A peer-led intervention to promote sexual health in secondary schools: the STASH feasibility study

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Scientific summary

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Background

Young people report higher levels of unsafe sex and have higher rates of sexually transmitted infections than any other age group. Early intervention is required to prevent risks converting to poor lifetime sexual health, and schools are well placed to facilitate these interventions. Over two-thirds of young people report inadequate knowledge when they first felt ready for sex, suggesting room for significant improvement in school-based sex interventions. Peer education offers opportunities to augment school-based education. Most peer-led approaches rely on self-selection or teacher selection, but this results in educators who may not be particularly credible and find it difficult to reach high-risk students. Involving influential peers as supporters of healthy norms (rather than mini teachers) within their social networks has been under-researched in sexual health. Social media platforms offer novel means by which sexual health messages can be transmitted, but to our knowledge no interventions have yet assessed this potential in school settings.

Intervention

The Sexually Transmitted infections And Sexual Health (STASH) intervention is built on A Stop Smoking In Schools Trial (ASSIST), a peer-led smoking prevention intervention based on diffusion of innovation theory. In ASSIST, 'influential' students (aged 12 or 13 years) were recruited in schools through a peer nomination process and trained as peer supporters, to spread and sustain non-smoking norms through informal interactions with their peers. A cluster randomised controlled trial found that smoking was reduced over a 2-year period. Following development, refinement and optimisation, the final design of the STASH study was as follows.

Peer nomination

All students in the fourth year of secondary school (aged 14–16 years) were asked to complete a peer nomination questionnaire. The 25% of young people who received the most nominations, stratified by gender, were invited to a recruitment meeting.

Peer supporter recruitment

A meeting was held with nominees in each school, during which trainers explained the intervention purpose, the peer supporter role and answered questions. The aim was to recruit 15% of the year group.

Two-day peer supporter training

A 2-day peer supporter training session in school time took place at an external venue. The training session was intended to equip peer supporters with the knowledge, skills and confidence required for the role; build motivation and enthusiasm for the role; generate trust and rapport within the peer supporter group, and among peer supporters and trainers; and build sexual health knowledge and skills. Peer supporters signed a code of conduct during training and agreed a plan to 'announce' the project to their year group.

Peer support work

Peer supporters established a 'secret' Facebook group (invite-only groups; highest privacy setting) (www.facebook.com; Facebook, Inc., Menlo Park, CA, USA) comprising friends and the STASH study trainer. Peer supporters were encouraged to post messages from the STASH study website to this group and to initiate face-to-face conversations centred on STASH study messages. They were asked to alert friends to the STASH study website and to local support sources. To ensure maximum reach,

peer supporters used STASH study cards to advertise a non-sharing version of the STASH peer supporters website, particularly to students who did not use Facebook. Peer supporters were supported by a trainer during this period, as well as by an appointed contact teacher. Peer supporters were encouraged to engage with intervention resources flexibly; for instance, they could choose which messages and links to share, and had the option of editing messages into their own words.

Trainer-led activities included moderation of group discussions, monitoring Facebook posts, supporting the peer supporters and facilitating follow-up meetings (weekly or fortnightly) with all peer supporters for the intervention duration.

Acknowledgement of peer supporters

A £10 voucher, a certificate and 'credit' towards the attainment of a volunteering award [see URL: https://saltireawards.org.uk/ (accessed 29 April 2020)] were given to peer supporters.

Study aims and objectives

The aim of this study was to develop and test the feasibility and acceptability of the STASH intervention to reduce transmission of sexually transmitted infections and improve the sexual health of secondary school students aged 14–16 years in UK.

The objectives of the study were to:

- finalise the design of a school-based intervention for sexually transmitted infection prevention, in which influential peer supporters use online social networks and face-to-face interactions to influence norms, knowledge, competence and behaviour, and promote the use of sexual health services
- assess the recruitment and retention of peer supporters, as well as the feasibility and acceptability of the intervention among peer supporters, participants and key stakeholders
- assess the fidelity and reach of intervention delivery by trainers and peer supporters, including barriers to and facilitators of successful implementation
- refine and test the programme theory and theoretical basis of the intervention
- enhance understanding of the potential of social media, when used by influential peers, to diffuse norm change and facilitate social support for healthy sexual behaviour
- determine key trial design parameters for a possible future large-scale trial, including recruitment, retention rates and strategies, outcome measures, intracluster correlation and sample size
- determine the key components of a future cost-effectiveness analysis and test data collection methods
- establish whether or not pre-set progression criteria are met and if a larger-scale evaluation is warranted.

Methods

The first study stage involved intervention co-development using patient and public involvement activities and a pilot in one school. The second study stage involved a non-randomised feasibility trial in six schools. Participants were year 4 students (aged 14–16 years) in state-funded Scottish secondary schools who had received some level of teacher-led sex education. The previous cohort of year 4 students (i.e. those completing year 4 in the year prior to the intervention) served as controls. To assess the feasibility and acceptability of the intervention and study methods, we collected a range of quantitative and qualitative data via training evaluations; a peer supporter questionnaire; observations of activities; interviews with trainers, teachers, peer supporters and students; a monitoring log of Facebook activities; and attendance at intervention activities. To collect data on indicative primary outcomes, secondary outcomes and modifiers, we conducted a questionnaire survey prior to the intervention and approximately 6 months

later. These data were compared with survey data collected 1 year previously from the control year. Measures for the economic evaluation were tested via the same questionnaire. Social network analysis (via a friendship module on the questionnaire) was used to assess network reach of students recruited to the peer supporter role.

Results

The first study objective was to finalise the intervention design, including a pilot of the approach. We identified key motivations for schools in terms of meeting national targets for health and well-being and providing leadership opportunities for senior students. We affirmed that the peer nomination process used in ASSIST would be palatable to students and staff, but that uptake might be lower in this older age group (in a public examination year) and with this sensitive topic. Core elements of the ASSIST model were retained with key refinements. These included overinvitation of top-nominated students to the recruitment meeting, additional peer nomination questions focused on trust and listening skills, tailored-to-school 'announcement strategies' to raise awareness of the project, self-report of conversations rather than the diary method used in ASSIST and peer supporter role clarification to adjust to the demands of a more complex topic. The principal new element in the STASH intervention was the use of social media to augment dissemination of messages. We designed a curated set of digital resources (housed on the STASH intervention website), which could be shared via social media. Facebook was used because it met the key requirements of interface with a website and closed or private groups; consultations confirmed that Facebook was still widely used and acceptable, although not a first choice for young people. A key design feature was monitoring and support of online activities by the STASH study trainers via their membership of each peer supporter Facebook group.

Our second objective was to assess recruitment and retention of peer supporters, as well as feasibility and acceptability. Across the six schools, 52% of those nominated were trained as peer supporters (range 33–77%); variation across schools was consistent with the level of school support for the intervention. Almost all peer supporters completed the role (97% role retention). Intervention acceptability was high for all student groups, more so for peer supporters than non-peer supporters and more so for young women than for young men. Only one parent was unhappy about their child's involvement as a peer supporter. School staff were positive about the STASH intervention, although they acknowledged the additional workload involved in delivery (including for the evaluation). No harms were reported.

Our third objective was to assess fidelity and reach, and barriers to and facilitators of successful implementation. All key elements of the intervention were delivered with fidelity. In particular, all peer supporter follow-up sessions (bar one) were delivered and well attended. The peer supporters were active on social media and in face-to-face conversations. The peer supporters were well positioned across their year group, with direct friendship ties to one-third of students and presence in one-third to four-fifths of friendship clusters (depending on school). The majority of students (58%) in the intervention year were exposed to STASH activities; young women more than young men. Key facilitators were buy-in and support from schools, good rapport with trainers, high-quality training, regular direct communication between trainers and peer supporters via Facebook and the use of private or closed groups on social media. Key barriers were academic pressures, infrequent use of Facebook among some students, low levels of awareness of the intervention across the rest of the school and low levels of intrinsic motivation of non-peer supporters to engage with peer supporter activities.

Our fourth objective was to test the programme theory and theoretical basis of the intervention. The programme theory was refined at key points during the study (post pilot and post intervention) to reflect ongoing learning about the underlying theory, critical mechanisms of change and conditions for successful implementation. In general, the process evaluation data confirmed the programme theory and suggested that the key conditions were met, with variability across schools. The more challenging conditions to meet concerned the extent to which peer supporters were seen as credible and socially

validated in the role, and the extent to which non-peer supporters were interested in messages and viewed them as relevant. It was difficult for peer supporters to generate high interest in sexual health messages among their friends. As these conditions were only partially met, the extent to which the intervention supported autonomy and intrinsic motivation (a purported mechanism of change) is unclear. Readiness to hear sexual health messages is often linked to sexual experiences and this is highly variable in this age group. Reinterrogation of the programme theory suggested that the condition of 'intrinsic' motivation among non-peer supporter students could be omitted from the programme theory, as it seems neither realistic nor crucial as a mechanism of change. In contrast, among the peer supporters it appears both realistic and crucial.

Our fifth objective was to enhance understanding of the potential of social media. Non-peer supporter student reactions to receiving the STASH study posts via Facebook ranged from openness and interest to indifference. Some saw the opportunity to engage online as less awkward, whereas others preferred face-to-face conversation or a mix. For non-peer supporters, it seemed important that messages had been sent by someone they knew. It also helped that messages had been seen by others in the group, providing opportunities for discussion. Therefore, the offline social context was key both in legitimising and augmenting online messages. The presence of a trainer within the private groups appeared reassuring. Practically, the use of social media necessitates hiring trainers who are comfortable using it, and there are challenges in keeping pace with constantly evolving platforms and technology.

Our sixth and seventh objectives were to determine key design parameters for a future evaluation, and key components of a future economic evaluation. We achieved good response rates for all three survey administrations and 81% of students completing the baseline also completed the follow-up questionnaire. We identified a composite measure of 'always practising safe sex' (either via always condom use or via abstinence) as the most suitable primary outcome for the trial. Following the recent DELTA^2 guidelines (published subsequent to study inception; Cook JA, Julious SA, Sones W, Hampson LV, Hewitt C, Berlin JA, *et al.* DELTA^2 guidance on choosing the target difference and undertaking and reporting the sample size calculation for a randomised controlled trial. *Trials* 2018;**19**:606), we opted not to propose a sample size calculation for a definitive trial. However, we did identify information to add to other evidence required for a calculation: indication of a small potential impact on safer sex, control proportion of 0.854 for practising 'always safe sex' and an intracluster correlation estimate of 0.0198. The STASH intervention cost approximately £42 per student (for a year group of 100). We anticipate that an odds ratio of 1.2 may be realistic for an outcome of 'always safer sex', but recognise that other changes (e.g. improved well-being) may be just as (or more) meaningful to educational and health stakeholders. The Child Health Utility 9D was unsuited to calculating quality-adjusted life-years because it was not associated with the primary outcome (confirming our lack of theoretical expectation that the STASH intervention would have an impact on domains measured by the Child Health Utility 9D). A future economic evaluation could model long-term outcomes of sexually transmitted infections and unintended pregnancies related to an increase in safer sex, accounting for the disutility of a sexually transmitted infection and unplanned pregnancy.

Our eighth objective was to establish whether or not pre-set progression criteria were met. We set seven individual progression criteria, focused on feasibility and acceptability, of which six were met with ease. The weight of evidence therefore supports continuation to a full evaluation. The objective we did not meet was a target of 60% of nominated students recruited and completed training. Nonetheless, we were still able to train an average of 13% of the year group, and those trained had better potential reach across their year group friendship network than those who did not take up the role. The target of 60% was based on the experience of ASSIST, in which role uptake was high (> 90%), but may have been set too high for the STASH intervention, given the topic and age group of the students. A previous sex education intervention using peer nomination achieved 50%, and this may be more realistic. We will still aim to improve uptake in future.

Recommendations and conclusions

In future, the study could generate a more supportive context for peer supporter activities and increase awareness of the project by beginning with a standard trainer-delivered sex and relationships session that explains the project and introduces the peer supporters. This might help increase coherence and buy-in for other students in the year. Peer supporter role uptake could be improved via greater support to schools during the nomination process, smaller recruitment meetings and a stronger 'pitch' by trainers. The social media element needs to be 'future proofed' to cope with evolving technology, and the right balance found between allowing peer supporters flexibility to engage with different platforms and the need to monitor and support online activity. Any future roll-out of the intervention will need to address the gender bias in engagement. One way to address some of the identified issues would be to deliver the STASH study to an older year group.

In terms of data collection, we will consider the use of student phones (with mobile Wi-Fi hotspots) to enable completion in classroom. The questionnaire will be rationalised with improved wording and filtering, and stronger reassurance regarding confidentiality.

In conclusion, the STASH study is a feasible approach to undertaking sexually transmitted infection prevention within the context of Scottish secondary schools, and shows potential for translation to other educational contexts. It can be implemented with good fidelity and is acceptable to those involved. Carefully managed social media use has the potential to augment face-to-face conversation, but cannot replace it. All bar one of our progression criteria were met, with the weight of evidence supportive of continuation to full-scale evaluation. Small-scale improvements are recommended, beginning with the next iteration of our programme theory. Next steps include literature reviews and consultations to determine a target difference for the sample size calculation and discussion of key refinements with stakeholders. We anticipate that our proposed refinements and contextual adaptations can be tested within the pilot stage of a scaled-up evaluation.

Trial registration

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