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Abstract

Background: This study investigates how the sexual health outcomes of a representative sample of students aged 15-16 in Wales vary according to the person delivering Sex and Relationships Education (SRE) in schools, students' access to on-site sexual health services, and access to free condoms.

Methods: Cross-sectional, self-report survey data were collected from students who participated in the 2015/16 School Health Research Network (SHRN) questionnaire in Wales. Data were analysed from 59 schools, totalling 3,781 students aged 15-16 ($M=15.7$; $SD=0.3$) who responded to questions about ever having had sex; age of sexual initiation and condom use at last intercourse. School level data were also collected, examining who delivers school SRE, provision of on-site, school 'drop-in' sexual health services and provision of free condoms for students. Binary and linear multi-level analyses explored the relationship between school level predictors and sexual health outcomes.

Results: Compared to teachers, other modes of SRE delivery were associated with better sexual health outcomes, including remaining sexually inactive, later age of first intercourse, and condom use. Providing on-site sexual health services did not significantly reduce the odds of having ever had sex or delaying first intercourse; but was associated with increased condom use. On-site condom provision was associated with lower condom use.

Conclusion: SRE delivery by educators other than teachers is optimum to young people's sexual health outcomes. Further funding and coordination of on-site sexual health advice services is required. Longitudinal research is needed to identify the temporal sequence of sexual health practices and outcomes.

Keywords: sex and relationship education, condom, sexual health service, adolescent, sexual behaviour

Abbreviations:

FSM - Free school meals

SHRN - School Health Research Network
SEQ - School Environment Questionnaire
BME - Black and Minority ethnic Groups
FAS - Family Affluence Scale
SRE - Sex and Relationship Education

Word count: approx. 3151

Introduction

Adolescence is a critical period for establishing norms around sexual activity.¹ Early sexual initiation, inconsistent condom use and multiple sexual partners are recognised risk factors of Sexually Transmitted Infection (STI) transmission and unplanned pregnancy.^{2, 3} In the UK, many young people leave compulsory education having engaged in sexual intercourse and risky sexual behaviour.^{4, 5} The costs to the UK health service and wider public services has meant that promoting safe, healthy, positive sexual behaviour is a major public health priority for UK governments,⁶⁻⁹ the National Institute of Health and Clinical Excellence,^{10,11} and other European¹² and developed countries.^{1, 4, 13}

Schools play an important role in the sexual health and wellbeing of students, primarily via Sex and Relationship Education (SRE).^{14, 15} Nationally representative UK research associates SRE with better sexual health outcomes.¹⁶ The World Health Organization,¹⁷ and European Sexual Health Policies¹⁸ link SRE with improved uptake of contraception and a reduction in under 18 pregnancies, abortions and STIs. Delivering SRE in a modular way during dedicated curriculum time by specialist, trained, confident educators is perceived to meet learners' needs.⁶

The most recent British National Survey of Sexual Attitudes and Lifestyles (Natsal-3) found that students who received SRE in school, compared to out of school, reported better sexual health outcomes, including remaining sexually inactive, later age of first sexual intercourse, and condom use.¹⁵ A meta-ethnography of 55 articles (including 25 from the UK) reported that students consistently disliked their teachers delivering SRE due to blurred boundaries, lack of anonymity, embarrassment and poor training.²⁰

Student dislike of teacher delivery has been linked to the desexualised student-teacher relationships²¹ and power imbalance.^{22, 23} Teachers also report difficulty or 'discomfort' discussing sexual issues.^{21,24} Delivery by teachers may also contribute to difficulty maintaining ethical teacher-student boundaries.²⁵ Hence, delivery by a specialist SRE teacher may in part be more effective due to the improved pedagogical content of SRE. However, it may be the case that delivery by someone other than a classroom teacher alters the dynamic in ways which make young people more receptive to SRE.

Despite the mandatory or statutory status of SRE in most European Union Member States, there is inconsistency between and within countries in the quality and quantity of delivery.¹² In many European countries, including Wales, schools vary in the approach, length and scope of SRE programmes.^{12,19} For example, condom provision in schools varies but there are few studies to date examining the associations between free condom provision and other sexual health services on school sites and student health outcomes.²⁶

Increasing contraceptive availability has been identified as a key factor to improving sexual health outcomes and preventing teenage conceptions.^{14, 27, 28} Provision of contraception on school grounds is recommended within current NICE guidelines.^{11, 12} Dispensing contraceptives on school sites increases uptake of contraceptives.²⁹⁻³¹ Some evidence from North American studies suggests that school-based health centres are most effective when contraception provision is on site, as part of a comprehensive sexual health programme³⁰⁻³³ or as a condom only availability programme.²⁹

At present there is limited evidence quantifying how sexual health outcomes vary in relation to the person delivering SRE, and how the dispensation of on-site condoms affects young people's sexual health outcomes. This paper presents analysis of data from the 2015 School Health Research Network survey in Wales. It addresses the following research questions:

1. Is the delivery of sexual health and relationships education by someone other than teachers associated with better sexual health outcomes for young people aged 15-16 years?;

2. Is the provision of on-site sexual health services associated with better sexual health outcomes for young people aged 15-16 years?;
3. Is the provision of free condoms associated with better sexual health outcomes for young people aged 15-16 years?

Methods

Study design and recruitment

Data were from the 2015 School Health Research Network (SHRN) Student Health and Wellbeing (SHW) survey. SHRN is a multiagency partnership led by the Centre for the Development and Evaluation of Complex Interventions for Public Health Improvement (DECIPHer) at Cardiff University; with Welsh Government, Public Health Wales, Cancer Research UK and as of December 2015, 113 secondary schools. At the time of the 2015 survey, network schools represented all local authority areas and included 53% of all secondary schools in Wales. Schools joined the Network in three ways. First, those participating in the Welsh Health Behaviour in School-aged Children (HBSC) survey in 2013/2014 were invited, of which 60 out of 82 joined. Second, nine schools in South Wales recruited to an HBSC sub-study to pilot data linkage methods joined and third, 44 schools joined in 2015 during a period of open recruitment.

The SHW survey was an online, closed response, self-completion survey, available in English and Welsh. It monitors health behaviours among school students aged 11-16 years, and includes questions from the 2013/2014 Welsh HBSC survey with additional questions reflecting current policy, practice and research priorities in Wales. All network schools (n=113) were invited to participate in the 2015 SHW survey between September-December. Schools could opt-out of the sexual health related questions, which were limited to Year 11 pupils (i.e., those aged 15-16 years). A total of 87 member schools (77%) participated, although in eight schools, no Year 11 pupils completed the survey. Schools could opt-out of more sensitive items, such as those on sexual health, and of the 79 schools where Year 11 pupils completed the survey; sexual health questions were completed in 62 schools. All network schools were invited to complete a survey about the school environment (SEQ) in early 2016. The SEQ was completed by a member of senior management and asks about a range of school level policies and practices around student well-being and health. A total of 100 schools completed the SEQ. Data for both pupil sexual health behaviours and the school environment were collected from 59 schools (67.8%) and were included in the analysis. The 59 schools included within the analysis were representative of all schools in Wales based on school size, number achieving Key Stage 3 and Key Stage 4, and the proportion

in receipt of Free School Meals (FSM). Based on month and year of birth, approximately 22 students (0.4%) were aged 17 at the time of the survey, likely because they have repeated a school year, and are therefore included in the analysis.

Measures

Socio-demographic characteristics

Students indicated their sex, year and month of birth. To measure family socioeconomic status (SES), young people completed the Family Affluence Scale (FAS).³⁴ This measure is the sum of six survey items related to bedroom occupancy, car, computer and dishwasher ownership, family holidays, and number of bathrooms in the household. Ethnicity was asked using the following self-report categories: White; Mixed Race; Asian or Asian British; Black or Black British; Chinese; or Other, and collapsed into a binary 'White' and 'Black, Minority and Ethnic (BME)' variable. Students were asked who they lived with, with options of mother, father, step mother, stepfather, foster mother, foster father, or other. Free School Meal (FSM) status of each school, (i.e. the proportion of young people that are eligible for FSM), was used to provide an indication of school-level socioeconomic status. Free school meals are offered in Wales to pupils whose parents receive state benefits, including Child Tax Credit. These data were obtained from official government websites.

Sexual health outcomes

Three sexual health outcomes were used. Respondents were asked if they had ever had sexual intercourse with response options of either yes (1) or no (0). Young people who reported ever having had sex were asked about their age of first sexual intercourse and condom use. Age of first sexual intercourse was measured using the question: 'how old were you when you had sexual intercourse for the first time?'. Respondents answered in single year ages ranging from '11 years or younger' up to '18 years or older'. 'I don't want to answer' responses, as well as missing values were excluded from analyses. Condom use was assessed using the question 'the last time you had sexual intercourse, did you or your partner use a condom?'. A binary variable indicated those who responded 'yes' (1), and those who responded 'no' or 'I don't know.'

School Environment Questionnaire (SEQ)

School-level variables were collected from the SEQ. They examined; (1) the delivery mode of SRE by asking 'Who has the main responsibility for teaching sex and relationships (SRE) education?' Response options included 'any classroom teacher,' 'RE teachers', (Religious Education) 'Science teachers' 'form tutors,' (registration teachers) 'specialist SRE/health education teachers,' 'school nurse,' 'outside agencies,' or 'other' (the first four options were combined to form the category 'teachers'); (2) Provision of on-site sexual health services by asking 'Does your school have an on-site 'drop-in' service specifically for sexual health advice?'. Response options were 'yes' and 'no'; (3) Provision of free condoms was measured by asking 'Does your school have on-site provision of free condoms for school students?'. Response options included 'yes' and 'no'.

Statistical analyses

Analyses were undertaken in Stata (V.14.0). Data were analysed using binary (ever had sex and condom use) and linear (age of first intercourse) multi-level analysis (MLA) with a two-level structure (pupils nested within schools). First, null models were run for each outcome, including school as a random effect. For step 1, individual level binary logistic regression models were run for two of the three outcome variables (having ever had sex and condom use), entering gender, age, BME, FAS and family structure as fixed effects to account for compositional differences between schools. An individual level general linear model (GLM) regression was run for age of first sexual intercourse. For step 2, the four school-level predictors were added to each of the models. In the first instance, school level variables were entered individually, followed by entering the school level variables together in the final model. This final model is presented in Table 2. Odds ratios, coefficients, and the intraclass correlation (ICC), are provided for each model in Table 2. ICCs are presented for null models and all subsequent models.

Research ethics and consent

Ethical approval was granted by Cardiff University School of Social Sciences Research Ethics Committee. Schools returned a registration form indicating their intention to participate in the study. Schools informed parents about the survey using two of three methods (letters sent home with students or via email, and a text message notification about the letter) and parents had the option of withdrawing their child from data

collection ('opt-out' consent procedure). The survey was voluntary and completed anonymously. The first question asked students for their consent to participate and if they said no, the survey automatically closed. Schools were provided with information and slides to share with students in advance of the survey.

Results

Sample characteristics

School- and individual-level data were available for 3,781 students aged 15-16 ($M=15.7$; $SD=0.3$) within 59 schools. Mean FSM entitlement was 16.7% within these 59 schools (national average 17.8%). There were no significant demographic differences between schools that did or did not complete the sexual health questions from the SEQ. Descriptive statistics are presented in Table 1.

Ever had sex

SRE delivery mode was strongly associated with having ever had sex. When compared to delivery from a teacher, the odds of having sex decreased for all other forms of delivery, particularly when delivered by a school nurse and specialist SRE/health education teachers. After entering school-level variables, the ICC decreased from 5.2% to 2.9%, suggesting that school level variables accounted for almost half of the variability between schools in students having ever had sex. Notably, in comparison to the impact of SRE delivery mode, the association of FSM and on-site condom provision with experience of sexual intercourse was marginal.

Age of first sex

Students at schools that provided condoms were more likely to have sex at a later age. There was a positive association between later age of first sex and SRE delivery mode, including when SRE was delivered by specialist SRE or health education teachers and school nurses. After level two variables were added to the model, the ICC dropped from 2.4% to 0.3%, suggesting that FSM, SRE delivery mode and the provision of on-site condoms explained the majority of school level variability in the age of first sexual intercourse.

Condom use

Students from schools with on-site condom provision were less likely to use condoms; however, an on-site sexual health service increased the odds of using condoms by 42%. SRE delivery mode was again significantly associated with condom use, with students more likely to use condoms if SRE was delivered by specialist SRE or health education teachers, a school nurse, or an outside agency. After entering school level variables, the

ICC dropped from 2.4% to 0%, thus, school level variables accounted for all of the variability in condom use between schools.

Discussion

This study explored how sexual health outcomes (sexual intercourse, age of first intercourse and condom use at last intercourse) vary according to Sex and Relationships Education (SRE) delivery in schools, students' access to on-site sexual health services, and free condom provision. When compared to teachers, other modes of delivery of SRE were associated with better sexual health outcomes among school students aged 15-16, including remaining sexually inactive, later age of first sexual intercourse, and condom use. Providing an on-site sexual health service was not significantly associated with the odds of having ever had sex or later sexual initiation; it was however associated with increased condom use. Conversely, students from schools with on-site condom provision were less likely to use condoms.

Growing qualitative evidence suggests that both students and staff prefer SRE delivery by staff other than teachers in the school.²⁰⁻²⁵ This paper is the first to quantitatively test the hypothesis that SRE delivery by someone other than a teacher may produce better outcomes. While sexual health outcomes were better where SRE was delivered by specialist SRE teachers in comparison to other teachers, delivery by anyone other than a teacher was associated with better sexual health outcomes. Hence, it is perhaps plausible that the increased effectiveness of SRE when delivered by someone other than a teacher is a consequence of changing the classroom dynamic; delivery by someone without the pre-existing student-teacher relationship, rather than necessarily via expertise in SRE.

Although provision of an on-site sexual health advice service did not significantly reduce the odds of having ever had sex or delay the age of sexual intercourse; it was associated with increased condom use. It is not known what level of provision (for example, sexual health advice, contraception or STI testing) was available at these services. However providing accessible, youth-friendly sexual health advice may help combat problems typically associated with young people's sexual health such as lack of contraceptive knowledge,³⁵ negotiating contraception,³⁶ pressure to engage in unprotected sex³⁷ and misperceived risk of pregnancy³⁷.

Previous studies indicate that school based health centres appear to be most effective when contraception provision is made available on-site, either as a more comprehensive sexual health programme³⁰⁻³³ or as a condom availability programme.²⁹ Our results showed that students from schools with on-site condom provision were however less likely to use condoms. One of the main reasons young people explain non-condom use is embarrassment accessing condoms along with concerns about confidentiality or being seen.^{37,38} The location of the condom services on-site in this study is not known. If condom provision is not within a discreet, anonymous or confidential location, this may impact on the number of students who engage with the condom provision service and potentially impact their use of condoms. The findings may also be a product of reverse causality; schools may have implemented sexual health services and condom provision as a result of poor sexual health within that school. One explanation for differential condom use in schools may relate to young people accessing sexual health advice and contraceptive services in places besides schools. For example, in Wales young people can access free condoms at most General Practitioner (GP) surgeries, sexual health clinics and some young people's services. Differential availability, access and acceptability of these services may subsequently impact their use of on-site school services.

Similarly, measurements are based on current teaching practice. It is not known who was delivering SRE prior to sexual initiation. Longitudinal data is required to identify the temporal nature of these events. Qualitative research is required to explore why young people are not accessing on-site condom services at schools. Further research is also required with schools to evaluate the impact of accessibility and anonymity of condom provision, and further work is required within schools to ensure sexual health services are young person friendly, and are accompanied by a sex-positive school ethos.

Limitations

The cross-sectional design of this study means that causality cannot be established. The questionnaire asked about the person who delivered SRE in schools, however no data were collected on the content of the SRE sessions, or the timetable it receives, which are likely to be important factors relating to sexual health outcomes. Completion of the questionnaire required self-report data about sexual behaviours. While every effort was

made to ensure that participants completed questionnaires anonymously, individually and confidentially, the limits of collecting self-report data on sensitive topics are well documented.³⁹

Implications for policy and practice

Making SRE a statutory part of the curriculum and ensuring comprehensive, sex positive and key stage appropriate content is essential to improving young people's sexual behaviour and sexual health outcomes. However, even under these circumstances, the success of any SRE taught in schools may be largely dependent on the educator delivering the SRE programme. The delivery of SRE by specialist, trained professionals may be important in ensuring the optimum success and reducing negative sexual health outcomes. This research suggests that educators other than teachers are associated with positive sexual health outcomes, and supports existing systematic research which indicates that young people prefer non-teacher SRE delivery. The results appear consistent with feedback from students, and also with the hypothesis that an important aspect of SRE in schools is the classroom dynamic within these sessions. The findings suggest that although delivery of SRE by a specialist SRE teacher may in part be more effective due to the improved pedagogical content of SRE, asking someone other than a classroom teacher alters the classroom dynamic in ways which are likely to make young people more receptive to SRE. Ultimately it is important for schools to acknowledge that SRE is a special topic and it must be delivered in a way that makes students and educators feel safe. As outlined by Pound et al.,²⁰ without optimum SRE delivery, young people will continue to disengage and the opportunity for safeguarding and improving sexual health is diminished. The findings suggest the need to continue funding for, and coordination of on-site sexual health advice services in schools. It is also important to explore the barriers to young people's engagement with sexual health services on school sites, and work with schools to ensure that young people's access needs are met and that schools promote sex positive environments.

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Conflicts of interest: none declared

Key-points:

- The quality, quantity and mode of delivery of Sex and Relationships Education (SRE) varies across Wales, the UK and internationally
- A total of 12.5% of 15-16 year old students in Wales had engaged in sexual intercourse and 43.7% did not use a condom at last intercourse.
- Compared to teachers, other modes of SRE delivery were associated with better sexual health outcomes; remaining sexually inactive, later age of first sexual intercourse, and condom use.
- Providing an on-site sexual health service was associated with increased condom use, whereas on-site condom provision was associated with lower condom use.
- SRE delivery by specialist SRE educators is optimum in relation to young people's sexual health outcomes.

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