggests that estimates generated through predictive mean matching, including for dichotomous and polytomous variables and where there are deviations from distributional assumptions, generally exhibit low levels of bias while also commonly improving efficiency (Austin & van Buuren 2023; De Silva et al. 2019; Kleinke 2017; Vink et al. 2014). The number of similar respondents from which imputed values were randomly drawn was set to five.

Imputation models regressed each variable on all other variables, except where conditional imputation specifications instructed otherwise. Sex at birth, gender, sexuality, age, area of residence, and whether respondents had ever viewed pornography (Q1, Q2, Q3, SDAGE, SDARE, Q8) were also entered into all imputation models but were not themselves imputed. The random number seed was set at the Stata 16.1 default (123456789).

The following process was used to determine the number of imputations. First, a pilot imputation procedure was run, which was set to produce 10 imputations. Imputed data were analysed with logistic regression, modelling any sexual violence perpetration on the prevalence of intentionally viewing any pornography and covariates. This was done to calculate the fraction of missing information (FMI), or the fraction by which the squared standard error would shrink if the data were complete. This FMI was entered into a formula proposed by Von Hippel (2020) to determine the optimal number of imputations. This formula uses the FMI to determine how many imputations are needed to achieve a target coefficient of variation, representing the percentage by which the standard error would change if the data were imputed again. A target coefficient of variation of 0.05, representing a five percent change, was specified. Based on the results, it was decided that 40 imputations would be generated.

Appendix B: Bivariate analyses

Table B1: Sample characteristics, by having intentionally viewed any pornography and violent pornography more than 12 months ago (*n*=1,915)

	Intentionally viewed any pornography more than 12 months ago			Intentionally viewed violent pornography more than 12 months ago		
	No	Yes	*p*	No	Yes	*p*
Perpetration of sexual violence more than 12 months ago (%)	14.7	24.7	0.001	15.1	33.7	<0.001
Intentionally viewed any pornography in the past 12 months (%)	3.8	100	<0.001	–	–	
Intentionally viewed violent pornography in the past 12 months (%)	–	–		6.3	88.3	<0.001
Sexual violence victimisation more than 12 months ago	42.9	45.6	0.461	40.0	51.6	<0.001
SOI-R (*M*)	13.0	17.5	<0.001	15.8	18.4	<0.001
HS sub-scale (*M*)	21.1	21.6	0.492	21.0	22.2	0.001
BSCS (*M*)	30.4	27.9	<0.001	29.5	26.7	<0.001
Pro-abuse advice (family members) (%)	6.4	4.7	0.316	2.8	7.5	<0.001
Pro-abuse advice (friends) (%)	9.8	6.2	0.059	4.0	9.9	<0.001
Abusive family members (%)	15.2	17.0	0.518	12.5	22.1	<0.001
Abusive friends (%)	16.8	22.0	0.100	14.1	29.8	<0.001

Table B1: Sample characteristics, by having intentionally viewed any pornography and violent pornography more than 12 months ago (*n*=1,915) (cont.)

	Intentionally viewed any pornography more than 12 months ago			Intentionally viewed violent pornography more than 12 months ago		
	No	Yes	*p*	No	Yes	*p*
Age (years) (%)						
20–24	22.8	17.0		15.6	20.5	
25–29	13.0	20.2		17.0	21.9	
30–34	20.5	20.0	0.856	19.2	20.9	<0.001
35–39	21.3	21.1		22.8	19.0	
40–45	22.7	21.8		25.3	17.7	
Born overseas (%)	30.3	20.6	0.001	24.6	18.4	0.002
LOTE at home (%)	14.2	9.6	0.036	11.6	8.5	0.041
Residence outside of a major city (%)	33.8	28.1	0.085	30.4	26.9	0.104
Relationship history (%)						
Never	17.3	6.6		9.5	5.9	
Previously in a relationship but not currently	21.0	27.3	0.038	24.3	29.1	0.949
Currently in a relationship	61.6	66.1		66.0	64.9	

Note: SOI-R=Revised Sociosexual Orientation Inventory, HS=Hostile Sexism, BSCS=Brief Self-Control Scale, LOTE=Language other than English

Source: AIC Pornography Use and Sexual Aggression Survey 2023 [computer file] [imputed and weighted data]

Table B2: Sample characteristics, by frequency of intentional viewing of any pornography more than 12 months ago (*n*=1,915)

	Never	Once a month or less	Several times a month	Once a week	Several times a week	Once a day	Several times a day	*p*
Perpetration of sexual violence more than 12 months ago (%)	14.7	15.2	24.2	29.6	26.7	26.5	38.0	<0.001
Increase in frequency of intentional viewing of any pornography in the past 12 months (%)	3.8	4.8	5.4	11.3	9.1	13.7	32.1	<0.001
Sexual violence victimisation more than 12 months ago (%)	42.9	38.0	46.8	51.9	45.3	48.9	44.8	0.083
SOI-R (*M*)	13.0	14.9	17.3	17.7	18.5	20.2	20.1	<0.001
HS sub-scale (*M*)	21.1	20.9	21.2	21.6	21.8	23.7	21.9	0.023
BSCS (*M*)	30.4	30.0	28.6	27.8	26.7	27.0	23.7	<0.001
Pro-abuse advice from family members (%)	6.4	1.8	5.6	6.8	4.0	4.8	11.0	0.599
Pro-abuse advice from friends (%)	9.8	6.1	4.7	8.7	6.3	2.9	11.2	0.509
Abusive family members (%)	15.2	12.8	15.1	25.0	16.0	17.0	29.0	0.039
Abusive friends (%)	16.8	16.3	24.0	26.5	20.4	19.0	32.8	0.040
Age in years (%)								
20–24	22.8	12.5	15.2	21.4	17.9	18.2	26.2	
25–29	12.7	16.7	16.0	26.1	20.6	29.6	22.4	
30–34	20.5	15.6	21.1	17.8	21.9	21.3	24.5	<0.001
35–39	21.3	25.0	22.8	17.2	20.6	17.1	13.7	
40–45	22.7	30.1	24.8	17.3	19.0	13.7	13.1	
Born overseas (%)	30.3	28.5	23.2	16.5	17.1	15.2	17.2	<0.001
LOTE at home (%)	14.2	15.2	11.4	8.0	7.1	3.2	6.5	<0.001
Residence outside of a major city (%)	33.8	33.1	24.9	22.4	30.1	27.8	34.8	0.328
Relationship history (%)								
Never	17.3	6.1	5.4	4.6	7.8	6.9	17.5	
Previously in a relationship but not currently	21.0	21.5	20.5	35.3	30.6	31.4	33.4	0.031
Currently in a relationship	61.6	72.4	74.1	60.0	61.6	61.7	49.1	

Note: SOI-R=Revised Sociosexual Orientation Inventory, HS=Hostile Sexism, BSCS=Brief Self-Control Scale, LOTE=Language other than English

Source: AIC Pornography Use and Sexual Aggression Survey 2023 [computer file] [imputed and weighted data]

Table B3: Sample characteristics, by frequency of intentional viewing of violent pornography more than 12 months ago (*n*=1,915)

	Never	Once a month or less	Several times a month	Once a week	Several times a week	Once a day	Several times a day	*p*
Perpetration of sexual violence more than 12 months ago (%)	15.1	32.5	32.6	36.6	27.4	41.0	72.2	<0.001
Increase in frequency of intentional viewing of violent pornography in the past 12 months (%)	0.9	4.3	15.8	16.0	20.4	35.1	58.1	<0.001
Sexual violence victimisation more than 12 months ago (%)	40.0	52.6	53.3	52.9	41.7	52.3	55.0	0.002
SOI-R (M)	15.8	17.7	18.4	18.7	20.2	21.1	18.6	<0.001
HS sub-scale (M)	21.0	20.8	22.7	23.8	23.6	25.2	25.8	<0.001
BSCS (M)	29.5	27.4	26.5	26.1	26.2	23.4	23.0	<0.001
Pro-abuse advice from family members (%)	2.8	3.1	7.8	15.2	10.3	22.7	23.0	<0.001
Pro-abuse advice from friends (%)	4.1	5.0	13.6	15.8	12.5	9.3	35.6	<0.001
Abusive family members (%)	12.5	21.2	20.7	18.5	22.4	44.1	48.8	<0.001
Abusive friends (%)	14.1	30.4	30.5	28.4	23.4	22.8	57.8	<0.001
Age in years (%)								
20–24	15.6	17.7	24.0	25.1	16.6	33.3	25.2	
25–29	17.0	20.8	20.5	24.7	23.0	33.1	25.6	
30–34	19.2	21.4	21.3	19.0	20.8	13.8	24.8	<0.001
35–39	22.8	19.8	17.0	19.0	19.9	14.3	19.2	
40–45	25.3	20.3	17.0	12.1	19.7	5.4	5.1	
Born overseas (%)	24.6	20.3	17.3	14.0	17.4	9.7	27.2	0.006
LOTE at home (%)	11.6	6.7	9.6	10.2	8.6	8.8	24.4	0.727
Residence outside of a major city (%)	30.4	27.9	26.4	20.0	30.4	30.8	28.3	0.208
Relationship history (%)								
Never	9.4	5.2	6.3	8.8	4.5	0.0	201	
Previously in a relationship but not currently	24.7	27.0	29.3	31.7	34.1	34.4	15.2	0.501
Currently in a relationship	65.8	67.8	64.3	59.4	61.4	65.6	64.7	

Note: SOI-R=Revised Sociosexual Orientation Inventory, HS=Hostile Sexism, BSCS=Brief Self-Control Scale, LOTE=Language other than English

Source: AIC Pornography Use and Sexual Aggression Survey 2023 [computer file] [imputed and weighted data]

Table B4: Sample characteristics, by perpetration sexual violence in the last 12 months (*n*=1,915)		
	%	*p*
Perpetration of sexual violence more than 12 months ago		
No	4.4	<0.001
Yes	40.0	
Intentionally viewed any pornography in the past 12 months		
No	10.0	0.146
Yes	13.0	
Intentionally viewed violent pornography in the past 12 months		
No	8.0	<0.001
Yes	19.0	
Increase in frequency of intentional viewing of any pornography in the past 12 months		
No	12.0	<0.001
Yes	25.0	
Increase in frequency of intentional viewing of violent pornography in the past 12 months		
No	11.4	<0.001
Yes	34.1	
Sexual violence victimisation more than 12 months ago		
No	6.6	<0.001
Yes	20.2	
Pro-abuse advice from family members		
No	10.6	<0.001
Yes	53.8	
Pro-abuse advice from friends		
No	10.4	<0.001
Yes	46.0	
Abusive family members		
No	8.7	<0.001
Yes	33.0	
Abusive friends		
No	8.4	<0.001
Yes	29.0	
Age in years		
20–24	17.6	0.001
25–29	12.4	
30–34	13.7	
35–39	12.8	
40–45	8.2	

Table B4: Sample characteristics, by perpetration sexual violence in the last 12 months (*n*=1,915) (cont.)		
	%	*p*
Born overseas		
No	14.0	0.004
Yes	8.0	
LOTE at home		
No	12.8	0.819
Yes	12.0	
Residence outside of a major city		
No	13.4	0.218
Yes	11.2	
Relationship history		
Never	7.5	0.177
Previously in a relationship but not currently	12.8	
Currently in a relationship	13.3	

Source: AIC Pornography Use and Sexual Aggression Survey 2023 [computer file] [imputed and weighted data]

Table B5: Perpetration of sexual violence in the past 12 months and SOI-R, HS sub-scale and BSCS scores (*n*=1,915)			
	No (*M*)	Yes (*M*)	*p*
SOI-R	16.6	19.2	<0.001
HS sub-scale	21.2	23.8	<0.001
BSCS	28.7	25.2	<0.001

Note: SOI-R=Revised Sociosexual Orientation Inventory, HS=Hostile Sexism, BSCS=Brief Self-Control Scale
Source: AIC Pornography Use and Sexual Aggression Survey 2023 [computer file] [imputed and weighted data]

Table B6: Perpetration of sexual violence more than 12 months ago and SOI-R and HS sub-scale scores (*n*=1,915)			
	No (*M*)	Yes (*M*)	*p*
SOI-R	16.2	19.3	<0.001
HS sub-scale	21.4	22.0	0.110

Note: SOI-R=Revised Sociosexual Orientation Inventory, HS=Hostile Sexism
Source: AIC Pornography Use and Sexual Aggression Survey 2023 [computer file] [imputed and weighted data]

Appendix C: Additional multivariate model results

Table C1: Full model results for logistic regression model of perpetration of sexual violence in the past 12 months on having intentionally viewed any pornography more than 12 months ago (*n*=1,915)

	OR (SE)	95% CI	90% CI
Intentionally viewed any pornography more than 12 months ago	1.12 (0.38)	0.65, 2.13	0.70, 1.89
Perpetrated sexual violence more than 12 months ago	9.40 (2.00)	6.62, 14.43	7.02, 13.55
Sexual violence victimisation more than 12 months ago	1.39 (0.29)	0.96, 2.11	1.02, 1.98
BSCS	0.97 (0.01)	0.95, 1.00	0.95, 0.99
Pro-abuse advice from family members	2.62 (0.90)	1.43, 4.92	1.60, 4.46
Pro-abuse advice from friends	2.38 (0.71)	1.42, 4.14	1.55, 3.81
Abusive family members	2.24 (0.52)	1.45, 3.47	1.56, 3.25
Abusive friends	1.31 (0.27)	0.85, 1.91	0.92, 1.80
Age in years	0.88 (0.06)	0.77, 1.00	0.78, 0.98
Born overseas	0.61 (0.17)	0.32, 1.00	0.36, 0.93
LOTE at home	1.90 (0.69)	0.98, 3.60	1.09, 3.29
Residence outside of a major city	1.00 (0.20)	0.68, 1.46	0.72, 1.38
Relationship history (vs 'Never')			
Previously in a relationship but not currently	1.35 (0.67)	0.69, 3.16	0.77, 2.69
Currently in a relationship	1.87 (0.88)	1.01, 4.29	1.10, 3.73

Note: OR=odds ratio, SE=standard error, CI=confidence intervals, BSCS=Brief Self-Control Scale, LOTE=Language other than English. Model $F(df, n)=22.22(14, 2240.2)$, $p=0.000$, average relative increase in variance=0.08, largest fraction of missing information=0.13

Source: AIC Pornography Use and Sexual Aggression Survey 2023 [computer file] [imputed and weighted data]

Table C2: Full model results for logistic regression model of perpetration of sexual violence in the past 12 months on frequency of intentional viewing of any pornography more than 12 months ago (*n*=1,915)

	OR (SE)	95% CI	90% CI
Frequency of intentional viewing of any pornography more than 12 months ago	0.97 (0.06)	0.87, 1.09	0.88, 1.07
Perpetrated sexual violence more than 12 months ago	9.41 (2.03)	6.65, 14.49	7.06, 13.63
Increase in frequency of intentional viewing of any pornography in the past 12 months	2.04 (0.63)	1.13, 3.61	1.25, 3.28
Sexual violence victimisation more than 12 months ago	1.40 (0.30)	0.97, 2.15	1.03, 2.01
BSCS	0.98 (0.01)	0.95, 1.00	0.95, 1.00
Pro-abuse advice from family members	2.44 (0.87)	1.30, 4.68	1.46, 4.28
Pro-abuse advice from friends	2.37 (0.71)	1.41, 4.11	1.54, 3.80
Abusive family members	2.20 (0.52)	1.41, 3.46	1.53, 3.22
Abusive friends	1.34 (0.28)	0.87, 1.96	0.94, 1.84
Age in years	0.88 (0.06)	0.76, 1.00	0.78, 0.98
Born overseas	0.62 (0.18)	0.33, 1.03	0.37, 0.95
LOTE at home	1.86 (0.70)	0.95, 3.59	1.06, 3.28
Residence outside of a major city	1.01 (0.21)	0.67, 1.48	0.72, 1.40
Relationship history (vs 'Never')			
Previously in a relationship but not currently	1.50 (0.73)	0.78, 3.45	0.87, 2.97
Currently in a relationship	2.08 (0.96)	1.14, 4.72	1.25, 4.11

Note: OR=odds ratio, SE=standard error, CI=confidence intervals, BSCS=Brief Self-Control Scale, LOTE=Language other than English. Model $F(df, n)=20.40(15, 2238.1)$, $p=0.000$, average relative increase in variance=0.08, largest fraction of missing information=0.13

Source: AIC Pornography Use and Sexual Aggression Survey 2023 [computer file] [imputed and weighted data]

Table C3: Full model results for logistic regression model of perpetration of sexual violence in the past 12 months on having intentionally viewed violent pornography more than 12 months ago (*n*=1,915)

	OR (SE)	95% CI	90% CI
Intentionally viewed violent pornography more than 12 months ago	1.24 (0.38)	0.71, 2.16	0.78, 1.97
Perpetrated sexual violence more than 12 months ago	8.98 (1.97)	6.31, 13.96	6.70, 13.10
Intentionally viewed violent pornography in the past 12 months	1.18 (0.35)	0.69, 2.04	0.76, 1.86
Sexual violence victimisation more than 12 months ago	1.37 (0.29)	0.94, 2.09	1.01, 1.95
BSCS	0.98 (0.13)	0.95, 1.00	0.96, 1.00
Pro-abuse advice from family members	2.54 (0.87)	1.39, 4.76	1.55, 4.31
Pro-abuse advice from friends	2.38 (0.70)	1.42, 4.10	1.55, 3.76
Abusive family members	2.22 (0.52)	1.43, 3.46	1.54, 3.23
Abusive friends	1.27 (0.26)	0.83, 1.85	0.89, 1.75
Age in years	0.90 (0.06)	0.78, 1.02	0.79, 1.00
Born overseas	0.61 (0.17)	0.32, 0.99	0.36, 0.93
LOTE at home	1.90 (0.70)	0.99, 3.62	1.09, 3.31
Residence outside of a major city	1.00 (0.20)	0.66, 1.46	0.72, 1.39
Relationship history (vs 'Never')			
Previously in a relationship but not currently	1.28 (0.62)	0.66, 2.96	0.73, 2.54
Currently in a relationship	1.78 (0.82)	0.97, 4.03	1.06, 3.51

Note: OR=odds ratio, SE=standard error, CI=confidence intervals, BSCS=Brief Self-Control Scale, LOTE=Language other than English. Model $F(df, n)=20.86(15, 2213.4)$, $p=0.000$, average relative increase in variance=0.10, largest fraction of missing information=0.28

Source: AIC Pornography Use and Sexual Aggression Survey 2023 [computer file] [imputed and weighted data]

Table C4: Full model results for logistic regression model of perpetration of sexual violence in the past 12 months on frequency of intentional viewing of violent pornography more than 12 months ago (*n*=1,915)

	OR (SE)	95% CI	90% CI
Frequency of intentional viewing of violent pornography more than 12 months ago	1.18 (0.07)	1.05, 1.33	1.07, 1.31
Increase in frequency of intentional viewing of violent pornography in the past 12 months	1.39 (0.49)	0.72, 2.58	0.81, 2.32
Perpetrated sexual violence more than 12 months ago	9.57 (1.96)	6.88, 14.57	7.31, 13.71
Sexual violence victimisation more than 12 months ago	1.41 (0.31)	0.97, 2.17	1.04, 2.01
BSCS	0.98 (0.13)	0.95, 1.00	0.96, 1.00
Pro-abuse advice from family members	2.44 (0.84)	1.35, 4.58	1.50, 4.15
Pro-abuse advice from friends	2.30 (0.67)	1.36, 3.98	1.49, 3.65
Abusive family members	2.14 (0.51)	1.35, 3.34	1.47, 3.12
Abusive friends	1.39 (0.29)	0.90, 2.03	0.98, 1.91
Age in years	0.91 (0.06)	0.78, 1.04	0.80, 1.01
Born overseas	0.62 (0.18)	0.33, 1.02	0.37, 0.95
LOTE at home	1.75 (0.66)	0.88, 3.44	0.99, 3.10
Residence outside of a major city	1.01 (0.20)	0.66, 1.47	0.72, 1.39
Relationship history (vs 'Never')			
Previously in a relationship but not currently	1.36 (0.69)	0.69, 3.27	0.76, 2.76
Currently in a relationship	1.90 (0.91)	1.01, 4.46	1.12, 3.86

Note: OR=odds ratio, SE=standard error, CI=confidence intervals, BSCS=Brief Self-Control Scale, LOTE=Language other than English. Model $F(df, n)=21.38(15, 2233.4)$, $p=0.000$, average relative increase in variance=0.09, largest fraction of missing information=0.18

Source: AIC Pornography Use and Sexual Aggression Survey 2023 [computer file] [imputed and weighted data]

Table C5: Mediation of the association between the frequency of intentional violent pornography viewing more than 12 months ago and the probability of respondents having perpetrated sexual violence in the past 12 months by SOI-R and HS scores, odds ratios (*n*=1,915)

	OR (SE)	95% CI	90% CI
SOI-R and HS sub-scale			
Indirect	1.04 (0.04)	0.97, 1.12	1.00, 1.11
Direct	1.14 (0.08)	0.99, 1.29	1.01, 1.27
SOI-R			
Indirect	1.04 (0.04)	0.97, 1.12	0.98, 1.10
Direct	1.14 (0.08)	0.99, 1.29	1.02, 1.27
HR sub-scale			
Indirect	1.05 (0.04)	0.99, 1.13	1.00, 1.12
Direct	1.12 (0.08)	0.98, 1.28	1.00, 1.25

Note: OR=odds ratio, SE=standard error, CI=confidence intervals, SOI-R=Revised Sociosexual Orientation Inventory, HS=Hostile Sexism. See Table C4 for results regarding the total effect (as an odds ratio) of frequency of intentional violent pornography viewing on the perpetration of sexual violence

Source: AIC Pornography Use and Sexual Aggression Survey 2023 [computer file] [imputed and weighted data]

Table C6: Mediation of the association between the frequency of intentional violent pornography viewing more than 12 months ago and the probability of respondents having perpetrated sexual violence in the past 12 months by SOI-R and HS scores, moderated by perpetration of sexual violence more than 12 months ago, odds ratios (*n*=1,915)

	OR (SE)	95% CI	90% CI
Total			
No prior perpetration	1.25 (0.011)	1.03, 1.46	1.07, 1.42
Prior perpetration	1.14 (0.092)	0.98, 1.34	1.01, 1.31
SOI-R and HS sub-scale			
Indirect			
No prior perpetration	1.08 (0.09)	0.94, 1.30	0.96, 1.27
Prior perpetration	1.00 (0.06)	0.91, 1.13	0.92, 1.10
Direct			
No prior perpetration	1.15 (0.13)	0.89, 1.40	0.93, 1.36
Prior perpetration	1.13 (0.11)	0.94, 1.37	0.97, 1.34

Note: OR=odds ratio, SE=standard error, CI=confidence interval, SOI-R=Revised Sociosexual Orientation Inventory, HS=Hostile Sexism sub-scale

Source: AIC Pornography Use and Sexual Aggression Survey 2023 [computer file] [imputed and weighted data]

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Research Report

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