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USE OF PORNOGRAPHY BY YOUNG ADULTS IN IRELAND

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AN INSTITIÚID UM THAIGHDE EACNAMAÍOCHTA AGUS SÓISIALTA
ESRI ECONOMIC & SOCIAL RESEARCH INSTITUTE

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ABBREVIATIONS

CAPI	computer-aided personal interview
CES-D	Center for Epidemiological Studies Depression
CSO	Central Statistics Office
DCEDIY	Department of Children, Equality, Disability, Integration and Youth
ESRI	Economic and Social Research Institute
GUI	Growing Up in Ireland
HSE	Health Service Executive
IAB	internet addictive behaviour
LGBTQ+	Lesbian, Gay, Bisexual, Transgender and Queer (or Questioning)
NATSAL	(British) National Survey of Sexual Attitudes and Lifestyles
NCCA	National Council for Curriculum and Assessment
PCG	primary caregiver
RSE	Relationships and Sexuality Education
SEN	special education need
SPHE	Social, Personal and Health Education

EXECUTIVE SUMMARY

This report draws on the Growing Up in Ireland (GUI) study to look at pornography use among over 4,500 young adults at 20 years of age. Pornography use was captured as part of a module of questions on different types of internet use. The rich information provided by the GUI study allows us to explore the potential influence of a range of factors on pornography use and to examine the way use is related to key aspects of wellbeing and sexual behaviour among young adults. Pornography use is found to be highly gendered, with 64 per cent of young men and 13 per cent of young women reporting use. For this reason, analyses in the report look separately at the factors for young women and men.

MAIN FINDINGS

- Men from more advantaged backgrounds are more likely to use pornography, and this pattern is not explained by their greater use of the internet in general. In contrast, there is little systematic variation by social background for women.
- Men from lone-parent families were less likely than others to use pornography while rates of use were higher for women from lone-parent families.
- Pornography use did not vary markedly by other individual and family background factors, including migrant status, having a disability or special educational need, or being brought up in an urban or rural area.
- However, some family socialisation processes did make a difference. Pornography use was lower among those with a religious affiliation and where there was greater parental monitoring in adolescence – of internet use for men and not spending time home alone for women.
- There is no strong relationship between the provision of sex education at school and pornography use, though the GUI study does not have details on the quality of this provision.

- Young people who were more reliant on the Internet or (in the case of men in particular) their friends rather than their parents for information about sex were significantly more likely to use pornography at age 20. LGBTQ+ groups, especially women, are more likely to use pornography, which may reflect information-seeking among this group or their lack of contact with other LGBTQ+ youth.

The study also looked at the relationship between pornography use and two sets of outcomes: sexual behaviour and wellbeing. These relationships cannot be regarded as causal as both pornography use and the outcomes were measured at the same time point. Nonetheless, the findings point to striking differences in outcomes between those who use pornography and others.

- Users and non-users of pornography do not differ in their use of contraception in general, but users are significantly less likely to engage in regular condom use. This is a sizeable difference: for example, regular condom use is reduced by around half among male pornography users.
- Men who use pornography have poorer wellbeing than non-users, being less satisfied with their lives, reporting more depressive symptoms and having a poorer self-image. This pattern is evident even taking account of levels of wellbeing at 17 years of age.
- Among both women and men, those who use pornography have higher levels of aggression and are more likely to cope with stress by using negative strategies, such as drinking alcohol or drug-taking, or taking to their bed.

POLICY IMPLICATIONS

The findings have implications for policy in a number of areas, including sex education (both formal and informal), public-health information around condom use and mental-health promotion. A significant proportion of young adults have not had discussions about sex with their parents and are more likely to turn to their friends and the Internet, most likely including pornography, for information. These findings suggest the need to further support parents in having ongoing

conversations with their children about sexual behaviour, including the use of pornography. The findings suggest that LGBTQ+ youth are turning to pornography as a source on information on sex, highlighting the need for greater access to formal and informal advice and support, including for those who are questioning or unsure of their sexual orientation.

The formal curriculum for Relationships and Sexuality Education (RSE) is currently being revised across primary and second-level education and encourages critical reflection on pornography. This should provide young people with some of the tools they need but will crucially depend on implementation, especially the confidence of teachers in tackling often challenging topics. The informal curriculum is found to be significant, too, with schools playing an important role in preparing young people for adult life and in promoting their broader wellbeing, including their strategies for coping with stress. Given the high levels of participation in post-school education and training, further and higher educational institutions have a role to play in conversations around sexual behaviour and the use of pornography.

The study points to a strong relationship between pornography use and sexual behaviour and wellbeing among young adults. The lower levels of regular condom use found among those who use pornography is concerning and suggests the need for public-health campaigns to specifically challenge the depiction of condomless sex in pornography. Poorer wellbeing is found among pornography users, especially men, and pornography appears to be one of a number of negative strategies used by some young adults in coping with stress. There is value, therefore, in addressing use, and potentially problematic internet use in general, through mental-health promotion measures.

CHAPTER 1

Introduction

1.1 BACKGROUND

Sexual activity is an important component of physical and mental health and wellbeing. The World Health Organization defines sexual health as 'a state of physical, mental and social well-being in relation to sexuality. It requires a positive and respectful approach to sexuality and sexual relationships, as well as the possibility of having pleasurable and safe sexual experiences, free of coercion, discrimination and violence'.[1] This definition has been adopted by the Irish government in its current National Sexual Health Strategy (Department of Health, 2015).

Adolescence and young adulthood are critical periods in the development of healthy sexual health and relationships. Patterns of behaviour that develop in adolescence and young adulthood shape outcomes throughout the life course (Viner et al., 2015). Curiosity and experimentation are common in the context of adolescent development, and adolescents who experience healthy relationships are more likely to have healthy relationships in their young adulthood (Pathmendra et al., 2023).

In recent years, widespread internet access and mobile-phone use have meant that pornography has become increasingly available, affordable and easier to access anonymously (Hardy et al., 2019). While there is no universally accepted definition of pornography (Litsou et al., 2021; Owens et al., 2012), pornography is generally defined as sexually explicit content, images or videos, whose primary purpose is intended to be sexual arousal in the viewer (Children's Commissioner, 2023; Paslakis et al., 2022). Online pornography is defined as sexually explicit content on the Internet (Andrie et al., 2021). Legally, under the Child Trafficking and Pornography Act 1998, it is an offence to possess, print, publish or show child pornography in Ireland.

1 https://www.who.int/teams/sexual-and-reproductive-health-and-research/key-areas-of-work/sexual-health/defining-sexual-health

The National Sexual Health Strategy notes that adolescents and young people receive messages about sex and relationships from a variety of sources, including from pornography, and that the early sexualisation of children, adolescents and young people requires public policy attention (Department of Health, 2015). In particular, adolescents often lack the media literacy and related critical-thinking skills as well as the experiences to properly evaluate the content of pornographic materials. By portraying the primacy of heterosexual men's sexual pleasure, dominance and aggression, pornography may favour re-enactment and aggravation of gender power imbalances in sexual interactions. In addition, the display of unsafe sexual practices (either heterosexual or homosexual) may further promote sexual risk-taking (Children's Commissioner, 2023; Kohut and Štulhofer, 2018; Starrs et al., 2018; Yu et al., 2021). While some argue that pornography use may have some positive effects for young people (e.g., by acting as a source of information on sex) (Litsou et al., 2021; Peterson et al., 2023), there are concerns about links between frequent pornography use (and, in particular, viewing of violent pornography) and several adverse attitudes and behaviours (Donevan et al., 2022; Peterson et al., 2023). Furthermore, pornography use may impact the mental health and wellbeing of adolescents and young people. While it can be difficult to unpick the direction of causality, the literature suggests that pornography use is associated with poorer mental health and wellbeing across a number of domains, including emotional and behavioural problems, rule-breaking and aggressive behaviour, and negative perceptions of self-concept and body image (Andrie et al., 2021; Dooley et al., 2019; Owens et al., 2012). The proposed mechanisms underlying the association between pornography use and poor mental health and wellbeing include anxiety about body image and sexual performance, increases in relationship dysfunction and greater isolation and low self-esteem from compulsive pornography use (Svedin et al., 2023).

1.2 CONCEPTUAL FRAMEWORKS

Before reviewing the existing literature on pornography use in adolescents and young people, it is useful to outline the relevant conceptual frameworks that underpin research in this area. The overarching conceptual framework that guides research on children and young people using Growing Up in Ireland (GUI), the data used in this report, is the bio-ecological model (Bronfenbrenner and Morris, 2006).

The main ecological systems are termed the microsystem (e.g., family, school and other immediate settings), the mesosystem (e.g., interactions between actors in the microsystem), the exosystem (e.g., local services), the macrosystem (e.g., general society and culture) and the chronosystem, which examines changes in major events and how the timing of these events influences one's life (Counihan et al., 2023).

In the context of online pornography use, the 'differential susceptibility to media effects' model posits that three types of variables (termed dispositional, developmental and social) predict media use (Peter and Valkenburg, 2016). In terms of dispositional predictors of pornography use, five groups of variables have been investigated: demographics, personality characteristics, norm-related variables, sexual interest and internet behaviour.[2] In terms of developmental predictors of pornography use, research has focused on three groups of variables: age/pubertal maturation, sexual experience and developmental competencies (e.g., self-efficacy). Social predictors include family- and peer-level factors.

While the 'differential susceptibility to media effects' model provides a framework for understanding the ways in which dispositional, development and social factors predict the consequences of pornography use (such as sexual behaviour), other theories also provide useful frameworks. For example, in the context of sexual behaviour, the 'sexual script' theory posits that viewing pornography provides specific sexual scripts (i.e. symbolic guidelines), which can influence adolescent sexual behaviours. The portrayal of sex in pornography, focused on casual sex or recreational pairing, rigidly defined gender roles, pleasure-oriented and mostly condomless sexual encounters, may mean that adolescents perceive such practices as common and normative (Koletić et al., 2019; Wright et al., 2016a). In addition, the adoption of specific sexual scripts may also lead to poorer psychological wellbeing via self-objectification and social comparison that disrupts the development of healthy relationship styles and impairs social functioning (Štulhofer et al., 2019). In contrast, the 'selective exposure hypothesis' argues that pre-existing traits (e.g., lack of empathy) and specific attitudes underlie the

2 Norm-related variables refer to concepts that reflect the extent to which adolescents comply with or reject norms and values in a given society. They are often proxied by variables that measure rule-breaking behaviour, religiosity, etc. (Peter and Valkenburg, 2016).

consumption of sexualised media and outcomes such as sexual aggressiveness (Dawson et al., 2019). In other words, some established relationships between pornography use and selected outcomes may be explained by the effect of one or more unobserved variables, such as impulsivity or poor family functioning (Štulhofer et al., 2019).

1.3 PREVIOUS LITERATURE

1.3.1 Prevalence of pornography use

Estimates of the prevalence of pornography use among adolescents and young adults vary widely in the literature, due to differences in study setting, sampling methods, definition of pornography, the age group examined, etc. (Peter and Valkenburg, 2016).[3] In Ireland, the 2018 My World 2 survey of upper secondary (senior cycle) students (i.e., those in fourth, fifth and sixth year) found that 86 per cent of young men and 24 per cent of young women had ever watched pornography. In terms of frequency over the past month, one-third reported doing so more than once a week, 17 per cent once a week, 21 per cent two to three times a month and 14 per cent less than once a month. There was a clear gender divide in frequency of use; male users of pornography were also more frequent users of pornography than female users (Dooley et al., 2019). Among the young-adult sample in My World 2 (aged 18–25), 65 per cent reported that they had watched pornography online. Of those, 34 per cent said they had not watched pornography in the past month, 26 per cent said two to three times per month, 16 per cent once a week and 24 per cent more than once a week. Once again, there was a marked gender difference, with males more likely to regularly watch pornography online (just 5 per cent of males who had ever watched pornography did not do so in the previous month, in comparison with 21 per cent of females).

While not nationally representative, a convenience online survey of 1,377 third-level students aged 18–24 at a university in the west of Ireland in 2017 found that, overall, 94 per cent had ‘ever seen internet pornography’ (90 per cent among females vs. 99 per cent among males). A later study among 1,000 university

3 See Section 5.2 for a broader discussion of measurement issues, including the possibility of social desirability bias in recording information on pornography use.

students found that 83 per cent of females and 98 per cent of males had watched pornography (Dawson, 2020).

An English survey of 1,000 16–21-year-olds carried out by the Children's Commissioner between November 2022 and January 2023 found that 64 per cent had viewed online pornography. The average age at which young people first saw pornography was 13. By age 9, 10 per cent had seen pornography, 27 per cent had seen it by age 11, and half of those who had seen pornography had seen it by age 13. A significant proportion of males were frequent users of pornography. Just over a fifth (21 per cent) of males aged 16–21 had viewed content at least once a day in the two weeks prior to the survey, compared to just 7 per cent of girls. The vast majority (79 per cent) of 18–21-year-olds had encountered violent pornography before the age of 18, and frequent users of pornography were more likely to engage in physically aggressive sex acts. Focus-group discussions were also carried out with young people aged 13–19; in these groups, young people highlighted the implications of pornography for creating unrealistic expectations of sex, imposing unobtainable 'body ideals' (particularly among young women) and informing harmful attitudes towards women and girls (Children's Commissioner, 2023).

Price et al. (2016) used data from the USA over the period 1973–2012 to investigate age, time and cohort effects in pornography consumption. They found that pornography use declines steadily with age, and that, for both men and women, there is a sizeable, positive cohort effect on pornography consumption, beginning with the 1972 cohort and then taking a sharp increase with the 1981 cohort (the first cohort to experience the Internet as adolescents).

1.3.2 Factors associated with pornography use

A number of systematic reviews have been conducted on the factors associated with use of pornography in adolescents and young adults.[4] Peter and Valkenburg (2016) conducted a systematic review of 75 studies on the prevalence, predictors and implications of adolescents' use of pornography (adolescents were defined as between the ages of 10 and 17). Prevalence rates varied greatly across studies, but adolescents who used pornography more frequently were male, at a more

4 Most of the included studies are based on cross-sectional data, which limits the extent to which causal inferences about key relationships can be made.

advanced pubertal stage, sensation-seekers and had weak or troubled family relations.[5] In a subsequent systematic review of 57 studies, Alexandraki et al. (2018) focused on adolescents aged 12–18. Variables associated with online (and offline) pornography use were identified, with three main themes emerging: individual-level, activity-related and contextual factors. In the context of individual-related factors, results indicated that males, more liberated attitudes towards sex, early maturation and older age, interpersonal victimisation and harassment, poorer mental health, sensation-seeking tendencies and lower adherence to social bonds were related to higher pornography use during adolescence (Alexandraki et al., 2018). Higher sensation-seeking was also associated with higher pornography use among male and female adolescents in Switzerland (Luder et al., 2011).

Andrie et al. (2021) note that adolescents' exposure to pornography is influenced by a range of developmental, social, demographic, psychological and educational factors. Apart from age and gender, other socio-demographic measures that have been found to be associated with more frequent exposure to pornography include poor family functioning in terms of less mutuality, communication and harmony, higher socio-economic status and more educated parents (Andrie et al., 2021). The Alexandraki review also showed that adolescents presenting with poorer relationships with their parents, lower commitment to family, less parental care and lower communication tended to be higher in use of pornography (Alexandraki et al., 2018). In the context of online pornography use, higher levels of online game use, internet addictive behaviours, cyberbullying manifestations and voluntary self-sexual exposure online appear to positively link to pornography use (Alexandraki et al., 2018).

Studies from individual countries support many of these findings. Andrie et al. (2021) conducted a cross-sectional school-based survey of 10,930 adolescents aged 14–17 in six European countries (Greece, Spain, Poland, Romania, the Netherlands and Iceland). Anonymous self-completed questionnaires covered exposure to pornography, internet use and dysfunctional internet behaviour, and psychopathological syndromes (measured by Achenbach's Youth Self-Report). The prevalence of any online exposure to pornography was 59 per cent overall and 24

5 Sensation-seeking is a personality trait characterised by the tendency to seek novel, varied, complex and intense sensations and experiences and willingness to take risks for the sake of such experiences (Borghans et al., 2008).

per cent for exposure at least once a week. The likelihood of online exposure to pornography was greater in male adolescents, heavier internet users and those who displayed dysfunctional internet behaviour.[6] Country-specific analyses confirmed that the gender effect existed in every country, although its strength varied. They also noted that lack of sex education may be especially relevant in some counties due to socio-cultural norms.

Hald (2006), using data from a survey of 18–30-year-olds in Denmark, also showed how various aspects of pornography use (including frequency) were significantly more likely among young men than young women. Prevalence of ever having watched pornography was high overall, at 98 per cent among young men and 80 per cent among young women (attributed to both the ready availability of pornography online and the liberal, relaxed social attitudes towards sex in Denmark). Similar gender differences were also reported using a sample of US adolescents by Hardy et al. (2019), although the overall prevalence was lower.[7]

Yu et al. (2021) examined the prevalence of pornography use and its association with a range of perceived gender norms among adolescents aged 10–14 across five urban-poor settings in Belgium, China, the Democratic Republic of the Congo, Ecuador and Indonesia. Ever-use of pornography ranged from 15 per cent in Ecuador to 33 per cent in Belgium and was more common among boys than girls. They found that in addition to variation by age, sex and time spent on the Internet, pornography use was more common among adolescents who perceived greater permissiveness about adolescent romantic relations, who engaged in adolescent romantic relationships, as well as those who assumed that their friends were sexually active.

Using survey data from three nationally representative surveys of senior high-school students (aged 18 years on average) in Sweden in 2004, 2009 and 2014, Donevan et al. (2022) found that the proportion of boys who reported using

6 Andrie et al. (2021) examined internet pornography use in the context of internet addictive behaviour (IAB). The Internet Addiction Test (IAT), a 20-item scale, was administered to evaluate the degree of preoccupation, compulsive use, behavioural problems, emotional changes and impact of internet use upon functioning. IAB, defined as loss of control over internet use, and risk of IAB (fewer or weaker symptoms of IAB), collectively referred to as Dysfunctional Internet Behaviour, is seen as representing a real threat to adolescents.

7 However, when comparing prevalence rates across studies, it is important to note that important factors such as the definition of pornography, subject sample and methodology often differ from study to study (Hald, 2006; Kohut and Štulhofer, 2018).

pornography daily increased from 11 per cent in 2004 to 24 per cent in 2014. In contrast, there was no change in the proportion of girls who reported using pornography daily, while the proportion who never used pornography increased from 40 per cent in 2004 to 51 per cent in 2014. Multiple logistic regression models showed that rule-breaking behaviour, having higher economic status and higher academic achievement were related to boy's pornography use, while rule-breaking behaviour, early sexual debut and victimisation were associated with girls' pornography use. A potential mechanism that could explain the higher prevalence of pornography use among males with higher academic achievement is that they are more likely to spend time online seeking out sources of information and thus are more likely to be unintentionally exposed to pornography. In addition, those from more advantaged socio-economic positions may simply be more likely to have an internet connection and their own bedroom and more privacy, thus facilitating more pornography exposure (Andrie et al., 2021; Luder et al., 2011).

In a study of Taiwanese adolescents, Nieh et al. (2020) examined whether earlier puberty was associated with earlier and more frequent use of pornography. Consistent with other research, the prevalence (and frequency) of pornography use was higher among boys than girls. Pubertal timing influenced pornography use among adolescents, particularly among girls, where early developed girls were more likely to be early-start, frequent users and increasing users. Parental psychological control was associated with more pornography use, while parental monitoring protected adolescents from exposure to pornography, particularly among girls. Their results also showed that boys and girls (and particularly boys) had a higher chance of being early-start frequent users and increasing users if using pornography was more common among their friends.

Higher levels of religiosity have been associated with lower levels of pornography use in adolescence (Alexandraki et al., 2018). Rasmussen and Bierman (2016) found that religious attendance modified trajectories of pornography use over time in a sample of US adolescents and young adults, i.e. increases in pornography use over time for both boys and girls were lower for those who attended religious services on a weekly basis. The mechanisms by which religious attendance (or religiosity more generally) are expected to affect pornography use are via increased social control and attitudes towards pornography (and sex).

Robson et al. (2023) summarise the literature that has analysed the role of personality traits in influencing adolescent sexual behaviour (although their empirical analysis focuses on the role of parental personality in influencing adolescent sexual behaviour). They note that, in general, greater extraversion and lower agreeableness are associated with riskier sexual behaviour. Their analysis of 16–17-year-olds from Wave 7 of the Longitudinal Study of Australian Children (carried out in 2018) found that 65 per cent of boys and 18 per cent of girls had intentionally viewed pornography in the previous twelve months. Boys with less conscientious mothers and more extraverted fathers, and girls with more open mothers, were more likely to have viewed pornography. However, they were not able to study the mechanisms underlying these observed associations (e.g., whether they were due to genetic factors, parenting behaviours or both).

1.3.3 Consequences of pornography use

The literature that examines the consequences of pornography use for adolescents and young adults tends to focus on two broad categories of outcome: sexual-health behaviours and attitudes, and mental health and wellbeing.

1.3.3.1 Sexual health behaviours and attitudes

Focusing on the first, a meta-analysis of 59 studies revealed that exposure to sexual media (not necessarily pornography) had a small but significant effect on both sexual attitudes and behaviours. Specifically, exposure to sexual media was positively related to permissive sexual attitudes, peer sexual norms and acceptance of rape myths. For sexual behaviours, exposure to sexual media was positively associated with general sexual experience and risky sexual behaviours and was negatively related to age of sexual initiation. Effects were stronger for adolescents than emerging adults (aged 18–25). In addition, effects were stronger for boys than girls (Coyne et al., 2019). Owens et al. (2012) surveyed the available literature on the effects of pornography use on a variety of outcomes, including sexual attitudes and beliefs, sexual behaviours, sexual aggression, self-concept and body image, and social development. With the exception of sexual aggression, they concluded that there were no clear results about whether and to what extent pornography was associated with adolescents' sexual attitudes and behaviour. Using a sample of Swiss adolescents from the 2002 Swiss Multicenter Adolescent Survey on Health, Luder et al. (2011) found that, in general, pornography use was not associated with

risky sexual behaviour.[8] However, males who were exposed (deliberately or not) to pornography had higher odds of not having used a condom at last intercourse. Similar findings in relation to condom use in the previous year were reported in two studies of US college students (Wright et al., 2016a). The systematic review by Alexandraki et al. (2018) noted that frequent users of pornography had more distorted assumptions about sexual life, conceptions of gender and sexuality and negative gender attitudes (e.g., sexist features related to pornography such as control and humiliation in particular).

Pathmendra et al. (2023) conducted a systematic review of the relationship between exposure to pornography and sexual behaviour (earlier age of first sex [< 16 years], condomless sex, past-year multiple partners, lifetime multiple partners, group sex, sexual aggression including forced sex, paid sex, teenage pregnancy and history of sexually transmitted infection) in adolescents aged between 10 and 19 years. The review updated an earlier review by Peter and Valkenburg (2016) to consider the association in the era of ubiquitous smartphones. With the exception of a positive association between pornography use and earlier age of first sex, the evidence was conflicting or insufficient regarding other outcomes. Peter and Valkenburg (2016) also identified an association between pornography use and more permissive sexual attitudes, stronger gender-stereotypical sexual beliefs, the occurrence of sexual intercourse, greater experience with casual sex behaviour and more sexual aggression. The relationship between pornography use and sexual aggression was stronger for boys while that between pornography use and sexual victimisation was demonstrated mainly for girls. The association between pornography use and sexual initiation was stronger for girls and adolescents at an early pubertal stage.

Pirrone et al. (2022) explored adolescent pornography consumption and its association with sexual development in early and middle adolescence (between the ages of 13 and 15). Using a sample of French adolescents observed at four time points, they found that 'high-frequency' users, both male and female, were more

8 Measured using four indicators: sexual intercourse before the age of 15 (yes/no), no condom use at last sexual intercourse (yes/no), ≥ 4 lifetime sexual partners (yes/no) and pregnancy/having made a partner pregnant (yes/no).

likely to engage in various sexual acts.[9] However, the authors caution that it is difficult to determine whether pornography was a driving force in adolescent sexual development versus pornography as a medium of choice for sexually advanced adolescents.

Using data on a sample of Croatian adolescents aged 15–19, observed over three time points between 2015 and 2018, Koletić et al. (2019) found that viewing of pornography was related with increasing prevalence of subsequent sexual risk-taking in males but that the association with risky sex was only significant in the baseline period for females.[10] For both males and females, early maturing adolescents used more sexually explicit material and reported higher levels of subsequent sexual risk-taking. Based on the same sample, Matković et al. (2018) investigated whether pornography use was associated with earlier sexual initiation. They found that the frequency of sexually explicit material use did not predict sexual debut in either male or female adolescents. However, male adolescents who were exposed to sexually explicit material in early adolescence had a significantly higher probability of reporting early sexual debut. They also found that the timing of sexual initiation was significantly associated with male adolescents' sensation-seeking scores and female adolescents' reports of parental control.

Dawson et al. (2019) used data from a six-wave panel study of 694 Croatian high-school students to investigate whether pornography use during middle to late adolescence was related to male adolescents' self-reported sexual aggressiveness (and whether personality traits and characteristics that have been associated with sexual aggression accounted for the presumed link). They found that, at baseline, there was an association between pornography use and sexual aggressiveness but that initial pornography use was not associated with subsequent changes in sexual aggressiveness. The frequency of bullying, reported peer pressure and striving for peer popularity were significantly associated with both pornography use and sexual aggressiveness, providing some support for the 'selective exposure' hypothesis.

9 The definition of 'high frequency' differed across time points and between young men and women; for example, for young men, high frequency was defined as less than once a month at baseline and one or two times a week by the fourth time point.

10 Measured using a six-item composite scale (the Index of Sexual Risk Taking): condom use, one-night stand, inconsistency of condom use, alcohol use prior to sexual intercourse, drug use prior to sexual intercourse, number of sexual partners. While nearly 1,300 students completed the baseline survey in December 2015, the final sample for analysis consisted of 577 students.

Wright et al. (2016b) carried out a meta-analysis of 22 studies to examine whether pornography consumption was correlated with committing actual acts of sexual aggression. The analysis found that consumption was associated with sexual aggression in both males and females, in longitudinal as well as cross-sectional study settings. While both physical and verbal aggression were associated with pornography consumption, associations were stronger for verbal sexual aggression. The authors suggested that violent sexual content in pornography may be a contributing factor.

Litsou et al. (2021) conducted a systematic review to understand if and how pornography is used as a source of sex education and, more specifically, on the relationship between pornography use and users' knowledge about the biological and physical aspects of sex. Five key themes were identified: pornography as a source of information on the mechanics of sex, about sexual identities, as a source of inadequate information about sexual health (e.g., contraception), concern over the 'wrong information' (e.g., depictions of the body) and the need for more relevant sex education. They concluded that the review highlights the need to adopt a more holistic perspective on sexual health promotion as opposed to one primarily concerned with risk reduction. For those from LGBTQ+ groups, the literature suggests that homosexual and bisexual individuals in particular may compensate for a lack of meaningful sex education by accessing information via pornography (Dawson, 2020).

1.3.3.2 Mental health and wellbeing

Looking at the association between pornography use and mental health, data from the young-adult sample from My World 2 in Ireland found that females who reported regularly watching pornography were more likely to be in the very severe category for depression (but no such association was evident for males). Regardless of gender, young adults who watched pornography weekly had significantly lower self-esteem and body esteem than those who had never watched pornography or who watched pornography less than once a week (Dooley et al., 2019).

Lebedíková et al. (2023) used data on over 8,000 11–16-year-olds in nine European countries (Czech Republic, Finland, Malta, Poland, Portugal, Romania, Serbia, Spain and Switzerland) to examine the prevalence of the viewing of sexually explicit

material and subsequent feelings. They found that while the majority of the participants reported neutral feelings, there were gender differences in feeling happy and upset after exposure to sexually explicit materials. (Young women were significantly more likely to feel upset after exposure.) Other factors associated with viewing sexually explicit material were higher age, male gender, higher sensation-seeking and higher time spent online.

Using data on a sample of Croatian high-school students, who were surveyed six times at approximately five-month intervals, Štulhofer et al. (2019) observed no significant relationship between growth in pornography use and changes in psychological wellbeing over the period from middle to late adolescence in either female or male participants. A number of measures of psychological wellbeing were examined in the study, including self-esteem, depression and anxiety. However, a significant negative association was found between female adolescents' pornography use and psychological wellbeing at baseline.

Paslakis et al. (2022) conducted a systematic review of the literature examining the associations between pornography exposure and body image, in both adolescents and adults. They concluded that, for adults, there was compelling evidence that exposure to pornography was associated with a negative body image. Due to the fewer number of studies, it was impossible to conclude a similar association in adolescents. Kohut and Štulhofer (2018) used data from two samples of Croatian adolescents to explore whether the dynamics of frequency of pornography use were associated with the dynamics of subjective wellbeing, depression, anxiety and self-esteem. They did not find consistent evidence that pornography use was associated with negative changes in subjective wellbeing, symptoms of depression and anxiety, or self-esteem in either gender, although the study was limited to three time points, and statistical power was low in one of the samples.

The systematic review carried out by Alexandraki et al. (2018) concluded that intentional exposure to pornography was associated with higher conduct problems among adolescents, higher online sexual solicitation victimisation and online sexual solicitation perpetration with boys' perpetration of sexual coercion and abuse being significantly associated with regular viewing of pornography. In addition, the vast majority of findings suggested that higher use of pornography during

adolescence tends to relate to higher emotional (e.g., depression) and behavioural problems. Online exposure to pornography was shown to be associated not only with higher externalising problem scale scores, especially rule-breaking and aggressive behaviour, but also with higher scores in competences, namely activities and social competence (Andrie et al., 2021).

1.4 POLICY CONTEXT

The National Sexual Health Strategy 2015–2020 is the strategic framework for the sexual health and wellbeing of the Irish population and was launched in October 2015 (Department of Health, 2015). The strategy adopts a life-course approach to sexual health that acknowledges the importance of developing healthy sexuality throughout childhood and adolescence and that builds on that foundation for positive sexual health and wellbeing into adulthood and older age. In addition, one of the core aims of the national strategy for children and young people, Better Outcomes, Brighter Futures, is to ensure a positive and respectful approach to relationships and sexual health (Department of Children and Youth Affairs, 2014). The National Youth Strategy, focused on children and young people aged 10–24, also highlights the importance of ensuring that young people can enjoy a healthy lifestyle, in particular with regard to their physical, mental and sexual health and wellbeing (Department of Children and Youth Affairs, 2015).

One of the actions of the National Sexual Health Strategy is to 'address the impact of early sexualisation and pornography and support parents to address issues arising from early sexualisation' (Department of Health, 2015, p. 38). In 2023, a review of the strategy included an assessment of actions and priorities as set out in the strategy, progress made with implementation, an overview of sexual-health strategies in selected EU countries (France, the Netherlands and Spain), an evaluation of feedback from a wide-ranging stakeholder consultation and a series of recommendations to inform future policy development (Crowe, 2023). Of the 32 recommendations arising from that review, one relates specifically to pornography by recommending 'the development of a strategy to address the impact of early exposure to pornography' (Crowe, 2023, p. 48). The HSE Sexual Health and Crisis Pregnancy Programme is currently leading on the development of a new sexual-health survey in Ireland, to provide updated evidence on the sexual health of the

population.[11] In 2021, a consultation on the content of the planned survey with relevant stakeholders found that pornography received an average rating of 77.8 on a scale from 0 (not very important to include) to 100 (essential to include) (Tierney and Kelleher, 2021).[12]

One of the three key goals of the National Sexual Health Strategy is to ensure that everyone has access to appropriate sexual-health education and information.[13] The Relationships and Sexuality Education (RSE) programme has been a required component of the curriculum at primary and second level since 1995/1996, and in 2003, it was integrated into the broader Social Personal and Health Education (SPHE) programme (Department of Health, 2015). Under the current RSE programme, schools and educational stakeholders, including parents, have a major role in determining the approach taken within schools (Young et al., 2018). A major review of RSE in primary and second-level schools was undertaken from June 2018 to March 2019. Consultations with key stakeholders (students, parents, teachers and principals) revealed a number of key points. Students said that their learning in RSE was too little, too late and not relevant to their needs, while all stakeholders said that RSE needed to be more than information about biological aspects of growing up and sexual activity. Pornography, and the effects of the Internet and social media on relationships and self-esteem, were listed by all stakeholders as important topics to be included in a future post-primary curriculum (National Council for Curriculum and Assessment [NCCA], 2019).

Arising from the review, the NCCA established two development groups, one for primary and one for post-primary, to oversee work in this area. Work on new specifications for SPHE commenced with a focus on junior cycle, followed by senior cycle and primary. An updated junior cycle SPHE course has been developed and is available for first-year students entering post-primary education in September 2023. In contrast to the existing curriculum (dating from 2016), the new junior cycle curriculum has a core learning outcome in relation to pornography: 'discuss the influence of popular culture and the online world, in particular, the influence of

11 The last Irish Contraception and Crisis Pregnancy survey was carried out in 2010 (McBride et al., 2012).

12 Respondents were presented with 37 potential topics, with 'sexual health and reproductive knowledge' scoring highest (86.0) and 'masturbation' scoring lowest (58.5).

13 The other two are to ensure that that high-quality sexual-health services are available and affordable and that good quality data are available to guide the service.

pornography, on young people's understanding, expectations and social norms in relation to sexual expression' (NCCA, 2023a, p. 16). A draft senior cycle SPHE curriculum is currently available for consultation, with a new proposed learning outcome 'to investigate the influence of pornography on attitudes, behaviours and relationship expectations' (NCCA, 2023b, p. 14). This was informed by consultations with various stakeholders in advance of the development of the draft curriculum in which stakeholders expressed concern about the volume of sexually implicit and explicit material, including pornography, encountered by young people in advertisements and in the media generally, and the impact that this has on understandings of sexual relationships, on attitudes to gender stereotypes and on equality (NCCA, 2023c).

At primary level, developments in SPHE are part of wider curriculum redevelopments. The Primary Curriculum Framework sets the direction for curriculum developments and outlines how the redeveloped curriculum will be presented across five broad curriculum areas. Learning and teaching related to SPHE will be part of the curriculum area of wellbeing. A draft wellbeing specification will be available for public consultation in 2024. Interim guidance has been provided to teachers by the NCCA, including resources tailored to the different class levels.

In terms of related initiatives, the Department of Justice Third National Strategy on Domestic, Sexual and Gender-based Violence (Department of Justice and Equality, 2022a) and Implementation Plan (Department of Justice and Equality, 2022b) are built on four pillars: prevention, protection, prosecution and policy coordination. One of the actions under the Implementation Plan is to 'develop education and public information campaigns which raise awareness of the harm of pornography and of how the sex trade and pornography fuel misogyny and violence against women and undermine gender equality' (Department of Justice and Equality, 2022b, p. 5).

1.5 SUMMARY

This chapter has provided an overview of the policy context and existing literature on pornography use among adolescents and young people. It also set out a number of conceptual frameworks that will be used in the subsequent analysis of the data

from the GUI study. The literature review highlighted not only the strong gendered patterns in pornography use and the importance of considering not only individual-level correlates of pornography use but also wider contextual factors such as peer and family relationships. In this report, we take advantage of the availability of detailed longitudinal data on young people's early lives and circumstances to examine the predictors of pornography use in early adulthood. While the evidence base on the consequences of pornography use for outcomes such as sexual-health behaviours and mental health and wellbeing is growing, concerns remain over the direction of causality. The present study seeks to build on the existing evidence base to answer three research questions, using data on Cohort '98 of the GUI study collected at ages 9, 13, 17 and 20:

1. What are the individual- and family-level factors at earlier ages (9, 13, 17) that are associated with use of pornography at age 20?
2. How does use of pornography at age 20 interact with sexual health behaviours at age 20?
3. How is pornography use at age 20 associated with mental health and wellbeing at age 20?

The following chapter introduces the data and methods used in subsequent chapters of this report. Chapters 3 and 4 present the results of the analyses for each of the three research questions, and Chapter 5 summarises the findings and draws out implications for policy.

CHAPTER 2

Data and methods

2.1 DATA

Growing Up in Ireland (GUI), the National Longitudinal Study of Children in Ireland, surveys two cohorts of children and young people. Cohort '08 (previously known as the Infant Cohort) contains information on 11,134 children and their families who were first surveyed when the children were 9 months of age, between September 2008 and April 2009 (Quail et al., 2011). Cohort '98 (previously known as the Child Cohort) represents 8,568 children and their families first surveyed between August 2007 and May 2008 when the children were 9 years of age (Thornton et al., 2010). The sampling frame was the primary-school system. Data from the first four waves of Cohort '98 are used in this report. The second wave of data collection for Cohort '98 was carried out between August 2011 and March 2012 (when the young people were approximately 13 years of age); Wave 3 was carried out between April 2015 and August 2016 (when the young people were approximately 17/18 years of age) and Wave 4 between August 2018 and June 2019 when the young people were approximately 20 years of age (GUI, 2021; Murphy et al., 2018). At the time of writing, data collection for Wave 5 of Cohort '98 (at age 25) is in progress.

Data were collected primarily via computer-aided personal interview (CAPI) with the primary caregiver (PCG) (who in most cases was the young person's mother), although, as the young person aged into adolescence and young adulthood, more of the information was collected from the young person, on either a CAPI or a self-completion basis. Sensitive self-completion questionnaires were also conducted with parents and young people in all waves. In this report, we concentrate on the 4,585 young people who were observed at all waves, including Wave 4 at age 20.[14]

2.1.1 Use of pornography

At age 20, the GUI study included a detailed module on internet and technology use in the sensitive self-completion questionnaire. In that module, young people

14 The sample sizes for the statistical models presented in Chapters 3 and 4 may differ slightly due to missing data on included variables.

were asked, 'We would like to ask you some more questions about how you use the Internet. Do you use the Internet for the following?' with sixteen options provided. (Respondents could tick as many options as they wished.) One of the sixteen options was 'pornography'. We derive a binary variable for each option that takes the value 1 for those who ticked the option and 0 for those who did not, and also derive a 'diversity of internet-use score', which indicates the number of options ticked (excluding pornography and those required for work/educational purposes). Table 2.1 presents summary statistics on these variables, for males and females separately, at age 20. The table shows that most uses of the Internet differ significantly by gender, with greater male use for pornography, gaming, gambling, news updates, dating, work purposes and posting videos, and greater female use for social media, shopping and filling out application forms. Overall, young men use the Internet for a greater variety of purposes than young women.

TABLE 2.1 SUMMARY STATISTICS FOR VARIABLES RELATING TO PORNOGRAPHY[15] (AND INTERNET USE)

Use	Definition	Male (%)	Female (%)
Social media	=1 if use the Internet for social media (e.g., Facebook, Twitter)***	93.5	98.3
Music, TV, movies	= 1 if use the Internet for music, television, movies	96.6	97.4
Games	=1 if use the Internet for games/games streaming***	67.8	16.3
Gambling	=1 if use the Internet for virtual casinos/placing bets***	15.8	2.9
Pornography	=1 if use the Internet for pornography***	63.9	13.1
News updates	=1 if use the Internet for news update (including entertainment or sports news)***	80.3	58.4
Messaging	=1 if use the Internet for messaging/calling friends or family (e.g., WhatsApp, Skype, email)	95.0	96.5
Dating	=1 if use the Internet for dating apps***	29.9	20.9
Shopping	=1 if use the Internet for shopping***	81.5	89.8
College work	=1 if use the Internet for college work, work, online tutorials, distance learning	80.0	81.7
Work	=1 if use the Internet for work purposes***	55.1	47.2
Advice	=1 if use the Internet for advice on health, relationship or other issues concerned about	57.8	60.7
Online forms	=1 if use the Internet for filling out online application forms for jobs, social welfare, grants, etc.***	60.4	67.1
Information	=1 if use the Internet for searching for information generally (e.g., Google)	94.5	92.7
Paying bills	=1 if use the Internet for paying bills and managing money	62.1	58.9
YouTube	=1 if use the Internet for posting YouTube videos with a view to earning money (now or in the future)***	12.7	8.4
Diversity of internet use	Number of different uses (excluding pornography and work/education-related use)***	Mean=4.6 Median=5.0	Mean=3.8 Median=4.0

Source: *GUI, Cohort '98, Wave 4 (age 20).*
Notes: *Population weights are employed. The list of internet uses is presented in the same order in which they appear in the GUI questionnaire. *** Gender difference is significant at the p < .001 level.*

2.1.2 Independent variables: Young people and their families

The advantage of the GUI study is the richness of the data on most aspects of the lives of young people and their families, recorded at ages 9, 13, 17 and 20. Informed by international research and by Bronfenbrenner's framework, we select variables that capture key domains of young adults' lives, including their family background, their sources of information on sex, their peer group, their religious identity and the role of rule-setting in the family, and their educational experiences (see Table 2.2 for summary statistics).[16] We also look at the extent to which pornography use is linked to broader online behaviour.

15 For the remainder of this report, we use the term 'pornography' rather than 'internet or online pornography'.
16 In addition, a sensitivity check is conducted in Chapter 4 to look at whether activities such as sport influence both use of pornography and outcomes such as depressive symptoms.

In terms of individual and family background, the analyses control for age, to take account of the small number (7 per cent) who were 21 years of age (rather than 20) at the time of the survey. Because social class, parental education and household income are all closely related, we focus here on social class, measured in terms of the higher occupation of the two parents, used at age 13 to capture influences from adolescence onwards. Robustness checks showed that financial strain (having difficulty or great difficulty making ends meet) had no additional association with pornography use and so was not included in these models.[17] Analyses took account of whether the young adult was in a lone-parent family (when they were 20), whether their parents had been born outside Ireland, whether they lived in an urban or rural area and whether they had a disability or special educational need (as reported by their mother when they were 13).[18] We also look at the gender mix of siblings, as this might influence gender-role socialisation within the family. As previous research had indicated some relationship between pornography use and early pubertal timing, we distinguish between females who had early periods (11 or younger) and others, and between males whose voices had fully or partially broken at age 13 and others.

TABLE 2.2 SUMMARY STATISTICS FOR INDEPENDENT VARIABLES

Group	Variable	Male (%)	Female (%)
Family and individual background	Age: 21 years of age	7.0	7.0
	Social class		
	Professional	10.5	9.7
	Managerial	35.3	29.6
	Other non-manual	18.5	20.0
	Skilled manual	14.1	15.9
	Semi/unskilled manual	11.8	13.1
	Never employed	9.9	11.7
	Lone-parent family**	20.6	26.3
	Migrant background	7.7	6.8
	Urban	42.1	45.9
	Has disability/SEN***	28.6	22.0
	Gender mix of older siblings		
	No older siblings	41.9	42.0
	All female	20.4	19.0

17 However, financial strain is included in the models of young-adult outcomes as it is associated with aspects of wellbeing.

18 Additional analyses (not shown here) indicated that the relationship between pornography use and family structure measured at age 20 was stronger than that for family structure measured at age 13.

Group	Variable	Male (%)	Female (%)
	Mixed	15.2	15.9
	All male	22.5	23.1
Pubertal timing			
	Early period	–	18.8
	Voice partially/fully broken	58.2	–
Sex education			
	Timing of RSE access[*]		
	None	6.8	5.2
	By 13 years	50.9	56.7
	By 17 years	42.3	38.1
	Main information source at 13[***]		
	Parents/family	41.3	52.1
	Friends	22.6	21.9
	Teacher	10.6	9.7
	Internet	5.9	2.0
	Books/magazines/TV	2.2	3.4
	Nowhere	17.3	11.1
	Main information source at 17[***]		
	Parents/family	13.0	21.4
	Friends	46.6	45.7
	Teacher	10.6	8.3
	Internet	21.4	19.1
	Books/magazines/TV	2.8	3.1
	Nowhere	5.7	2.4
	Timing parents talked to them about sex[***]		
	Not at all	38.0	24.8
	By 13 years	40.6	50.1
	By 20 years	21.4	25.1
Peers			
	No. of friends at 17[***]		
	0–2	8.3	11.5
	3–5	43.6	49.7
	6–10	39.0	33.1
	10+	9.1	5.7
	Alienation from peers at 17[*]	16.15	16.97
Rule-making			
	Religiosity[***]		
	Has a religion, frequent practice	16.5	17.9
	Has a religion, infrequent practice	61.4	66.4
	No religion	22.2	15.7
	Parents monitor internet use at 13[***]		
	Always	50.3	40.6
	Sometimes	41.1	48.4
	Never	8.7	11.0
	Spends >1 hour home alone after school at 13	13.3	11.8
	Shares a bedroom at 17	13.7	15.3
Educational experiences			
	Single-sex second-level school[***]	36.3	43.9

Group	Variable	Male (%)	Female (%)
	Perceived benefit of school in preparing for adult life		
	No help	19.4	21.1
	Some	50.3	62.3
	A lot	30.3	26.6
	Leaving Certificate performance[*]		
	< 300 points; ESL; LCA	31.6	26.2
	301–400 points	27.0	27.3
	401–500 points	26.6	30.5
	>500 points	14.8	16.0
	Post-school pathway[***]		
	Labour market/inactive	12.3	7.5
	Further education	7.4	5.0
	Higher education	80.3	87.5
	Left parental home by 20	31.1	34.9
Sexual orientation	*Sexual orientation at 20*[***]		
	Heterosexual	88.4	85.2
	Homosexual	4.0	2.1
	Bisexual	4.1	8.8
	Questioning/asexual/don't know	3.5	3.9

Source: *GUI, Cohort '98, Wave 4 (age 20).*
Notes: *Population weights are employed. *** Gender difference is significant at p < .001 level. ** Gender difference is significant at p < .01. * Gender difference is significant at p < .05. Figures may total to more than 100 per cent due to rounding. ESL: early school-leaver; LCA: Leaving Certificate Applied programme.*

In terms of sources of information on sex, information collected at age 13 and 17 is used to construct a combined measure of the timing of receipt of Relationships and Sexuality Education (RSE), distinguishing those who first experienced the subject earlier (by age 13), later (by age 17) or not at all. At both 13 and 17 years of age, young people were asked about their main source of information about sex. Information collected at 13 and 17 years of age is also used to construct a combined measure of the timing of their parents talking to them about sex, distinguishing those who had such discussions earlier (by age 13), later (by age 17) or not at all. Males and females differ significantly in their sources of information on sex and on the timing of parental discussions of sex, with a higher proportion of men reporting their parents had never talked to them about sex (38 per cent compared with 25 per cent) (Nolan and Smyth, 2020). Parents were also asked about whether they had talked to their children about five different issues: sex and sexual intercourse; sexual feelings, relationships and emotions; contraception; safer sex/sexually transmitted infections; and sexual orientation. As none of the items relate specifically to pornography, the number of topics covered is used here as a

summary measure. Because of the high correlation between mother and father reports, mother reports are used for females and father reports for males.

In light of the findings of international research on peer influences on pornography use, as well as the strong reliance on friends as a source of information on sex at age 17, we use two measures of peer networks: number of friends at age 17 and the quality of such networks, as measured by alienation from peers (using the Inventory of Parent and Peer Attachment alienation subscale).

Previous research internationally has shown the role of religiosity in influencing use of pornography (see Chapter 1). The measure of religiosity used here combines self-reports of whether the young adult has a religious affiliation with the frequency of practice for those that do, giving three categories: frequent practice (at least monthly), has a religion but less frequent practice, and has no religion. Two aspects of parental monitoring are used: whether the parents monitored internet use when the young person was 13 years of age and whether the young person regularly spent more than an hour at home alone after school. In addition, whether the young person shared a bedroom or not was used as a potential measure of their level of privacy.

Single-sex schooling is still an important feature of the Irish educational landscape (see Table 2.2). To our knowledge, there have been no studies analysing the relationship between the gender mix of the school and pornography use, though we might expect gender-role socialisation to differ across school settings. At age 17, young people were asked about their perceptions of their second-level education. Here we use one item on the extent to which second-level education was seen as preparing young people for adult life. Leaving Certificate performance is measured in terms of the points achieved, with the early school-leaver and Leaving Certificate Applied groups included in the base category with those receiving fewer than 300 points. Post-school pathway distinguishes between those who went on to higher education (even if they did not complete it), further-education entrants and those who went directly into the labour market or who were inactive. Whether the young adult had already left the parental home by the age of 20 is also taken into account. Analyses also take account of sexual orientation, as reported by respondents when they were 20 years of age.

The analyses seek to take account of the main explanatory factors identified in the literature and in previous Irish research on sexual behaviour among young adults. However, personality traits, although mentioned in the literature and measured in the GUI study, are not included as they cannot be regarded as policy malleable or as providing a basis to target specific groups of young adults for support or intervention.

2.1.3 Outcome measures[19]

The study looks at the relationship between pornography use and two sets of outcomes: sexual behaviour and wellbeing (Table 2.3). Information from the surveys at age 17 and 20 were combined to capture the timing of sexual initiation to distinguish between those who had had sexual intercourse by age 17, those who had had intercourse by age 20 and those who had not had intercourse. The young adults were also asked about the appropriateness of this timing, differentiating those who felt that it had happened too early, those for whom the timing was right and those who felt it was later than they would have preferred. At the age of 20, young adults were asked about how many partners (not necessarily sexual) they had had in the past year. They were also asked about the frequency of contraceptive use and condom use. Here we distinguish between those who always used contraception/condoms and all others.

19 We use the term 'outcome' here to reflect a series of developmental outcomes among young adults that may be associated with pornography use (while also recognising that we cannot infer causality in the relationships).

TABLE 2.3 SUMMARY STATISTICS FOR OUTCOME VARIABLES

Group	Variable	Male (%)	Female (%)
Wellbeing			
	Life satisfaction (mean)**	7.08	6.88
	CES-D depression scale (mean)***	3.86	5.27
	Rosenberg self-esteem scale (mean)***	12.28	11.08
	Aggression scale (mean)***	6.53	5.07
	Negative coping strategies (mean)*	9.22	9.48
Sexual behaviour			
	Timing of sexual initiation:		
	Had sexual intercourse by 17	32.8	32.8
	Had sexual intercourse by 20	16.4	50.7
	Has not had sexual intercourse	50.8	16.5
	Number of partners in the past year (mean)	0.91	0.86
	Always use contraception***	62.7	72.2
	Always use condoms	36.9	32.9
Perception of timing of first sexual intercourse* **			
	Too soon	8.8	24.7
	About right	68.0	61.5
	Too late	9.1	2.4
	Not sure	14.1	8.4

Source: *GUI, Cohort '98, Wave 4 (age 20).*

Notes: *Population weights are employed. The sample for the sexual behaviour and perceptions of timing variables is restricted to those who have had sexual intercourse. *** Gender difference is significant at p < .001 level. ** Gender difference is significant at p < .01 level. * Gender difference is significant at p < .05. Figures may total to more than 100 per cent due to rounding.*

The analyses look at positive and negative aspects of wellbeing. Life satisfaction is measured on a scale of 0–10 at age 20 and previously at age 17, with higher scores indicating better wellbeing. At both age 17 and 20, young adults completed the Center for Epidemiological Studies Depression (CES-D) scale, with higher scores indicating more depressive symptoms. Six of the items from the Rosenberg Self-Esteem Scale were used to capture self-image, again at age 17 and 20, with higher scores indicating a more positive self-image. Some studies have indicated that sexual aggression is greater among those who use pornography (see Chapter 1). There is no such measure in the GUI study; instead, we look at more general measures of aggression. At age 20, the Reactive–Proactive Aggression Questionnaire (Raine et al., 2006) was used to capture both proactive aggression (such as using physical force to get others to do what you want) and reactive aggression (for example, yelling if someone annoys them). This measure was not collected at age 17. Instead, we use externalising behaviour (combining conduct and hyperactivity subscales from the Strengths and Difficulties Questionnaire) and

also take into account the frequency of engaging in physical fights, as reported by the young person. Young adults were asked about the extent to which they used a range of strategies to cope with something stressful (at both age 17 and 20). These items broadly clustered into three types of coping behaviour, though the items used differed between waves: problem-solving, seeking social support and avoidance (McNamara et al., 2021). The items on drinking/smoking, taking drugs, watching more television and 'taking to the bed' (going to bed, sleeping more or both) when something stressful had happened were used as a scale of negative coping strategies. The reliability (alpha coefficient) was 0.59. While some of the items included in the scale could be construed as risk-taking behaviours, the focus in this scale is on behaviour in response to stressful situations (rather than, say, drinking in general).

2.2 METHODS

In Chapter 3, logistic regression models are used to examine the factors associated with using pornography at age 20. Because of the large differences in pornography use by gender (Table 2.1), all models are estimated separately for men and women. Factors are first examined in terms of blocks, relating to the main domains of young-adult lives, and then a combined model is derived, highlighting the main risk and protective factors associated with pornography use. All models also control for sexual orientation, partnership status and internet use. The results are presented in terms of average marginal effects to allow us to compare effect sizes across nested models.

In Chapter 4, due to the diversity in outcomes examined (e.g., sexual-health behaviours, mental health and wellbeing), different modelling approaches are used that reflect the form of the dependent variable. Multinomial logistic regression models are used to look at the relationship between pornography use and timing, and perceptions of timing, of first sexual intercourse. Ordinal logistic regression models are used to examine the relationship between pornography use and number of partners in the past year. Logistic regression models are used to explore the relationship between pornography use and contraceptive and condom use. Ordinary least squares regression models are used to look at the relationship

between pornography use, life satisfaction, depressive symptoms, self-image, aggression and negative coping strategies.

For all outcome models, Model 1 looks at the relationship between pornography use and the relevant outcome, controlling for individual and family background factors and Leaving Certificate performance. The next set of models control for the outcome captured at age 17, while the third set of models takes account of being in a relationship at 20, sexual orientation, reliance on the Internet as a source of information on sex at age 13 and 17 (a potential proxy for early pornography use) and the diversity of internet use and time spent online at age 20 (to partial out pornography use from broader online activities). The focus is thus on the main effect of pornography use on the relevant outcome, controlling for demographic or socio-economic variables, a prior measure of the outcome, and sexual activity and internet-use variables.

Pornography use, sexual behaviour and wellbeing are all measured at age 20, so we must be cautious about inferring causality. For example, those who use pornography may have poorer self-image because of that use. Alternatively, those who have poor self-image may turn to pornography use. We try to unpack the direction of the relationship, at least to some extent, by taking account (where available) of a measure of that outcome captured at age 17.

CHAPTER 3

Risk and protective factors for use of pornography

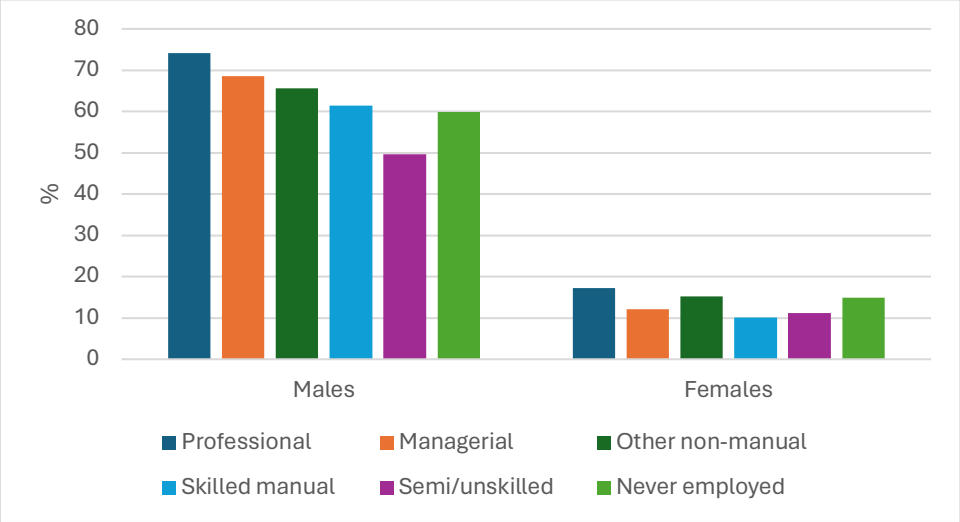
3.1 INTRODUCTION

In this chapter, we describe how use of the Internet for pornography varies across key characteristics of young people and their families, using information primarily collected at age 20. This chapter draws on Bronfenbrenner's framework to look at the ways in which young people's lives are shaped by several domains. Here we focus on their family background, their main source of information on sex, their peer group, their religious identity and the role of rule-setting in the family, and their educational experiences. In addition, we also take account of the way in which use of online pornography may be linked to broader online behaviour, in keeping with the role of the differential exposure to media effects perspective (Peter and Valkenburg, 2016). Each set of factors is explored separately, while the final section presents a full model, identifying the strongest risk and protective factors for use of pornography at age 20. In Chapter 4, we move on to look at the relationship between use of pornography and sexual behaviour and associations between use of pornography and mental health and wellbeing.

3.2 INDIVIDUAL AND FAMILY BACKGROUND FACTORS

Figure 3.1 shows the use of pornography by family social class, distinguishing between young women and men. For males, there is a clear social gradient, with higher levels of use among those from more advantaged backgrounds. In contrast, for females, there is no statistically significant variation by social class, though, as for males, the highest usage levels are found among those from professional backgrounds. Similar patterns are found by maternal education and household income (not shown here), with higher use among males from better-educated and higher-income backgrounds.

FIGURE 3.1 USE OF PORNOGRAPHY AT 20 YEARS OF AGE BY FAMILY SOCIAL CLASS AND GENDER



Source: *Growing Up in Ireland (GUI), Cohort '98.*

Table 3.1 looks at whether this social gradient is still evident when we take account of other individual and family factors. Because of the large gender differences in pornography use (see Chapter 2), we run the models separately for males and females. Nested models are used to test whether these patterns hold when we take account of sexual orientation and having a partner at age 20, and then online behaviour at age 17. Being slightly older is associated with pornography use for men but not for women, though it should be noted that there is little variation in age among Cohort '98 respondents (see Table 2.2). In keeping with Figure 3.1, there is a strong social gradient in pornography use among males, with the highest levels found among those from higher professional or managerial backgrounds. Interestingly, rates among those from jobless households also tend to be higher, almost on a par with levels found among the more advantaged groups. Additional analyses (not shown here) looked at whether pornography use varied by financial strain (that is, households reporting difficulties making ends meet), but no such difference was found.

Family structure has different effects for women and men. Young men from lone-parent families are less likely than those from two-parent families to use pornography. The reverse is true for young women, and the greater pornography use among females from lone-parent families appears to be explained by them being more likely to have a partner at age 20 (compare the coefficients in Models

1 and 2). The gender mix of older siblings does not make a difference for males, but women whose older siblings are all female are less likely to use pornography than those with no siblings. Being from a migrant background, being brought up in an urban area and having a disability or special educational need are not significantly related to pornography use for either men or women.[20] Women who started menstruating early (at 11 or younger) are slightly more likely to use pornography, a pattern that appears to be related to them being more likely to have a partner at age 20. The measure of puberty for males, whether their voice has broken, has no significant relationship with later pornography use. However, this may relate to the limitations of the measure used.

20 However, males from a migrant background have lower rates of pornography use than males from an Irish background at the $p < .10$ level.

TABLE 3.1 LOGISTIC REGRESSION MODEL OF INDIVIDUAL AND FAMILY FACTORS ASSOCIATED WITH USE OF PORNOGRAPHY (AVERAGE MARGINAL EFFECTS)

		Males			Females		
		Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Age	21 years (ref. 20 years)	0.575*	0.554*	0.493±	–0.040	–0.034	–0.028
Social class							
	Higher professional	0.848**	0.861**	0.806**	0.486	0.266	0.231
	Managerial	0.589*	0.580*	0.478±	0.129	–0.026	–0.043
	Other non-manual	0.456	0.429	0.390	0.374	0.238	0.195
	Skilled manual	0.294	0.317	0.207	–0.049	–0.244	–0.210
	Never employed	0.735±	0.788*	0.687±	0.011	–0.167	–0.264
	(ref. Semi/unskilled)						
Lone-parent family	(ref. Two parents)	–0.505*	–0.535**	–0.512*	0.528*	0.365	0.404±
Migrant background	(ref. Irish parents)	–0.491±	–0.452	–0.574±	0.096	0.157	0.152
Urban	(ref. Rural)	0.208	0.194	0.161	0.231	0.231	0.230
Has disability/SEN	(ref. No disability/SEN)	−0.212	−0.240	−0.137	0.235	0.147	0.160
Gender mix of older siblings							
	All female	0.264	0.263	0.239	−0.588*	−0.597*	−0.538*
	Mixed	−0.233	−0.273	−0.270	−0.477±	−0.401	−0.328
	All male	−0.060	−0.070	−0.021	−0.268	−0.319	−0.335
	(ref. No older siblings)						
Voice broken							
	Partly	0.198	0.208	0.193	–	–	–
	Fully	0.100	0.134	0.130	–	–	–
	(ref. Not at all)						
Early period onset	(ref. Period after age 11)	–	–	–	0.394±	0.331	0.279
Adjusted R^2		0.032	0.043	0.080	0.029	0.117	0.129
N		1,982	1,981	1,981	2,133	2,133	2,133

Source: *GUI Cohort '08.*
Note: *Model 2 controls for sexual orientation and having a partner. Model 3 controls for diversity of internet use and spending three or more hours online on a weekday at 17. *** p < .001. ** p < .01. * p < .05, ± p < .10.*

3.3 SOURCES OF INFORMATION ON SEX

The GUI study collected information on young people's exposure to Relationships and Sexuality Education (RSE) at school and whether their parents had talked to them about sex by the age of 13 or by the age of 17. They were also asked about their main source of information on sex at age 13 and at age 17. Parents were asked about whether they had talked to their children about five different issues: sex and sexual intercourse; sexual feelings, relationships and emotions; contraception;

safer sex/sexually transmitted infections; and sexual orientation (see also Chapter 2).

All of the young adults should have had RSE classes at school but differed in whether they had done so by age 13. Furthermore, a small number reported not having received RSE. The timing of RSE is not significantly associated with later pornography use (Table 3.2). Parents emerged as the main source of information on sex for 13-year-olds, but by age 17, friends had become an important source (Nolan and Smyth, 2020). Males who rely on their friends for information at both age 13 and age 17 are more likely to use pornography. For females, this effect is seen only for those relying on friends at age 17 and is partially explained by having a partner and sexual orientation at age 20. Both women and men who reported relying on the Internet are significantly more likely to use pornography at age 20, with a small additional effect of relying on the Internet as a main source of information on sex at age 13 for males. Thus, the highest pornography use is found among those using the Internet as a source of information on sex from early adolescence onwards. It is likely that at least some of this effect relates to young people using pornography as a source of information on sexual behaviour when they were younger.

The timing of parents talking to young people about sex was not significantly associated with pornography use. Other analyses (not shown here) looked at how easy young people found it to talk to their parents about sex, but this was not included as it was closely related to the main source of information used. In other words, young people were more likely to rely on their parents for information about sex if they found them easy to talk to on the subject. Both mothers and fathers were asked the questions about whether they had talked to their children about sex. These measures were very highly related so could not be included in the same model. Instead, we use information on mothers for young women and on fathers for young men. There is a lack of a systematic relationship between the number of topics discussed and pornography use, though there is a slight tendency for women whose mothers covered more of the topics to be less likely to use pornography.

TABLE 3.2 LOGISTIC REGRESSION MODEL OF INFORMATION FACTORS ASSOCIATED WITH USE OF PORNOGRAPHY (AVERAGE MARGINAL EFFECTS)

	Males			Females		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Timing of RSE access						
By 13 years	−0.096	−0.031	−0.093	−0.725±	−0.593±	−0.591±
By 17 years	0.025	0.076	0.092	−0.190	−0.176	−0.140
(ref. None)						
Main information source at 13						
Friends	0.566**	0.563**	0.506*	0.306	0.221	0.226
Teacher	−0.220	−0.230	−0.225	−0.032	−0.315	−0.331
Internet	0.615±	0.658±	0.512	0.555	0.519	0.524
Books/magazines/TV	0.586	0.483	0.369	−0.214	−0.306	−0.314
Nowhere	−0.153	−0.183	−0.207	−0.043	−0.012	−0.028
(ref. Parents/family)						
Main information source at 17						
Friends	0.490*	0.509*	0.445±	0.602*	0.182	0.435
Teacher	−0.332	−0.388	−0.446	0.153	0.131	0.181
Internet	0.958***	0.958***	0.779**	1.542***	1.158***	1.034**
Books/magazines/TV	0.288	0.262	0.244	0.999***	0.501	0.413
Nowhere	0.287	0.345	0.846	0.958	0.440	0.926
(ref. Parents/family)						
Timing parents talked to them about sex						
By 13 years	0.061	0.091	0.209	0.182	0.080	0.166
By 20 years	−0.090	−0.070	−0.083	−0.271	−0.167	−0.094
(ref. Not at all)						
No. of aspects of sex parents talked about (parent-reported)						
0	0.193	0.235	0.184	−0.175	−0.007	−0.053
1	0.426	0.458	0.349	−0.511	−0.647	−0.625
2	0.256	0.334	0.314	−0.974**	−1.114**	−1.056**
3	0.638±	0.707*	0.624±	−0.404	−0.350	−0.378
4	0.241	0.261	0.154	−0.360	−0.495±	−0.520±
(Ref. All five)						
Adjusted R^2	0.065	0.076	0.093	0.002	0.161	0.166
N	1,629	1,629	1,629	1,807	1,807	1,807

Source: *GUI Cohort '08.*

Note: *All of the models control for age, social class, family structure, urban/rural and pubertal timing. Model 2 controls for sexual orientation and having a partner. Model 3 controls for diversity of internet use and spending three or more hours online on a weekday at 17. *** p < .001. ** p < .01. * p < .05. ± p < .10.*

3.4 PEER FACTORS

Given that friends emerged as an important source of information on sex, the analyses explored the extent to which pornography use was influenced by the size and quality of the peer network. There is a lack of a systematic relationship between the number of friends young people said that they hung around with at age 17 and their later pornography use (Table 3.3). For males, but not females, those who were more alienated from their peers were more likely to use pornography. However, this result should be interpreted with caution. The variance inflation factor indicates a strong correlation between peer alienation and internet use so it may be that young people without a strong peer network turn to internet use and that this influences pornography use. Additional analyses (not shown here) looked at the effect of having older friends as this was previously found to be related to riskier behaviour regarding contraception (Nolan and Smyth, 2020). However, no significant variation was found.

TABLE 3.3 LOGISTIC REGRESSION MODEL OF PEER FACTORS ASSOCIATED WITH USE OF PORNOGRAPHY (AVERAGE MARGINAL EFFECTS)

	Males			Females		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
No. of friends at 17						
3–5	0.116	0.134	0.004	−0.601*	−0.508±	−0.545±
6–10	0.200	0.215	0.075	−0.414	−0.276	−0.284
10+	0.271	0.263	0.094	−0.715±	−0.533	−0.647
(Ref. 0–2)						
Alienation from peers	0.081***	0.078***	0.076***	0.036*	0.021	0.013
Adjusted R^2	0.044	0.050	0.077	0.032	0.116	0.127
N	1,964	1,963	1,963	2,125	2,125	2,125

Source: *GUI Cohort '08.*
Note: *All of the models control for age, social class, family structure, urban/rural and pubertal timing. Model 2 controls for sexual orientation and having a partner. Model 3 controls for diversity of internet use and spending three or more hours online on a weekday at 17. *** p < .001. ** p < .01. * p < .05, ± p < .10.*

3.5 RELIGION AND RULE-MAKING

The measure of religiosity used combined information on whether the young person indicated having a religion and, if so, their level of practice (with frequent practice meaning attending services at least monthly). Among men, pornography use was highest among those who reported having no religion, while use was lowest among those with frequent religious practice (Table 3.4). For women, the pattern was less clear-cut. Women with no religion had higher levels of

pornography use than others (Model 1), but this was explained by sexual orientation and partnership at age 20. Parental rule-making and supervision operated in different ways for women and men. For men, having had parents who placed restrictions on online activities at age 13 had lower levels of pornography use, largely because this led to them spending less time online and using the Internet for a narrower range of activities. No such effect was evident for women. However, spending more time alone at age 13 was associated with greater pornography use for women, while sharing a bedroom resulted in less pornography use.

TABLE 3.4 LOGISTIC REGRESSION MODEL OF RELIGION AND RULE-MAKING FACTORS ASSOCIATED WITH USE OF PORNOGRAPHY (AVERAGE MARGINAL EFFECTS)

	Males			Females		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Religiosity						
Has a religion, infrequent practice	0.636***	0.612***	0.611***	0.372	0.217	0.105
No religion	1.143***	1.069***	1.101***	1.161**	0.501	0.357
(Ref. Has a religion, frequent practice)						
Shares a room at 17	−0.129	−0.127	−0.039	−0.911**	−1.028**	−0.946**
Parents monitor internet use at 13	−0.215±	−0.223*	−0.169	−0.115	−0.117	−0.101
Spends >1 hour home alone after school at 13	0.093	0.088	0.069	0.450	0.484*	0.474*
Adjusted R^2	0.049	0.056	0.094	0.056	0.121	0.132
N	1,961	1,960	1,960	2,097	2,097	2,097

Source: *GUI Cohort '08.*
Note: *All of the models control for age, social class, family structure, urban/rural and pubertal timing. Model 2 controls for sexual orientation and having a partner. Model 3 controls for diversity of internet use and spending three or more hours online on a weekday at age 17. *** p < .001. ** p < .01. * p < .05. ± p < .10*

3.6 EDUCATIONAL EXPERIENCES

The analyses covered both second-level experiences and the post-school pathway pursued by young people. The gender mix of the school was not significantly related to pornography use for either males or females (see Table 3.5). Students who felt that their school had been a lot of help in preparing them for adult life were less likely to use pornography at age 20. The effect was more evident for young men than young women, with the pattern for females related to partnership and sexual orientation at age 20. There is a marked gradient in pornography use by Leaving Certificate performance among young men, with those scoring over 500 points twice as likely to use pornography as those who scored fewer than 300 points, took the Leaving Certificate Applied programme or left school early. No such difference is found for young women. Leaving Certificate performance is found to explain the social-class effect for males (analyses not shown here, but see Table 3.6 below). Over and above the effect of Leaving Certificate performance, there is no significant variation in pornography use by post-school pathway. The exception is the significantly lower rates of pornography use found among women who went into further education, a pattern that is not readily explicable. There was no difference in pornography use by having moved out of the parental home by age 20 for either women or men.

TABLE 3.5 LOGISTIC REGRESSION MODEL OF EDUCATION FACTORS ASSOCIATED WITH USE OF PORNOGRAPHY (AVERAGE MARGINAL EFFECTS)

	Males			Females		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Gender mix of school						
Single-sex	0.219	0.233	0.260±	0.143	0.106	0.104
(ref. Coeducational)						
Perceived benefit of school in preparing for adult life						
Some	−0.230	−0.209	−0.195	−0.181	−0.068	−0.075
A lot	−0.653**	−0.631**	−0.615**	−0.594*	−0.244	−0.219
(ref. No help)						
Leaving Certificate performance						
301–400 points	0.625**	0.682**	0.687**	0.041	0.166	0.139
401–500 points	0.616**	0.657**	0.587**	0.037	0.236	0.187
> 500 points	1.015***	1.033***	1.027***	0.497	0.593	0.617
(ref. < 300 points; ESL; LCA)						
Post-school pathway						
Labour market	0.606	0.064	0.128	−0.316	0.276	−0.182
Further education	−0.373	−0.284	−0.187	−3.170**	−3.415**	−3.374**
(ref. Higher education)						
Left parental home by 20	0.161	0.154	0.033	−0.173	−0.229	−0.225
Adjusted R^2	0.056	0.065	0.099	0.042	0.125	0.134
N	1,890	1,890	1,890	2,015	2,015	2,015

Source: *GUI Cohort '08.*

Note: *All of the models control for age, social class, family structure, urban/rural and pubertal timing. Model 2 controls for sexual orientation and having a partner. Model 3 controls for diversity of internet use and spending three or more hours online on a weekday at 17. *** p < .001. ** p < .01. * p < .05. ± p < .10; ESL: early school-leaver; LCA: took the Leaving Certificate Applied programme.*

3.7 COMBINED MODEL

In order to determine the strongest risk and protective factors regarding pornography use, a model was derived using the factors emerging as significant from the separate models. Because of the relationship between a number of the variables, several factors are no longer significant when measures across all domains are included. As discussed above, for example, the effect of social class on pornography use among young men is no longer significant when we take account of Leaving Certificate performance (Table 3.6).

TABLE 3.6 LOGISTIC REGRESSION MODEL OF MAIN FACTORS ASSOCIATED WITH USE OF PORNOGRAPHY (AVERAGE MARGINAL EFFECTS)

	Males	Females
Age: 21 years	0.359	0.137
(ref. 20 years)		
Social class		
Higher professional	0.405	0.089
Managerial	0.218	−0.158
Other non-manual	0.206	0.176
Skilled manual	0.100	−0.179
Never employed	0.371	−0.020
(ref. Semi/unskilled)		
Lone-parent family	−0.543b	0.315
(Ref. Two parents)		
Gender mix of older siblings		
All female	0.196	−0.410
Mixed	−0.182	−0.531
All male	0.175	−0.479±
(Ref. No older siblings)		
Pubertal timing		
Early period	–	0.021
Voice somewhat broken	−0.020	–
Voice fully broken	0.286	–
Main information source at 13		
Friends	0.411*	0.197
Teacher	−0.322	−0.407
Internet	0.361	0.600
Books/magazines/TV	0.349	−0.329
Nowhere	−0.181	−0.364
(Ref. Parents/family)		
Religiosity		
Has a religion, infrequent practice	0.811***	0.221
No religion	1.237***	0.463
(Ref. Has a religion, frequent practice)		
Shares a room at 17	0.073	−0.647±
Parents monitor internet use at 13	−0.077	−0.002
Spends >1 hour home alone after school at 13	−0.089	0.291
Perceived benefit of school in preparing for adult life		
Some	−0.138	−0.042
A lot	−0.432±	−0.325
(Ref. No help)		
Leaving Certificate performance		
301–400 points	0.772***	0.015
401–500 points	0.699***	0.188
>500 points	1.104***	0.594
(ref. < 300 points; ESL; LCA)		
Post-school pathway		
Labour market	0.176	−0.066
Further education	−0.241	−3.113**
(Ref. Higher education)		
Left parental home by 20	0.036	−0.338
Has partner at 20	−0.303±	0.162
Sexual orientation at 20		
Homosexual	−0.033	1.891***

	Males	Females
Bisexual	0.896*	1.777***
Questioning/asexual/Don't know	0.507	0.981*
(ref. Heterosexual)		
Diversity of internet use at 17	0.147***	0.077
Spent 3+ hours online on weekdays at 17	0.299±	0.217
Adjusted R^2	0.130	0.154
N	1,851	1,925

Source: *GUI Cohort '08.*
Note: *All of the models control for age, social class, family structure, urban/rural and pubertal timing. Model 2 controls for sexual orientation and having a partner. Model 3 controls for diversity of internet use and spending three or more hours online on a weekday at 17. *** p < .001. ** p < .01. * p < .05. ± p < .10; ESL: early school-leaver; LCA: took the Leaving Certificate Applied programme.*

There are clear differences in the factors associated with pornography use for women and men. For men, the main risk factors are higher Leaving Certificate performance, being bisexual, relying on friends as the main source of information on sex and a greater diversity in the type of internet use. The main protective factors are higher levels of religiosity and coming from a lone-parent family.

For women, the main factor associated with pornography use is sexual orientation, with gay, bisexual and women who are questioning or asexual more likely to use pornography than heterosexual women. The effect sizes are quite large so may reflect a greater reliance on the Internet as a source of information, not being integrated into networks of other sexual-minority women, or both. As indicated above, pornography use is significantly lower among women who went on to further education, and this pattern is not readily explicable in terms of the other factors considered.

3.8 CONCLUSIONS

This chapter has explored the extent to which pornography use at age 20 is related to experiences across the domains of family, peer group, access to information on sex and education. Women and men differ markedly not only in the prevalence of pornography use but also in the factors associated with its use. Men from more advantaged backgrounds are more likely to use pornography, a pattern that is not explained by their level of, or diversity in, internet use. Use appears to be responsive to rule-setting, with higher levels of use among those with no religion (among both women and men) and among those whose parents did not supervise their internet use (for men) or allowed them to stay home alone after school (for women). There is no strong relationship between the provision of sex education and pornography use, though those who felt their school contributed to preparing them for adult life had lower levels of use. However, pornography use was higher among those (especially men) who relied on their friends as the main source of information on sex, and reliance on the Internet as a source of information was also predictive of pornography use. In fact, using the Internet as a source of information may be capturing some early access to pornography. LGBTQ+ groups, especially among women, are more likely to use pornography, which may reflect information-seeking among this group, their lack of contact with other LGBTQ+ youth, or both.

CHAPTER 4

Pornography use, sexual behaviour and wellbeing

4.1 INTRODUCTION

This chapter looks at the relationship between pornography use, sexual behaviour and wellbeing among young adults. Five aspects of sexual behaviour at age 20 are examined, namely, timing of sexual initiation, perceptions of that timing, number of partners in the past year, contraceptive use and condom use. In terms of wellbeing, we look at the relationship between pornography use and life satisfaction, depressive symptoms, self-image, aggression and use of negative coping strategies. Because pornography use, sexual behaviour and wellbeing are all measured at age 20, we must be cautious about inferring causality. For example, those who use pornography may have higher depression rates because of that use. Alternatively, those who are depressed may turn to pornography (or another unobserved factor may explain the association).[21] We try to unpack the direction of the relationship, at least to some extent, by taking account (where available) of a measure of the particular outcome captured at age 17. In the models presented in this chapter, we first look at the relationship with pornography use controlling for key individual and family background factors then add a measure of that outcome at age 17 and finally take account of sexual orientation, whether the young adult is in a relationship at age 20 and their degree of internet use at age 20.[22] Internet use at 20 is taken into account in order to partial out the potential effects of other online behaviour from that of pornography use.

4.2 SEXUAL BEHAVIOUR AND PORNOGRAPHY USE

4.2.1 Timing of first sexual intercourse and perceptions of the timing

The two waves of GUI surveys can be used to distinguish between three groups of young adults: those who first had sexual intercourse by age 17, those who had

21 In Section 4.3, sensitivity analyses explore whether involvement in sport might predict both pornography use and depression to test whether another factor might be driving the relationship.

22 In contrast to Chapter 3, we use time spent on the Internet at weekends. Overall, time at weekends is longer on average so this is a more stringent test of the relationship between pornography use and the outcomes, net of internet use.

sexual intercourse between the ages of 17 and 20 and those who had not had sexual intercourse by age 20.[23] Table 4.1 compares the patterns for those who had sexual intercourse, by age 17 or 20, with those who never had sexual intercourse. Among both women and men, earlier sexual initiation (i.e., by age 17) was significantly and positively related to pornography use. Given that we measure pornography use only at age 20, this relationship is, of course, not causal. Not surprisingly, those in a relationship at age 20 are more likely to have had sexual intercourse, especially at an earlier age. Both women and men who are questioning their sexual orientation are significantly less likely to have had sexual intercourse. There is some association between diversity of internet use (i.e., number of different types of internet use) and sexual initiation; this pattern is difficult to interpret, but it may be related to the relationship between pornography use and diversity of internet use (see also Table 3.6).

23 The GUI study does not ask the exact age at which the young person first had sexual intercourse.

TABLE 4.1 MULTINOMIAL LOGISTIC REGRESSION MODEL OF TIMING OF FIRST SEXUAL INTERCOURSE AND USE OF PORNOGRAPHY (BASE CATEGORY: HAS NOT HAD SEXUAL INTERCOURSE BY 20)

	Males				Females			
	By 17		By 20		By 17		By 20	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Pornography use at 20	1.058***	0.712**	0.321±	0.151	0.750**	0.557±	0.382	0.469
Has partner at 20	–	2.500***	–	1.912***	–	3.286***	–	2.756***
Sexual orientation at 20								
Homosexual	–	−0.620	–	0.212	–	−1.687*		−0.908
Bisexual	–	−0.743	–	−0.645	–	−0.263	–	−0.701*
Questioning/asexual/ Don't know	–	−2.162**	–	−1.251*	–	−0.951*	–	−1.584***
(Ref. Heterosexual)								
Internet main source of information on sex at 13	–	−0.337	–	−0.136	–	0.665	–	0.417
Internet main source of information on sex at 17	–	0.059	–	−0.215	–	0.595*	–	0.131
Diversity of internet use at 20	–	0.135*	–	0.162**	–	0.124±	–	0.131*
Spent 3+ hours online on weekends at 20	–	−0.459±	–	−0.416±	–	0.340	–	0.216
Adjusted R^2	0.0619	0.119	–	–	0.0342	0.1329	–	–
N	1,970	1,574	1,970	1,574	2,109	1,830	2,109	1,830

Source: *GUI Cohort '08.*

Note: *All models control for age, social class, experience of financial strain, family structure, migrant status, urban/rural location, disability/SEN and Leaving Certificate performance. *** p < .001. ** p < .01. * p < .05. ± p < .10.*

TABLE 4.2 MULTINOMIAL LOGISTIC REGRESSION MODEL OF PERCEPTION OF TIMING OF FIRST SEXUAL INTERCOURSE AND USE OF PORNOGRAPHY (BASE CATEGORY: FEELS THE TIMING WAS ABOUT RIGHT)

	Males				Females			
	Too soon		Too late		Too soon		Too late	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Pornography use at 20	0.307	0.229	0.337	0.049	−0.403	−0.503±	−0.647	−0.256
Has partner at 20	–	0.416	–	−0.586*	–	0.085	–	−0.655
Sexual orientation at 20								
Homosexual	–	1.753***	–	0.211	–	−3.484***	–	−0.954
Bisexual	–	0.395	–	−0.829	–	−0.014	–	0.307
Questioning/asexual/don't know	–	1.457*	–	−0.306	–	−1.386±	–	−15.143***
(Ref. Heterosexual)								
Internet main source of information on sex at 13	–	−0.594	–	−0.934*	–	0.419	–	0.482
Internet main source of information on sex at 17	–	−0.593±	–	0.238	–	−0.239	–	−0.517
Diversity of internet use at 20	–	0.082	–	0.174*	–	0.017	–	0.014
Spent 3+ hours online on weekends at 20	–	0.225	–	−0.038	–	0.108	–	0.000
Adjusted R^2	0.0323	0.0754	–	–	0.0505	0.0695	–	–
N	1,622	1,320	1,622	1,320	1,672	1,462	1,672	1,462

Source: *GUI Cohort '08.*
Note: *All models control for age, social class, experience of financial strain, family structure, migrant status, urban/rural location, disability/SEN and Leaving Certificate performance. *** p < .001. ** p < .01. * p < .05. ± p < .10.*

The young adults who had sexual intercourse by age 20 were asked about the timing of first sexual intercourse and whether they felt it was too soon, about right or too late. There is no significant relationship between perceived timing and pornography use (Table 4.2). Men who are gay or questioning their sexual orientation are more likely to report they had sex too soon, while gay or questioning women are significantly less likely to say they had sex too soon.

4.2.2 Number of partners

Table 4.3 shows the relationship between pornography use and number of partners in the past year. This model includes those who had no partners in the past year who are coded as zero. No significant relationship is evident for men. However, for women, there is a strong relationship, with pornography users having had more partners in the last year. Women and men who question their sexual orientation had fewer partners. Among men, gay men have fewer partners than heterosexual men while bisexual men have slightly more.

TABLE 4.3 ORDINAL LOGISTIC REGRESSION MODEL OF NUMBER OF PARTNERS IN THE PAST YEAR AND USE OF PORNOGRAPHY

	Males		Females	
	Model 1	Model 2	Model 1	Model 2
Pornography use at 20	0.198	0.004	0.712***	0.783***
Sexual orientation at 20				
Homosexual	–	−0.747±	–	0.254
Bisexual	–	0.597±	–	0.372
Questioning/asexual/don't know	–	−1.355*	–	−1.112**
(ref. Heterosexual)				
Internet main source of information on sex at 13	–	−0.047	–	−0.103
Internet main source of information on sex at 17	–	0.109	–	0.205
Diversity of internet use at 20	–	−0.009	–	−0.079±
Spent 3+ hours online on weekends at 20	–	−0.328*	–	–
Adjusted R^2	0.014	0.029	0.015	0.300
N	1,940	1,564	2,102	1,826

Source: *GUI Cohort '08.*
Note: *All models control for age, social class, experience of financial strain, family structure, migrant status, urban/rural location, disability/SEN and Leaving Certificate performance. *** p < .001. ** p < .01. * p < .05. ± p < .10.*

4.2.3 Contraception use

For those who are sexually active at age 20, two aspects of contraception use were measured: whether the 20-year-old (or their partner) always used some form of contraception and whether they always used a condom. Male pornography users were somewhat less likely to indicate that they always used contraception (but this was significant only at the $p < .10$ level). The coefficient became non-significant when using the Internet for information on sex at age 13 and age 17 was added. The negative coefficient for reliance on the Internet at age 17 may suggest that earlier pornography use is related to less contraception use, though this cannot be established using available information. No difference in contraceptive use was found by whether women used pornography or not. Women and men who had delayed sex until after age 17 were more likely to always use contraception at age 20. For both women and men, only occasional contraception use at age 17 was predictive of not always using contraception three years later.

TABLE 4.4 LOGISTIC REGRESSION MODEL OF ALWAYS USING CONTRACEPTION AT AGE 20 AND USE OF PORNOGRAPHY (AVERAGE MARGINAL EFFECTS)

	Males			Females		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Pornography use at 20	−0.339±	−0.232	−0.121	−0.112	−0.025	−0.082
Contraception use at 17						
Had not had sex	–	–	0.411*	–	–	0.365±
Sometimes	–	–	−1.543***	–	–	−1.139**
(ref. Always)						
Has partner at 20	–	0.819***	0.924***	–	0.733***	0.831***
Sexual orientation at 20						
Homosexual	–	−0.734	−0.404	–	0.329	−0.832
Bisexual	–	−0.053	0.063	–	0.167	0.272
Questioning/asexual/don't know	–	2.271*	2.010*	–	−0.084	0.043
(ref. Heterosexual)						
Internet main source of information on sex at 13	–	−0.163	−0.264	–	−0.071	0.102
Internet main source of information on sex at 17	–	−0.356±	−0.269	–	−0.288	−0.272
Diversity of internet use at 20	–	−0.068	−0.086	–	−0.043	−0.038
Spent 3+ hours online on weekends at 20	–	0.369*	0.371*	–	−0.152	−0.143
Adjusted R^2	0.0197	0.0646	0.1051	0.0384	0.0587	0.0852
N	1,500	1,215	1,189	1,568	1,374	1,353

Source: *GUI Cohort '08.*
Note: *All models control for age, social class, experience of financial strain, family structure, migrant status, urban/rural location, disability/SEN and Leaving Certificate performance. * p < .001. ** p < .01. *** p < .05. ± p < .10.*

As well as looking at contraceptive use, we examine condom use because sexual script theory (see Chapter 1) suggests that pornography use would be associated with less condom use. In keeping with sexual script theory, pornography use is significantly related to lower levels of regular condom use for both men and women. This effect is sizeable and is not accounted for by other factors, including regular condom use at age 17. Men and women with a current partner at age 20 are significantly less likely to always use a condom. Taken together with the results in Table 4.4, it appears that there is a greater use of non-barrier contraception among those in relationships (a finding supported by previous Irish research from the Irish Study of Sexual Health and Relationships; Layte et al., 2006). Women and men who postponed sexual initiation are significantly more likely to regularly use condoms while irregular condom use at age 17 is highly predictive of the pattern three years later.

TABLE 4.5 LOGISTIC REGRESSION MODEL OF ALWAYS USING A CONDOM AND USE OF PORNOGRAPHY (AVERAGE MARGINAL EFFECTS)

	Males			Females		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Pornography use at 20	−0.497**	−0.581**	−0.492*	−0.973***	−0.651*	−0.770**
Condom use at 17						
Had not had sex	–	–	0.796***	–	–	0.698**
Never/Less than half the time	–	–	−2.252**	–	–	−2.090***
Mostly/More than half the time	–	–	−0.937*	–	–	−1.662***
(Ref. Always)						
Has partner at 20	–	−0.578***	−0.472**	–	−0.690***	−0.647***
Sexual orientation at 20						
Homosexual	–	−0.386	−0.437	–	0.000	0.000
Bisexual	–	0.290	0.338	–	−0.285	−0.125
Questioning/asexual/don't know	–	1.337*	1.063±	–	−0.382	−0.471
(Ref. Heterosexual)						
Internet main source of information on sex at 13	–	−0.482	−0.731±	–	−0.024	0.028
Internet main source of information on sex at 17	–	−0.212	−0.028	–	0.036	0.103
Diversity of internet use at 20	–	−0.034	−0.044	–	−0.099±	−0.108±
Spent 3+ hours online on weekends at 20	–	0.221	0.245	–	−0.095	−0.155
Adjusted R^2	0.0172	0.0466	0.1144	0.0616	0.0826	0.1591
N	1,569	1,274	1,255	1,564	1,362	1,337

Source: *GUI Cohort '08.*
Note: *All models control for age, social class, experience of financial strain, family structure, migrant status, urban/rural location, disability/SEN and Leaving Certificate performance. *** p < .001. ** p < .01. * p < .05. ± p < .10.*

4.3 WELLBEING AND PORNOGRAPHY USE

This section looks at the relationship between pornography use and several measures of wellbeing, namely: life satisfaction, depression, self-image, aggression and use of negative coping strategies.

4.3.1 Life satisfaction

Table 4.6 shows the association between pornography use and life satisfaction, both measured at age 20. Model 1 shows that males who use pornography have significantly lower levels of life satisfaction than those who do not. To put the size of the effect in context, it is on a par with being in the second-highest Leaving Certificate performance group and stronger than the effects of other individual and background factors (analyses not shown here). The relationship holds, even taking account of prior life satisfaction at age 17. Thus, men who use pornography have lower life satisfaction than might be expected given their prior levels (Model 2). Comparing the coefficients for Models 2 and 3 shows that some of this difference

is accounted for by differences in internet use, partnership and sexual orientation. Those who relied on the Internet as their main source of information on sex, those who have more diverse internet use and those who spend longer hours online on weekends at age 20 all have lower levels of life satisfaction. Those who are in a relationship at age 20, in contrast, have higher levels of life satisfaction. In addition, gay men have significantly lower levels of life satisfaction than their heterosexual counterparts. Nonetheless, a significant relationship remains with pornography use even when these characteristics are taken into account.

TABLE 4.6 LINEAR REGRESSION MODEL OF LIFE SATISFACTION AND USE OF PORNOGRAPHY

	Males			Females		
	Model 1	**Model 2**	**Model 3**	**Model 1**	**Model 2**	**Model 3**
Pornography use at 20	−0.649***	−0.635***	−0.372***	−0.230±	−0.155	0.128
Life satisfaction at 17		0.083*	0.071		0.155*	0.152*
Has partner at 20	–	–	0.454***	–	–	0.262*
Sexual orientation at 20						
Homosexual	–	–	−0.729**	–	–	−1.372
Bisexual	–	–	−0.063	–	–	−0.538**
Questioning/asexual/don't know	–	–	−0.831	–	–	−0.703
(Ref. Heterosexual)						
Internet main source of information on sex at 13	–	–	0.073	–	–	0.110
Internet main source of information on sex at 17	–	–	−0.327*	–	–	−0.163
Diversity of internet use at 20	–	–	−0.068±	–	–	−0.020
Spent 3+ hours online on weekends at 20	–	–	−0.244*	–	–	−0.137
Adjusted R^2	0.033	0.049	0.148	0.013	0.019	0.077
N	1,960	1,949	1,566	2,102	2,093	1,822

Source: *GUI Cohort '08.*
Note: *All models control for age, social class, experience of financial strain, family structure, migrant status, urban/rural location, disability/SEN and Leaving Certificate performance. *** p < .001. ** p < .01. * p < .05. ± p < .10.*

Among women, life satisfaction levels are lower (at the 10 per cent level) among those who use pornography, but this is largely accounted for by prior levels of life satisfaction. Like men, those in a relationship have higher levels of life satisfaction while LGBTQ+ women have lower levels (in this case, only significantly so for bisexual women). In contrast to men, internet use is not related to life satisfaction for women. Additional analyses (not shown here) examined whether there was an interaction between pornography use and the prior measure of life satisfaction – in other words, whether the relationship with pornography use was stronger for those with previously lower levels of life satisfaction. No such relationship was evident for either men or women.

4.3.2 Depressive symptoms

Table 4.7 looks at depressive symptoms and pornography use. For males, pornography use is associated with significantly higher depression scores. This difference is larger than variation by other background factors and is on a par with the difference between the lowest and highest Leaving Certificate performers (Model 1). Even controlling for prior depression score, there is a sizeable difference between males who use pornography and non-users. The difference is slightly smaller but still significant when sexual orientation, partnership and internet use are taken into account (Model 3). Depression levels are slightly lower (but only at the $p < .10$ level) for men in a relationship. They are higher for all sexual-minority groups and among those who spend a lot of time online. Among women, those who use pornography have significantly higher depression levels, but these are largely (but not wholly) related to higher prior depression among female pornography users. When sexual orientation, partnership and internet use are taken into account, there is no variation in depression by pornography use for women. Depression rates are higher among sexual-minority women, but only significantly so for bisexual women. Unlike men, partnership or internet use are not significantly related to depression among women. Additional analyses (not shown here) shows that the effect of pornography does not vary by prior levels of depression.

To test whether pornography use may reflect another factor that influences wellbeing, analyses were conducted on the relationship between sports involvement (at age 20), pornography use and depression. The sensitivity analyses

were conducted in relation to depression because of the well-established relationship between physical activity and mental health (see, for example, Ahn et al., 2017). Taking part in individual or team sports is not associated with pornography use for males, but young women taking part in team sports are significantly less likely to use pornography (Table A4.1; see p. 58). Depression levels are significantly lower among those involved in team sports (both women and men). However, taking account of team sports participation does not appreciably alter the coefficient for pornography use (0.953 without including sport but 0.893 with inclusion).

TABLE 4.7 LINEAR REGRESSION MODEL OF DEPRESSIVE SYMPTOMS AND USE OF PORNOGRAPHY

	Males			Females		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Pornography use at 20	1.677***	1.280***	0.953***	1.328**	0.709±	−0.216
Depression score at 17		0.289***	0.268***		0.382***	0.371***
Has partner at 20			−0.539±			−0.117
Sexual orientation at 20						
Homosexual	–	–	2.766***	–	–	1.303
Bisexual	–	–	2.266***	–	–	2.386***
Questioning/asexual/don't know	–	–	3.610*	–	–	1.154
(Ref. Heterosexual)						
Internet main source of information on sex at 13	–	–	−0.371	–	–	−0.104
Internet main source of information on sex at 17	–	–	−0.155	–	–	0.029
Diversity of internet use at 20	–	–	0.045	–	–	0.139
Spent 3+ hours online on weekends at 20	–	–	0.852**	–	–	0.369
Adjusted R^2	0.033	0.049	0.148	0.013	0.019	0.077
N	1,960	1,949	1,566	2,102	2,093	1,822

Source: *GUI Cohort '08.*
Note: *All models control for age, social class, experience of financial strain, family structure, migrant status, urban/rural location, disability/SEN and Leaving Certificate performance. *** p < .001. ** p < .01. * p < .05. ± p < .10.*

4.3.3 Self-image

Table 4.8 looks at the relationship between pornography use and self-image. Among men, those who use pornography have significantly lower self-image, even taking account of their self-image at age 17 (Models 1 and 2). This is much larger than the effects of family background factors. Model 3 shows that the difference in self-image is related to prior internet use and sexual orientation. Self-image is

significantly lower among men who have diverse internet use and spend longer hours online (at age 20). Those who report their sexual orientation as questioning have significantly lower self-image than heterosexual men. Among women, there is no significant relationship between pornography use and self-image. In fact, taking account of sexual orientation and internet use, women who use pornography have better self-image than might be expected. Women with a partner at age 20 report better self-image, in contrast to men where no significant effect is found. Bisexual and questioning women have significantly poorer self-image as do those who had more diverse internet use. As with the models discussed above, there is no evidence that the relationship with pornography differs by prior self-image scores (analyses not shown here).

TABLE 4.8 LINEAR REGRESSION MODEL OF SELF-IMAGE AND USE OF PORNOGRAPHY

	Males			Females		
	Model 1	**Model 2**	**Model 3**	**Model 1**	**Model 2**	**Model 3**
Pornography use at 20	−0.944***	−0.500**	−0.054	−0.065	0.349	0.639*
Self-image at 17	–	0.549***	0.537***	–	0.512***	0.501***
Has partner at 20	–	–	−0.023	–	–	0.433*
Sexual orientation at 20						
Homosexual	–	–	−1.009	–	–	0.958
Bisexual	–	–	−0.625	–	–	−1.010**
Questioning/asexual/don't know	–	–	−1.284*	–	–	−0.970*
(Ref. Heterosexual)						
Internet main source of information on sex at 13	–	–	−0.145	–	–	−0.007
Internet main source of information on sex at 17	–	–	−0.008	–	–	0.006
Diversity of internet use at 20	–	–	−0.132*	–	–	−0.145*
Spent 3+ hours online on weekends at 20	–	–	−0.785***	–	–	−0.220
Adjusted R^2	0.027	0.305	0.339	0.006	0.282	0.304

Source: *GUI Cohort '08.*
Note: *All models control for age, social class, experience of financial strain, family structure, migrant status, urban/rural location, disability/SEN and Leaving Certificate performance. *** p < .001. ** p < .01. * p < .05. ± p < .10.*

4.3.4 Aggression

Table 4.9 examines the relationship between pornography use and aggression. Unlike the other wellbeing outcomes, similar patterns are apparent for both men and women, with significantly higher aggression levels among pornography users, even taking account of prior externalising behaviour and being involved in fights as well as internet use and sexual orientation. The difference found is large. As expected, those who engaged in more externalising behaviour and in fighting at age 17 are more likely to be aggressive at age 20. There is little systematic variation for the other factors considered, though both women and men who engaged in more diverse internet use had higher aggression levels. There were no indications that pornography use mattered more at different levels of prior aggression or fighting (analyses not shown here).

TABLE 4.9 LINEAR REGRESSION MODEL OF AGGRESSION AND USE OF PORNOGRAPHY

	Males			Females		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Pornography use at 20	1.814***	1.660***	1.656***	2.363***	2.074***	1.924***
Externalising behaviour at 17	–	0.272***	0.256***	–	0.209*	0.253**
Reported fighting at 17						
Some	–	1.847***	1.983***	–	2.322**	–
A lot	–	3.026***	2.975***	–	2.133	1.648
(Ref. None)						
Has partner at 20	–	–	−0.140	–	–	0.113
Sexual orientation at 20						
Homosexual	–	–	−0.751	–	–	−0.856
Bisexual	–	–	−1.492*	–	–	−0.776
Questioning/asexual/don't know	–	–	−0.250	–	–	−0.941
(Ref. Heterosexual)						
Internet main source of information on sex at 13	–	–	−0.575	–	–	−0.003
Internet main source of information on sex at 17	–	–	−0.761*	–	–	−0.255
Diversity of internet use at 20	–	–	0.258±	–	–	0.422**
Spent 3+ hours online on weekends at 20	–	–	0.382	–	–	0.136
Adjusted R^2	0.030	0.093	0.118	0.071	0.105	0.121
N	1,953	1,939	1,561	2,098	2,088	1,818

Source: *GUI Cohort '08.*
Note: *All models control for age, social class, experience of financial strain, family structure, migrant status, urban/rural location, disability/SEN and Leaving Certificate performance. *** p < .001. ** p < .01. * p < .05. ± p < .10.*

4.3.6 Negative coping strategies

Using pornography may be a way of dealing with pressure or stress. Table 4.10 looks at whether pornography users engage in other negative coping strategies, such as taking to their bed or drinking alcohol when stressed. The strong relationship between pornography use and use of negative coping strategies for both women and men, even taking account of other factors, supports our hypothesis that pornography use may, at least in part, operate as a negative coping strategy. Diversity of internet use is also associated with use of negative coping strategies.

TABLE 4.10 LINEAR REGRESSION MODEL OF USE OF NEGATIVE COPING STRATEGIES AT AGE 20 AND USE OF PORNOGRAPHY

	Males			Females		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Pornography use at 20	1.040***	0.857***	0.583**	1.143***	0.843*	0.661±
Use of avoidance strategies at 17	–	0.143***	0.118***	–	0.132***	0.120***
Has partner at 20	–	–	0.161	–	–	−0.128
Sexual orientation at 20						
Homosexual	–	–	0.544	–	–	0.418
Bisexual	–	–	0.230	–	–	0.506
Questioning/asexual/don't know	–	–	0.502	–	–	−0.894*
(Ref. Heterosexual)						
Internet main source of information on sex at 13	–	–	0.098	–	–	−0.078
Internet main source of information on sex at 17	–	–	0.377	–	–	0.189
Diversity of internet use at 20	–	–	0.196***	–	–	0.138±
Spent 3+ hours online on weekends at 20	–	–	0.265	–	–	0.302
Adjusted R^2	–	–	–	–	–	–
N	1,950	1,931	1,556	2,097	2,079	1,809

Source: *GUI Cohort '08.*
Note: *All models control for age, social class, experience of financial strain, family structure, migrant status, urban/rural location, disability/SEN and Leaving Certificate performance. *** p < .001. ** p < .01. * p < .05. ± p < .10.*

4.4 CONCLUSIONS

This chapter has examined the relationship between pornography and two sets of outcomes among 20-year-olds: sexual behaviour and wellbeing. Pornography use is found to be greater for men and women who were sexually active at a younger age, though this relationship cannot be regarded as causal since we do not have information on pornography use prior to the period of sexual initiation. Those who do use pornography do not differ from non-users in their regular use of contraception. However, in keeping with sexual script theory, regular condom use is significantly less common among men and women who use pornography. This difference is sizeable, with male condom use reduced by around half among pornography users and an even bigger difference among the small group of women who use pornography. The number of partners in the past year is significantly higher among female pornography users, but no such difference is found for men.

The analyses show very strong relationships between pornography use and the different dimensions of wellbeing considered. The effects are generally more

evident for men, but the smaller number of women using pornography may make significant differences more difficult to detect. Men who use pornography are less satisfied with their lives, report more depressive symptoms and have poorer self-image than those who do not. For both women and men, pornography use is associated with higher levels of aggression and greater use of negative strategies in coping with stress. These relationships are not strictly causal in nature, but taking account of measures of wellbeing at age 17 goes some way to unpacking the processes at play. The differences found are sizeable, so it would appear that, if not a driver of poorer wellbeing, pornography use does at least seem to be an important signal of worse outcomes.

TABLE A4.1 LOGISTIC REGRESSION MODEL OF USE OF PORNOGRAPHY AND LINEAR REGRESSION MODEL OF DEPRESSIVE SYMPTOMS, TAKING ACCOUNT OF PARTICIPATION IN SPORT

	Pornography use		Depressive symptoms	
	Males	Females	Males	Females
Takes part in team sports at 20	−0.099	−0.963***	−0.815*	−0.578*
Takes part in individual sport at 20	0.035	0.055	−0.048	0.085
Pornography use at 20	–	–	0.893**	−0.302
Depression score at 17	–	–	0.258***	0.366***
Adjusted R^2	–	–	–	–
N	1,851	1,925	1,565	1,820

Source: *GUI Cohort '08.*

Note: *All models control for age, social class, experience of financial strain, family structure, migrant status, urban/rural location, disability/SEN, and Leaving Certificate performance. The pornography use models also control for religiosity, monitoring, sharing a room, perceived benefits of education, educational pathway, having left home, reliance on the Internet for information on sex and internet diversity and time. *** p < .001. ** p < .01. * p < .05. ± p < .10.*

CHAPTER 5

Discussion and policy implications

5.1 SUMMARY OF MAIN FINDINGS

Adolescence and young adulthood are critical periods in the development of healthy sexual health and relationships, and patterns of behaviour that develop in adolescence and young adulthood shape outcomes throughout the life course. In recent years, widespread internet access and mobile-phone use has meant that pornography has become increasingly available, affordable and easier to access anonymously. The National Sexual Health Strategy notes that adolescents and young people receive messages about sex and relationships from a variety of sources, including from pornography, and that the early sexualisation of children, adolescents and young people requires public policy attention. In order to provide evidence for the forthcoming update to the National Sexual Health Strategy, as well as related initiatives such as revised Social Personal and Health Education (SPHE) and wellbeing curricula at primary, junior and senior cycles, this report used data from Cohort '98 of Growing Up in Ireland (GUI) to examine the risk and protective factors for pornography use at age 20, as well as the consequences of pornography use for outcomes such as sexual health behaviours and wellbeing.

The analysis identified strong gender differences in pornography use, as well as in the risk and protective factors for pornography use. Young men were significantly more likely to use online pornography than young women. For both males and females, pornography use was higher among those with no religion, those who felt that school did not prepare them for adult life, those who relied on the Internet as a source of information about sex in adolescence and sexual-minority youth (particularly so for young women). For men, those from more advantaged social backgrounds, whose internet use was not supervised and who relied on their friends as a source of information about sex in adolescence were also significantly more likely to use online pornography.[24] For both men and women, there was little statistically significant relationship between pornography use and the timing of

24 For young women, spending time alone at home at age 13 was also associated with higher online pornography use at age 20.

Relationships and Sexuality Education (RSE) receipt, timing of discussions with parents about sex or the topics discussed with parents in adolescence.

In terms of relationships with sexual-health behaviours, those who used online pornography were significantly more likely to have had sex by age 17 (relative to those who had yet to have sex at age 20). However, in the absence of a measure of pornography use at earlier ages, it is impossible to interpret this relationship as causal. There was no relationship between online pornography use and regular use of contraception. However, consistent with the sexual script theory, both men and women who used pornography were significantly less likely to use a condom every time they had sex.

Strong associations between online pornography use and various dimensions of wellbeing were identified, particularly for young men. Young men who used online pornography were less satisfied with their lives, reported more depressive symptoms and had poorer self-image than those who did not. For both women and men, pornography use was associated with higher levels of aggression and greater use of negative strategies in coping with stress. Once again, these associations cannot be interpreted as strictly causal, although the modelling took account of prior levels of wellbeing (measured at age 17).

5.2 STRENGTHS AND LIMITATIONS

It is worth highlighting the strengths and limitations of this analysis before discussing the main results and inferring implications for policy and practice. First, in terms of limitations, the data on pornography use (and sexual behaviours such as sexual initiation, contraceptive and condom use, etc.) are self-reported. The potential for recall and social desirability bias associated with self-reported data on sensitive behaviours is well documented (King, 2022). However, the use of a self-completion questionnaire format in the GUI study maximises response rates while also allowing for respondents to answer truthfully in a confidential setting. A comparison of data on the proportion of young people who have reported using the internet for pornography from the GUI study shows good agreement with data reported from the My World 2 survey, carried out in 2018, albeit using different survey questions and age groups (Dooley et al., 2019).

Second, the GUI questionnaire did not define what constitutes pornography, and survey respondents might interpret what constitutes pornography differently. Indeed, it is noted that the diversity of research findings in the literature is likely partly due to the differing definitions of pornography used in different studies (Pathmendra et al., 2023). The consultation for the next British National Survey of Sexual Attitudes and Lifestyles (NATSAL) has highlighted the importance of a clear definition of pornography (incorporating all types, i.e. images, text, audio, video, etc.) (Ridge et al., 2020). In addition, other dimensions of pornography use, such as content, perceptions of that content, frequency of use and reasons for use are important dimensions of pornography exposure that are not captured in the GUI study.[25] A consistent and reliable measurement of these dimensions can help to elucidate the pathways between pornography and various outcomes. For example, previous research has shown that the evidence for harmful effects of pornography use (e.g., violence and aggressive behaviour) are more consistent for frequent use of violent pornography (Donevan et al., 2022).

Third, while GUI is a longitudinal study, information on pornography use was only captured in the Wave 4 survey at age 20. Therefore, we cannot examine longitudinal trajectories of pornography use through adolescence and young adulthood. In earlier waves (i.e. at ages 13 and 17), young people were not asked about pornography directly, but it is possible that those who regarded the Internet as their main source of information on sex were referring to online pornography. Indeed, the results from Chapter 3 suggest that those who cited the Internet as their main source of information on sex at both ages 13 and 17 were significantly more likely to use online pornography at age 20.

Fourth, GUI is a cross-domain study so is not designed to capture more specific information on frequency of pornography use, attitudes to sex or views on gender equality in relationships. We lack information for 20-year-olds on some of the outcomes, such as body image, highlighted as relevant in previous international research (Andrie et al., 2021; Dooley et al., 2019; Owens et al., 2012). The measure

25 For children and younger adolescents in particular, a distinction between intentional and accidental pornography use is sometimes made (Alexandraki et al., 2018; Dooley et al., 2019; Peter and Valkenburg, 2016), although the usefulness of this distinction has also been questioned. In particular, it has been noted that a positive answer to a question about accidental exposure may simply be a way to circumvent socially undesirable answers to a question about intentional exposure (Peter and Valkenburg, 2016).

of aggression used is a general one, rather than focusing on sexual aggression, though it might be expected that the two dimensions would be correlated, at least for men. We also lack information on the quantity and quality of formal sex education received by the young adults and on whether pornography had been discussed at school or with their parents (and on the quality of those discussions).[26]

Despite these limitations, it is important to highlight that the information collected in the GUI study represents the first time that information on online pornography use is available from a nationally representative sample of young adults. In contrast to many studies that use convenience or very small samples (see Peter and Valkenburg, 2016, for a discussion), Cohort '98 of GUI is a large, nationally representative survey of young people born in Ireland in 1998. The availability of detailed longitudinal data on different dimensions of young people's lives (demographic characteristics, family background, peer relationships, etc.) facilitates an analysis of the relative importance of these factors for the variety of outcomes considered in this study.

5.3 IMPLICATIONS FOR POLICY AND PRACTICE

Consistent with previous research (see Chapter 2), this research confirmed the strong gendered pattern in online pornography use, with prevalence much higher among young men than young women (64 per cent vs. 13 per cent). While it is possible that some of the difference reflects stronger social desirability in reporting among young women (King, 2022; Lebedíková et al., 2023), the scale of the difference in use highlights the need for policymakers and practitioners to target young men in particular. The difference in the risk and protective factors for pornography use for young men and women also highlights the challenge for policymakers in targeting supports; while young men from more advantaged social backgrounds were significantly more likely to use online pornography, the same was not true among young women. While the potential mechanisms underlying the higher pornography use among those from more advantaged backgrounds have been noted earlier (i.e., greater use of internet for educational purposes, more privacy, more access to the Internet and devices, etc.), further work is

26 While GUI does contain information on topics discussed between parents and children at ages 13 and 17 (e.g., safe sex), none relate specifically to pornography. See also Section 2.1.2.

necessary to understand why this pattern is identified only for young males in this analysis.

While the GUI study does not contain a measure of pornography use at earlier ages, previous research using GUI data has shown that young men are significantly more likely to use the Internet as their main source of information about sex than young women at ages 13 and 17 (Nolan and Smyth, 2020). Research from the UK has also highlighted the fact that most young people first see pornography in early adolescence (Children's Commissioner, 2023). Early exposure to pornography suggests a role for stricter controls on internet sites (including social-media sites) and age verification (Children's Commissioner, 2023), although a review of qualitative research with young people noted that efforts to prevent young people from accessing pornography, such as through identity screening and blocking websites by parents and schools, were not viewed as deterrents and were easily overcome when desired (Peterson et al., 2023). However, in this report, parental monitoring of internet access at age 13 was associated with lower pornography use at age 20 among young men.

This points to the need for improved education (via the formal SPHE and wellbeing curricula) and improved supports for parents in talking to their children about sex and relationships.[27] Indeed, the revised junior cycle SPHE curriculum and the draft senior cycle curriculum both highlight the importance of using the curriculum to investigate the influence of pornography on attitudes, behaviours and relationship expectations (National Council for Curriculum and Assessment [NCCA], 2023a, 2023b). The broader concept of pornography literacy has been proposed as a means by which young people can develop the capacity to understand pornography production, challenge perceived pornography realism, ethically consume pornography, critically appraise pornography, challenge negative outcomes of pornography engagement and facilitate positive sexual experiences with pornography use (Dawson, 2020). The systematic review of young people's views on pornography by Peterson et al. (2023) highlights the importance of age-

27 While the analyses in this report found little association between the timing of RSE receipt, the timing of discussions with parents about sex and relationships, or the types of topics discussed with parents, and use of pornography, previous research using GUI has highlighted the fact that the measure of RSE receipt (and parental discussions) does not capture important dimensions of formal and informal sex education including quality and quantity (Nolan and Smyth, 2020).

appropriate content at different stages of development through adolescence. For example, in younger adolescence, education may focus on consent and boundaries in sharing sexually explicit content among peers as well as managing exposure to content that may be confusing or distressing. For middle and later adolescence, education may also incorporate discussions about critically assessing the content and ethics of pornography and cover consent and communication about sex with a romantic partner. It is also important to consider the diversity of pathways that young people are on at the age of 20; most are in further or higher education, some are working, and others are inactive. While further and higher education institutions have introduced initiatives around consent (Department of Education and Skills, 2019), this research highlights the need for appropriate supports to address potential issues around the depiction of consent in pornography.[28]

The Health Service Executive (HSE) has developed a series of information booklets for parents to use in discussing sex and relationships with their children, at various stages of development.[29] For young people aged 13–18, the advice notes the importance of early discussions around the ways in which bodies, gender/gender roles, sexual orientation, disability, relationships and sexual activity are portrayed in the media that can lay the foundation for more targeted discussions about pornography (HSE Sexual Health and Crisis Pregnancy Programme, 2022). Our results highlight the association between more extensive internet use and pornography use, which, combined with previous research using the GUI study on parental behaviours and excessive internet use (O'Reilly and Mohan, 2023), calls for a broader policy focus on media-literacy skills and competencies among young people.

In general, previous research focuses on the negative aspects of pornography use, but some research notes that, in certain circumstances, pornography can provide useful information about sex (Litsou et al., 2021). For LGBTQ+ young people in particular, online pornography can allow for exploration without the social stigma that can occur in offline settings (Litsou et al., 2021; Luder et al., 2011; Pathmendra et al., 2023; Peterson et al., 2023). This hypothesis is supported by the findings of

28 See also the roll-out of the Active* Consent Programme; see https://www.gov.ie/en/press-release/1ed9f-active-consent-programme

29 See https://www.sexualwellbeing.ie/for-parents

this research, where young people from LGBTQ+ groups, especially women, were significantly more likely to use online pornography. Indeed, the NCCA review of the RSE curricula at primary and post-primary level highlighted that the old curricula were not inclusive of all students, with a heteronormative approach to teaching RSE evident in the teaching resources (NCCA, 2019).

One of the most striking findings of the research was the strong association identified between use of online pornography and condom use, with those using online pornography significantly less likely to use a condom every time they had sex. The sexual script theory posits that viewing pornography provides specific sexual guidelines, which can influence adolescent sexual behaviours. The portrayal of sex in pornography, where sexual encounters occur mostly without condoms, may mean that young people perceive condomless sex as common and normative (Koletić et al., 2019; Wright et al., 2016a). At age 20, those in relationships were also less likely to use a condom every time they had sex (although this is a common finding in adult samples) (Layte et al., 2006). Reinforcement of public-health messaging around the importance of condom use for prevention of sexually transmitted infections may therefore be warranted.

The research also identified statistically significant associations between use of online pornography and poorer wellbeing across a number of dimensions, particularly for young men. While it is possible that poorer wellbeing is also a driver of online pornography use, and previous research provides some support for this selective exposure hypothesis (Dawson, 2020; Štulhofer et al., 2019), the research findings suggest nonetheless that online pornography use may at the very least be a signal of poorer wellbeing. The potential mechanisms underlying the association between pornography use and poor mental health and wellbeing include anxiety about body image and sexual performance, increases in relationship dysfunction and greater isolation and low self-esteem from compulsive pornography use (Svedin et al., 2023). For both men and women, the results also suggest that those who use negative strategies to cope with stressful situations are more likely to use online pornography. In this context, the increased focus on wellbeing at junior cycle (Department of Education and Skills, 2015, 2018) provides an opportunity to begin to integrate discussions around RSE, media literacy, coping strategies and wellbeing in a more integrated way. However, these discussions need to be continued into

senior cycle. A new SPHE curriculum at senior cycle will provide a space for addressing some of these issues, but the relatively modest amount of time devoted to the subject (envisaged as 60 hours over two years) points to the need for a more holistic approach to wellbeing at senior cycle that mirrors that at junior cycle. School leadership and teacher professional development will be crucial ingredients in the successful implementation of wellbeing and mental-health promotion in schools. Given that the majority of young people in Ireland now take part in some form of post-school education and training, wellbeing promotion in general and discussions around sexual behaviour in particular need to be integrated across the further and higher education sectors, building on the work conducted around sexual consent to date.

Finally, the research highlights the importance of continued data collection and research in this area. The cohort of young people in this study are currently being followed up again at the age of 25. This provides a crucial opportunity to look at trajectories of pornography use in young adulthood and further exploration of the consequences of pornography use at age 20 for sexual health and wellbeing at age 25. Ongoing data collection with the other GUI cohort, Cohort ’08, provides an opportunity to collect more detailed information on pornography use at age 17/18 to further inform policy and practice in this area.

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