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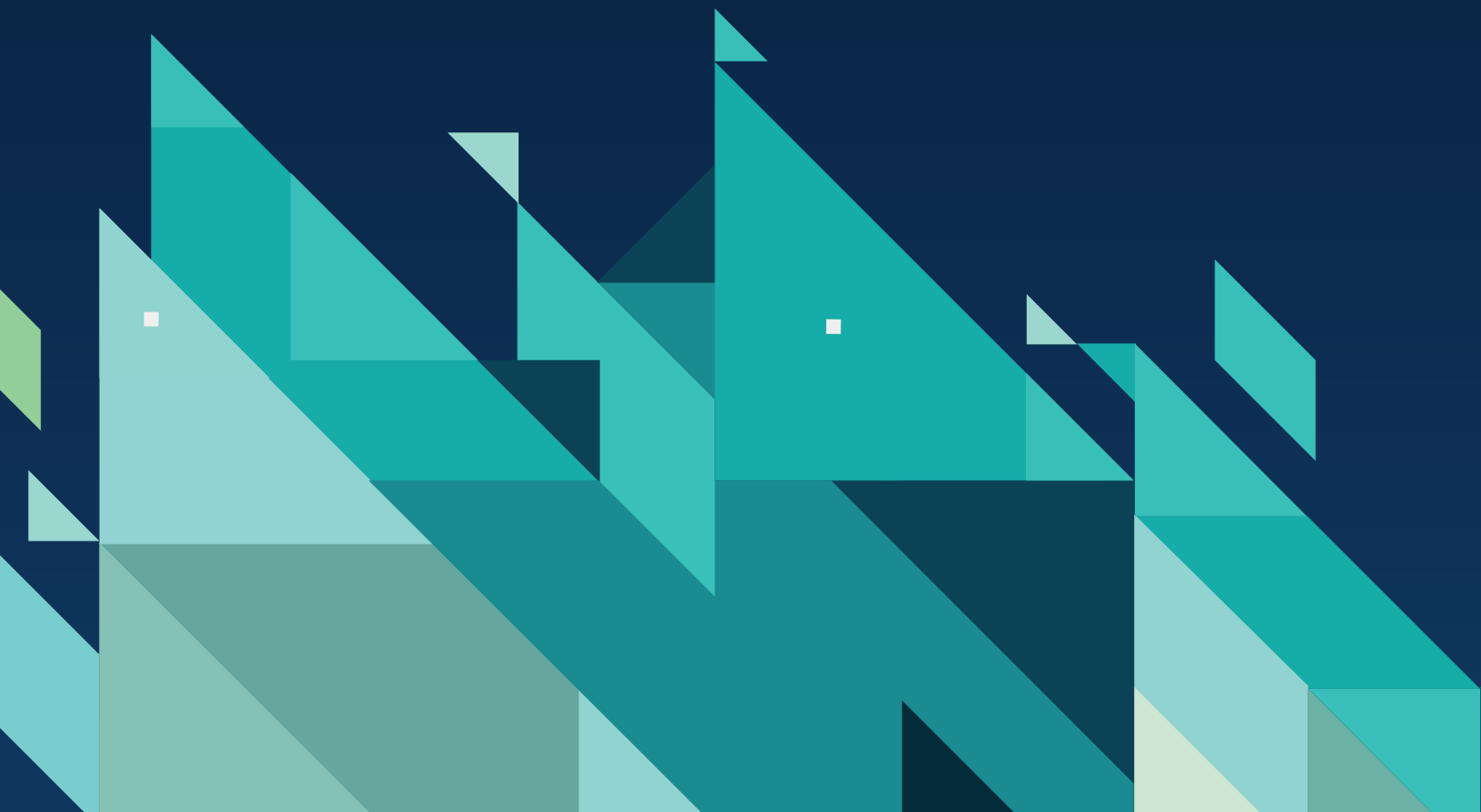
Sexual health literacy and sexual health behaviours among young adults in Ireland

ANNE NOLAN AND EMER SMYTH



SEXUAL HEALTH LITERACY AND SEXUAL HEALTH BEHAVIOURS AMONG YOUNG ADULTS IN IRELAND

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ABBREVIATIONS

CAPI	Computer-aided personal interview
CSO	Central Statistics Office
DCEDIY	Department of Children, Equality, Disability, Integration and Youth
DEIS	Delivering Equality of Opportunity in Schools
HBSC	Health Behaviour in School-Aged Children (survey)
HIV	Human immunodeficiency virus
HLS-EU	European Health Literacy Survey
HPSC	Health Protection Surveillance Centre
HSE	Heath Service Executive
ICCP	Irish Contraception and Crisis Pregnancy (study)
ISSHR	Irish Study of Sexual Health and Relationships
LGBTQ+	Lesbian, gay, bisexual, transgender and questioning
NCCA	National Council for Curriculum and Assessment
NCDS	National Condom Distribution Service
PrEP	Pre-exposure prophylaxis
REALM	Rapid Estimate of Adult Literacy in Medicine
RSE	Relationships and sexuality education
SPHE	Social, personal and health education
STI	Sexually transmitted infection
UK	United Kingdom
WHO	World Health Organization

EXECUTIVE SUMMARY

Adolescence and young adulthood are critical periods in the development of healthy sexual health and relationships, as patterns of behaviour that develop during these life stages shape outcomes throughout the life course. Recent rises in notifications of certain sexually transmitted infections (STIs) among young people in Ireland have raised concerns over the extent to which young people have the skills and information to make healthy choices in relation to their sexual health and wellbeing. In this context, sexual health literacy – i.e., the degree to which individuals have the ability to find, understand and use information and services to inform decisions and actions – is a key protective factor for the prevention of negative sexual health outcomes and for allowing young people to be more in control of their own sexual and reproductive health. In this report, we used data from Cohort '98 of *Growing Up in Ireland*, the national longitudinal study of children and young people in Ireland, to examine the factors associated with sexual health literacy among young adults, and how sexual health literacy is associated with sexual health behaviours (i.e., condom and contraception use). The *Growing Up in Ireland* data on sexual health literacy were collected in 2018 when the young people were 20 years of age, and the measure of sexual health literacy was based on answers to two questions that gauged knowledge of female fertility and STI prevention methods.

MAIN FINDINGS

- Knowledge of the best method for STI prevention is high among young people aged 20 (with over 80 per cent of men and women correctly identifying condoms).
- However, knowledge of fertility (specifically the period during the female menstrual cycle when pregnancy is most likely to occur) is much lower, with just 21 per cent of men, and 37 per cent of women, answering correctly.
- Sexual health literacy levels are slightly higher among those from more advantaged backgrounds.
- Cognitive skill development is significantly related to sexual health literacy, especially among women, with vocabulary skills at primary level and Leaving Certificate grades both associated with better sexual health literacy.
- Those who had received relationships and sexuality education (RSE) at school, and/or had discussed sex and relationships with their parents, were not more likely to answer the sexual health literacy questions correctly. While there is little systematic variation by the source of information on sex, women reliant on books and other media are more knowledgeable about STI prevention.
- Approximately one-third of young men and women always use condoms when having sex.

- Higher proportions of both men and women always use some form of contraception when having sex (63 per cent of men, and 72 per cent of women).
- A significant minority (nearly 40 per cent of men, and 32 per cent of women) do not always use either condoms or other forms of contraception when having sex.
- While use of contraception at first sex is high (at nearly 90 per cent), a significant proportion of those who are sexually active discontinue contraception use and are not using it currently (nearly 30 per cent of men and just over 20 per cent of women).
- There was little significant relationship between sexual health literacy and condom and contraception use, however. Much stronger associations are apparent for factors such as peer culture and relationship status. Being in a relationship is associated with a shift from condoms to other forms of contraception. Those whose peer group at age 17 were sexually active are less likely to use condoms or other forms of contraception, and are more likely to discontinue use over time.
- Among men, appetite for risk is linked to lower levels of usage of both condoms and contraception, and a similar decline in use over time.

POLICY IMPLICATIONS

The study findings have a number of implications for policy and practice. Low levels of fertility knowledge among women and men, which have implications for their future pregnancy planning, point to the need for this issue to be addressed through the revised RSE curriculum, underpinned by ongoing professional development for teachers and supports for parents to engage in conversations about sex with their children. Low levels of condom use and a decline in contraception use between first and current sex point to the need for renewed public health communication, and to the potential use of peer networks in reinforcing positive messages about contraception use. Sexual health literacy is not sufficient to ensure safe sexual behaviours among young adults but needs to be underpinned by a multi-pronged approach involving parents, peers, schools, youth clubs, public health professionals and other service providers.

CHAPTER 1

Introduction

1.1 BACKGROUND

Sexual activity is an important component of physical and mental health and wellbeing. Adolescence and young adulthood are critical periods in the development of sexual health and relationships, as patterns of behaviour that develop during these life stages shape outcomes throughout the life course (Viner et al., 2015). Curiosity and experimentation are common in the context of adolescent development (Pathmendra et al., 2023), but risky sexual behaviours are associated with other risky health behaviours (de Looze et al., 2014; Hale and Viner, 2012; Jackson et al., 2012b), which can lead to poorer health outcomes in later life. In addition, young people are at highest risk for adverse sexual health outcomes, such as sexually transmitted infections (STIs) and unplanned pregnancies (Mercer et al., 2013). Recent rises in notifications of certain STIs in Ireland, which are increasing among young people aged 15–24 (HPSC, 2024a), have raised concerns over the extent to which young people have the skills and information to make healthy choices in relation to their sexual health and wellbeing.

One of the key goals of the National Sexual Health Strategy is that everyone will receive comprehensive and age-appropriate sexual health education and/or information (Crowe, 2023; Department of Health, 2015). This strategy notes that relationship and sexuality education (RSE) for young people requires a multi-pronged approach, involving education at home, in school settings and in out-of-school settings. While the broad concept of health literacy and its association with better health outcomes is well established (Berkman et al., 2011; Institute of Medicine, 2004; Sørensen et al., 2012), sexual health literacy is a key protective factor for the prevention of negative sexual health outcomes and for allowing young people to be more in control of their own sexual and reproductive health (Lirios et al., 2024).[1] For example, understanding the reproductive cycle and fertility is essential both for effective use of contraception (especially emergency contraception) to control fertility, and for planning a pregnancy (Martins et al., 2024).

In this report, we use data from Cohort ’98 of *Growing Up in Ireland*, the national longitudinal study of children and young people in Ireland, to examine the factors

[1] The US Department of Health and Human Services defines health literacy as the ‘degree to which individuals have the ability to find, understand, and use information and services to inform health-related decisions and actions for themselves and others’ (Santana et al., 2021). While there is no internationally-accepted definition of sexual health literacy, it is generally understood as the application of health literacy to decisions about sexual and reproductive health.

associated with sexual health literacy among young adults (at 20 years of age), and how sexual health literacy is associated with sexual health behaviours (i.e., condom and contraception use).

1.2 CONCEPTUAL FRAMEWORKS

The bioecological model (Bronfenbrenner and Morris, 2006) forms the overarching conceptual framework that guided the design of the *Growing Up in Ireland* study, which is the source of the data used in this report. 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). The bioecological model has been complemented by a life course perspective, which adds the dimension of time, showing how current child and adolescent functioning depends in part on past exposures and experiences (Tomlinson et al., 2021).

In the context of health behaviours and behavioural change, multiple theoretical frameworks have been proposed, reflecting the complexity of the factors underlying individual behaviour (Michie et al., 2013). In the context of adolescent sexual activity, problem behaviour theory (Jessor, 1991) views early adolescent sexual activity as part of a cluster of risky health behaviours (e.g., alcohol and drug use) that are influenced by a common set of social background and contextual variables (e.g., parents' income, occupational status) and social–psychological variables (e.g., motivational and personal belief structures; parental and peer influences) (Windle et al., 2013). However, while some sexual activities in adolescence and young adulthood are undeniably risky (e.g., unsafe sex), the assessment of behaviours as problematic relies on a normative assessment of behaviour (i.e., how it relates to social, cultural, gender and legal norms within a society) (Grube and Morgan, 1990; Madkour et al., 2010; O'Connor et al., 2016). Michie et al. (2013) note that interventions to change behaviour are typically complex, involving many interacting components. The 'behaviour change wheel', developed by (Michie et al., 2013), sets out a framework for behavioural change interventions, distinguishing behavioural change interventions by sources of behaviour (e.g., automatic, psychological), functions (e.g., education, restrictions) and policy categories (e.g., regulation, fiscal measures).

In the context of health literacy and educational interventions to improve health behaviours, the seminal 2004 Institute of Medicine report on health literacy noted that individual health literacy is based on the interaction of individuals' skills with the healthcare system, the education system, and broad social and cultural factors at home, at work, and in the community (Institute of Medicine, 2004). Nutbeam (2000) discusses the intersection between health literacy and the broader social determinants of health, noting that health outcomes are influenced not only by

individual characteristics and behaviours, but also by the different social, environmental and economic conditions in which we live.[2] More recent work by the US Department of Health and Human Sciences highlights the important role for organisations in bolstering health literacy by making health-related information and services accessible and comprehensible (Santana et al., 2021). The World Health Organization (WHO) also emphasises the importance of the broader context within which individuals make decisions about their health, noting that 'personal knowledge and competencies are mediated by the organizational structures and availability of resources that enable people to access, understand, appraise and use information and services in ways that promote and maintain good health and well-being for themselves and those around them' (WHO, 2024).

1.3 PREVIOUS LITERATURE

1.3.1 Health literacy

There is an extensive literature examining the links between health literacy and a variety of health outcomes (Berkman et al., 2011; Bostock and Steptoe, 2012; Kobayashi et al., 2014; Sørensen et al., 2012). The pathways between low health literacy and adverse health outcomes are not well understood, however. The relationship between health literacy and health outcomes could also be subject to reverse causality (e.g., a health condition may impair cognitive functioning), or health literacy could simply be a marker for another factor (e.g., level of education) that is associated with health. Assuming a causal relationship, theoretical frameworks propose that low health literacy causes adverse outcomes through differences in access to and utilisation of healthcare, ineffective patient–provider communication, and poorer self-care behaviours. Differences may be explained not only by a lack of knowledge and skills, but also by attitudinal and motivational differences, such as less information-seeking and lower self-efficacy for health-related actions (Bostock and Steptoe, 2012).

The WHO notes that health literacy follows a social gradient, whereby those in more disadvantaged social groups have lower health literacy; in this way, it can further reinforce existing inequalities.[3] Indeed, data from the European Health Literacy Survey (HLS-EU) show that subgroups within the population, defined by financial deprivation, low social status, low education or old age, have higher proportions of people with limited health literacy (Sørensen et al., 2015). It has therefore been hypothesised as one of the mediators in the pathway through which socioeconomic position affects health outcomes (Berete et al., 2023). Sørensen et al. (2012) survey the literature on the factors associated with health literacy, including demographic, socioeconomic, psychosocial and cultural factors,

[2] They cite the example of tobacco control, where public policy is not limited to simple public health messaging about the dangers of smoking, but also incorporates measures to reduce demand and supply via pricing and regulation (e.g., excise taxes, workplace smoking bans and restrictions on sale of cigarettes to minors).

[3] See https://www.who.int/news-room/fact-sheets/detail/health-literacy.

as well as general literacy and prior experience with illness and the healthcare system. For adolescents, peer and parental influences are also important. At a societal level, health promotion activities may also influence health literacy in specific domains.

1.3.2 Sexual health literacy

While the literature on health literacy, and its measurement, is extensive (Haun et al., 2014; Sørensen et al., 2012), the concept of sexual health literacy is less well characterised, and international comparisons are difficult due to differences in data collection modes, questions and sampling frames. There is no internationally-accepted definition of sexual health literacy, but it is generally understood as the application of health literacy skills to decisions about sexual and reproductive health. As noted above, there is also an increasing recognition that health literacy skills operate in a broader context of institutions and policies, etc., that enable people to access, understand, appraise and use information and services in ways that promote and maintain good health and wellbeing for themselves and those around them. In practice, most empirical studies use indicators that capture sexual health knowledge; i.e., the ability to correctly answer questions in relation to sexual health, rather than the broader concept of sexual health literacy.

The 2005 Irish Survey of Sexual Health and Relationships (ISSHR) highlighted significant cohort and gender differences in relation to knowledge of STIs, female fertility and emergency contraception; it also found gender-based differences in relation to a person's subjective analysis of their risk of contracting HIV. For example, knowledge of female fertility was poor, with 44 per cent of women (and less than one-quarter of men) aged under 25 able to correctly identify a woman's most fertile period. There was evidence of a socioeconomic gradient in many aspects of sexual health knowledge, with higher proportions of those with higher levels of education correctly identifying the most fertile period in the female menstrual cycle (Layte et al., 2006). Later survey data, from the 2010 Irish Contraception and Crisis Pregnancy (ICCP) Study, showed a slight decline overall in the proportion of (all) adults getting the question about fertility correct, which may have been related to greater availability of artificial contraception methods in Ireland over that period; nonetheless, only 37 per cent of men, and 63 per cent of women, answered correctly (McBride et al., 2012).[4]

1.3.3 Sexual health literacy and sexual health behaviours

The international literature on the relationship between sexual health literacy, or health literacy, and sexual health knowledge, behaviour and outcomes is extremely limited. Most studies that do exist are based on small, convenience samples that limit the extent to which population-level inferences can be drawn. Needham et

[4] Data from ICCP 2010 refer to all those aged 18–45.

al. (2010) examined the relationship between health literacy – measured using reading level and ability to pronounce medical words using the Rapid Estimate of Adult Literacy in Medicine (REALM)[5] –and sexual health knowledge and behaviour in a sample of US females aged 16–21 who were attending an urban sexual health clinic. They found that the low health literacy group scored significantly lower than the high health literacy group in STI comprehension, but no group differences were found in mean sexual risk behaviours (i.e., first sex before 15 years of age; more than three lifetime sexual partners; previous history of ever having an STI; and no condom use at last sex).

Focusing on fertility knowledge, Newton et al. (2020) surveyed the findings from two qualitative research studies that examined fertility knowledge and awareness among young women (aged 16–24 years), and assessed their implications for contraceptive risk-taking, including the use of emergency hormonal contraception. They noted that the limited research so far on fertility awareness has tended to focus on planning for future pregnancies, driven by concerns about delayed motherhood, age-related fertility decline and unintended childlessness, rather than pregnancy prevention (see also Martins et al., 2024). They found that young women had a poor understanding of the menstrual cycle, with few identifying a point in the menstrual cycle when they were more likely to become pregnant. They also identified a cohort of young women who underestimated the risks of becoming pregnant, due to previous experience of unprotected sex that did not lead to pregnancy. The authors also noted the potential for new technologies, such as period-tracking apps, to lead to improvements in fertility knowledge for more recent cohorts of young women, although there is a lack of evidence on their effectiveness (Earle et al., 2021). Other research, again based on small, convenience samples, highlighted differences between men and women in reproductive health literacy. Using a sample of 247 Swedish high school students aged 17–20, Ekelin et al. (2012) found that significantly more men than women answered incorrectly when asked about the period of time during the menstrual cycle when pregnancy is most likely to occur.[6] Trent et al. (2006) examined gender differences in beliefs about fertility in women and its link to STI knowledge in a sample of adolescents aged 12–17 years who were resident in a predominately low-income, African–American neighbourhood in San Francisco (that had the highest rate of STI prevalence in the city). Overall, 45 per cent of respondents identified chlamydia as a cause of future infertility, 65 per cent identified gonorrhoea, and 53 per cent identified pelvic inflammatory disease. Girls were significantly more likely than boys to correctly identify that chlamydia and pelvic inflammatory disease were risk factors for future fertility problems.

5 The 66-item REALM word recognition test assesses ability to read/pronounce medical words, starting with easier, one-syllable words and gradually progressing to more difficult four-syllable words.

6 Data on the proportion of men and women who got the question correct were not reported.

While not focused specifically on adolescents or young adults, Kilfoyle et al. (2016) carried out a systematic review of 34 studies assessing the relationship between health literacy and reproductive health knowledge and behaviours among women. Most of the included studies related to low-income women attending clinical or hospital settings in the US, and were therefore limited in the extent to which broader inferences about population-level patterns could be developed. Two of the studies examined knowledge of fertility, and found that low health literacy was associated with poorer knowledge; using data from women aged 16–35 years of age attending family planning clinics in Scotland, Rutherford et al. (2006) found that 61.5 per cent of women with low health literacy (a REALM score below 60, which is broadly equivalent to a reading age of 12–14 years) knew the period of time during the menstrual cycle when a woman was able to get pregnant, compared with 85.6 per cent of women with sufficient health literacy. They were also more likely to have been aged under 16 years at time of first sexual intercourse, and significantly less likely to identify STIs and to know that sexual infections can be transmitted through oral and anal sex. However, the Kilfoyle et al. (2016) review found no relationship between health literacy status and use of contraception in any of the included studies. Four studies examined the relationship between health literacy and STIs, but the evidence was inconclusive.

1.3.4 Sexual health literacy interventions

A systematic review of interventions to improve adolescent sexual and reproductive health by Salam et al. (2016) found that sexual and reproductive health education, counselling and contraceptive availability were effective in increasing adolescent knowledge related to sexual health and contraceptive use, and in decreasing adolescent pregnancy (but had no effect on the probability of having sex). Focusing specifically on interventions designed to reduce unintended pregnancy among adolescents,[7] Oringanje et al. (2016) found that interventions involving a combination of education and contraception promotion (multiple interventions) reduced unintended pregnancy significantly over both the medium term and the long-term follow-up period. Results for various behaviours and outcomes (initiation of sexual intercourse, use of birth control methods, abortion, childbirth and development of STIs) were inconsistent across studies. Only one study (Blake et al., 2001) assessed changes in knowledge on the risks of pregnancy at first intercourse; this found no significant difference between intervention and control groups for an educational intervention (specifically improving parent–child communication about sex and relationships). Mason-Jones et al. (2023) carried out a systematic review of eight studies of peer-based interventions designed to

[7] Interventions for preventing unintended pregnancy included any activity designed to: increase adolescents' knowledge and attitudes relating to risk of unintended pregnancies; promote delay in initiation of sexual intercourse; and encourage consistent use of birth control methods and reduce unintended pregnancies. These included interventions involving: health education or counselling only; health education plus skills-building; health education plus contraception education; contraception education and distribution; as well as faith-based group or individual counselling. This review included 53 randomised controlled trials comparing these interventions to various control groups (mostly usual standard sex education offered by schools).

improve sexual and reproductive health in adolescents, and found that peer-based interventions could increase knowledge and create shifts in attitudes, though no significant effects on sexual health behaviours were observed. A small-scale study in Thailand, involving 73 female high school students aged 13–15 (and their male partners aged 13–18), found that a school-based intervention to lower teenage pregnancy was effective in terms of improving sexual health literacy, pregnancy prevention behaviours and sexual health behaviours more generally (Thongkorn and Chaimongkol, 2023). Focusing on media-based sex education, Scull et al. (2021) examined the feasibility of using web-based sexual health promotion programming (*MediaAware*) for improving adolescents' short-term sexual health and media-related outcomes. While the intervention was tested in just one US high school, the results showed significantly improved sexual health knowledge[8] and knowledge about contraception efficacy.

It is difficult to summarise this limited body of literature on the efficacy of sexual and reproductive health interventions, given the diversity of interventions, settings and target populations. The systematic review by Oringanje et al. (2016) found that a combination of education and contraception promotion reduced unintended pregnancy significantly. However, a reduction in unintended pregnancy was not observed following other behaviour-related impacts (use of birth control and delayed sexual initiation) that would be expected to have such an effect. The reasons for this are not clear.

1.3.5 Condom and contraception use

Earlier reports from the Health Service Executive's (HSE) Sexual Health Research Programme have surveyed the international literature and analysed the determinants of sexual health behaviours, such as condom and contraception use (Nolan and Smyth, 2024a, 2024b, 2020).[9] There was some evidence in the international literature of a protective effect of discussions with parents, and school-based sex education, on sexual health behaviours, particularly for young women (Macdowall et al., 2015; Palmer et al., 2019; Schubotz et al., 2004). Using data from a cohort of 17 year olds from *Growing Up in Ireland*, Nolan and Smyth (2020) found that those who reported sourcing most of their information on sex from their friends (rather than their parents) were significantly less likely to report having used contraception when they first had sexual intercourse. Later research on the same cohort when they were aged 20 found that while there was no relationship between age of first sex and contraception use at first sex, those whose first sexual experience occurred in the context of a more casual relationship

8 Based on a 13-item 'true/false' scale, with items including, for example, 'You can tell if someone has an STI by looking at him/her'.

9 Nolan and Smyth (2020) used data from Cohort '98 of *Growing Up in Ireland* at age 17 to examine the association between sources of information on sex and relationships and sexual health behaviours among young people, while Nolan and Smyth (2024a) and Nolan and Smyth (2024b) used data from Cohort '98 at age 20 to examine the influence of pornography and age of sexual initiation, respectively, on sexual health behaviours.

were significantly less likely to use contraception at first sex (Nolan and Smyth, 2024a). Use of pornography was associated with lower use of condoms, particularly among males (Nolan and Smyth, 2024b).

Data from the ISSHR 2005 showed that inconsistency in contraceptive use was strongly related to the type of relationship that the person had with their partner. Sex in casual relationships or recently-formed relationships was far more likely to occur without protection, largely because respondents were not prepared, sex was unexpected or the individual had been drinking or taking drugs (Layte et al., 2006). Other research has highlighted that the wider socioeconomic context of the household is a key factor explaining multiple sexual health behaviours in adolescence and young adulthood. For example, socioeconomic disadvantage, together with low educational attainment, has been shown to be associated with low levels of contraceptive use at first sex (Wellings et al., 2001), and family affluence with condom use in both boys and girls (Neville et al., 2017). Educational aspirations have also been found to be related to use of contraception; those intending to go to university were more likely to have used contraception at first intercourse (Blenkinsop et al., 2004).

1.4 POLICY CONTEXT[10]

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, one which acknowledges the importance of developing healthy sexuality throughout childhood and adolescence, and builds on that foundation for positive sexual health and wellbeing into adulthood and older age. The strategy raises concerns over high and increasing rates of STIs among young people in particular, and sets out a comprehensive plan for improved knowledge, attitudes and behaviours in relation to sexual health at all stages of the life course (Department of Health, 2015). The HSE, through its Sexual Health Programme, has commissioned 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 'sexual health and reproductive knowledge' was the most highly-rated of the topics to include in a future survey, receiving an average rating of 86 on a scale from 0 (not very important to include) to 100 (essential to include) (Tierney and Kelleher, 2021).[12]

10 Nolan and Smyth (2020) provide a detailed discussion of the broader social context that shaped sexual attitudes and behaviours in Ireland over time, and the major legislative changes that have occurred in recent decades, including access to artificial contraception (1993), divorce (1996), same-sex marriage (2015) and abortion (2018).

11 The last ICCP survey was carried out in 2010 (McBride et al., 2012).

12 Respondents were presented with 37 potential topics.

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 relationship and sexuality education (RSE) programme has been a required component of the curriculum at primary and second level since 1995/1996, and in 2003 was integrated into the broader social personal and health education (SPHE) programme (Department of Health, 2015). Arising from the 2018/2019 review of RSE in primary and second-level schools (NCCA, 2019), the National Council for Curriculum and Assessment (NCCA) began work on new specifications for SPHE. An updated junior cycle SPHE course has been developed and was made available for first year students entering post-primary education in September 2023, while the new senior cycle curriculum is available from September 2024 (and must be in place from September 2027 for all students entering fifth year).[14] A key theme of the new curriculum at senior cycle is the focus on developing and deepening competencies, including health literacy skills (NCCA, 2024).[15]

The Health Protection Surveillance Centre (HPSC) publishes annual data on notifiable STIs in Ireland and has recorded large increases in the prevalence of most STIs over the last few years (HPSC, 2024b, 2023). For example, cases of chlamydia (one of the most common STIs in Ireland) increased by 25 per cent between 2022 and 2023, with 52 per cent of cases accounted for by those aged 15–24 years. Data on gonorrhoea notifications indicate a 68 per cent increase between 2022 and 2023, with the increase in females particularly marked among those aged 15–24 (HPSC, 2024b).[16] A pilot home STI testing project that was launched in three counties in January 2021, and extended nationwide from October 2022 (Health Protection Surveillance Centre, 2023), may account for a proportion of the increased diagnoses. Nonetheless, the HPSC note that increasing trends in gonorrhoea in young females have also been observed in other countries (HPSC, 2024a). Recent findings from the adolescent sexual health component of the Health Behaviour in School-aged Children (HBSC) survey found a significant decline in condom use among 15 year olds in most countries since 2014 (Kolto et al., 2024).[17] Contracting STIs during young adulthood can have significant adverse

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

14 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, which will be available from September 2025.

15 This element involves building young people's knowledge, confidence and comfort to access, understand, appraise and use information about health and services, and make decisions for the health and wellbeing of themselves and those around them. Being health literate means more than knowing how and where to access reliable and relevant information. It also involves being able to communicate, assert and act upon that information, including knowing when/how/where to seek out relevant help and services (NCCA, 2024).

16 In 2023, the notification rate for chlamydia (per 100,000 population) among those aged 20–24 was 2,293 for women, and 1,379 for men, while for gonorrhoea, the notification rate was 545 (women) and 710 (men). For men and women, rates for both diseases were highest in the 20–24 age groups.

17 The most recent HBSC survey (2021/2022), carried out across 44 countries and regions of Europe, central Asia and Canada, collected information on self-reported health behaviours, health outcomes and social environments of boys and girls aged 11, 13 and 15 years (Kolto et al., 2024).

consequences for reproductive health. STIs can cause complications such as pelvic inflammatory disease, infertility, ectopic pregnancy, preterm birth and fetal abnormalities (Kaestle et al., 2005). In addition to home STI testing, other public health initiatives focused on sexual health introduced in recent years include the National Condom Distribution Service (NCDS), which distributes free condom and lubricant sachets to HSE services and other organisations working directly with individuals at increased risk of negative sexual health outcomes, including men who have sex with men and young people (HSE, 2023).[18] Another such initiative was the provision of free contraception for 17–26-year-old women, which was introduced in September 2022 (and subsequently extended to other cohorts over time). Currently, all women aged 17–35 years are eligible.[19] For those at high risk of contracting HIV through sex, free access to pre-exposure prophylaxis (PrEP) has been available since November 2019.

1.5 SUMMARY

This chapter has provided an overview of the policy context and existing literature on (sexual) health literacy and knowledge, behaviours and outcomes in relation to sexual health among adolescents and young people. It also sets out a number of conceptual frameworks that will inform the subsequent analysis of the data from the *Growing Up in Ireland* study. While there is an extensive literature on the links between health literacy and a variety of health outcomes, the literature on the relationship between sexual health literacy and sexual health knowledge, behaviour and outcomes is extremely limited, and most studies are based on small, convenience samples that limit the extent to which population-level inferences can be drawn. Nonetheless, the review highlights that while women and those in more socioeconomically advantaged positions tend to have better sexual health literacy, there is little systematic relationship between sexual health literacy and sexual health behaviours and outcomes, although the quantity and quality of the available evidence is poor. The present study seeks to build on the existing evidence base to answer three research questions, using data for Cohort '98 of the *Growing Up in Ireland* study collected at ages 9, 13, 17 and 20:

1. What are the individual- and family-level factors that are associated with sexual health literacy at age 20?
2. How is sexual health literacy associated with sexual health behaviours (condom use, contraception use) at age 20?
3. What factors (other than sexual health literacy) explain sexual health behaviours (condom use, contraception use) at age 20?

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18 In 2022, over 1 million condoms and 600,000 lubricant sachets were ordered via the NCDS, primarily by third-level institutions, NGOs and public sector organisations such as maternity hospitals, drug treatment centres, public STI clinics and homeless services (HSE, 2023).

19 The Women's Health Action Plan 2024–2025 commits to the extension of the scheme to women aged 32–35 in 2024 and 2025 (Department of Health, 2024).

The following chapter, Chapter 2, 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 key research questions, while Chapter 5 summarises the findings and draws out implications for policy.

CHAPTER 2

Data and methods

2.1 DATA

Growing Up in Ireland, the national longitudinal study of children and young people in Ireland, surveys two cohorts of children and young people, born in 2008 (Cohort '08) and 1998 (Cohort '98). Data from the Cohort '98 are used in this report. 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 nine 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 the '98 Cohort 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 years of age), and wave 4 between August 2018 and June 2019 when the young people were approximately 20 years of age (*Growing Up in Ireland*, 2021; Murphy et al., 2018).[20]

Data were collected primarily via computer-aided personal interview (CAPI) with the primary caregiver, who in most cases was the young person's mother. As the young person aged into adolescence and young adulthood, more of the information was collected from the young person themselves, 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 (2,222 men and 2,363 women) who were observed at all waves, including wave 4 at age 20.[21]

2.2 DEPENDENT VARIABLES

2.2.1 Sexual health literacy

In Chapter 3, we examine the factors associated with sexual health literacy at age 20. In the self-complete questionnaire used to ask about more sensitive topics, the young people were asked two questions to gauge their knowledge of sexual and reproductive health issues. The questions were adapted from questions that were fielded in the US National Longitudinal Study on Youth (McNamara et al., 2021).[22]

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20 At wave 3, the majority (over 80 per cent) of young people were aged 17, while at wave 4, the majority (over 90 per cent) were aged 20. For simplicity, we refer to ages 17 and 20 respectively when referring to these study waves.

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

22 The US National Longitudinal Study (or the NLSY97 Cohort) is a longitudinal project that follows the lives of a sample of American young people born between 1980 and 1984; 8,984 respondents were aged 12–17 when first interviewed in 1997. This ongoing cohort has been surveyed 20 times to date and is now interviewed biennially.

First, the young people were asked, 'When during the female monthly cycle of menstrual periods is pregnancy most likely to occur? There were seven possible responses to choose from: right before the period begins; during the period; about a week after the period begins; about two weeks after the period begins; anytime during the month, makes no difference; and don't know.[23] Second, the young people were asked, 'Which of these methods is the most effective for preventing sexually transmitted diseases like AIDS or gonorrhea?' There were five possible responses: withdrawal; condom; birth control pill; good hygiene; and don't know. For both questions, we derive a binary variable, which takes the value 1 for those who answered correctly and 0 for those who answered incorrectly. We also derive a binary variable that reflects performance across the two questions. It should be noted that *Growing Up in Ireland* is a multi-domain study of young adult lives rather than a specific study of sexual attitudes and behaviour that would allow the inclusion of more detailed measures. The measures focus on knowledge of sexual health rather than the skills to apply that knowledge.[24] Further, the survey does not capture other dimensions of knowledge that might be of policy interest, such as how best to prevent pregnancy.

Table 2.1 presents summary statistics on these variables, for males and females separately. Knowledge of fertility is poor, with one-fifth of men and just over one-third of women answering the fertility question correctly. Knowledge of the most effective method for preventing STIs is higher, with approximately 85 per cent of young people correctly identifying condoms. For both questions, women are more likely to answer correctly than men.

23 As noted in Chapter 1, this knowledge is important for pregnancy planning and avoidance.

24 Ideally, indicators that capture the broader concept of sexual health literacy (as opposed to knowledge) would be available in *Growing Up in Ireland*. See also Section 1.3.2 and Section 5.2.

TABLE 2.1 SUMMARY STATISTICS (SEXUAL HEALTH LITERACY)

Variable	Definition	% Male	% Female
Fertility* **	*When during the female monthly cycle of menstrual periods is pregnancy most likely to occur?* =0 if answered incorrectly or did not know the answer =1 if answered correctly (i.e., 'about two weeks after the period begins')	 79.0 21.0	 63.3 36.6
STIs**	*Which of these methods is the most effective for preventing sexually transmitted diseases like AIDS or gonorrhea?* =0 if answered incorrectly or did not know the answer =1 if answered correctly (i.e., 'condom')	 15.6 84.4	 14.8 85.2
Combined* **	*Combining responses from the two questions* =0 if one or both questions answered incorrectly =1 if both questions answered correctly	 81.3 18.7	 67.2 32.8

Source: *Growing Up in Ireland,* Cohort '98, wave 4 (age 20).
Notes: Population weights are employed. Figures may not add to 100 per cent due to rounding. *** Gender difference is significant at the p<.001 level, ** p<.01, * p<.05, ± p<0.1.

2.2.2 Sexual health behaviours

In Chapter 4, we examine sexual health behaviours at age 20. At this age, again in the sensitive questionnaire, those who have had sex (approximately 85 per cent of the sample) are asked about their use of condoms and contraception. Binary variables are constructed, reflecting whether young people report using condoms 'on every occasion',[25] and whether they (or their partner) 'always' use some form of contraception.[26] While the specific form of contraception is not specified in questions about contraception use, we also construct a three-category variable that combines answers from the two questions, indicating whether young people use condoms (and possibly other forms of contraception), other forms of contraception (excluding condoms), or neither. Those who responded, 'not sexually active', 'not applicable' or 'don't know' were treated as missing for these purposes.[27] Respondents could also indicate that they were not using contraception because they were trying to conceive. Because of the small numbers, this was grouped with 'not applicable' in the research microdata file dataset, indicating that pregnancy planning was not a driver of non-use of contraception for this group. As respondents are also asked about whether they used contraception when they first had sex,[28] responses from these two questions are combined to create a four-category variable that reflects current and past

25 The question on condom use is, 'In general, do you usually use a condom every time you have sexual intercourse?'. Those who answer 'yes, on every occasion' are coded as 1, and all others as 0.
26 The question on contraception use (asked after the question on condom use) is, 'Do you (or your partner) usually use some form of contraception?'. Those who answer 'always' are coded as 1, and all others as 0.
27 The 'don't know' group is too small to report separately.
28 The specific type of contraception used when first having sex was not asked.

contraception use. (See Table 2.2 for further details; this table also presents summary statistics, for males and females separately.)

Males are more likely than females to report that they always use a condom when having sex, but the proportions doing so are low (at just over one-third). Contraception use is higher overall, with women more likely to report contraception use than men. Nearly 40 per cent of men, and over 30 per cent of women, do not always use either condoms or other forms of contraception when having sex. While contraception use at first sex is approximately 90 per cent for both men and women, nearly 30 per cent of men, and over 20 per cent of women, report using contraception at first sex but not currently.

TABLE 2.2 SUMMARY STATISTICS (SEXUAL HEALTH BEHAVIOURS)

Variable	Definition	% Male	% Female
Condom use (current)* **	=0 if does not always use a condom when having sex	63.2	66.9
	=1 if always uses a condom when having sex	36.8	33.1
Contraception use (current)* **	=0 if does not always use contraception when having sex	37.1	27.8
	=1 if always uses contraception when having sex	62.9	72.2
Type of contraception (current)* **	=0 if never uses condom or other forms of contraception when having sex	38.3	32.0
	=1 if uses condom only when having sex (and possible other forms of contraception)	35.1	30.2
	=2 if uses only other forms of contraception (but not condom) when having sex	26.7	37.8
Contraception use (first sex vs. current)* **	=1 if did not use contraception when first having sex and does not use it currently	8.1	4.9
	=2 if used contraception when first having sex but does not use it currently	28.5	22.6
	=3 if did not use contraception when first having sex but uses it currently	3.0	3.3
	=4 if used contraception when first having sex and uses it currently	60.4	69.3

Source: *Growing Up in Ireland,* Cohort '98, wave 4 (age 20).
Notes: Population weights are employed. Figures may not add to 100 per cent due to rounding. *** Gender difference is significant at the p<.001 level, ** p<.01, * p<.05, ± p<0.1.

2.3 INDEPENDENT VARIABLES

The advantage of *Growing Up in Ireland* is the richness of its 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 the conceptual frameworks discussed in the previous chapter, we select independent or explanatory variables that capture key domains of young adult lives, including their family background, their sources of information on sex, and their wider environment as represented by their school and their peer network (see Table 2.3 for summary statistics). Slightly different sets of independent variables are used for the different outcome variables, i.e., sexual health literacy (Chapter 3) and sexual health behaviours

(Chapter 4), based on the literature. Further details are provided in the relevant chapters.

In terms of individual and family background factors, all analyses control for age, to take account of the small number of young people (approximately 7 per cent) who were 21 years of age (rather than 20) at the time of the survey. Sexual orientation, reported by the young person at 20 years of age, distinguishes those who identify as heterosexual or LGBTQ+ (i.e., homosexual, bisexual or questioning/asexual/other).[29] Household social class and lone-parent family background are included to proxy for family socioeconomic position and status. The models also control for migrant status, disability status and urban/rural household location.

The broader literature on health literacy notes that experience of health issues can influence literacy (Sørensen et al., 2012). For this reason, we include separate indicators of pubertal timing for males and females in the models of sexual health literacy. For males, we identify those whose voice had fully or partially broken by the age of 13, while for females, we identify those who reported that they had their first period at age 10 or 11. As the indicators of sexual health literacy examined in this report are also likely to be correlated with more general literacy (Nutbeam, 2000; Sørensen et al., 2012), we control for a measure of reading (vocabulary) ability (captured at age 9) in the models of sexual health literacy.[30]

In terms of sex education factors, we include two variables that reflect the timing of relationship and sexuality education (RSE) receipt (by age 13, by age 17 or not at all), and the timing of parental discussions about sex and relationships (by age 13, by age 17, or not at all). We also include a variable that captures the main source of information on sex reported by the young person at age 17. Finally, in terms of school-related factors, we control for Drumcondra Primary Reading Test score at age 9,[31] school social mix (proxied by whether the school attended was a Delivering Equality of Opportunity in Schools (DEIS) or non-DEIS school),[32] Leaving Certificate performance,[33] and whether they had taken biology for the Leaving Certificate (to capture prior exposure to education about the reproductive system).

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29 Sample size issues preclude further disaggregation of the LGBTQ+ group.

30 At age 9 (wave 1 of *Growing Up in Ireland*), reading ability was assessed using the Drumcondra Primary Reading Test (they also completed the Drumcondra Primary Mathematics Test). The total reading test comprises vocabulary and comprehension. In *Growing Up in Ireland*, however, only the vocabulary part of the test was administered (with the results presented as a logit score). The Drumcondra reading and maths tests were developed for Irish schoolchildren and are linked to the national curriculum. They were administered in a group setting in the child's school (Thornton et al., 2010).

31 Nine year olds were asked to complete the Drumcondra reading and maths tests, which are both nationally standardised tests based on the national curriculum. Because the cohort was spread across class levels, the logit score adjusts for this to give a standardised score, with higher values indicating more correct answers.

32 The DEIS programme targets additional supports and resources towards schools serving socio-economically disadvantaged populations.

33 Leaving Certificate performance is measured by assigning scores for each subject on the basis of subject level and grade and averaging over all exam subjects taken.

In order to capture the potential influence of school on young people's broader development, a variable indicating the extent to which second-level education was seen as being of benefit in preparing them for adult life was also included.

For the analyses of sexual health behaviours (Chapter 4), additional factors relating to peer influences, risk perceptions and partnership status are also included. Previous research internationally (Van de Bongardt et al., 2015; Henderson et al., 2008) has shown the influence of peer networks on young people's sexual behaviour, while earlier research using the *Growing Up in Ireland* cohort at age 20 has demonstrated the role that peer networks play in sexual initiation and sexual health behaviours in Ireland (Nolan and Smyth, 2024b). In this context, the analyses take account of the young person's perception (at age 17) of the number of their friends that are already having sex. An indicator of the young person's appetite for risk is included, based on a question that asks the young person how prepared s/he is to take risks, ranging from 1 (unwilling to take risks) to 10 (fully prepared to take risks). Finally, the analyses of sexual health behaviours also consider the role of partnership status in influencing condom and contraception use; previous research has shown that relationship status (i.e., being in a steady relationship) is a strong predictor of contraception use at first sex (Hawes et al., 2010; Layte et al., 2006; Nolan and Smyth, 2024a; Wellings et al., 2001).

Table 2.3 contains further details on variable definitions and summary statistics. There are statistically significant differences in the distribution of some variables between young men and women. For example, females are less likely to report that they are heterosexual, or that they have a disability at age 13 than males, but are more likely to have lived in a lone-parent family at age 13 than males. Males and females also differ in their reports of their main source of sex education at 17, with females more likely to cite their parents as their main source. Males are also less likely to have received RSE, and to have discussed sex or relationships with their parents, than females. Males have a higher tolerance for risk than females, are less likely to have taken biology as a Leaving Certificate subject and on average achieved lower Leaving Certificate points than females.

TABLE 2.3 SUMMARY STATISTICS FOR INDEPENDENT VARIABLES

Group	Variable	% Male	% Female
Family and individual background	Age:		
	19/20 years of age	92.9	93.1
	21 years of age	7.1	6.9
	Sexual orientation:*		
	Heterosexual	88.3	85.2
	LGBTQ+	16.6	14.8
	Social class:		
	Professional	10.5	9.7
	Managerial	35.2	29.6
	Other non-manual	18.5	20.0
	Skilled manual	14.2	15.9
	Semi/unskilled manual	11.7	13.1
	Never employed	9.9	11.7
	Lone-parent family	18.7	21.0
	Migrant background	7.7	6.8
	Urban±	42.1	45.9
	Has long-standing illness or disability ***	15.1	16.7
Pubertal timing	Early period		18.8
	Voice partially/fully broken by age 13	72.6	
Sex education	Timing of RSE access:*		
	None	6.8	5.2
	By 13 years	51.0	56.7
	By 17 years	42.3	38.1
	Timing parents talked to them about sex:***		
	Not at all	38.0	24.8
	By 13 years	40.6	50.1
	By 17 years	21.4	25.1
	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
Reading score	Drumcondra vocabulary score (logit score) (mean) at age 9	-0.01	-0.25
School characteristics	DEIS school	18.8	16.7
Leaving Certificate performance	<300 points/ESL/LCA	31.6	26.2
	301–400 points	27.1	27.2
	401–500 points	26.6	30.5
	501+ points	14.8	16.0

Source: *Growing Up in Ireland, Cohort '98,* wave 4 (age 20).
Notes: Population weights are employed. Figures may not add to 100 per cent due to rounding. *** Gender difference is significant at the p<.001 level, ** p<.01, * p<.05, ± p<0.1.

TABLE 2.3 (CONTD.) SUMMARY STATISTICS FOR INDEPENDENT VARIABLES

Group	Variable	% Male	% Female
Leaving Certificate performance (contd.)	Biology as a Leaving Certificate subject	46.2	67.5
	School perceived to be a lot of benefit in preparation for adult life	30.3	26.7
Peer sexual behaviours	Friends perceived to be having sex:*		
	None	9.7	11.0
	Some	59.5	53.0
	Most or all	30.7	36.0
Partnership status	Current relationship status: ***		
	Single	47.4	38.7
	Casual	15.1	12.8
	Relationship	37.5	48.4
Attitude to risk	Risk tolerance scale (range 0-10, mean score)*	7.0	6.4

Source: *Growing Up in Ireland*, '98 Cohort, wave 4 (age 20).
Notes: Population weights are employed. Figures may not add to 100 per cent due to rounding. *** Gender difference is significant at the p<.001 level, ** p<.01, * p<.05, ± p<0.1. ESL – early school leaving; LCA – Leaving Certificate Applied programme.

2.4 METHODS

A variety of regression methods are used in the analyses of sexual health literacy (Chapter 3) and sexual health behaviours (Chapter 4). In Chapter 3, binary logit regression models are used to examine the factors associated with sexual health literacy (with separate models run for each indicator, for males and females). The results are presented in terms of average marginal effects, which indicate the percentage point difference associated with a particular factor (e.g., an average marginal effect of 0.03 for biology would indicate that those who studied biology for the Leaving Certificate are 0.03 percentage points more likely to get the relevant sexual health literacy question correct than those who did not study biology for the Leaving Certificate).

In Chapter 4, we focus on the subsample of those who have reported sexual intercourse by age 20. Due to the diversity in outcomes examined (e.g., condom use, contraception use, type of contraception, longitudinal contraception use, etc.), different modelling approaches are used that reflect the form of the dependent variable. Binary logistic regression models are used to look at the relationship between sexual health literacy and condom use and contraception use (with results presented as average marginal effects). Multinomial logit models are used to examine the association between sexual health literacy and type of contraception, and longitudinal contraception use, with results presented as relative risk ratios.[34]

[34] As some variables have missing data for some observations, sample sizes for models differ, and we note where comparisons across models may be affected by differing sample sizes.

CHAPTER 3

Factors associated with sexual health literacy

3.1 INTRODUCTION

This chapter looks at levels of sexual health literacy among 20 year olds and how these vary by individual, family, sex information and school factors. As discussed in Chapter 2, two measures of sexual health literacy are used: whether the young adult can correctly identify the period during which women are most fertile; and whether they can correctly identify the most effective method of preventing a sexually transmitted infection (STI). A combined measure is also derived, which identifies those who had correct responses to both measures.

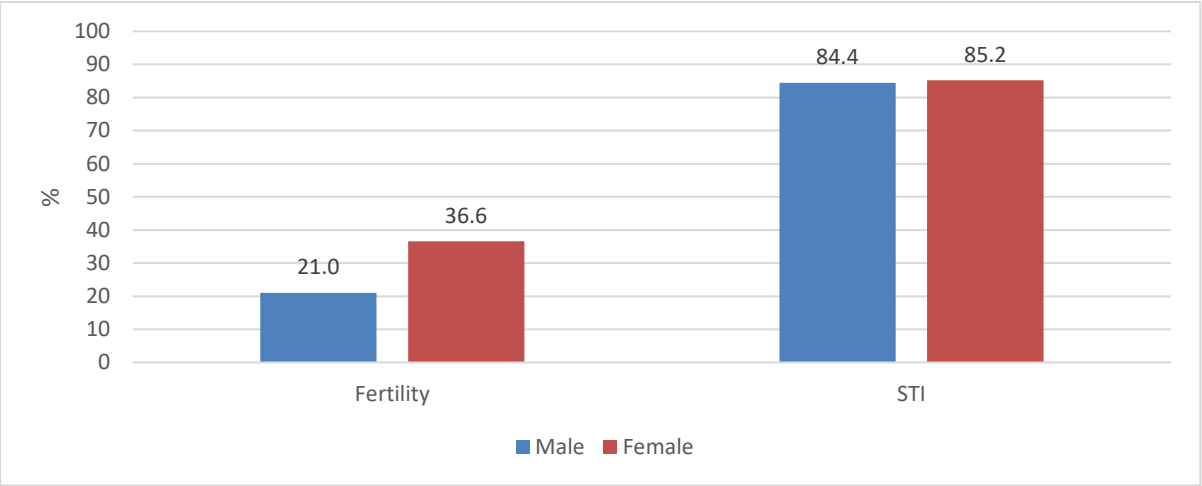
A series of nested logistic regression models are presented in the chapter. The first set of models looks at individual and family background factors. The second set examines sources of information on sex, including receipt of relationship and sexuality education (RSE) at school, whether their parents had talked to them about sex and the main sources of information on sex on which they relied at the age of 17. The third set of models explores the influence of school factors on sexual health literacy.[35] Model results are presented in the form of average marginal effects, which indicate the percentage point difference associated with a particular factor.

3.2 MODEL RESULTS

As indicated in Chapter 2, knowledge of the correct way to best prevent STIs is relatively high – at over four-fifths of the cohort (Figure 3.1). However, knowledge of the period of highest fertility is much lower – at just over one-third for women and one-fifth for men. In order to identify whether factors operate differently for women and men, the models in this chapter are estimated for males and females separately.

[35] As some variables have missing data for some observations, sample sizes for models differ.

FIGURE 3.1 MEASURES OF SEXUAL HEALTH LITERACY AMONG 20 YEAR OLDS (% WITH CORRECT RESPONSES)



Source: *Growing Up in Ireland, Cohort '98*, wave 4 (age 20).
Notes: Population weights are employed.

3.2.1 Fertility literacy

Table 3.1 presents the results from a series of models of the factors associated with correctly identifying a woman's fertile period. For both males and females, three models are estimated: model (1) controls for demographics, socioeconomic position, early puberty and sexual orientation; model (2) adds controls for sex education and information; and model (3) adds controls for school-related factors. There is evidence that young adults from more advantaged families are more likely to respond correctly. For women and (to a lesser extent) men, those whose parents are from professional and managerial backgrounds are more likely to give the correct answer. Sexual health literacy varies markedly by general literacy levels, as measured by Drumcondra Primary Reading Test scores at the age of 9; the relationship is stronger for females than for males. There is little variation by other individual or family background characteristics, including family structure, migrant status, illness/disability, urban or rural location, or pubertal timing. Age is associated with a higher likelihood of answering correctly among men (not shown here), but this pattern is explained by vocabulary scores.

Contrary to expectations, neither the timing of the receipt nor the source of information on sex are significantly related to fertility literacy (see model 2). Similarly, the main source of information on sex at 17 years of age makes little difference. The exception concerns lower levels of fertility literacy found among females who mainly relied on their teachers for information (i.e., they cited teachers as their main source for information on sex and relationships at age 17). There is no obvious explanation for this pattern, but previous research on educational decision making suggests that this group might be more disadvantaged in terms of post-school plans (Smyth, 2023).

TABLE 3.1 BINARY LOGIT MODELS OF SEXUAL HEALTH LITERACY: FERTILITY (AVERAGE MARGINAL EFFECTS)

Variable	(1)		(2)		(3)	
	Males	Females	Males	Females	Males	Females
Age:						
21 years of age (Ref. 20 years)	0.067	-0.025	0.080	-0.003	0.088	-0.023
Social class at age 13:						
Professional	0.069	0.146*	0.031	0.141*	-0.002	0.092
Managerial	0.083±	0.164**	0.039	0.164**	0.012	0.130*
Other non-manual	0.047	0.111*	0.011	0.101±	-0.009	0.096
Skilled manual	0.147*	0.065	0.104	0.064	0.115	0.053
Never employed	0.112	0.072	0.079	0.072	0.090	0.076
(Ref.: Semi/unskilled manual)						
Lone-parent family	-0.062±	-0.024	-0.068	0.036	-0.055	0.099±
Migrant background	0.019	0.015	-0.046	0.021	-0.057	0.001
Urban	0.002	0.016	0.010	0.026	0.013	0.019
Has long-term illness/disability	0.004	0.041	0.004	0.048	0.023	0.055
Early period		0.055		0.052		0.048
Voice partially/fully broken at 13	0.029		0.021		0.037	
Vocabulary test score at age 9	0.061***	0.112***	0.061**	0.106***	0.034	0.060**
Sexual orientation:						
LGBTQ+ (Ref. Heterosexual)	-0.042	-0.097**	-0.059	-0.097*	-0.062	-0.061
N	1,689	2,198	1,410	1,923	1,363	1,829

Source: *Growing Up in Ireland,* Cohort '98, wave 4 (age 20).
Notes: Population weights are employed. *** statistically significant at p<.001 level, ** p<.01, * p<.05, ± p<0.1.

TABLE 3.1 (CONTD.) BINARY LOGIT MODELS OF SEXUAL HEALTH LITERACY: FERTILITY (AVERAGE MARGINAL EFFECTS)

Variable	(1)		(2)		(3)	
	Males	Females	Males	Females	Males	Females
Timing of RSE receipt:						
None			0.055	0.045	0.080	0.055
By 17 (Ref. By 13)			0.048	-0.014	0.051	-0.002
Timing of parents talking to them about sex:						
Never			-0.012	-0.017	-0.008	-0.027
By 17 (Ref. By 13)			0.035	0.009	0.046	0.022
Main source of information about sex at 17:						
Friends			0.006	0.013	-0.006	-0.000
Teacher(s)			0.004	-0.111±	0.026	-0.128*
Internet			0.021	0.094±	0.011	0.068
Books/magazines/TV			0.043	0.027	0.048	0.023
Nowhere (Ref. Parents)			-0.083	-0.067	-0.071	-0.017
Attended a DEIS second-level school					0.028	-0.029
Perceived benefit of school in preparing them for adult life:						
Some					0.025	-0.017
A lot (Ref. No help)					0.023	0.008
Leaving Certificate performance:						
301–400 points					0.037	0.129**
401-500 points					0.063	0.205***
501 + points					0.142*	0.241***
(Ref. <300 points/ ESL/ LCA)						
Took biology at Leaving Certificate					0.054±	0.053
N	1,689	2,198	1,410	1,923	1,363	1,829

Source: *Growing Up in Ireland,* '98 Cohort, wave 4 (age 20).
Notes: Population weights are employed. *** statistically significant at p<.001 level, ** p<.01, * p<.05, ± p<0.1. ESL – early school leaving; LCA – Leaving Certificate Applied programme.

The final model (model 3) examines school social mix (measured by whether the young adult had attended a Delivering Equality of Opportunity in Schools (DEIS) or non-DEIS second-level school when they were 13), the perceived benefits of second-level education in preparing them for adult life, Leaving Certificate performance, and whether they had taken biology for the Leaving Certificate. There is no variation by school type or perceived benefits of schooling. Higher levels of Leaving Certificate points are associated with higher levels of fertility literacy. For males, the main distinction is between those with high grades (more than 500 points) and others; while for females, there is a stronger and more linear relationship with grades. The size of the effect is quite large, with a gap of 24 percentage points in correct responses between women with the highest points and those with the lowest points. Females who had high vocabulary levels at age 9 continue to have an advantage in their sexual health literacy, even taking account of Leaving Certificate performance. Having taken biology might be expected to enhance fertility literacy given that human reproduction is included on the syllabus. However, no difference is found for women, while the difference for men is only significant at the 10 per cent level. It should be noted, however, that it may be difficult to separate out the effects of grades and having taken biology, given that patterns of take-up of the subject are higher among those with higher levels of prior achievement (Smyth and Hannan, 2006). Lesbian, gay, bisexual and questioning (LGBTQ+) women have slightly lower levels of fertility literacy than heterosexual women (though this is only significant at the 10 per cent level). However, this pattern is accounted for by differences in Leaving Certificate performance and other school-related factors. It should also be noted that the sample sizes for model 3 are smaller than for models 1 and 2, which may affect the ability to detect statistically significant effects.

3.2.2 STI prevention literacy

Given that knowledge of STI prevention is better than fertility knowledge among the cohort, fewer factors are found to be significantly related to giving the correct response (Table 3.2). There is little systematic variation by individual or family factors (model 1). The lack of a clear social gradient, in contrast to the pattern for fertility knowledge (at least for women), most likely reflects the high levels of knowledge about STI prevention across all social groups. For both males and females, those with higher vocabulary scores at primary level have better health literacy, with this effect persisting for women even when a range of other factors are taken into account. There is tentative evidence that women from a migrant background have lower levels of STI prevention literacy than might be expected on the basis of their other characteristics. It is difficult to determine the reasons underlying this pattern, given the heterogeneity of the migrant-origin group.

Timing and source of receipt of information on sex make little systematic difference to knowledge of STI prevention (model 2). However, young women who had been more reliant on books, magazines or TV for information on sex are more

likely to correctly identify the best way to prevent STIs. Men with higher Leaving Certificates grades have better STI prevention literacy but no such difference is found for women (model 3). Contrary to expectations, seeing second-level education as beneficial in preparing them for adult life is associated with somewhat lower STI prevention literacy levels for males, but this appears to be due to the inclusion of Leaving Certificate grades in the models, with high-achieving males more likely to see their education as helpful.

TABLE 3.2 BINARY LOGIT MODELS OF SEXUAL HEALTH LITERACY: STI PREVENTION (AVERAGE MARGINAL EFFECTS)

Variable	(1)		(2)		(3)	
	Males	Females	Males	Females	Males	Females
Age:						
21 years of age (Ref. 20 years)	-0.031	-0.072	-0.011	-0.060	-0.020	-0.038
Social class at age 13:						
Professional	0.024	0.002	0.069	-0.008	0.048	0.044
Managerial	0.071	-0.035	0.087	-0.017	0.075	0.010
Other non-manual	0.043	-0.065±	0.053	-0.059	0.044	-0.014
Skilled manual	0.072	-0.044	0.102	-0.072	0.122*	-0.059
Never employed	-0.015	-0.089	0.078	0.006	0.060	0.052
(Ref.: Semi/unskilled manual)						
Lone-parent family	-0.069	0.056±	-0.070	0.031	-0.068	0.043
Migrant background	-0.077	-0.116±	-0.088	-0.105	-0.115	-0.128±
Urban	0.038	-0.034	0.046	-0.041±	0.051	-0.036
Has long-term illness/disability	0.011	0.005	0.021	-0.022	0.027	0.030
Early period		0.010		0.024		0.021
Voice partially/fully broken at 13	0.011		0.028		0.024	
Vocabulary test score at age 9	0.046**	0.076***	0.049*	0.061***	0.015	0.040**
Sexual orientation:						
LGBTQ+ (Ref. Heterosexual)	-0.043	-0.003	-0.044	0.027	-0.048	0.028
N	1,689	2,198	1,410	1,923	1,363	1,829

Source: *Growing Up in Ireland,* Cohort '98, wave 4 (age 20).
Notes: Population weights are employed. *** statistically significant at p<.001 level, ** p<.01, * p<.05, ± p<0.1.

TABLE 3.2 (CONTD.) BINARY LOGIT MODELS OF SEXUAL HEALTH LITERACY: STI PREVENTION (AVERAGE MARGINAL EFFECTS)

Variable	(1)		(2)		(3)	
	Males	Females	Males	Females	Males	Females
Timing of RSE receipt:						
None			-0.080	0.037	-0.075	0.060*
By 17 (Ref. By 13)			-0.025	-0.003	-0.025	-0.007
Timing of parents talking to them about sex:			0.043	-0.027	0.042	-0.037
Never			-0.037	0.021	-0.029	0.016
By 17 (Ref. By 13)						
Main source of information about sex at 17:			-0.033	0.035	-0.052	0.025
Friends			0.017	-0.022	0.029	0.005
Teacher(s)			0.035	-0.021	0.010	0.002
Internet			0.079	0.138***	0.059	0.129***
Books/magazines/TV			0.040	-0.029	0.019	-0.046
Nowhere (Ref. Parents)						
Attended a DEIS second-level school					0.026	0.039
Perceived benefit of school in preparing them for adult life:						
Some					-0.044	-0.003
A lot (Ref. No help)					-0.085*	0.000
Leaving Certificate performance:						
301–400 points					0.083*	0.051±
401–500 points					0.073	0.019
501 + points					0.126**	-0.005
(Ref. <300 points/ ESL/ LCA)						
Took biology at Leaving Certificate					0.024	0.032
N	1,689	2,198	1,410	1,923	1,363	1,829

Source: *Growing Up in Ireland, Cohort '98,* wave 4 (age 20).
Notes: Population weights are employed. *** statistically significant at p<.001 level, ** p<.01, * p<.05, ± p<0.1. ESL – early school leaving; LCA – Leaving Certificate Applied programme.

Further analyses were conducted combining the two measures of sexual health literacy (Table A3.1 in the appendix). As the variation was greater in relation to knowledge of fertility timing, the patterns mainly resemble those in the models on fertility literacy. Thus, overall knowledge is greater among those from more advantaged backgrounds, with a stronger effect on women than men. Sexual health literacy is also higher among those with better vocabulary scores at primary level and higher Leaving Certificate grades, again with stronger effects for women than men. There is little systematic variation in overall sexual health literacy by the timing and source of information on sex, though levels are lower among women who had relied on their teachers for information about sex (but the effect becomes non-significant when school factors are added to the model).

3.3 CONCLUSIONS

This chapter has looked at the factors associated with sexual health literacy levels among 20 year olds. Knowledge of STI prevention methods is relatively high, with over four-fifths providing the correct answer. In contrast, only a minority, even among women, correctly identify the period of the menstrual cycle when women are most fertile. Sexual health literacy levels tend to be slightly higher among those from advantaged backgrounds. Cognitive skill development is significantly related to sexual health literacy, with vocabulary skills at primary level and Leaving Certificate grades both playing a part, though the strength of the relationship varies by gender.

The timing of receipt of information on sex at school and from parents is found to make little difference to sexual health literacy. It should be recognised, however, that *Growing Up in Ireland* did not collect information on the quality or frequency of such formal and informal education. Furthermore, there is little systematic variation by the source of information on sex, though women reliant on books and other media tend to be more knowledgeable about STI prevention. The next chapter looks at the extent to which similar differences are found in patterns of behaviour around condom and other contraceptive use, and whether there is a link between sexual health literacy and actual behaviour.

CHAPTER 4

Sexual health literacy and contraception use

4.1 INTRODUCTION

This chapter looks at the extent to which sexual health literacy is associated with whether young adults always use condoms or other contraception when they have sex. It therefore focuses only on those who have already had sex by the age of 20, around 85 per cent of the cohort. Analyses also take account of the longitudinal nature of the data by looking at whether contraception use changes between first and current sex.

Section 4.2 looks at the descriptive relationship between sexual health literacy and behaviour, before presenting a series of multivariate models that control for other factors that might influence contraception use, including sexual orientation, source of information on sex, perceived benefits of second-level education, perceptions of peer sexual behaviour, appetite for risk and relationship status.[36] As in Chapter 3, model results are presented in the form of average marginal effects, which indicate the percentage point difference in the outcome associated with a particular factor.

4.2 SEXUAL HEALTH LITERACY AND CONTRACEPTION USE

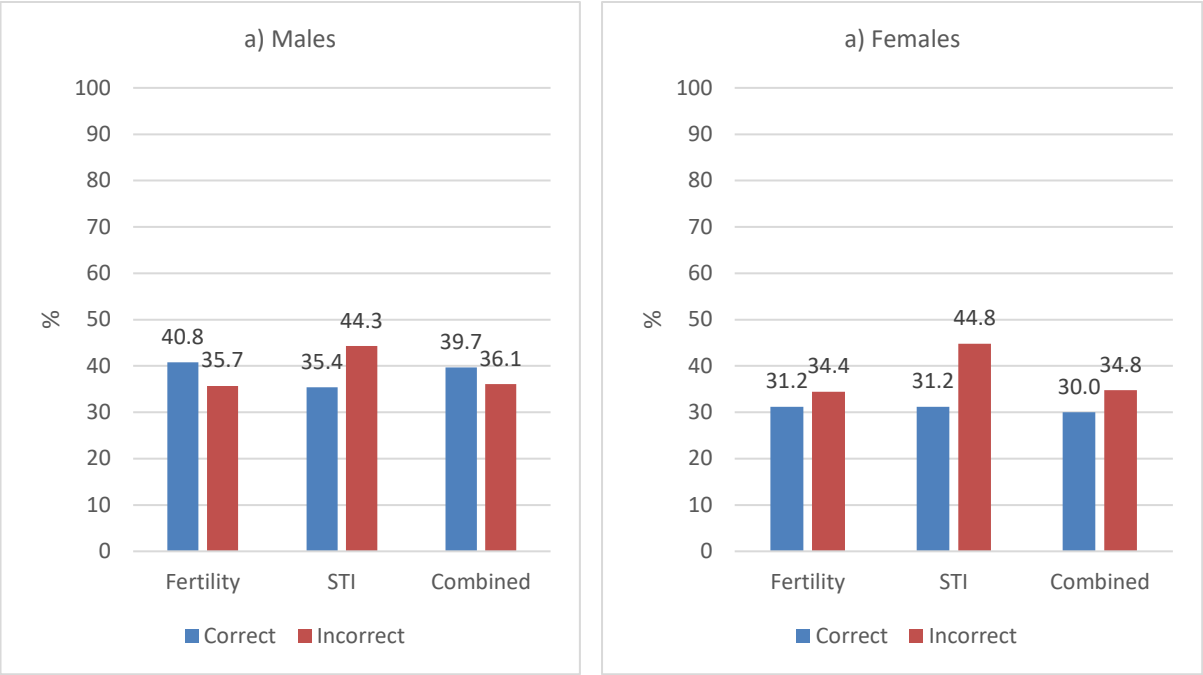
4.2.1 Descriptive patterns

In this section, we present descriptive patterns showing the relationship between the two indicators of sexual health literacy (knowledge of female fertility and sexually transmitted infection (STI) prevention) and the four outcome variables examined in this chapter: condom use, contraception use, type of contraception and longitudinal contraception use.[37] Figure 4.1 illustrates the patterns for condom use, for males and females separately. Overall, no significant relationship is found between the measures of sexual health literacy and always using a condom. While the data suggest that those who answered the STI question correctly are less likely to use a condom on every occasion that they have sex, the difference in condom use between those answering the STI question correctly and incorrectly is not statistically significant (for either males or females). What is striking is that rates of regular condom use are relatively low regardless of level of sexual health literacy.

[36] As some variables have missing data for some observations, sample sizes for models differ.

[37] Table 2.2 in Chapter 2 contains further details on variable definitions and summary statistics.

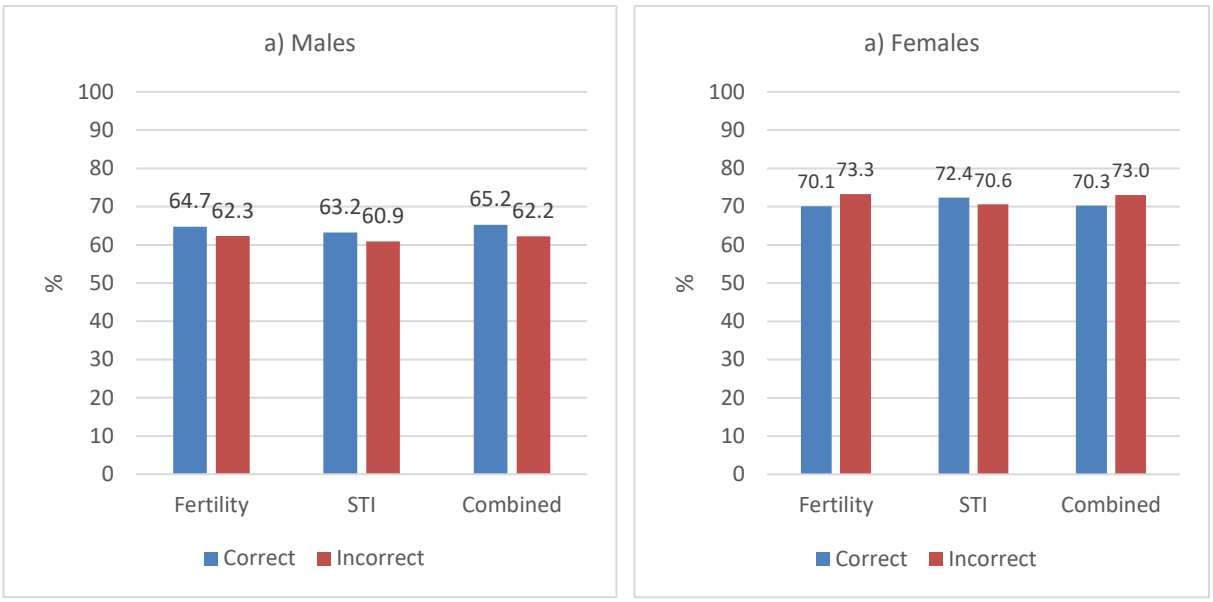
FIGURE 4.1 CONDOM USE (% ON EVERY OCCASION) BY SEXUAL HEALTH LITERACY



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

Figure 4.2 illustrates the patterns for contraception use, for males and females separately. For males, there is no statistically significant difference in contraception use by sexual health literacy, while for females, there is weak ($p<0.10$) statistically significant evidence of *less* contraception use among those who answered the fertility (and combined) sexual health literacy questions correctly. Overall rates of contraception use are higher than those for condom use, but a significant minority report not always using contraception when they have sex.

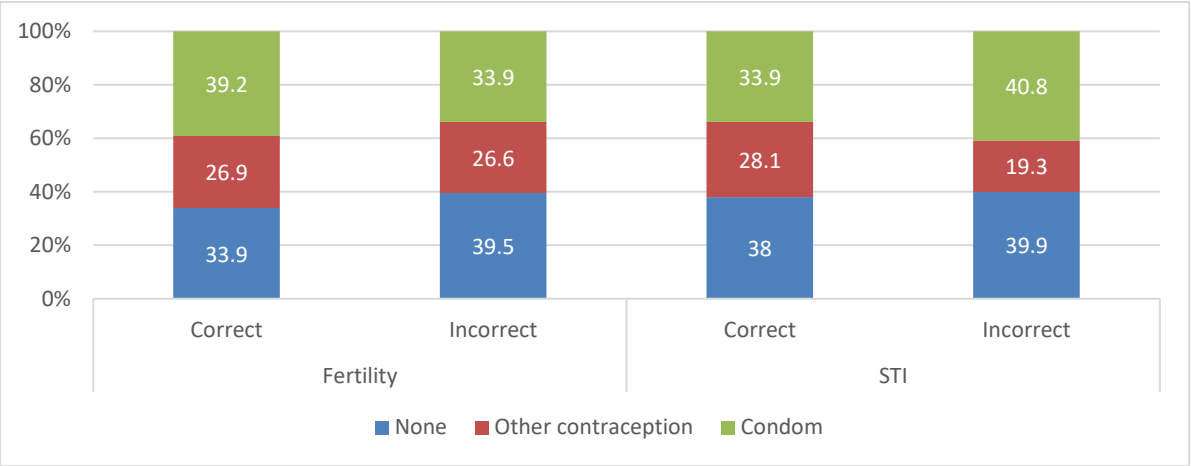
FIGURE 4.2 CONTRACEPTION USE (% ALWAYS) BY SEXUAL HEALTH LITERACY



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

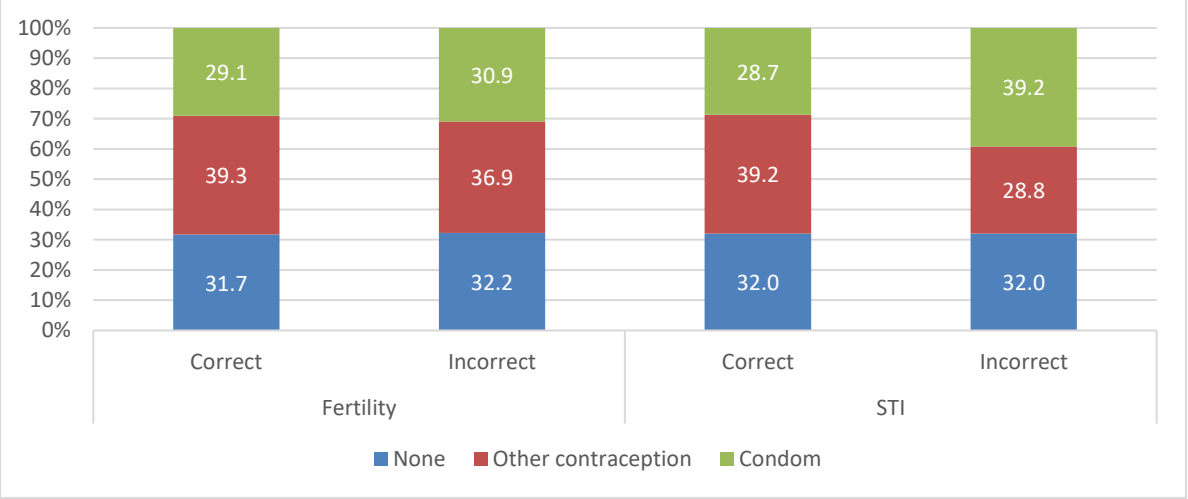
Growing Up in Ireland respondents were not asked about the type of contraception used. However, the separate responses to questions on condom and contraception use can be combined to identify three groups: those who always use condoms (and possibly other types of contraception); those who always use contraception but do not always use condoms; and those who use neither. Figures 4.3a and 4.3b show the relationship between sexual health literacy and type of contraception used for men and women respectively. For both males and females, fertility literacy is not related to the type of contraception used. However, contrary to expectations, condom use is higher (though only at the $p<0.10$ level) among those who do not know the best way to prevent STIs; this pattern is evident for both women and men. The next section (4.3) explores whether this is related to other factors that may affect contraception use.

FIGURE 4.3A TYPE OF CONTRACEPTION USED BY SEXUAL HEALTH LITERACY: MEN



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

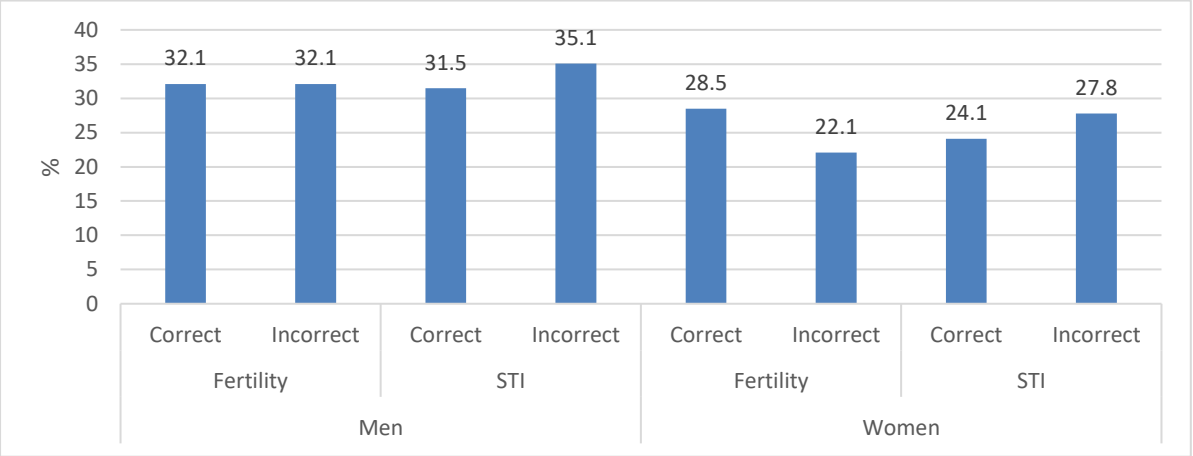
FIGURE 4.3B TYPE OF CONTRACEPTION USED BY SEXUAL HEALTH LITERACY: WOMEN



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

As well as being asked about current contraception use at the age of 20, young adults were also asked about contraception use when they first had sex. As indicated in Chapter 2 (Table 2.2), the majority used contraception at both timepoints, though a significant minority used contraception at first sex but were not doing so currently. Figure 4.4 shows the proportion who used contraception at first sex but not currently, by sexual health literacy. The groups who used contraception on neither occasion, or at 20 only, are too small to break down by sexual health literacy levels. There is no relationship between fertility knowledge for men, but women who got the question correct were more likely to discontinue contraception use. For both women and men, there was no significant relationship between STI literacy and discontinuing contraception use.

FIGURE 4.4 PROPORTION OF THOSE WHO USED CONTRACEPTION AT FIRST SEX BUT WERE NOT ALWAYS USING CONTRACEPTION AT 20 YEARS OF AGE



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

4.3 MODELLING THE EFFECTS OF SEXUAL HEALTH LITERACY

The descriptive analyses show some relationships between sexual health literacy and sexual behaviour, but any such relationships are weak and go in a counterintuitive direction. This section examines whether these relationships are still evident when we consider other factors that may influence contraception use. It also explores whether other aspects of young adults' experiences may be a more important driver of contraception use than knowledge alone.

Table 4.1 looks at the factors, including sexual health literacy, associated with always using a condom. In Model 1, for both women and men, condom use is less prevalent among those who gave the correct answer on STI prevention. However, no significant difference is evident when other factors are taken into account (which could also be due to the smaller sample sizes for model 2). Two main factors make a difference to condom use: peer culture and relationship status. Young people with friendship groups who were sexually active at age 17 are significantly less likely to use condoms later on. The effect is sizeable, with a 30 percentage point difference for women between those who had no friends who were sexually active and those for whom most or all of their friends had had sex. The percentage point difference for males is 27. Current relationship status also makes a sizeable difference, with those who are single much more likely to use a condom than those in a steady relationship. Women who are dating casually are also more likely to use a condom than those in a relationship. An appetite for risk is associated with lower condom use for men but not for women.

TABLE 4.1 BINARY LOGIT MODELS OF ALWAYS USING A CONDOM (AVERAGE MARGINAL EFFECTS)

	Males		Females	
Variable	(1)	(2)	(1)	(2)
Sexual health literacy:				
Fertility question correct	0.056	0.003	-0.021	-0.035
STI question correct	-0.089±	-0.084	-0.125*	-0.072
Main source of information about sex at 17:				
Friends		-0.041		-0.117*
Teacher(s)		0.075		0.019
Internet		-0.083		-0.066
Books/magazines/TV		-0.012		0.043
Nowhere (Ref. Parents)		-0.033		-0.173
Perceived benefit of school in preparing them for adult life:				
Some		0.034		0.046
A lot (Ref. No help)		0.043		0.083±
Leaving Certificate performance:				
301–400 points		0.043		-0.108*
401–500 points		0.011		-0.014
501 + points		0.040		0.002
(Ref. <300 points/ ESL/ LCA)				
Whether peers had sex at age 17:				
Some		-0.126±		-0.188**
Most/all (Ref. None/a few)		-0.272***		-0.305***
Current relationship status:				
Single		0.154***		0.162***
Dating casually		0.028		0.105*
(Ref. In relationship)				
Appetite for risk		-0.024*		0.002
Sexual orientation:				
LGBTQ+		-0.004		-0.056
(Ref. Heterosexual)				
N	1,744	1,362	1,748	1,450

Source: *Growing Up in Ireland*, Cohort '98, wave 4 (age 20).
Notes: Population weights are employed. *** statistically significant at p<.001 level, ** p<.01, * p<.05, ± p<0.1. ESL – early school leaving; LCA – Leaving Certificate Applied programme.

In keeping with the descriptive findings, no significant relationship is found between sexual health literacy and regular contraception use. However, fertility literacy among women is significantly related to less use of contraception when the profile of this group of women is taken into account (Table 4.2). As with condom use, peer culture and relationship status make a difference. A perceived more sexually active peer group at 17 is significantly linked to lower contraception for both males and females at 20. Women and men who are single or dating casually are much less likely to regularly use contraception (any type) than those who are in a relationship. Those who were reliant on the internet for information about sex are less likely to use contraception; women reliant on their friends are also less likely to do so. Women achieving high Leaving Certificate points are more likely to always use contraception, but no such difference is evident for men. As

with condom use, appetite for risk is linked to lower use for men but not for women.

TABLE 4.2 BINARY LOGIT MODELS OF ALWAYS USING CONTRACEPTION (AVERAGE MARGINAL EFFECTS)

	Males		Females	
Variable	(1)	(2)	(1)	(2)
Sexual health literacy:				
Fertility question correct	0.023	-0.018	-0.035	-0.091**
STI question correct	0.019	-0.006	0.021	0.031
Main source of information about sex at 17:				
Friends		-0.074		-0.088*
Teacher(s)		-0.024		0.015
Internet		-0.118±		-0.134*
Books/magazines/TV		-0.122		-0.042
Nowhere (Ref. Parents)		-0.081		-0.137
Perceived benefit of school in preparing them for adult life:				
Some		0.022		0.062
A lot (Ref. No help)		-0.003		0.037
Leaving Certificate performance:				
301–400 points		0.007		0.054
401–500 points		0.065		0.144**
501 + points		0.094		0.189***
(Ref. <300 points/ ESL/ LCA)				
Whether peers had sex at age 17:				
Some		-0.017		0.032
Most/all (Ref. None/a few)		-0.140*		-0.137*
Current relationship status:				
Single		-0.160***		-0.154***
Dating casually		-0.256***		-0.153**
(Ref. In relationship)				
Appetite for risk		-0.032**		0.001
Sexual orientation:				
LGBTQ+		-0.056		0.032
(Ref. Heterosexual)				
N	1,660	1,300	1,746	1,457

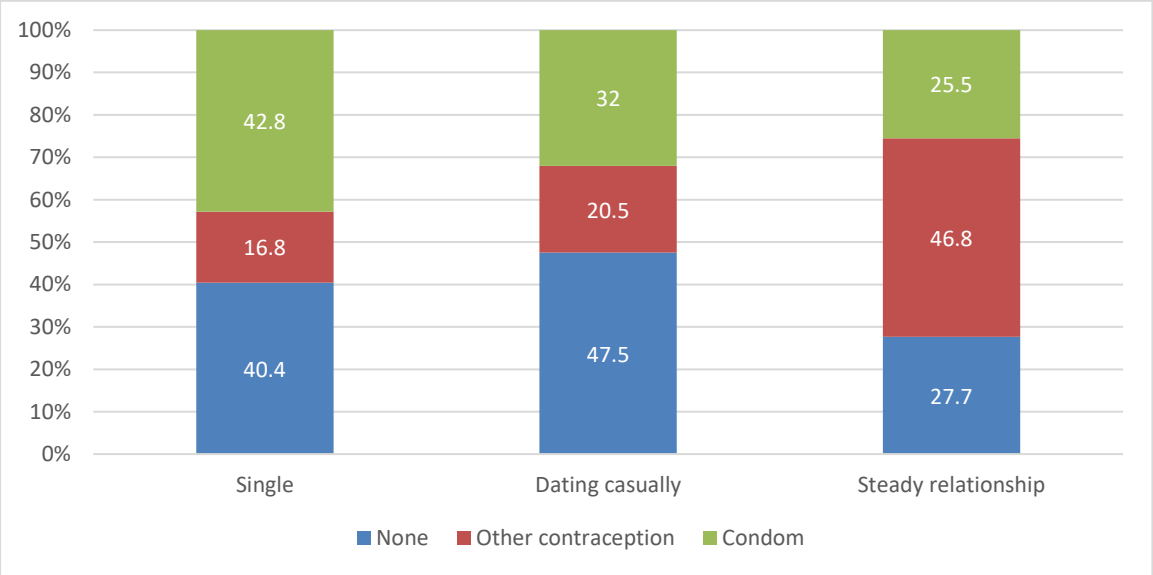
Source: *Growing Up in Ireland*, '98 Cohort, wave 4 (age 20).
Notes: Population weights are employed. *** statistically significant at p<.001 level, ** p<.01, * p<.05, ± p<0.1. ESL – early school leaving; LCA – Leaving Certificate Applied programme.

Using a combined measure of type of contraception used provides additional insights into the drivers of behaviour. Sexual health literacy in relation to STIs is somewhat counterintuitively positively associated with using non-condom contraception for women and men, but these differences are largely explained by other factors (Table 4.3). For both women and men, a sexually active peer group is linked to a greater likelihood of using no contraception or using non-condom forms rather than condoms. Women who were reliant on their friends for information about sex are similarly less likely to use condoms rather than other (non-condom) contraception or no contraception at all. Higher Leaving Certificate grades are linked to greater use of other (non-condom) contraception for women and men.

Appetite for risk is related to not using contraception among men but not women. Women who are lesbian, gay, bisexual or questioning (LGBTQ+) are more likely not to use contraception, a pattern that is driven by the lesbian subgroup.

There is a strong relationship between relationship status and type of contraception used, which holds even taking account of other factors (Table 4.3). Because multinomial logit models (where two or more groups are compared to a base group) can be difficult to interpret, Figure 4.5 shows the descriptive relationship between type of contraception and relationship status. It is clear that being in a steady relationship involves a shift away from using condoms, with non-condom contraception twice as prevalent among those in a relationship. What is striking too is the size of the group who do not use any form of contraception when having sex – four in ten of those currently single and almost half of those dating casually. Even among those in a relationship, over one-quarter report not using any form of contraception. Figure 4.5 shows women and men combined. A similar relationship is found if women and men are considered separately (not shown here). However, it is worth noting that over half (54 per cent) of men dating casually report not using any form of contraception.

FIGURE 4.5 TYPE OF CONTRACEPTION USED BY RELATIONSHIP STATUS, MEN AND WOMEN COMBINED



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

TABLE 4.3 MULTINOMIAL LOGIT MODELS OF TYPE OF CONTRACEPTION (BASE: CONDOM USE, RELATIVE RISK RATIOS)

	Males				Females			
	No contraception		Other contraception		No contraception		Other contraception	
Variable	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Sexual health literacy:								
Fertility question correct	0.732±	0.893	0.840	0.925	1.018	1.368	1.082	1.031
STI question correct	1.173	1.306	1.772*	1.632±	1.364	1.047	1.838*	1.574
Main source of information about sex at 17:								
Friends		1.408		0.877		1.831*		1.682*
Teacher(s)		0.930		0.553		1.129		1.104
Internet		1.678		0.982		1.757±		1.053
Books/magazines/TV		1.213		0.818		1.232		0.941
Nowhere (Ref. Parents)		1.081		0.956		3.274		1.926
School preparation for adult life:								
Some		0.906		0.851		0.640±		0.893
A lot (Ref. No help)		0.988		0.624		0.628		0.625±
Leaving Certificate performance:								
301–400 points		0.927		0.879		1.268		2.354**
401–500 points		0.741		1.314		0.591±		1.731±
501 + points		0.615		1.118		0.468*		1.811±
(Ref. <300 points/ ESL/ LCA)								
Whether peers had sex at age 17:								
Some		1.496		1.973±		1.781		2.809**
Most/all (Ref. None/a few)		3.109**		2.966**		4.072***		3.981***
Current relationship status:								
Single		1.213		0.211***		1.206		0.237***
Dating casually		1.825*		0.298***		1.163		0.334***
(Ref. In relationship)								
Appetite for risk		1.191**		1.042		1.004		0.998
Sexual orientation:								
LGBTQ+		1.479		0.598		1.953*		1.536
(Ref. Heterosexual)								
N	1,827	1,415	1,827	1,415	1,894	1,568	1,894	1,568

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

In order to identify any fall-off in contraception use over time, Table 4.4 shows the factors associated with not using contraception at 20 among those who had been using contraception at first sex. Correctly identifying the fertility period is associated with higher rates of discontinuing contraception use among women, a difference that becomes slightly larger when other factors are taken into account.

TABLE 4.4 BINARY LOGIT MODELS OF DISCONTINUING USE OF CONTRACEPTION BETWEEN FIRST AND CURRENT SEX (AVERAGE MARGINAL EFFECTS)

	Males		Females	
Variable	(1)	(2)	(1)	(2)
Sexual health literacy:				
Fertility question correct	0.001	0.030	0.065*	0.117***
STI question correct	-0.034	-0.019	-0.042	-0.080
Main source of information about sex at 17:				
Friends		0.044		0.084*
Teacher(s)		0.008		-0.030
Internet		0.071		0.153**
Books/magazines/TV		0.127		0.020
Nowhere (Ref. Parents)				-0.007
Perceived benefit of school in preparing them for adult life:				
Some		0.023		-0.040
A lot (Ref. No help)		0.039		-0.040
Leaving Certificate performance:				
301–400 points		0.024		0.037
401–500 points		-0.048		-0.073
501 + points		-0.020		-0.099±
(Ref. <300 points/ ESL/ LCA)				
Whether peers had sex at age 17:				
Some		0.024		0.002
Most/all (Ref. None/a few)		0.162*		0.168*
Current relationship status:				
Single		0.161***		0.183***
Dating casually		0.246***		0.168**
(Ref. In relationship)				
Appetite for risk		0.034**		-0.006
Sexual orientation:				
LGBTQ+		0.034		-0.095*
(Ref. Heterosexual)				
N	1,483	1,175	1,606	1,342

Source: *Growing Up in Ireland,* Cohort '98, wave 4 (age 20).
Notes: Population weights are employed. *** statistically significant at p<.001 level, ** p<.01, * p<.05, ± p<0.1. ESL – early school leaving; LCA – Leaving Certificate Applied programme.

Discontinuing use is much more common among those who are single or dating casually. Peer culture again makes a difference, with a greater fall-off in use among those who had sexually active peers at 17. Fall-off is more common among women who relied on their friends or the internet for information about sex, and among men with a greater appetite for risk.

4.4 CONCLUSIONS

This chapter has explored the relationship between sexual health literacy and use of condoms and other forms of contraception among young adults. There is little systematic relationship between literacy and behaviour, with any differences going in the opposite effect to those hypothesised. However, most differences are explained by other factors associated with contraception use. The exception is the higher rates of discontinuation of contraception use between first and current sex among women who correctly identify their fertile period. It is possible that this finding may be accounted for by some women with more accurate knowledge of their menstrual cycle using cycle tracking rather than contraception to prevent pregnancy.

Analyses show that the most important driver of contraception use is relationship status, with those who are single or dating casually more likely to use condoms or use no contraception at all. Being in a relationship is associated with a shift from condoms to other forms of contraception. However, there is a significant minority of young adults, even in relationships, who do not always use contraception when they have sex.

Earlier experiences are found to make a difference. In particular, having a sexually active peer group at 17 is linked to lower condom and contraception use, and a greater fall-off in use between first and current sex. For women, relying on friends for information about sex is related to lower usage and a greater fall-off in use. Among men, appetite for risk is linked to lower levels of usage and a similar decline in use over time.

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, as patterns of behaviour that develop early on can shape outcomes throughout the life course. Recent rises in notifications of certain sexually transmitted infections (STIs) among young people in Ireland have raised concerns over the extent to which young people have the skills and information to make healthy choices in relation to their sexual health and wellbeing. In this context, sexual and reproductive health literacy is a key protective factor for the prevention of negative sexual health outcomes, and for allowing young people to be more in control of their own sexual and reproductive health. In this report, we used data from Cohort '98 of *Growing Up in Ireland*, the national longitudinal study of children and young people, to examine the factors associated with sexual health literacy among young adults (aged 20 in 2018), and how sexual health literacy is associated with sexual health behaviours (i.e., condom and contraception use). This chapter outlines the main findings of the study, discusses the strengths and limitations of the analyses, and highlights the implications for policy development.

The data indicate that while knowledge of the best method for STI prevention is high among young people (with over 80 per cent of men and women correctly identifying condoms), knowledge of fertility is much poorer. Among men, just over one-fifth could correctly identify the period in a woman's menstrual cycle when she is most fertile, and while the proportion of women answering correctly is higher (at just over one-third), the findings point to a worryingly low level of knowledge of fertility among young people.

An analysis of the factors associated with sexual health literacy in the cohort showed that sexual health literacy levels are slightly higher among those from more advantaged backgrounds. Cognitive skill development is significantly related to sexual health literacy, with vocabulary skills at primary level and Leaving Certificate grades both important, though the strength of the relationship varies by gender and measure of sexual health literacy. Factors related to sex education, such as the timing of religious and social education (RSE) receipt and parental discussions about sex, are not related to sexual health literacy. While there is little systematic variation by the source of information on sex, women reliant on books and other media are more knowledgeable about STI prevention.

Approximately one-third of young men and women always use condoms when having sex, with rates of overall contraception use higher (63 per cent among men,

and 72 per cent among women). A significant minority (nearly 40 per cent of men, and 32 per cent of women) never use either condoms or other forms of contraception when having sex. While use of contraception at first sex is high (at nearly 90 per cent), a significant proportion discontinue contraception use and are not always using it currently (nearly 30 per cent of men and just over 20 per cent of women).

Examining the relationship between sexual health literacy and these sexual health behaviours reveals a limited role for sexual health literacy. The exception is the higher rates of discontinuation of contraception use between first and current sex among women who can correctly identify their most fertile period. This may indicate women with more accurate knowledge of their menstrual cycle using cycle tracking rather than contraception to prevent pregnancy. This method of pregnancy prevention, however, will not protect against STIs, and is less effective at preventing pregnancy. Much stronger effects are apparent for factors such as peer culture, relationship status and risk tolerance (for men). Having a sexually active peer group at 17 is linked to lower condom and contraception use, and a greater fall-off in use between first and current sex. For women, relying on friends for information about sex is related to lower usage and a greater fall-off in use. Being in a relationship is associated with a shift from condoms to other forms of contraception. However, there is a significant minority of young adults, even in relationships, who do not always use contraception when they have sex. While this may be a rational choice for those in exclusive relationships who have taken STI tests, or those trying to conceive, it is unlikely that these two groups combined account for the one-third of those who do not use any form of contraception when having sex.[38] Among men, appetite for risk is linked to lower levels of usage of both condoms and contraception, and a similar decline in use over time.

5.2 STRENGTHS AND LIMITATIONS

As with any analysis, this study inevitably has both strengths and limitations. First, in terms of limitations, the indicators of sexual health literacy available in *Growing Up in Ireland* capture sexual health knowledge; i.e., the ability to correctly answer questions in relation to sexual health, rather than the broader concept of sexual health literacy. They therefore do not capture the full suite of skills and capabilities that characterise sexual health literacy. Further, they capture some forms of sexual health knowledge but not others, for example, knowing how best to prevent pregnancy. Second, the data on sexual health literacy (and sexual behaviours such as contraceptive and condom use) are self-reported. The potential for recall and social desirability bias associated with self-reported data on sensitive behaviours is well documented (King, 2022). In the context of self-reported information on sexual behaviour, the potential for gender norms to influence patterns of reported

[38] Those who are trying to conceive are excluded from the analyses of contraception in this report and form too small a group to be analysed.

behaviour has also been noted (de Graaf et al., 2024; Moreau et al., 2019; Schubotz et al., 2004). However, the use of a self-completion questionnaire format in *Growing Up in Ireland* maximises response rates, while also allowing for respondents to answer truthfully in a confidential setting. Third, *Growing Up in Ireland* is a cross-domain study so is not designed to capture more specific information on important aspects of sexual health behaviour, such as detailed type of contraception, the content of RSE, experience of STI testing, etc. In addition, information on use of contraception and condoms does not include detail regarding how these choices are negotiated at the couple level (and whether relationships are exclusive), and no information is available on the characteristics of partners that might influence the decision-making process. Finally, while we have been able to disaggregate patterns of behaviour among population groups, due to small sample sizes, we could not fully disaggregate between homosexual, bisexual and questioning/asexual groups.

Despite these limitations, it is important to highlight that in contrast to many studies that use convenience or very small samples, the Cohort '98 of *Growing Up in Ireland* 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

A number of implications for policy and practice can be inferred from the findings of this research. First, the low levels of female fertility awareness, among both men and women, are concerning. While there is evidence that knowledge is improving, fertility awareness is a key component of sexual and reproductive health literacy. It is important not only for protection against unplanned pregnancy (likely of most relevance to this age group now), but also for future family planning. Consultation around the review of RSE indicated that young people were critical of the focus on biological processes to the neglect of broader relationship issues (NCCA, 2019). However, it is evident from the study findings that existing RSE provision has not provided an adequate knowledge base on fertility. It is notable too that taking biology as a Leaving Certificate subject is not related to better knowledge of fertility literacy, although those who take biology as a Leaving Certificate subject are also more likely to achieve higher points (which is associated with better knowledge). An updated junior cycle social, personal and health education (SPHE) course (including RSE) has been in place since September 2023, while the new senior cycle curriculum has been rolled out from September 2024 (and must be in place from September 2027 for all students entering fifth year). The new specification for the senior cycle takes a broad view of sexual health, including fertility across the life cycle, safer sex and how to access information and services (NCCA, 2024). In order to support these developments, it is crucial to build upon

existing continuous professional development, including the recent graduate diploma in SPHE/RSE, to enhance teacher confidence in ensuring increased knowledge of fertility among future cohorts of young people.

Second, while use of contraception at first sex is high among this age group (at nearly 90 per cent among both men and women), a substantial minority discontinue contraception use between first and current sex (nearly 30 per cent of men, and just over one-fifth of women). Condom use is particularly low, with around one-third of men and women always using condoms when they have sex. This pattern highlights the need for renewed public health messaging about the benefits of barrier contraception in preventing both pregnancy and STIs. The recent wave of *Growing Up in Ireland* data collection at age 25 will provide valuable insights into patterns of contraception use in the wake of the rollout of free contraception, as well as other societal and policy changes.

The influence of peer culture emerges as a key predictor of contraception use. Sexual culture within the peer group in late adolescence has long-term effects in terms of lower levels of condom use and greater discontinuation between first and current sex. Using friends as a source of information on sex has similar effects for women. There is potential for further research, most likely qualitative or even ethnographic in nature, to tap into how knowledge is transmitted between friends and how norms of sexual behaviour emerge in peer networks. The findings of this study highlight the importance of addressing peer culture and potential pressure in providing information through and outside the formal curriculum (e.g., through youth services). The existing evidence base on the effectiveness of peer-based interventions in influencing sexual health behaviours is limited, however (Mason-Jones et al., 2023; Topping, 2022), highlighting the need for further research and evaluation of new and existing programmes.

Relationship status emerges as a key predictor of sexual health behaviours. Significant proportions of young adults who are not in a steady relationship are not consistently using condoms or other contraception, heightening the risk of STIs or unwanted pregnancy. Even within relationships, over one-quarter report not always using contraception. These findings highlight the need for renewed public health messaging, particularly in the context of recent rises in STI notifications, and recent data from the Health Behaviour in School-Aged Children (HBSC) study that shows declining levels of condom use among younger age groups (Gavin et al., 2024).

Finally, the findings highlight that sexual health knowledge or literacy is not sufficient for safe sexual health behaviours. The international literature highlights the importance of the broader social determinants of health, power and consent dynamics within couples, and the complexity of individual behaviour change. In recent years, there has been an increasing recognition that health literacy skills

operate in a broader context of institutions and policies that enable people to access, understand, appraise and use information and services in ways that promote and maintain good health and wellbeing for themselves and those around them. Nutbeam (2000) cites the example of tobacco control, where public policy is not limited to simple public health messaging about the dangers of smoking, but also incorporates measures to reduce demand and supply via pricing and regulation (e.g., excise taxes, workplace smoking bans and restrictions on sale of cigarettes to young people). In this context, the provision of free contraception services to women aged 17–35 years is an important component of the broader social and environmental factors that can facilitate safe behaviours. However, it is notable that while this scheme provides for free emergency and hormonal contraception services, women younger than 17 or older than 35 are not covered, and condoms are not provided on the same basis. Condoms are distributed freely via the National Condom Distribution Service (NCDS), but only to particular groups at higher risk of negative sexual health outcomes. This may result in differential access for some groups (e.g., those not in higher education), while the emphasis on non-condom contraception for women may reinforce gendered norms around responsibility for birth control. While improving sexual health literacy is important, ensuring that the conditions under which young people are enabled to make safe choices about their sexual health requires a multi-pronged approach incorporating parents and peers, schools, public health professionals and service providers.

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APPENDIX A

Binary logit models for Chapter 3

APPENDIX TABLE 3.1A BINARY LOGIT MODELS OF SEXUAL HEALTH LITERACY: COMBINED MEASURE (AVERAGE MARGINAL EFFECTS)

Variable	(1)		(2)		(3)	
	Males	Females	Males	Females	Males	Females
Age:						
21 years of age (Ref. 20 years)	0.061	-0.069	0.062	-0.044	0.063	-0.032
Social class at age 13:						
Professional	0.058	0.114*	0.028	0.109±	-0.002	0.093
Managerial	0.077	0.122**	0.043	0.134*	0.020	0.120*
Other non-manual	0.042	0.073	0.010	0.068	-0.007	0.072
Skilled manual	0.132*	0.023	0.109	0.012	0.120	0.022
Never employed	0.052	0.066	-0.013	0.071	-0.019	0.082
(Ref.: Semi/unskilled manual)						
Lone-parent family	-0.061	-0.000	-0.051	0.051	-0.041	0.109*
Migrant background	0.020	-0.002	-0.046	0.021	-0.057	0.007
Urban	0.007	0.000	0.016	0.013	0.019	0.010
Has long-term illness/disability	0.017	0.029	0.025		0.044	0.049
Early period		0.039		0.050		0.056
Voice partially/fully broken at 13	0.031		0.020		0.034	
Vocabulary test score at age 9	0.055***	0.119***	0.057**	0.109***	0.029	0.064**
Sexual orientation:						
LGBTQ+ (Ref. Heterosexual)	-0.022	-0.089*	-0.042	-0.089*	-0.046	-0.066
N	1,689	2,198	1,410	1,923	1,363	1,829

Source: *Growing Up in Ireland,* Cohort '98, wave 4 (age 20).
Notes: Population weights are employed. *** statistically significant at p<.001 level, ** p<.01, * p<.05, ± p<0.1.

APPENDIX TABLE 3.1B BINARY LOGIT MODELS OF SEXUAL HEALTH LITERACY: COMBINED MEASURE (AVERAGE MARGINAL EFFECTS)

Variable	(1)		(2)		(3)	
	Males	Females	Males	Females	Males	Females
Timing of RSE receipt:						
None			-0.001	0.061	0.014	0.067
By 17 (Ref. By 13)			0.020	-0.024	0.020	-0.017
Timing of parents talking to them about sex:						
Never			-0.012	-0.021	-0.009	-0.032
By 17 (Ref. By 13)			0.034	-0.006	0.043	-0.006
Main source of information about sex at 17:						
Friends			0.018	-0.000	0.006	-0.008
Teacher(s)			-0.002	-0.114*	0.013	-0.123
Internet			0.037	0.044	0.029	0.040
Books/magazines/TV			0.085	0.046	0.081	0.045
Nowhere (Ref. Parents)			-0.054	-0.109	-0.046	-0.074
Attended a DEIS second-level school					0.045	-0.000
Perceived benefit of school in preparing them for adult life:						
Some					0.007	-0.012
A lot (Ref. No help)					-0.017	-0.026
Leaving Certificate performance:						
301–400 points					0.018	0.120*
401–500 points					0.053	0.161**
501 + points					0.135*	0.210**
(Ref. <300 points/ ESL/ LCA)						
Took biology at Leaving Certificate					0.045	0.037
N	1,689	2,198	1,410	1,923	1,363	1,829

Source: *Growing Up in Ireland*, Cohort '98, wave 4 (age 20).
Notes: Population weights are employed. *** statistically significant at p<.001 level, ** p<.01, * p<.05, ± p<0.1. ESL – early school leaving; LCA – Leaving Certificate Applied programme.

APPENDIX B

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