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## Sex education, first sex and sexual health outcomes in adulthood: findings from a nationally representative sexual health survey

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This study investigated the relationship between school sex education and sexual health behaviours at first sex and later in adulthood, using nationally representative data. Respondents were adults from the 2010 Irish Contraception and Crisis Pregnancy Survey, a cross-sectional survey designed to assess knowledge, attitudes and behaviours relating to sex, contraception and pregnancy in Ireland. Results indicate that respondents who received sex education were more likely to have first sex at an older age and use contraception on this occasion. Sex education also significantly increased the likelihood of using contraception at first sex, when first sex occurred before 17 years of age. The effect of sex education and sexual health behaviours into adulthood was also investigated. Sex education increased the likelihood of having a history of sexually transmitted infection testing and decreased the likelihood of having experienced a crisis pregnancy. No association was found between sex education and contraception use over the past year. Findings suggest that sex education is an important factor in the context of first sex and later sexual health, and programmes should continue to equip young people as they make immediate sexual behaviour decisions and further sexual health-related decisions throughout their lifespan.

**Keywords:** sex education; first sex; sexual health outcomes; national survey; Ireland

### Introduction

Since the 1970s, numerous studies have examined the link between receiving sex education and subsequent sexual health outcomes in adolescence and adulthood (Yu 2010). This relatively large body of evidence is inconclusive, and inconsistent findings are likely due to variation in the types of formal and informal sex education evaluated across studies, and the range of sexual health outcomes assessed. Nonetheless, research on formal sex education suggests it may have a protective influence on early sexual health behaviours. For example, several research studies have demonstrated that receiving formal sex education can delay first sex (Lindberg and Maddow-Zimet 2012; Mueller, Gavin, and Kulkarni 2008). Formal sex education also appears to have a positive influence on young people's contraceptive decisions, including higher levels of contraception use at first sex (Lindberg and Maddow-Zimet 2012; Mueller, Gavin, and Kulkarni 2008; Kirby, Laris, and Roller 2007). Receipt of formal sex education is also associated with proactive health

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behaviours such as screening/testing for sexually transmitted infections (STIs; Kirby 2008). These findings have led to the proposal that the importance of sex education may be particularly salient for certain subgroups that are traditionally at risk for early first sex and for contracting STIs (Mueller, Gavin, and Kulkarni 2008).

Less consistent results have emerged from studies examining the relationship between receiving sex education while growing up and sexual health behaviours later in adulthood (Kirby, Laris, and Rolleri 2007). For example, one review of sex education programmes found that few studies examined the impact of sex education on the incidence of STIs or pregnancy in 9–24-year olds; among those that did, sex education did not decrease the incidence of STIs or pregnancies in this age group (Lindberg and Maddow-Zimet 2012). On the other hand, school-based education, specifically focused on contraceptive use, was associated with a greater likelihood of STI testing (Dodge, Reece, and Herbenick 2009). Although research has focused on the role of sex education in reducing teenage pregnancies (Kohler, Manhart, and Lafferty 2008), little attention has been given to the lifetime incidence of unintended pregnancies – a term used in the UK and the USA to refer to any pregnancy that is unwanted or mistimed (Mosher, Jones, and Abma 2012). In Ireland, a similar term ‘crisis pregnancy’ is used to identify those pregnancies that are unintended or unplanned *and* represent a personal trauma for the woman or couple involved at any point during the pregnancy (Rundle et al. 2004). The term was introduced in order to differentiate between unplanned and unintended pregnancies that are not planned at the time but do not represent a crisis for the woman involved (Rundle et al. 2004). Socio-demographic factors have also been associated with sexual health behaviours throughout the lifespan. For example, religiosity has been associated with delayed first sex (Rostosky, Regnerus, and Wright 2003), while education level has been associated with the experience of an unintended pregnancy (Finer and Zolna 2011) and STI testing (Fernández et al. 2006).

Ireland is a largely Catholic country, with 84% of the population describing themselves as Roman Catholics in the 2011 Census (CSO 2012), although the influence of religion on Irish society has arguably been in decline over the past decade (Nic Ghiolla Phádraig 2009). Restrictive legislation in Ireland means that abortion is only available when there is a real and substantial risk to a woman’s life from a physical illness, including from the risk of suicide. The role of religion in Irish society is perhaps most starkly reflected in the Irish education system. Ireland has a monopolistic denominational tradition in schools, although this too is slowly changing. A 2009 paper noted that 99% of Irish primary schools are denominational; 93% are Catholic and 6% are Protestant (Irwin 2009). School sex education in Ireland, termed Relationships and Sexuality Education (RSE), was developed in 1996. The RSE curriculum emphasises relationships rather than solely sexuality, and is orientated towards helping children gain self-esteem and self-confidence (Mayock, Kitching, and Morgan 2007). Although RSE has been included as part of the mandatory Social, Personal and Health Education curriculum since 2003, its implementation is determined by the individual schools’ RSE policy which must reflect the core values and ethos of the school (DoE 1995) and these are frequently traditional values (Irwin 2009). This is reflected in the finding that many students reported dissatisfaction with the lack of openness about sex and sexuality in Irish schools, which they attributed, in many cases, to the school’s Catholic or religious ethos (Mayock, Kitching, and Morgan 2007).

This study investigates the relationship between school sex education and the context of first sexual intercourse and adult sexual health behaviours, using retrospective data from a large, nationally representative sexual health study. The main objectives of this study

were (i) to explore the association between receiving sex education at school and the context of first sex (i.e., age and use of contraception) and (ii) to examine how receiving sex education while growing up is related to sexual health outcomes in adulthood (i.e., history of STI testing, unplanned or ‘crisis’ pregnancy and contraception use over the past year).

## **Methods**

### ***Survey***

Data were from the 2010 Irish Contraception and Crisis Pregnancy Survey (ICCP-2010) (McBride, Morgan, and McGee 2012a), a nationally representative cross-sectional telephone survey of adult men and women aged 18–45 years living in Ireland ( $n = 3002$ ). ICCP-2010 was designed to assess knowledge, attitudes and behaviours relating to sex, contraception and pregnancy in 2010 in Ireland. Quota sampling was used to ensure that the sample was representative of the general population. Respondents were recruited using both landline and mobile telephones, and interviewed using Computer-Assisted Telephone Interviewing (CATI). Experienced and trained female interviewers conducted the interview. Telephone numbers were randomly generated using random digit dialling. The overall response rate for the survey was 69% (79% for the landline strand and 61% for the mobile telephone strand). Detailed survey methodology is reported elsewhere (McBride, Morgan, and McGee 2012a). Respondents were asked questions that were applicable to their sexual history, education and experiences (as outlined below).

### ***Sex education***

All respondents were asked, ‘Thinking about when you were growing up [about age 10–16 years], did you receive sex education on: sex and sexual intercourse; sexual feelings, relationships and emotions; contraception; homosexuality; and safer sex/sexually transmitted infections?’ Respondents were asked where they received this education; at home, school and/or some ‘other’ source (which was an open-ended question; common responses included magazines, the Internet, from friends, etc.). This study focuses on those people who reported receiving at least some sex education at school. Respondents were subsequently asked, ‘Overall how helpful do you think your sex education growing up was in terms of preparing you for adult relationships?’, to which they were asked to respond on a five-point Likert scale from ‘very helpful’ to ‘very unhelpful’.

### ***Respondent characteristics***

Respondents were asked how important religious beliefs were to them at this time in their life (five-point Likert scale ranging from ‘very unimportant’ to ‘very important’ – recoded as ‘important’ versus ‘neutral/unimportant’). Level of education was also provided by all participants (coded as ‘pre-Leaving Certificate’ or ‘Leaving Certificate or higher’). Leaving Certificate corresponds to completed second-level education in Ireland. Social class (SC) was determined from data relating to respondents’ occupation and that of the head of the household, coded according to the Central Statistics Office (Ireland) guidelines (CSO 1986). This variable was coded as SC 1–2, including professional workers and managerial and technical workers; SC 3–4, including non-manual and skilled manual workers; SC 5–6, including semi-skilled and unskilled workers; and SC 7, which included

all others, including never worked and long-term unemployed. The respondent's relationship status and age at the time of the survey were also obtained.

### *Context of first sex*

Adults who had ever had heterosexual intercourse were asked how old they were when they first had sex (dichotomised as occurring before or after 17 years) and whether they used contraception on this occasion (binary coded as 'yes' vs. 'no/don't remember'). Data from those respondents who provided information on these two questions were combined to generate a categorical variable representing 'risk' as follows: (1) age of onset occurred before age 17 years and contraception was not used; (2) age of onset occurred before age 17 years and contraception was used; (3) age of onset occurred at 17 years or older and contraception was not used; and (4) age of onset occurred at 17 years or older and contraception was used. The aim of this variable was to examine whether younger age at first sex is the primary risk factor and whether the use of contraception at the younger age negates some of the risk involved.

### *Adulthood sexual health outcomes*

All respondents in the survey who had ever experienced heterosexual intercourse were asked whether they had ever been screened or tested for a STI other than HIV (binary coded as 'a history of STI testing' or 'no history of STI testing'), their contraception use over the last year, for those respondents who had sex in the past year and were not trying to get pregnant (binary coded as 'used contraception in the last year' or 'did not use contraception in the last year'), and their lifetime experiences of crisis pregnancy (binary coded as 'experienced a crisis pregnancy' or 'did not experience a crisis pregnancy'). The experience of a crisis pregnancy was asked of both male and female respondents.

### *Analytic plan*

The analysis was carried out in four steps. First, the sexual health outcomes were compared across gender using  $\chi^2$  analyses. Second, the different topics of sex education received at school and the perceived helpfulness of this education were explored. Third, the association between receiving any school sex education and demographic factors, and the context of first sex was investigated using a multinomial logistic regression. The regression analysis is presented in terms of relative risk ratios (RRRs). The RRR outlines the probability that respondents in a given category for the outcome variable received any school sex education, compared with the reference group. Finally, the relationship between sex education and sexual health outcomes (i.e., STI testing, contraception use and the experience of a crisis pregnancy) was investigated using three binary logistic regressions. Data were weighted to ensure that estimates are representative of the adult general population of Ireland (see McBride, Morgan, and McGee 2012a for details). Analyses were carried out using SPSS 21.0 (IBM Corp 2012).

## **Results**

**Table 1** presents the frequencies of the sexual health behaviours by gender. A higher proportion of men (26%) had sex before they were 17 years of age compared with women (17%) ( $\chi^2(1, N = 2789) = 32.42, p < 0.001$ ). A higher proportion of men (25%) reported not using contraception on this occasion, compared with women (19%)

Table 1. A comparison of the context of first sex and later sexual health behaviours across male and female respondents who have had heterosexual sexual intercourse ( $n = 2813$ ).

Sexual health behaviours	Male ( $n = 1343$ ) $n$ (%)	Female ( $n = 1470$ ) $n$ (%)	Differences between groups $\chi^2$ (df) ( $\varphi$ )
Age at first sex			32.42 (1) (0.11)*
Before aged 17	342 (26)	245 (17)	
Aged 17 and older	992 (74)	1210 (82)	
Missing	9 (0.7)	15 (1)	
Contraception used at first sex			16.87 (1) (0.08)*
Yes	992 (74)	1180 (80)	
No	338 (25)	276 (19)	
Missing	13 (1)	14 (1)	
Attended for STI testing			17.36 (1) (0.08)*
Yes	277 (21)	376 (26)	
No	1062 (79)	989 (67)	
Missing	4 (0.3)	105 (7)	
Contraception used in the last year			n/s
Yes	1053 (78)	1119 (76)	
No	66 (5)	67 (5)	
Missing	224 (17)	384 (19)	
Experienced a crisis pregnancy			49.80 (1) (0.13)*
Yes	122 (9)	269 (18)	
No	1221 (91)	1201 (82)	

Notes: \*indicates a significant difference between the groups at the 0.001 level. n/s indicates that the difference between the groups was not significant.

( $\chi^2(1, N = 2786) = 16.87, p < 0.001$ ). A higher proportion of women (18%) reported the experience of a crisis pregnancy compared with men (9%) ( $\chi^2(1, N = 2813) = 49.80, p < 0.001$ ). There was no difference found across the two groups in their use of contraception over the past year. A higher proportion of women (25%) reported attending for STI testing, compared with men (19%) ( $\chi^2(1, N = 2704) = 17.36, p < 0.001$ ).

A brief analysis of those who received sex education at school found that 88% received education on 'sex and sexual relationships'; 52% received education on 'sexual feelings, relationships and emotions'; 74% received education on 'contraception'; 35% on 'homosexuality'; and 69% received education on 'safer sex/STIs'. In addition, 61% of the respondents reported the education as 'very helpful' or 'helpful', while 21% rated the education as 'unhelpful' or 'very unhelpful' (the remainder being in the neutral category).

The results of the multinomial logistic regression analysis are presented in Table 2. The reference group for the outcome variable was those respondents who had first sex before age 17 years and did not use contraception on this occasion; each of the other three categories was compared with this reference group. The unadjusted model (Model 1) found that respondents who received sex education were more likely to use contraception if they had sex before the age of 17 years (RRR = 2.33,  $p < 0.05$ ) and were more likely to have sex at an older age and use contraception (RRR = 2.23,  $p < 0.05$ ), compared with those who did not receive sex education.

The adjusted model (Model 2) investigated the impact of receiving sex education on the context of first sex while controlling for gender, social class, respondent age, relationship status, education level, and religiosity. In the adjusted model, sex education was a significant predictor of contraception use for those who had sex before 17 years of

Table 2. Weighted RRRs from multinomial logistic regression analysis explaining association between receipt of school sex education and age and contraception use at first sex ( $n = 2768$ ).

	First sexual intercourse before age 17 years and contraception used ( $n = 397$ )		First sexual intercourse aged 17 years or older and contraception not used ( $n = 430$ )		First sexual intercourse aged 17 years or older and contraception used ( $n = 1760$ )	
	RRR (95% CI)	SE	RRR (95% CI)	SE	RRR (95% CI)	SE
<i>Model 1</i>						
Did not receive any school sex education	1.00		1.00		1.00	
Received school sex education	2.33 (1.69–3.29)*	0.18	0.89 (0.64–1.24)	0.17	2.23 (1.67–2.99)*	0.15
<i>Model 2</i>						
Receipt of sex education						
Did not receive school sex education	1.00					
Received school sex education	1.62 (1.13–2.33)*	0.19	0.98 (0.70–1.39)	0.18	1.77 (1.29–2.42)*	0.16
Gender						
Women	1.00					
Men	0.68 (0.47–0.98)*	0.19	0.50 (0.35–0.71)*	0.18	0.42 (0.31–0.58)*	0.17
Social class						
SC 1–2	1.00					
SC 3–4	1.22 (0.78–1.91)	0.23	1.40 (0.91–2.16)	0.17	1.10 (0.75–1.63)	0.20
SC 5–6	0.88 (0.50–1.56)	0.29	0.88 (0.51–1.54)	0.26	0.60 (0.36–0.97)*	0.25
SC 7	1.00 (0.61–1.65)	0.25	0.97 (0.59–1.59)	0.25	0.60 (0.38–0.92)*	0.22
Age						
36–45 years	1.00					
26–35 years	2.32 (1.49–3.61)*	0.31	0.49 (0.33–0.74)*	0.21	1.20 (0.83–1.73)	0.27
18–25 years	4.09 (2.24–7.45)*	0.23	0.22 (0.12–0.42)*	0.33	1.02 (0.60–1.72)	0.19
Relationship status						
Married	1.00					
Single	0.98 (0.61–1.57)	0.24	0.99 (0.63–1.57)	0.21	1.26 (0.83–1.89)	0.21
Cohabiting	1.14 (0.64–2.01)	0.29	0.77 (0.43–1.39)	0.25	0.86 (0.51–1.44)	0.26
Separated/divorced/widowed	0.73 (0.33–1.65)	0.41	0.49 (0.24–0.99)*	0.31	0.37 (0.19–0.73)*	0.35
Education						
Leaving Certificate or higher	1.00					
Pre-Leaving Certificate	0.56 (0.38–0.82)*	0.20	0.36 (0.25–0.53)*	0.19	0.23 (0.16–0.32)*	0.17
Religiosity						
Religion not important	1.00					
Religion important	0.91 (0.64–1.12)	0.18	1.31 (0.93–1.85)	0.18	1.33 (0.98–1.80)	0.16

Notes: Reference group: respondents who had sex before age 17 years and did not use contraception ( $n = 181$ ). RRR, relative risk ratio. \*Indicates significance at the 0.05 level.

age (RRR = 1.62,  $p < 0.05$ ). Sex education was also a significant predictor of both older age at first sex and contraception use on this occasion (RRR = 1.77,  $p < 0.05$ ). In addition, men were less likely than women to report contraception use when first sex occurred at a younger age (RRR = 0.68,  $p < 0.05$ ); to have first sex at an older age and not use contraception (RRR = 0.50,  $p < 0.05$ ); and to have first sex at an older age and use contraception (RRR = 0.42,  $p < 0.05$ ). Respondents in lower social classes were less likely than respondents in the highest social classes to have sex at an older age and use contraception on this occasion (SC 5–6: RRR = 0.60,  $p < 0.05$ ; SC 7: RRR = 0.60,  $p < 0.05$ ). Younger respondents (18–35 years) were more likely than older respondents (36–45 years) to use contraception when they had sex before 17 years of age (18–25 years: RRR = 4.09,  $p < 0.05$ ; 26–35 years: RRR = 2.32,  $p < 0.05$ ). Younger respondents (18–35 years) were also less likely than older respondents (36–45 years) to be over 17 when they had first sex and not use contraception at this time (18–25 years: RRR = 0.22,  $p < 0.05$ ; 26–35 years: RRR = 0.49,  $p < 0.05$ ). Respondents who were widowed, separated or divorced were less likely than married respondents to have sex at an older age and not use contraception (RRR = 0.49,  $p < 0.05$ ) and to have sex at an older age and use contraception (RRR = 0.37,  $p < 0.05$ ). Respondents with pre-Leaving Certificate educational attainment were less likely than those who had Leaving Certificate education or higher to report contraception use when first sex occurred at a younger age (RRR = 0.56,  $p < 0.05$ ); to have first sex at an older age and not use contraception (RRR = 0.36,  $p < 0.05$ ); and to have first sex at an older age and use contraception (RRR = 0.23,  $p < 0.05$ ).

Three logistic regression analyses were conducted to investigate the association between receiving sex education at school and sexual health outcomes in adulthood, specifically a history of STI testing, contraceptive use in the past year and the experience of a crisis pregnancy. Table 3 presents each regression analysis controlled for gender, social class, age, relationship status, education and religiosity. Respondents who received sex education at school were more likely to have a history of STI testing (OR = 1.31, 95% CI = 1.08–1.61) and less likely to have experienced a crisis pregnancy (OR = 0.70, 95% CI = 0.55–0.87). There was no association found between receiving sex education and use of contraception over the past year. Men were less likely to have a history of STI testing (OR = 0.63, 95% CI = 0.52–0.76) or have experienced a crisis pregnancy (OR = 0.35, 95% CI = 0.28–0.45). There were no gender differences in the likelihood of using contraception over the past year. There were no social class effects found for the experience of a crisis pregnancy. Respondents aged 26–35 years were more likely (OR = 1.42, 95% CI = 1.12–1.79) to have a history of STI testing compared with older respondents (36–45 years), whereas the youngest group of respondents (18–25 years) were less likely to have a history of STI testing (OR = 0.68, 95% CI = 0.50–0.92) compared with the older age group (36–45 years). Younger respondents were also more likely than older respondents (36–45 years) to report contraception use over the past year (26–35 years: OR = 1.81, 95% CI = 1.19–2.74; 18–25 years: OR = 4.18, 95% CI = 1.73–10.12). Younger respondents (18–25 years) were also less likely to have experienced a crisis pregnancy (OR = 0.52, 95% CI = 0.34–0.80). Respondents who reported that religion was important to them were less likely to report a history of STI testing (OR = 0.64, 95% CI = 0.53–0.77) or have experienced a crisis pregnancy (OR = 0.73, 95% CI = 0.58–0.92) compared with those who reported that religion was neutral or not important to them. There was no religiosity effect found for contraception use over the past year. As indicated in Table 3, there were social class effects found for history of STI testing and contraception over the past year; relationship effects found for all three sexual health outcomes; and level of education effects found for the experience of a crisis pregnancy.

Table 3. Weighted logistic regression analysis explaining the association between receipt of school sex education and sexual health behaviours in adulthood: history of STI testing; contraception use over the past year; and experience of a crisis pregnancy.

	History of STI testing		Contraception use over the past year		Experience of a crisis pregnancy	
	OR (95% CI)	SE	OR (95% CI)	SE	OR (95% CI)	SE
Did not receive school sex education	1.00					
Received school sex education	1.31 (1.08–1.61)*	0.10	1.09 (0.76–1.57)	0.18	0.70 (0.55–0.87)*	0.12
Gender						
Women	1.00					
Men	0.63 (0.52–0.76)*	0.10	0.87 (0.61–1.24)	0.18	0.35 (0.28–0.45)*	0.12
Social class						
SC 1–2	1.00					
SC 3–4	0.65 (0.53–0.81)*	0.11	0.62 (0.40–0.94)*	0.21	1.16 (0.88–1.52)	0.14
SC 5–6	0.57 (0.41–0.79)*	0.17	0.63 (0.35–1.15)	0.30	1.29 (0.88–1.88)	0.19
SC 7	0.72 (0.55–0.94)*	0.14	0.65 (0.37–1.15)	0.29	1.38 (0.98–1.93)	0.17
Age						
36–45 years	1.00					
26–35 years	1.42 (1.12–1.79)*	0.12	1.81 (1.19–2.74)*	0.21	0.98 (0.76–1.27)	0.13
18–25 years	0.68 (0.50–0.92)*	0.16	4.18 (1.73–10.12)*	0.45	0.52 (0.34–0.80)*	0.22
Relationship status						
Married	1.00					
Single	2.62 (2.06–3.33)*	0.12	2.74 (1.55–4.84)*	0.29	0.62 (0.46–0.84)*	0.16
Cohabiting	1.36 (0.98–1.89)	0.29	2.26 (1.12–4.56)*	0.36	0.99 (0.67–1.44)	0.19
Separated/divorced/widowed	3.33 (2.01–5.40)*	0.25	4.79 (1.01–22.87)*	0.80	2.12 (1.29–3.46)*	0.25
Education						
Leaving Certificate or higher	1.00					
Pre-Leaving Certificate	0.93 (0.72–1.20)	0.13	0.92 (0.60–1.42)	0.22	1.46 (1.10–1.94)*	0.14
Religiosity						
Religion not important	1.00					
Religion important	0.64 (0.53–0.77)*	0.10	0.98 (0.68–1.40)	0.18	0.73 (0.58–0.92)*	0.12

Notes: OR, odds ratio; 95% CI, 95% confidence interval.

\*Indicates significance at the 0.05 level.

## Discussion

This unique study extends the body of research which investigates the role of sex education on early sexual health behaviours and, more importantly, beyond the experience of first sex into adulthood, using a nationally representative sample. The findings indicate that receiving sex education in school may act as a protective factor against some negative sexual health practices, both on the occasion of first sex and later in life. Receiving sex education significantly increased the likelihood of using contraception at first sex, when first sex occurred before the age of 17 years. This supports the notion that sex education may be of particular importance for vulnerable subgroups that are at risk for early first sex (Mueller, Gavin, and Kulkarni 2008). However, these formal sex education programmes should go beyond school, perhaps through community-based youth services, as early school leavers may already be at risk for negative sexual health behaviours and they also miss out on the protective effect of school-based sex education. The results also indicate that those respondents who received sex education, compared with those who did not, were more likely to have first sex at an older age and use contraception on this occasion. Furthermore, younger respondents were found to be more than twice as likely to report contraception use when they had first sex at a young age. This may indicate that although the younger cohort may have sex at a young age, they are using contraceptives when doing so. However, as we do not know the type of contraception used at this time, it is not clear whether respondents were using contraception to protect against pregnancies only or whether they were using contraception to protect against both pregnancy and STIs and HIV. In addition, men were more likely to report being in the riskiest category of having sex at a younger age and not using contraception on this occasion.

Receiving school-based sex education while growing up also had a positive effect on some sexual health behaviours in adulthood, specifically STI testing and crisis pregnancy, but it was found to have no effect on the use of contraception over the past year. Respondents who received sex education at school were more likely to have a history of STI testing and were less likely to have experienced a crisis pregnancy.

In relation to socio-demographic variables, men were less likely to report attending for an STI test or experiencing a crisis pregnancy. There was a strong age effect found for contraception used in the last year, such that younger respondents were over four times more likely to have used contraception in the last year compared with older respondents, suggesting that younger cohorts are making more positive sexual health choices than older cohorts. Younger respondents (18–35 years) were also less likely to report the non-use of contraceptives when first sex occurred at a young age, compared with older respondents (36–45 years). Younger respondents were also found to be less likely to have a history of STI testing or to have experienced a crisis pregnancy. This age effect is likely due to the shortened exposure period to risky sexual health behaviours for younger respondents. Similar to previous findings, religiosity was associated with having first sex at an older age, but was not associated with contraception use, either in the recent past or at the time of first sex. This may indicate that religion does not appear to play a role in individuals' choices about their contraception use. This supports the notion that the influence of religion in Irish society is in decline (Nic Ghiolla Phádraig 2009) and religion may have a weaker influence on the contraception choices of younger people than it had on previous generations. Religiosity was, however, related to a decreased likelihood of having attended for STI testing or having experienced a crisis pregnancy. The results also found that sex education in schools has a positive influence on sexual health outcomes, including

contraception use at the time of first sex, which may indicate that the education provided in Irish schools is less influenced by the religious ethos of the schools than expected. Furthermore, a considerable proportion of respondents rated their education as helpful (61%). The findings also suggest that the level of education is associated with sexual health behaviours. Those respondents who had pre-Leaving Certificate education were more likely to be in the most at-risk group in terms of first sex, that is, they were more likely to have sex before 17 years of age and they were less likely to use contraception on this occasion. This supports previous findings from Ireland, where early school leavers were found to be vulnerable to sexual risk-taking behaviour (Mayock and Byrne 2004). Overall these results would suggest that while some socio-demographic groups may be at risk of some risky sexual health behaviours, these factors generally depend on the specific sexual health variable under consideration.

Several study limitations should be noted. Given the cross-sectional nature of the data, it is not known whether sex education preceded first sex or vice versa. Respondents were asked whether they received sex education ‘while growing up’ and were not asked to specify their age when they received sex education. Furthermore, although contraception use at first sex was investigated, there are no data available on the type of contraception used. Despite these limitations, this study has a number of notable strengths, including a large nationally representative sample, a novel dual landline and mobile telephone recruitment strategy and a high response rate (McBride, Morgan, and McGee 2012b). Finally, this is a unique contribution to the literature as it investigates not only the relationship between sex education and the context of first sex, but also sexual health behaviours in adulthood.

In conclusion, sex education has a positive influence on the context of first sex, specifically the use of contraception, but appears to have no effect on the age at which this occurs. However, when first sex does occur at an early age, sex education increases the likelihood of contraception use for this vulnerable group. Thus, those at risk for early first sex should be a particular target for sex education. Furthermore, as sex education also has a protective influence for some sexual health behaviours later in life, sex education programmes should continue to equip young people as they make immediate sexual behaviour decisions and further sexual health-related decisions throughout their lifespan.

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