

## Peer-led sex education—characteristics of peer educators and their perceptions of the impact on them of participation in a peer education programme

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### Abstract

The RIPPLE study is a randomized controlled trial of peer-led sex education in English secondary schools. In 1997, 27 schools were recruited and randomly allocated to a programme of peer-led sex education or to act as control schools. In experimental schools peer educators in Year 12 (aged 16/17 years) were recruited in two successive cohorts and, having received a standardized training programme, delivered classroom-based sex education sessions to Year 9 students (aged 13/14 years). This paper is the first of two focusing on data gathered from these peer educators. Through analysis of pre- ( $n = 505$ ) and post- ( $n = 331$ ) programme questionnaire data, the paper describes the profile of peer educators and examines the impact on them of their involvement. Compared to the students receiving the peer-led sex education, more peer educators were female, white, high academic achievers and less socially disadvantaged. Peer educators reported positive changes in sexual knowledge and changes towards more liberal attitudes, and believed the programme would have a positive impact on their confidence in relationships and on their sexual behaviour. There was an increase in confidence about communication and interaction in groups. The paper discusses the methodological difficulties of

assessing how involvement in such a programme impacts on peer educators.

### Introduction

Peer education involves ‘...interaction between individuals with shared characteristics such as behaviour, experience, status or social and cultural backgrounds. Interaction within the group is based on equality’ (Charleston *et al.*, 1996). Peer-led interventions with young people are immensely varied, in terms of their subject focus, the particular peer-led methods adopted and the context in which intervention programmes are delivered. Government policy in the UK has recently recommended the peer-led approach for delivering sex education in schools (Social Exclusion Unit, 1999; DfEE, 2000). Peer-led programmes are popular with young peer educators, and professionals are enthusiastic about an approach that appears to offer accessible and relevant health information to young people in an exciting way (Svenson, 1998). However, despite the proliferation of peer-led projects and policy-level support, robust evidence of their effectiveness is limited (Harden *et al.*, 2001). Although evidence is claimed of the positive effects on the peer educators themselves (Phelps *et al.*, 1994; Newitt and Karp, 1995), there are methodological weaknesses in many studies reported to date (Harden *et al.*, 2001).

This is the first of two papers which presents data gathered from peer educators involved in RIPPLE, a Randomized Intervention of PuPil-Led sex Education. The study, funded by the Medical Research Council, is a randomized controlled trial of peer-led sex education in English secondary

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schools. Twenty-seven co-educational comprehensive secondary schools with attached sixth forms in central and southern England were recruited to the study in 1997, and randomly allocated to receive either a programme of peer-led sex education (in 14 schools) delivered by Year 12 students (aged 16/17 years) to two successive cohorts of students in Year 9 (aged 13/14 years) or to act as controls by continuing with their teacher-led provision (13 schools). The effectiveness of peer-led sex education in altering knowledge, attitudes, confidence and actual sexual behaviour of these Year 9 students is being assessed through questionnaires filled in by approximately 8000 young people 6 months and 2 years after the intervention, with a planned 5-year follow-up that will collect data on STDs and anonymized live birth and termination data. Initial findings relating to the short-term effectiveness of the programme will be available in summer 2002. A central element of the RIPPLE study is an extensive process evaluation which documents how the intervention is implemented in the schools supporting the peer-led programme and what sex education is provided by teachers in schools in the control arm of the trial (Strange *et al.*, 2001).

This paper discusses the characteristics of the young people who volunteered to become peer educators in the RIPPLE study and examines their perceptions of the effects of being involved in the programme. It has three aims:

- (1) To identify what kind of people became peer educators.
- (2) To examine the peer educators' perceptions of the effects on them of being involved in a peer-led programme.
- (3) To discuss the methodological difficulties of assessing how involvement in a peer education programme impacts on peer educators.

This first paper contributes to the evaluation literature on peer education by reporting on research that takes a systematic approach, which is missing from many existing studies, to collecting data from peer educators both before and after programme

delivery, and to assess the extent of *changes* in knowledge, attitude and behaviour.

A second paper, to be published in the next issue of *Health Education Research*, explores some of the issues identified by peer educators as important when implementing a peer education programme in schools. The two papers together provide a relatively comprehensive picture of the context in which the RIPPLE study was carried out, and the processes involved in the development and implementation of the peer education programme.

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## Methods

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In the 14 schools allocated to receive the peer-led programme, peer educators were recruited from two successive cohorts of students entering Year 12 (aged 16/17 years old). In each school, students in Year 12 were told about the programme during assembly and/or form time, including the time commitment that participation in peer-led sex education would involve. Those students who expressed an interest were asked to attend a meeting. In some cases, individuals were approached by teachers and encouraged to take part, and in a few others teachers deterred some students from taking part. In order for the impact of the intervention on the peer educators to be most reliably assessed, it would have been preferable to assign volunteers randomly either to receive peer educator training or to act as members of a control group; however, this was not feasible, since most sixth forms comprised too few students and it was difficult to secure an adequate number of volunteers.

Peer educators took part in a standardized training course (four 1-h meetings in school and a 2-day training workshop at a venue in the local community) developed and implemented by a team of experienced health promotion practitioners working separately from the research team. The training course involved the provision of information on a range of sexual health issues and the development of teaching/presentation skills. The package was developed using readily available and

widely used materials. Trainers adopted a highly interactive and participative approach, the aim being to increase peer educators' knowledge of relevant sexual health information, and to develop their classroom management and group facilitation skills. The peer educators, working in groups of two to four, delivered a minimum of three sex education sessions to Year 9 students on relationships, STDs and contraception. The aims of the RIPPLE study as a whole include improving knowledge and attitudes relating to sexual health issues, decreasing sexual risk-taking, reducing the incidence of STDs and unintended teenage pregnancy, and enhancing self-confidence and the quality of sexual relationships.

One of three researchers (two female and one male) worked with each of the schools supporting a peer-led programme. They observed and recorded all the training sessions with peer educators and a sample of the peer-delivered sessions. All Year 12 students volunteering to take part in the programme were asked to complete an anonymous questionnaire before their training and another after they had delivered the sessions. The pre-programme questionnaire asked for demographic information such as the peer educator's sex, parental occupation and housing tenure, plans for the future, and data relating to sexual knowledge, experience and attitudes. These latter questions were repeated in the post-programme questionnaire which also contained questions about the peer educators' views on the training programme and peer-led sessions, and their perceptions of the impact of these on their confidence and behaviour. Both questionnaires comprised a mixture of open response and true/false questions, and statements requiring responses on a Likert-type scale. The questionnaires were administered by researchers. It was anticipated that this would reduce any anxieties about the confidentiality of the information provided by peer educators that might have arisen had teachers supervised this process. Copies of the questionnaire were left for peer educators absent on the days on which these surveys took place.

The questionnaire data were analysed using the

Statistical Package for the Social Sciences (SPSS). McNemar's change tests were used to test for significant differences in the proportions of peer educators correctly answering sexual knowledge questions in the pre- and post-programme questionnaires;  $\chi^2$ -tests to test for significant differences between the proportions of female and male educators showing knowledge increase or decrease; Wilcoxon signed-rank tests to test for significant changes in mean scores on Likert scales measuring sexual attitudes and confidence in delivering sex education sessions; and Mann-Whitney *U*-tests for significant differences between female and male peer educators' on sexual attitudes, confidence in delivering sessions, and perceptions of programme impact. In Tables II, III and V, *P* values are indicated as \**P* < 0.05, \*\**P* < 0.01 and \*\*\**P* < 0.001. Comments supplied in response to open questions were analysed using a framework developed by two researchers who read all the comments and agreed a system of categorization arising from them.

One of the 14 schools assigned to the peer-led group did not deliver the programme at all; this was a school with an intake of mainly male Asian students, where the sixth form was predominantly female, and the young women were concerned both about the disruption to their academic work which might be caused by volunteering as peer educators and about delivering sex education lessons to classes made up predominantly of boys. In the other 13 schools, a total of 505 young people volunteered as peer educators and completed questionnaires prior to the training sessions. Approximately 463 people were involved in the delivery of sex education sessions and 331 of the 463 (71%) completed post-programme questionnaires. Some people were lost to follow-up because they withdrew from the programme after recruitment. In two schools in one cohort no post-programme questionnaires were completed. In one school this was because the session to complete the questions was organized on the last day of term when very few of the volunteers were available. In the second school there were too few peer educators to deliver all the peer-led sessions: some were replaced by

**Table I.** Characteristics of the peer educators who completed the baseline questionnaire in both cohorts (n = 505) as compared to the first cohort of Year 9 students (n = 2109) from the same schools

		Year 12 volunteers (aged 16/17 years)	Year 9 students (aged 13/14 years)
Sex	girls	330 (65%)	1089 (52%)
	boys	175 (35%)	1020 (48%)
Ethnicity	'White' <sup>a</sup>	478 (95%)	1851 (88%)
Housing tenure	rented (council/private)	54 (11%)	458 (22%)
Sexual behaviour	experience of sexual intercourse by aged 14 (Year 9/10)	43 (9%)	162 (9%)
Academic achievement	average GCSE points score	55.6	(38.3) <sup>b</sup>

<sup>a</sup>'White' was selected from the following range of response categories; Indian, Pakistani, Bangladeshi, Black African, Black Caribbean, Chinese, White, Other. This approach is a slight amendment of that used in Johnson *et al.* (Johnson *et al.*, 1994).

<sup>b</sup>Average GCSE score across all schools in study for students in 1998 (year 11 students). Data for 1997 are not available by school (the national average points score for 1997 was 35.9; data from DfEE statistical services).

teacher-led sessions and a follow-up session was not organized. In other schools, some peer educators did not complete the second questionnaires because these were administered in sessions held at lunchtime, after school or timetabled against taught periods, or they took place very near to the end of the summer term when some students were not in school or were taking part in other activities. Pre- and post-programme questionnaires could be linked for 268 (58%) peer educators.

The data presented below are based on analyses of peer educators' questionnaires and also transcriptions of focus group discussions carried out with samples of peer educators in each cohort in each of the schools. The description of the peer educators is based on analysis of the demographic information collected in the 505 pre-programme questionnaires. For those questions involving analysis of change in knowledge, attitudes or confidence between baseline and post-intervention questionnaires, the sample includes only those 268 young people for whom it was possible to link pre- and post-programme questionnaires. Other results are based on analysis of the 331 questionnaires completed post-programme.

## Results

### Who are the peer educators?

Table I reports the characteristics of the peer educators who completed the baseline question-

naire. Most (65%) of the volunteers in both cohorts were female. Ninety-five percent of the volunteers described themselves as 'White' and 11% reported living in rented accommodation. Significantly more boys volunteered in cohort 2 than cohort 1 (28% in cohort 1 and 41% in cohort 2) (not shown in Table I). Most of the volunteers were studying for A-levels.

As we were unfortunately not able to collect data from those who did not volunteer to be peer educators, we cannot compare the sample of peer educators to others in their year. However, some comparison can be made with characteristics of the first cohort of Year 9 students in the same schools. Table I shows that proportionately more of the peer educators compared to programme recipients were female and white, and fewer lived in rented accommodation. There was no significant difference between the proportion of Year 9 students and peer educators having experience of sexual intercourse by aged 14. Compared to the cohort of students taking GCSE examinations in 1998 they were significantly higher academic achievers.

In focus groups the peer educators indicated that those volunteering for the programme might be different from others in their peer group in terms of their enthusiasm for or engagement with school-related activities. For example, in response to the researcher asking, 'Do you think you can categorize in some way the people who did volunteer, do you

**Table II.** *Changes in peer educators' sexual knowledge between baseline and follow-up (n = 268)*

Are the following true or false? People are less likely to catch diseases passed on by sex if they use:

	No correct at baseline (%)	No correct at follow-up (%)	Significant difference between baseline and follow-up (McNemar)	Significant difference in knowledge change between boys and girls ( $\chi^2$ )
Condoms	258 (96%)	264 (99%)	$P = 0.109$	$P = 0.814$
The pill	245 (91%)	255 (95%)	$P = 0.089$	$P = 0.013^*$
Femidom	204 (76%)	246 (92%)	$P = 0.000^{***}$	$P = 0.924$
Emergency contraception	245 (91%)	258 (96%)	$P = 0.026^*$	$P = 0.351$
Cap	96 (36%)	159 (59%)	$P = 0.000^{***}$	$P = 0.345$
Coil	177 (66%)	234 (87%)	$P = 0.000^{***}$	$P = 0.041^*$
The emergency contraception pill will stop you getting pregnant if taken: only within 1 day of having sex, up to 3 days after having sex, up to 1 week after having sex				
Emergency contraception	202 (75%)	244 (91%)	$0.000^{***}$	$P = 0.000^{***}$

think that they're different?', one peer educator replied: 'They're all the people that always do things, that would always volunteer to do something straight away'. Another added that those who volunteered were the ones who helped on parents' evenings or had volunteered for another scheme involving mentoring with younger students. A third said: 'It's the kind of people that the teachers would come and ask you to do something because they know you'll do it, and they know you're reliable and you would be quite happy to do it, and you're quite happy to help. It's those kinds of people that do it, and get involved'.

### Effects of taking part in the peer education programme

#### *Changes in sexual knowledge*

In the pre- and post-programme questionnaires, peer educators were asked to select a 'true', 'false' or 'don't know' tick box in response to the question, 'Are the following true or false? People are less likely to catch diseases passed on by sex if they use...'. Table II shows the results.

There was a significant increase in the proportion of peer educators answering correctly that the use of the cap, coil or emergency contraception did not make it less likely that people would catch STDs and that use of the femidom made it less

likely. There was no significant change in the proportion of peer educators answering correctly questions regarding the pill or the condom. This may reflect the high levels of knowledge (91 and 96%, respectively) pre-programme. A significantly greater number of peer educators correctly answered post-programme compared to pre-programme the question about the advised time limit for the use the emergency contraceptive pill.

A significantly greater proportion of male than female peer educators showed knowledge change regarding the efficacy of the coil and the pill in preventing STDs. This may reflect the greater proportion of female peer educators providing correct responses to these questions pre-programme (70 versus 57% for male peer educators for the coil question and 94 compared to 87% for the pill question). The data also show more male than female peer educators with knowledge decrease about the efficacy of the coil post-programme (10 versus 4%, respectively, not shown in Table II). There were no significant differences between female and male peer educators' knowledge change with regard to the efficacy of the condom, femidom, cap or emergency contraception in preventing STDs. A significantly greater proportion of male than female peer educators showed knowledge change with regard to the question about the

**Table III.** *Changes in peer educators' attitudes to sexual health issues between baseline and follow-up (n = 268)<sup>a</sup>*

What do you think of the following:	More negative attitude response post- compared to pre-programme	More positive attitude response post- compared to pre-programme	Significance (Wilcoxon signed-rank test)
Sex before marriage	42 (16%)	44 (16%)	$P = 0.336$
People having sex with someone the first time they meet them	48 (18%)	83 (31%)	$P = 0.002^{**}$
Two men having sex with each other	25 (9%)	51 (19%)	$P = 0.01^{**}$
Two women having sex with each other	25 (9%)	53 (20%)	$P = 0.003^{**}$
Abortion	55 (20%)	53 (20%)	$P = 0.7815$
Using contraception	17 (6%)	7 (3%)	$P = 0.2414$

<sup>a</sup>The table shows only those cases for whom attitudes shifted between pre- and post-programme questionnaires and excludes those who provided a 'don't know' response in either questionnaire. Consequently the total percentage for each question does not equal 100.

time limits for effective use of the emergency contraceptive pill.

#### *Changes in sexual attitudes*

Peer educators were asked to provide responses to statements on attitudes to sexual issues using a Likert scale marked with the six response options: 'always wrong', 'mostly wrong', 'sometimes wrong', 'rarely wrong', 'not wrong at all' or 'don't know'. Table III shows significant changes in attitude for three of the six statements.

Attitudes towards people having sex with someone the first time they meet them, and towards sex between two men and sex between two women became more liberal, with significant numbers of peer educators reporting that these behaviours were 'less wrong' at post-programme in comparison to pre-programme. There was no significant attitude change towards sex before marriage, using contraception or abortion, although changes in attitudes towards sex before marriage and using contraception may have been difficult to detect as 82 and 98% (respectively) of peer educators reported pre-programme that these behaviours were 'not wrong at all' or 'rarely wrong' (not shown in Table III). No significant differences in attitude changes between male and female peer educators were found (not shown in Table III).

In addition, in the post-programme questionnaire peer educators were asked to assess the extent to

which participation in the programme had changed their opinion about sexual issues, influenced their sexual behaviour or made them more confident about getting what they want from relationships. These results are reported in Table IV. A majority (58%) agreed that taking part in the programme was likely to have changed their opinions on sexual matters, 40% said that it would have made them more confident about what they want from a sexual relationship and 35% thought it might influence their sexual behaviour. No significant differences were found between female and male peer educators for the mean score on any of these measures (not shown in Table III).

In response to an open question about how they felt that their opinions on sexual matters might have been influenced by participation in the programme, some peer educators said they would now 'think twice' or 'be more cautious'. Many felt they were now more open-minded and accepting of others' opinions and perspectives. For example, one peer educator reported, 'It has helped me in seeing both sides of an argument'. Another noted, 'I look at things from other people's point of view'. A few noted increased awareness and tolerance with respect to particular sexual issues, e.g. discrimination against homosexuals. Many reported feeling less embarrassed, more at ease and more confident talking about sexual issues.

Many peer educators mentioned feeling more

**Table IV.** Perceived impact of participation in the programme on peer educators' sexual attitudes, confidence and sexual behaviour (n = 331)

After doing the peer-led sex education do you think it has:	Very or quite likely	Neither likely nor unlikely	Very or quite unlikely
Changed your opinion on sexual matters	193 (58%)	103 (31%)	35 (11%)
Made you more confident about getting what you want from a relationship	133 (40%)	157 (47%)	39 (12%)
Influenced your sexual behaviour	115 (35%)	143 (43%)	69 (21%)

able to communicate openly with their partners. One reported, 'It has made me realize that I feel I am able to talk to the other person and telling them what I want without getting embarrassed or shy'. Others seem to have experienced an increase in confidence and awareness of themselves and what they might want from a relationship. One said, 'I know how I should be treated and will make sure I am treated in that way'.

#### *Changes in sexual behaviour*

Fewer peer educators thought the programme was likely to have an impact on their sexual behaviour. To some extent this may be a result of peer educators who were not currently sexually active or in relationships finding it difficult to assess the relevance of the question. As one noted, 'My sex life is currently non-existent so it's had no effect (unfortunately)'. However, most of those who answered the relevant open-ended question reported an increased awareness of risk of pregnancy and/or infection and of the need for condom or contraception use. Many said that they would be more careful, although they did not specify in what ways. Some said they would feel more confident about using condoms and some that they intended to use them in future.

#### *Changes in confidence about the delivery of peer-led sex education sessions*

Peer educators were asked to provide responses to five statements, indicating their level of confidence about delivering sex education sessions. Table V shows that peer educators felt significantly more confident after the programme about running a classroom session, dealing with difficult behaviour

in the classroom, not getting embarrassed, having enough knowledge to lead the sex education classes and dealing with personal questions. No significant differences for changes in confidence between male and female peer educators were found (not shown in Table V).

In responses to an open question, peer educators made reference to a number of additional ways in which they felt that they had been affected by involvement in the peer education programme. These included feeling more confident about teaching classes, speaking to large groups, presenting information, talking about sensitive issues and being more patient. Some mentioned that they felt that it had extended the range of career options open to them, while others observed that taking part in the programme had helped them to make new friends and increased their respect for teachers.

#### *The perceived impact of involvement in the programme on peer educators' school studies, future careers and lives outside school*

Peer educators were asked how much they agreed or disagreed with five statements on the extent to which involvement in the programme had impacted on their studies, career ambitions and lives outside school. Twenty-one percent ( $n = 66$ ) of the peer educators agreed or strongly agreed with the statement that the project interfered with studies. Thirty-eight percent ( $n = 126$ ) agreed or strongly agreed that it had been useful to their school studies. Sixty-one percent ( $n = 203$ ) felt that involvement in the project was useful to their future career and 66% ( $n = 219$ ) agreed or strongly agreed that it was useful to life outside of school. Female peer

**Table V.** Changes in peer educators' confidence about the delivery of peer-led sex education sessions between baseline and follow-up (n = 268)<sup>a</sup>

How confident do you now feel about:	More confident post- than at pre-programme questionnaire	Less confident post- than at post- than at pre-programme	Significance (Wilcoxon signed-rank test)
Running a classroom session in your teams	126 (47%)	17 (6%)	$P = 0.000^{***}$
Dealing with difficult behaviour in the classroom	131 (49%)	21 (8%)	$P = 0.000^{***}$
Not getting embarrassed	139 (52%)	18 (7%)	$P = 0.000^{***}$
Having enough knowledge to lead sex education classes	120 (45%)	28 (10%)	$P = 0.000^{***}$
Dealing with personal questions	128 (48%)	33 (12%)	$P = 0.000^{***}$

<sup>a</sup>The table shows only those cases for whom confidence changed between pre- and post-programme questionnaires; the total percentages for each question do not equal 100.

educators were more likely than males to agree strongly that the project was useful to their future careers (mean score for females 2.257 and for males 2.471,  $P = 0.038$ ) and that the project was useful to their life outside of school (mean score for females 2.235 and for males 2.451,  $P = 0.025$ ).

## Discussion

### Who takes part in peer education?

The recruits to the role of peer educator in the RIPPLE study were very different in demographic terms from the sample of Year 9 students to whom they delivered sex education. As the peer educators were selected from those who had chosen to stay in school and continue with academic education, it is not surprising that there was a preponderance of high achieving students from better-off, white family backgrounds. The proportionately greater number of females volunteering reflects the findings of other studies of peer-led sex education [e.g. (Phelps *et al.* 1994)]. As data were not collected from other Year 12 students, a full comparison between the peer volunteers and other year 12 students was not possible; however, peer educators suggested that those people who took part in the programme might be more engaged with school related activities than those who did not.

The profile of peer educators and the differences between this and that of Year 9 students raises two

issues: the effect of peer educators' self-selection on the likelihood of peer educators benefitting from taking part in the programme, and the consequences for programme effectiveness of social distance between peer educators and programme recipients. With respect to the first issue, one argument in support of peer education is the benefits it may provide to peer educators in terms of sexual and more general knowledge and skills. Thus, in order for those at greatest risk in terms of sexual behaviour and health outcomes to benefit from such a programme, consideration needs to be given to recruiting those students who are less educationally advantaged and at a greater risk of adverse sexual health outcomes. This may require developing ways of including as peer educators younger students or those no longer in school. With respect to the second issue of social distance, theories about the source of the effectiveness of peer education approaches emphasize the importance of *similarity* between peer educators and the target group (Reeder *et al.*, 1997), although there are also studies suggesting that demographic similarity may be less important than the personal qualities of peer educators (Elder *et al.*, 1994; Ozer *et al.*, 1997).

### Impact of participation in the programme on peer educators

Data from the RIPPLE study presented in this paper suggest that peer educators experience an

increase in knowledge regarding the advised time limit for the emergency contraceptive pill and the efficacy of the coil, cap, femidom and emergency contraception as protection against STDs. While peer educators are unlikely to use the cap, coil or femidom, and this knowledge is unlikely to have direct relevance for their own behaviour, it may well be important in terms of peer educators feeling confident about answering questions from younger students in the peer-led sessions. Interestingly, there was also evidence of changes in sexual attitudes among peer educators, e.g. a liberalization of attitudes towards homosexual behaviour and towards people having sex the first time they meet. Although specific changes in attitudes was not an *explicit* aim of the training with the peer educators, the increased liberalization in attitudes toward sexual behaviour may be explained by trainers encouraging peer educators to examine their own attitudes and prejudices. Other research (Weiss *et al.*, 1992) suggests increasing knowledge about sexual behaviour may liberalize sexual attitudes. In the RIPPLE study, there was, however, no change in attitudes towards sex before marriage, using contraception and abortion. Liberalization of attitudes toward using contraception and sex before marriage may have been difficult to detect as the vast majority believed these behaviours to be 'not wrong at all' before taking part in the training. Issues around abortion were rarely addressed during the training.

Large minorities of peer educators reported increased confidence about getting what they want from sexual relationships and said that participation in the programme had, or would, influence their sexual behaviour. There are indications in the data that, where increased confidence about managing relationships occurred, this was a result of clarification of attitudes and increased self-awareness and confidence about communicating with partners. This is an important finding as previous studies have shown increased confidence in negotiating safer sex with a partner to be associated with safer sex practices (Rosenthal *et al.*, 1991). Future studies might usefully gather information about the status of peer educators' relationships and

develop more complex measures of the quality of those relationships.

The RIPPLE study results suggest significant increases in peer educators' confidence about running sex education sessions. The engagement of peer educators with the programme was highly variable. Most felt the experience of delivering the interventions to Year 9 students was useful to their future careers and life outside school. The significantly greater perceived impact on female peer educators may reflect their greater interest in pursuing careers in caring professions, working with children and teaching.

### Methodological issues

This paper has focused on the short-term outcomes for peer educators of involvement in a peer education programme, and their perceptions of its impact on their sexual knowledge, attitudes and behaviour. The absence of a comparative control group of Year 12 students and a longer-term follow-up makes it impossible confidently to attribute outcomes to the effects of programme participation. Any estimates of change due to programme participation need to compete with the effects of changes in knowledge, attitudes, intentions and behaviour over time, and also with the possibility that some apparent 'effects' are due to chance. As noted earlier, the methodological and practical problems with achieving either of these are considerable. Given our inability to randomize volunteers, the most feasible alternative method might have been to match volunteers with students from other schools, although in this case the implications for the results of matching as distinct from randomization would need to be considered (Campbell and Boruch, 1975).

The results presented in this paper represent data from 58% (for questions with measures repeated in pre- and post-programme surveys) and 70% (questions asked only in the post-programme survey) of the total number of young people involved in the peer education programme. 'Missing' data reflect the influence of contextual factors and the practical problems of conducting research in schools. These missing data also make it difficult

to draw firm conclusions about the likely impact of involvement in a peer education programme on all students. Comparison between the demographic characteristics of those who completed the post-programme survey and the those who did not would enable some conclusions to be drawn about the possible biases in findings as a result of missing data. Unfortunately this comparison could not be carried out as a proportion of those completing the post-programme survey did not complete the pre-programme survey and demographic questions were only asked in this first survey. Increasing the completeness of data might be achieved in a number of ways. For example, experience from this study indicates that adopting an *ad hoc* system for leaving questionnaires for peer educators absent on the day chosen for questionnaire administration with teachers or other peer educators does not result in many additional respondents. The additional commitment required to evaluate an intervention such as peer education should be discussed with teachers and students at the start of the process in order for the most efficient and inclusive decisions about the timing of the programme to be made. Future research of this kind should consider repeating demographic measures at each survey and gather the views of those who withdraw from the peer education programme before delivering the sex education sessions, as their experiences may be quite different.

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### Conclusions

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The topic of peer education is currently of considerable policy relevance, especially as applied to young people's risk-taking behaviour. This paper, reporting data from a large multi-centre randomized controlled trial, has added to our knowledge of the processes involved in mounting, delivering and evaluating a peer education programme. The analysis of some of the data collected from peer educators has addressed some of the questions raised by previous studies and highlighted a number of issues for further research.

The findings confirm the results of previous studies claiming that participation in a peer educa-

tion programme benefits peer educators (Massey and Neidigh, 1990; Fox *et al.*, 1993; Schonbach, 1995; Fife Healthcare NHS Trust, 1996; Orme and Starkey, 1999). Significant numbers of peer educators in the RIPPLE programme reported positive changes in sexual knowledge, changes towards more liberal attitudes, and many thought that the programme would have an impact on their confidence in relationships and on their sexual behaviour. There was also evidence of a significant increase in general confidence, particularly around communication and interaction in groups. This suggests that a peer education programme might well have more general educational benefits beyond those related specifically to sexual health.

We found considerable practical problems with maintaining high levels of data collection from our samples of peer educators, largely as a result of factors at play in individual schools. Any research activity will always have a lesser priority than school curricula and timetables, and in this sense evaluating school-based peer education faces the same challenges as any research conducted in schools.

Our data indicate that peer educators are different from the Year 9 students to whom they deliver peer-led sex education sessions. They are higher academic achievers, come from better off families, and are mostly white and female. They may also be different from their same age peers. Important questions remain to be addressed about why these young people volunteer to peer education programmes, and how others, non-white, male and less academic, might be included in future programmes.

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