Identifying influential young people to undertake effective peer-led health promotion: the example of A Stop Smoking In Schools Trial (ASSIST)

Fenella Starkey¹, Suzanne Audrey¹*, Jo Holliday², Laurence Moore² and Rona Campbell¹

Abstract
The objective of the study was to develop and evaluate an effective whole-community approach to identifying a diverse group of influential young people to effectively diffuse health promotion messages among their peers. A peer nomination questionnaire, developed through extensive piloting work, was completed by 10 730 Year 8 students (aged 12–13 years) in 59 schools (30 intervention, 29 control) as part of a cluster randomized controlled trial. Influential students identified in 30 intervention schools were trained to disseminate smoke-free health promotion messages through informal contacts with peers. This approach successfully identified, recruited and retained a diverse group of students, broadly representative of their year group, to undertake the role of ‘peer supporter’. Although students and staff expressed doubts about the suitability of some young people recruited as peer supporters, the intervention achieved a 22% reduction in the odds of being a regular smoker in intervention compared with control schools [odds ratio 0.78 (95% CI 0.64–0.96)]. Carefully designed and developed peer-led interventions have potential for delivering effective smoking prevention among adolescents. Paying close attention to the way in which peer educators are identified, and involving young people themselves in this process, may be the key to increasing the effectiveness of peer education.

Introduction

Smoking prevention and peer education
Adolescent smoking is an issue of global public health concern [1] yet systematic review evidence suggests that smoking prevention interventions with young people have had little proven success [2–4]. Peer education has been suggested as a potentially effective method of undertaking smoking prevention work with young people because of the documented influence of peers on adolescent smoking behaviour [5]. The term ‘peer’ has varying meanings and may refer to similarities in age, experience or status [6, 7]. Furthermore, peer education takes many forms including tutoring, counselling, helping, buddyng and support [8, 9]. Approaches range from formal didactic strategies to informal approaches that utilize everyday communication within social groups as a vehicle for behaviour change [10]. Commercial marketing aimed at young people increasingly uses viral marketing, often exploiting social network websites and other Web 2.0 technologies to spread the message to the target audience, and the potential to exploit these media for health promotion purposes has been recognized [11].

In smoking prevention projects, peer education has tended to involve formal school-based classroom sessions led by same-age or older peers [12]. However, some researchers assert the need...
to supplement school-based education with programmes that address the effects of peer pressure and friendship ties on the uptake of regular smoking [12–14].

The systematic review by Harden et al. [8] of peer-delivered health promotion interventions for young people found variable evidence of effectiveness and a lack of sound outcome evaluations, suggesting a need for more high-quality research to gain greater insight into what might comprise an effective peer-led health promotion approach [15–17].

The rationale for using peer-led approaches includes the idea that peer education taps into adolescents’ naturally occurring information-sharing processes [7, 12] and uses the influence of social networks on young people’s behaviour for positive ends [18, 19]. It has also been suggested that influential peers can act as role models and opinion leaders, encouraging behaviour change [7, 20].

Diffusion of innovations theory has been used as a key to understanding how ideas and practices spread throughout a community. At the heart of the diffusion process is modelling and imitation of innovations already adopted or endorsed by influential people (opinion leaders). This theory has been applied in the field of public health by Kelly [21], who highlights the importance of identifying ‘natural and influential’ (p. 140) opinion leaders, ‘those persons who are most popular, well-liked, and trusted by others’ (p. 141), to endorse and support health behaviours in the target population. He argues that ‘opinion leaders are not just peers’ but are ‘those particular members of the target population whose views, attitudes, and behaviour can influence others because of their social standing’ (p. 142).

**Identifying peer educators**

One area that appears to be critical to the success of peer-led approaches, and yet is often neglected in the peer education literature, is the way in which such influential and credible peers are selected. A range of methods has been identified [20, 22]. These include the following: self-selection; staff selection; ‘snowballing’ whereby a sample of community members select peer leaders, who in turn select further peer leaders; using key community informants to identify opinion leaders and sociometric methods where some or all community members nominate influential members. The latter method may also employ social network analysis to identify individuals with desirable network characteristics: for example, targeting messages to individuals based on their social network positions [23] or matching peer leaders with individuals who nominated them [20, 24].

The majority of school-based peer education projects have used self-selection [25], staff selection [26] or a combination of both [9, 27]. However, both self-selection and staff selection may result in the identification of peer educators who are not perceived as credible or influential by the target group [20, 22]. Furthermore, allowing teaching staff to select peer educators may lead to the naming of peer leaders for more formal settings who are less effective at influencing others informally.

Several projects have found that school-based peer educators tend to be disproportionately female and ‘high achievers’ [8, 28, 29]. This imbalance has been proposed as one possible reason for the limited success of peer education interventions across a broader target group [27]. Methods of peer educator identification that invite a ‘whole community’ to nominate influential members have been proposed as the most effective and comprehensive, decreasing the potential for bias and increasing the likelihood of those nominated being viewed as credible and trustworthy by the target group [20].

**The ASSIST intervention**

The peer-led anti-smoking intervention tested during ASSIST was based upon diffusion of innovations theory [10] and was developed via a feasibility study in six Welsh schools [30]. In particular, ASSIST drew upon a study by Kelly et al. [31] during which diffusion of safer sex behavioural norms was successfully effected by gay men identified by local bar staff as potentially influential popular opinion leaders.

ASSIST used a whole-community identification method in which the ‘community’ was defined as the whole-year group within a school, i.e. all
students in Year 8 (aged 12–13 years). A peer nomination questionnaire was administered to identify which students were regarded as influential by their Year 8 peers. Those who received the most nominations were invited to be trained as ‘peer supporters’. If they agreed and had parental consent, they were taken out of school to attend a two-day training course facilitated by a multidisciplinary team of health promotion specialists and youth workers [32]. The training programme included information giving, communication skills and personal development. Bearing in mind the range of young people, and their eventual role as peer supporters, most of the activities were focussed on verbal rather than written communication skills.

During the following 10 weeks, the peer supporters were asked to have informal conversations with other Year 8 students in their school to encourage them not to smoke and to record brief details of these conversations in a simple diary. Four follow-up sessions were undertaken in each school during the 10-week period, at which the trainers offered support and monitored the peer supporters’ progress. All peer supporters were given a certificate of achievement, and those who submitted a completed diary were also given a gift voucher.

The intervention [32], activities of the peer supporters [33] and perceptions of school staff [34] are described in more detail elsewhere. Here, we focus on the development and implementation of the peer supporter identification process, the vital first stage in establishing an effective peer-led intervention, and whether this process succeeded in identifying students who were able to positively influence smoking behaviour. We examine the success of this method in identifying a variety of students capable of diffusing the health promotion message and promoting behaviour change among their peers.

**Methods**

**Trial design**

ASSIST used a cluster randomized controlled trial design. The main trial was undertaken in 59 secondary schools in the west of England and south east Wales from 2001 to 2004 and involved 10 730 Year 8 students (12–13 years old) at baseline. A range of schools was represented including the following: independent and state, Welsh language and English speaking, non-denominational and faith schools, mixed and single-sex, different-sized student populations and varying levels of free school meal entitlement. Those in the control group (n = 29 schools, 5372 students) were asked to continue with their normal smoking education. The intervention group (n = 30 schools, 5358 students) continued with their normal smoking education, but also received the ASSIST intervention.

Outcome data were gathered in both intervention and control schools through self-report smoking behaviour questionnaires and saliva samples at baseline, immediately post-intervention, 1 year post-intervention and 2 years post-intervention. The primary outcome measures were the prevalence of smoking in the past week in the whole-year group and the prevalence of smoking in those students who identified themselves at baseline as occasional, experimental or ex-smokers and who were therefore at high risk of smoking uptake. Planned subgroup analyses were undertaken to examine whether there was any differential intervention effect according to sex, peer supporter status, free school meal entitlement or whether or not the school was in a south Wales valley community. Further details of the study design can be found elsewhere [35].

**Process evaluation**

A process evaluation was embedded within the trial to provide information on how the intervention was delivered and received [36]. Process data presented here are from four intervention schools selected for in-depth process evaluation. These were all state schools purposively selected on the basis of geographical location (Wales or England); number of students in the whole-year group, i.e. greater or less than the median (200 students) and greater or less than the median proportion of students entitled to free school meals (19%). Semi-structured interviews were conducted with key school staff at
baseline \((n = 8)\) and immediately post-intervention \((n = 10)\) and with a random sample of Year 8 students who were not peer supporters \((n = 32)\) but indicated in the immediate post-intervention behavioural questionnaire that they had had a conversation about smoking with a peer supporter. Post-intervention focus groups \((n = 10,\) involving 77 students) and semi-structured interviews \((n = 33)\) were conducted with peer supporters. Interviews and focus groups were recorded and fully transcribed. For this paper, constant comparison from grounded theory [37] was used to examine and group responses to common questions and identify different perspectives concerning the suitability of students invited to be trained as peer supporters.

**Developing and piloting the peer supporter identification process**

Pre-piloting developmental work on the peer nomination process was undertaken in two schools, one in England and one in Wales, with Year 8 students who would not be involved in the main trial. A primary objective of this work was to ensure that the process was young person led rather than adult defined. To develop a suitable peer nomination questionnaire, a list of potential questions was compiled from the literature [24, 38, 39] and from the feasibility study [30]. At this developmental stage, the students were asked to highlight the four ‘best’ questions for identifying influential young people in their year groups at school, underline words they would not use and suggest alternatives. They were then asked to answer the four questions they had identified and give reasons for their nominations. The aim was to examine the kinds of qualities they associated with each question. This pre-piloting work identified five key questions for further testing during the pilot phase of the main trial (Table I). Each question appeared to identify young people with different characteristics, and all were therefore piloted to explore their value further.

The pilot phase took place in three schools geographically separate from the area in which the main trial would take place. To finalize the peer nomination questionnaire for the main trial, responses were examined to detect how many responses were generated for each question and whether nominations included both genders. An analysis of overlap was conducted to discern whether some questions covered nominations from others. This analysis revealed that only three questions were required to identify all students nominated across the five questions. Furthermore, ‘in Year 8 at your school’ was revealed as a useful addition to each question to reinforce the specific whole community for this study and avoid the nomination of family members, teachers, friends in other year groups or at other schools, or celebrities.

To reduce the tendency of some students to write lists of all their friends rather than focus more keenly on students with the attribute identified in the question, it was decided that the number of nominations for each question should be limited.

<table>
<thead>
<tr>
<th>Question</th>
<th>No. of young people who chose question</th>
<th>Most common reasons given for naming students for this question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who is a good leader?</td>
<td>26</td>
<td>‘Listens well’, ‘responds well’, good at what they do</td>
</tr>
<tr>
<td>If you were choosing teams, who would you choose to be captain?</td>
<td>23</td>
<td>‘Sporty’, ‘talented’, ‘strong’, ‘fast’, ‘good captain/leader’, ‘popular’</td>
</tr>
</tbody>
</table>

Table I. Most popular peer supporter identification questions from pre-pilot developmental work undertaken with Year 8 students in two schools \(n = 60\)
to reduce the tendency to equate the peer identification process solely with popularity. The final questions used in the main trial were as follows: Who do you respect in Year 8 at your school? Who are good leaders in sports and other group activities at your school? Who do you look up to in Year 8 at your school? Who have you had a conversation with in Year 8 at your school today?

**The ASSIST peer nomination process**

Based upon the developmental and piloting work, the following peer nomination process was used in the main trial. Students were given 10 minutes to complete the peer nomination questionnaire (with the dummy question located at the end in case students ran out of time). Students were not told the specific purpose of this task in case they were influenced to nominate non-smokers or students whom they viewed as suitable peer educators. Instead, the task was introduced as research looking at different groups of students in Year 8.

Students were asked to complete the peer nomination questionnaire without conferring. They were asked to name up to, but no more than, five young people for each question and told that they could repeat names if they suited more than one question or leave a question blank if they could not think of any relevant names. If students asked for a definition of terms such as ‘respect’ or ‘good leader’, the question was reflected back to them by asking what they understood it to mean. The aim was to avoid biasing young people’s interpretations.

For each school, a list of all Year 8 students was obtained and entered into a table with space beside each name (the tally sheet). When a student was named on a questionnaire, they were allocated a mark on the tally sheet. The aim of the tallying process was to obtain a ‘score’ for each Year 8 student indicating how many students across the year group had nominated them at least once during the peer nomination process. Therefore, if a student was named more than once on the same questionnaire, they were allocated only one mark.

To ensure a gender balance of peer supporters proportionate to the composition of the year group, the lists were then separated by gender and 17.5% of males and 17.5% of females, with the most nominations in each school were invited to be trained as peer supporters. There was no cut-off point for the number of nominations since the aim was to ensure that at least 15% of the year group was recruited to achieve a critical mass of the most influential students to promote new social norms [10, 21, 40]. Given the emphasis on whole-community nomination, and the fact that ‘popularity’ has been identified as a risk factor for smoking uptake [41], students who smoked were not excluded.

**Social network analysis**

As was the case with Kelly *et al* [21], ASSIST did not use social network analysis to identify opinion leaders. However, a social network questionnaire was administered immediately post-intervention to assess whether the peer supporters had been well positioned in the year group to diffuse the health promotion message. In this questionnaire, all Year 8 students were asked to name up to six of their friends and provide further details about them, e.g. how often they saw each other and whether they were close friends [42]. These data were analysed using Kliquefinder® to identify naturally occurring non-overlapping subgroups (clusters) in the school year and assess whether peer supporters were located within these groups [43–45].

**Results**

**Cluster analysis**

Table II shows the results of the social network analysis carried out in the four intervention schools chosen for in-depth process evaluation. The vast majority of clusters were single sex (between 81 and 92%) and between 48 and 60% of these clusters contained at least one peer supporter. More extensive social network analysis of ASSIST data was conducted as part of a PhD thesis [42] and will be the subject of future publications.

**Tally scores**

It has already been noted that the specific tally scores were not the critical factor in being invited
to be trained as a peer supporter since the aim was to recruit and train a percentage of the year group with the most nominations. However, the data were scrutinized to gain some understanding of the pattern of nominations. Table III gives information about the tally scores for peer supporters in the four schools selected for in-depth process evaluation. Across all intervention schools, the minimum score for a male invited to become a peer supporter was 6 and the maximum was 78, with a mode of 8. For females, the equivalent figures were 6 and 60, with a mode of 9. The very high scores tended to be for the captains and ‘stars’ of school sports teams, as these young people were often known across the year group to be ‘good leaders in sports or other group activities’.

**Characteristics of peer supporters**

Table IV confirms that a balance of male and female peer supporters was obtained as a result of the explicit measures taken to achieve this. The peer supporters were also broadly representative of their Year 8 peers in terms of ethnicity. There is some evidence that the ASSIST peer nomination process avoided the bias towards academic ‘high achievers’, with a similar proportion of peer supporters and non-peer supporters indicating that they wanted to continue in education after the age of 16.

**Retention of peer supporters**

Table V shows the high retention rates, with 93% of young people continuing in their role as peer supporter after the training. Males were almost as likely as females to continue in the role. The only significant difference was in submitting completed diaries where there was a 13 percentage point difference in favour of girls completing this stage \( (P = 0.02) \). This gender difference echoes current concerns that female students generally tend to be more conscientious than male students about undertaking such ‘coursework’ [46].

**Teachers’ views of the peer nomination process**

Teachers acknowledged that the peer nomination process resulted in a mix of students, some of whom were unlikely to have been selected by school staff to undertake peer education (Box I). Schools were encouraged to allow all nominated students to take part in the training but it was agreed that teachers could remove students from the list of nominees if they had serious concerns, e.g. about challenging behaviour or poor attendance. However, only 3% (33 of 978) of nominated students were withdrawn in this way. Despite some misgivings, the majority of schools appeared to recognize the
importance of the peer nomination process and gave active support to its implementation [34].

**Students’ views of the peer nomination process**

Just as teachers expressed some reservations, students who were not peer supporters (Box II) and peer supporters themselves (Box III) expressed mixed opinions about the suitability of nominated students to undertake the role of peer supporter. Some were thought to be responsible and outgoing; others were considered unsuitable because they lacked the confidence to initiate conversations about smoking or did not take the task seriously. Smokers were thought to be an asset by some and hypocritical by others.

Despite some reservations, there was evidence that both staff and students were aware of a critical issue: whether more academic or ‘sensible’ students, who may be more likely to take the role ‘seriously’, would have credibility with those young people who may be most in need of the health promotion message.

**Impact on smoking levels among young people**

Despite doubts among students and teachers about the suitability of some peer supporters, results from the outcome evaluation suggest that the peer supporter intervention was effective (Fig. 1). Smoking prevalence was significantly lower in intervention than in control schools at the Year 1 follow-up although, without further intervention, this effect was attenuated at Year 2 follow-up. Results from the multi-level modelling indicate a 22% reduction in the odds of being a regular smoker [odds ratio 0.78 (95% CI 0.64–0.96)] in intervention compared with control schools [47]. Planned subgroup analyses...

---

**Table IV. ASSIST peer supporter profile (baseline)**

<table>
<thead>
<tr>
<th></th>
<th>Peer supporters (N = 835)</th>
<th>All Year 8 students in intervention schools (N = 5358)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>50.0 (417)</td>
<td>51.2 (2745)</td>
</tr>
<tr>
<td>Female</td>
<td>50.0 (418)</td>
<td>48.8 (2613)</td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>89.8 (417)</td>
<td>88.9 (4763)</td>
</tr>
<tr>
<td>Mixed</td>
<td>5.9 (49)</td>
<td>3.2 (174)</td>
</tr>
<tr>
<td>Asian/Asian British</td>
<td>0.5 (4)</td>
<td>1.2 (65)</td>
</tr>
<tr>
<td>Black/Black British</td>
<td>0.5 (4)</td>
<td>0.5 (27)</td>
</tr>
<tr>
<td>Chinese</td>
<td>0</td>
<td>0.3 (16)</td>
</tr>
<tr>
<td>Other</td>
<td>0.8 (7)</td>
<td>1.0 (53)</td>
</tr>
<tr>
<td>No response</td>
<td>2.5 (21)</td>
<td>4.9 (260)</td>
</tr>
<tr>
<td><strong>Self-reported smoking</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>49.6 (414)</td>
<td>53.8 (2880)</td>
</tr>
<tr>
<td>Tried once</td>
<td>24.3 (203)</td>
<td>22.2 (1188)</td>
</tr>
<tr>
<td>Used to but do not now</td>
<td>12.7 (106)</td>
<td>10.4 (555)</td>
</tr>
<tr>
<td>Occasional (&lt;1 per week)</td>
<td>5.4 (45)</td>
<td>4.1 (221)</td>
</tr>
<tr>
<td>Regular (&gt;1 per week)</td>
<td>4.6 (38)</td>
<td>4.5 (243)</td>
</tr>
<tr>
<td>No response</td>
<td>3.5 (29)</td>
<td>5.1 (271)</td>
</tr>
<tr>
<td><strong>Intentions at aged 16</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stay on at school</td>
<td>48.9 (408)</td>
<td>45.0 (2412)</td>
</tr>
<tr>
<td>Training/apprenticeship/ college</td>
<td>29.9 (250)</td>
<td>28.2 (1511)</td>
</tr>
<tr>
<td>Get a job</td>
<td>10.8 (90)</td>
<td>13.6 (730)</td>
</tr>
<tr>
<td>Other/unemployed/do not know</td>
<td>11.0 (92)</td>
<td>11.4 (611)</td>
</tr>
<tr>
<td>No response</td>
<td>2.6 (22)</td>
<td>6.3 (336)</td>
</tr>
</tbody>
</table>

Reprinted from Audrey et al. [33]. Copyright 2006, with permission from Elsevier. *Multiple responses are included.

**Table V. Peer supporter retention by gender**

<table>
<thead>
<tr>
<th>Stage of intervention</th>
<th>Male % (n)</th>
<th>Female % (n)</th>
<th>Total % (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attended recruitment meeting</td>
<td>100 (444)</td>
<td>100 (432)</td>
<td>100 (876)</td>
</tr>
<tr>
<td>Attended training</td>
<td>95.9 (426)</td>
<td>97.7 (422)</td>
<td>96.8 (848)</td>
</tr>
<tr>
<td>Consented to continue</td>
<td>93.9 (417)</td>
<td>96.8 (418)</td>
<td>95.3 (835)</td>
</tr>
<tr>
<td>Attended first follow-up session</td>
<td>92.3 (410)</td>
<td>94.0 (406)</td>
<td>93.2 (816)</td>
</tr>
<tr>
<td>Attended second follow-up session</td>
<td>85.6 (380)</td>
<td>87.7 (379)</td>
<td>86.6 (759)</td>
</tr>
<tr>
<td>Attended third follow-up session</td>
<td>82.9 (368)</td>
<td>88.4 (382)</td>
<td>85.6 (750)</td>
</tr>
<tr>
<td>Attended fourth follow-up session</td>
<td>81.3 (361)</td>
<td>82.6 (357)</td>
<td>82.0 (718)</td>
</tr>
<tr>
<td>Handed in diary</td>
<td>72.1 (320)</td>
<td>85.0 (367)</td>
<td>78.4 (687)</td>
</tr>
</tbody>
</table>

"Continued as peer supporter" is defined as having attended at least one follow-up session.

---

Identifying influential young people to undertake effective peer-led health promotion
provided no evidence of the intervention having a differential effect according to sex [ratio of odds ratios 0.90 (0.72–1.13)], peer supporter status [0.92 (0.70–1.21)] or deprivation measured by free school meal entitlement [0.99 (0.65–1.51)]. However, the intervention does seem to have had a more pronounced effect in schools located in south Wales valleys [ratio of odds ratios 0.58 (0.36–0.93)]. Comparison of self-report data with concentrations of salivary cotinine showed negligible levels of misreporting and no difference in such levels between intervention and control schools.

**Discussion**

There are few detailed published examples of whole-community peer leader identification techniques. In this paper, we have described a systematic process
that involved the target population in identifying influential young people to undertake school-based peer-led health promotion work. The intervention was evaluated by a randomized controlled trial and shown to be effective. In view of the paucity of evidence of positive behaviour change resulting from school-based peer education projects that use self-selection or staff selection to identify peer educators, it is suggested that such whole-community methods of peer identification should be tested more widely.

The ASSIST peer nomination questions were developed and refined using young people’s own terms of reference and feedback, an element of the process that may have contributed to its success in identifying a variety of influential students. Given the changing use of language among young people, and the different attributes that may be required of peer leaders, specific questions may need to be piloted with groups of young people for other studies with different health promotion messages. However, for the ASSIST smoking intervention, the peer identification process was successful in identifying, recruiting and retaining young people as peer supporters who were broadly representative of their year group.

The predominance of single-sex friendship clusters identified through social network analysis highlights the importance of ensuring that peer educators are representative of the gender balance within the year group. The ASSIST method of separating the list of Year 8 students by gender before selecting proportionately from each list ensured that this was achieved and, in contrast to the earlier feasibility study, the planned subgroup analyses did not suggest that the intervention had a differential effect according to gender.

Teaching staff, peer supporters and non-peer supporters expressed concerns about the suitability of some of those recruited to diffuse the health promotion message, suggesting that they lacked the necessary confidence, did not take the role seriously or were smokers with no intention of giving up. It is our contention that these students should be included if the integrity of a ‘whole community’ nomination process is to be maintained. The nomination and recruitment of students who smoke, including some who did not change their behaviour as a result of the training, may be an inevitable consequence of the method used since opinion leaders have often
been defined as the most popular members of a community [23] and popularity itself has been identified as a risk factor for smoking uptake [41].

While a number of commentators have stressed the importance of person-based credibility, emphasizing the need for peer educators to be similar to their target group [48, 49] others suggest that these similarities may be less important than the personal characteristics of the peer educators [50–52]. Further research is needed to identify the relative importance of such characteristics. Nonetheless, we argue on the basis of the ASSIST experience that the broad range of young people represented among the peer supporters contributed to the success of the intervention.

The promising results of the outcome evaluation have prompted the broader implementation of the ASSIST intervention in secondary schools throughout Wales, in Bristol and in other parts of the UK. Evidence from the process evaluation suggests that, outside of the trial context, it will be necessary to emphasize the importance of allowing all students in the year group to nominate influential members and permitting all nominated students, even those who appear challenging or disaffected, to be trained as peer supporters. An evaluation of the wider
implementation of the ASSIST intervention is planned, with fidelity of implementation a key feature.

Social network analysis suggests that the ASSIST peer nomination approach identified peer leaders from different clusters within the year group. This complies with recommendations that opinion leaders should represent a diversity of social groups to facilitate diffusion [21, 53]. However, in the four intervention schools selected for in-depth process evaluation, between 48 and 60% of clusters contained at least one peer supporter. This suggests varying success in achieving representation across the whole community and has implications for the informal diffusion of the health promotion message. Further refinement of the peer nomination process may be necessary to broaden the range of students identified across the whole-year group.

The intervention was shown to be particularly successful in schools located in Welsh valley communities. This supports the suggestion that health promotion interventions based on diffusing new behavioural norms may work best in clearly defined fairly close-knit communities, where peer supporters are in regular contact with members of a more clearly defined and stable community [54].

In conclusion, carefully designed and developed peer-led interventions such as that used by ASSIST have potential for delivering effective smoking prevention among adolescents. Paying close attention to the way in which peer educators are identified in order to maximize their potential influence over others, and involving young people themselves in this process as much as possible, may be the key to increasing the effectiveness of peer education.

Funding

Medical Research Council (G9900538).

Acknowledgements

We would like to thank all the teachers and students who participated in this research. We are grateful to Rachel Hughes for her assistance with the statistical analyses.

Conflict of interest statement

None declared.

References