Original Research

School-based sex education is associated with reduced risky sexual behaviour and sexually transmitted infections in young adults

R. Vivancos [a,b,*], I. Abubakar [c], P. Phillips-Howard [d], P.R. Hunter [e]

[a] Cheshire and Merseyside Health Protection Unit, Health Protection Agency, Liverpool, UK
[b] School of Translational Medicine, University of Manchester, Manchester, UK
[c] Research Department of Infection and Population Health, University College London, London, UK
[d] Liverpool School of Tropical Medicine, Liverpool, UK
[e] School of Medicine, Health Policy and Practice, University of East Anglia, Norwich, UK

ARTICLE INFO

SUMMARY

Objective: To quantify the effectiveness of school-based sexual education on risky sexual behaviour and sexually transmitted infection (STI) acquisition in adulthood.

Study design: Online survey of sexual attitudes and behaviours.

Methods: Students at a British university were surveyed regarding where they learnt most about sex at 14 years of age, how easy they found talking about sexual issues with their parents and age at first intercourse. The effects of these factors were modelled on risk of recent unprotected intercourse and self-reported STIs in adulthood.

Results: Seventy-eight of 711 (11%) students reported unprotected intercourse in the 4 weeks before the survey, and 44 (6.2%) students had ever been diagnosed with an STI. Both age at first intercourse (risk reduced by 11% per year of delayed intercourse, 95% confidence interval (CI) 3–19%) and learning about sex from lessons at school (66% reduction in risk compared with learning from one's mother, 95% CI 5–88%) were associated with reductions in risk of unprotected intercourse. Factors associated with fewer STIs were age at first intercourse (17% reduction per year of delayed intercourse, 95% CI 5–28%); and learning about sex from lessons at school (85% reduction, 95% CI 32–97%), from friends of the same age (54% reduction, CI 7–77%) and from first boy/girlfriend (85% reduction, 95% CI 35–97%) compared with learning from one's mother.

Conclusion: School-based sexual education is effective at reducing the risk of unprotected intercourse and STIs in early adulthood. Influence from friends in adolescence may also have a positive effect on the risk of STIs in later life.

* Corresponding author. Cheshire & Merseyside Health Protection Unit, 5th Floor, Rail House, Lord Nelson Street, Liverpool L1 1JF, UK. Tel.: +44 (0) 1512908360.
E-mail addresses: r.vivancos@doctors.org.uk, roberto.vivancos@hpa.org.uk (R. Vivancos).

Introduction

School-based sex education is a contentious subject. It is generally regarded as effective in increasing knowledge, although debate exists with regard to whether interventions in the school may have an impact on increasing sexual activity.[1] The proposed statutory nesting of sex and relationships education within personal social health and economic education furthers this aim.[2] Generally, these interventions have parental support once the content of the curriculum is understood,[2] and it is accepted that they are effective at changing sexual behaviour at least in the short term.[3] However, evidence is lacking regarding the effectiveness of these interventions in terms of long-term outcomes, such as teenage pregnancy,[4] sexual behaviour in adulthood and impact on the transmission of sexually transmitted infections (STIs).

The present analysis of a survey of sexual attitudes and behaviours of students at a British university aimed to explore the influence of different ways of learning about sex in adolescence on risky sexual behaviour and risk of STIs in early adulthood.

Methods

In 2006, a web-based survey of university students' sexual attitudes and behaviours was conducted, and the results have been published elsewhere.[5,6] An email was sent to all students registered for undergraduate studies at the University of East Anglia, Norwich, UK inviting them to participate in the survey. A maximum of three emails were sent one week apart as reminders. In the online questionnaire, students were asked questions about drug and alcohol use, current sexual behaviour and self-reported history of STIs. In addition, students were asked who they had learnt most about sex from when they were 14 years old. Students were also asked their age at first sexual intercourse.

This study examined the effect of how people learn about sex, the ease of discussing sex with one's parents, and age at first intercourse on sexual risk outcomes [measured in this study as 'unprotected intercourse in the past 4 weeks' and 'diagnosis of an STI' in young adults (i.e. 18–29 years) who have sex with partners of the opposite sex]. As such, students aged ≥30 years and students who have only had sex with same-sex partners were excluded from the analysis.

The proportions of students who had unprotected intercourse and those who reported an STI diagnosis were calculated based on where they learnt about sex and how easy they found it to talk about sex with their parents. Average age at first intercourse was also calculated. To compare the risk, odds ratios (OR) were estimated using logistic regression, and 95% confidence intervals (CI) were generated. Significance was assumed at the 95% level ($P < 0.05$). These factors were included in a multivariable logistic regression model to ascertain which were independently associated with unprotected intercourse and STIs in young adults, therefore calculating adjusted odds ratios. The analysis was repeated separately for female and male students. All analyses were performed using STATA Version 10 (STATA – StataCorp LP, College Station, Texas, USA).

Results

Of the 827 students who completed the survey, 90 (10.9%) were excluded because they were aged ≥30 years, and another 26 (3.1%) were excluded because they had only had same-sex partners. Of the remaining 711 respondents, 492 (69.2%) were female. The median age for both female and male students was 21 years, with 27% aged ≤20 years, 61% aged 20–24 years and 12% aged 25–29 years. The median age at first intercourse was 17 years, with no significant differences between males and females. Seventy-eight students (11%, no significant difference between males and females, $P = 0.974$) reported unprotected intercourse in the 4 weeks before the survey, and 44 students (6.2%) reported that they had ever been diagnosed with an STI; the rate was significantly higher in male students (males 1.38% vs females 8.33%; $P < 0.001$).

Recent unprotected intercourse was independently associated with younger age at first intercourse (11% reduction per year of delayed intercourse, 95% CI 3–19%) and learning about sex from lessons at school (66% reduction compared with learning from one's mother, 95% CI 5–88%).

Equally, an STI diagnosis was independently associated with younger age at first intercourse (17% reduction per year of delayed intercourse, 95% CI 5–28%); and learning about sex from lessons at school (85% reduction, 95% CI 32–97%), from friends of the same age (54% reduction, 95% CI 7–77%) and from first boy/girlfriend (85% reduction, 95% CI 35–97%) compared with learning from one's mother.

When both sexes were analysed separately (data not shown), the likelihood of an STI diagnosis for female students was associated with younger age at first intercourse (27% reduction, 95% CI 10.9–61.4%) and finding it difficult to discuss sex with one's parents (150% increased risk, 95% CI 100–600%). No significant associations were found with unprotected intercourse in females, although age of first intercourse was close to being significantly associated with unprotected intercourse (9.6% reduction per year of delayed intercourse, 95% CI 21.1% reduction to 3% increase).

For male students, unprotected intercourse was associated with younger age of first intercourse (27.6% reduction per year of delayed intercourse, 95% CI 9.3–42.1%). It was not possible to calculate a multivariable logistic regression model for STIs for male students alone.

Discussion

This survey of university students suggests that exposure to school-based sex education as an adolescent reduces risky sexual behaviour and STIs in sexually active young adults. Younger age at first intercourse was also independently associated with unprotected intercourse and self-reported STIs in this group of young adults. This study found that delayed age of first intercourse was key to lower risk of unprotected intercourse or STIs for both male and female students, while an important factor in determining risk of STIs for females was