School-based interventions TO Prevent Dating and Relationship Violence and Gender-Based Violence (STOP-DRV-GBV): systematic review to understand characteristics, mechanisms, implementation and effectiveness

PROTOCOL

Version	Amendment	Rationale	Date	Submitted to NIHR	Submitted to PROSPERO
1	Minor adjustments to search strings to account for wildcards and free-text terms	Ensure consistency across databases	4 June 2020	5 June 2020	5 June 2020
1.1	Acknowledgement of funding, disclaimer	NIHR request	3 July 2020	3 July 2020	N/A

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BACKGROUND AND RATIONALE

Description of the problem

Relationships and sex education (RSE) will be a statutory subject in all English secondary schools with Relationships Education statutory for primary schools by 2020, yet the evidence on school-based interventions to prevent dating and relationship violence (DRV) and gender-based violence (GBV) in schools remains fragmented. This is despite the important role schools play in establishing prosocial norms and behaviours, and the duty of care schools have in preventing violence between pupils; indeed, significant amounts of DRV and GBV occur in schools.(1) DRV refers to physical, sexual and emotional violence, including coercive control, in relationships between young people. Critically, it includes those aged under 16, who are not included in UK government definitions of domestic violence. GBV refers to violence rooted in gender inequality and sexuality, e.g. harassment or bullying on the basis of gender or sexuality; sexual violence, coercion and assault including rape, within or outside dating relationships.(2) Longitudinal evidence demonstrates that experience of DRV predicts young people's later GBV victimisation and that they share common risk factors,(3, 4) but they are rarely considered as joint constructs.(5)

Previous systematic reviews of interventions for young people have focused on DRV and have not meaningfully considered intervention impacts jointly with GBV.(6-9) This is important as interventions nominally focusing on DRV may impact GBV and vice versa, underpinned by common mechanisms and structural features that lead to high rates of both in schools. These common mechanisms include, for example, patriarchal and toxic gender norms at the societal level; inconsistent development and enforcement of violence prevention policies at the school level; and, at the individual level, exposure to and reinforcement of antisocial norms relating to gender, sexuality and violence and, conversely, insufficient exposure and reinforcement to prosocial norms relating to the same.(1, 5, 10, 11) These multilevel influences are experienced across sexual and reproductive health, of which DRV and GBV are important determinants.(12) Indeed, antisocial gender role attitudes and greater acceptance of dating violence are longitudinally associated with increased perpetration of physical DRV in adolescent boys.(13) That is, DRV and GBV have a common basis in exploiting gender and sexual inequalities and in antisocial norms.(14) DRV and GBV are amenable to change in school contexts via a range of approaches, from didactic (e.g. classroom-based instruction) to structural (e.g. school policy changes).(2, 15) Thus, considering DRV and GBV jointly is essential to develop, implement and adapt efficient and effective interventions in school contexts.

DRV and GBV are pressing public health problems with manifold and inequity-generating long-term impacts on health. Current epidemiological evidence suggests that while boys and girls both experience major burdens of emotional and physical DRV, impacts are disproportionately experienced by girls. Globally, 30% of women report violence with a current or previous partner in their lifetime.(16) A cross-sectional study based on a representative sample of 11-16 year olds in Wales found that 28% of girls report emotional victimisation and 12% report physical victimisation by a partner over the course of adolescence, while 20% of boys emotional victimisation and 17% report physical victimisation.(11) However, this study also found that age-related trajectories in victimisation are steeper in girls than in boys, suggesting that adolescence is a critical period to arrest inequalities arising from DRV and GBV. Moreover, a national sample from the United States noted that rates of sexual DRV perpetration are twice as high in boys as compared to girls, and that despite climbing rates of emotional and physical DRV perpetration and victimisation between boys and girls across adolescence, the psychological impact of fear and intimidation is far greater among girls,(17) even as boys face substantial stigma in reporting victimisation. The median age for most recent occurrence of sex against one's will, a form of GBV, is 18 among men and 16 among women.(18) In addition, longitudinal evidence suggests that the onset of physical DRV and GBV peaks in mid-adolescence, while onset of sexual DRV and GBV is greatest in late-adolescence.(19) This underscores the importance of intervention in school years. Young people do not report perceived peer sanctions against GBV behaviours,(2) and at an individual level, norms accepting of GBV and harassment strongly correlate with DRV perpetration and victimisation, reinforcing the importance of considering these outcomes jointly.(2, 13, 20) In 2017 in the UK, 64% of girls aged 13-21 reported sexual harassment at school or college in the past year; 39% had their bra strap pulled by a boy and 27% had their skirts pulled up within the last week.(21) Moreover, while it is well understood that sexual minority adolescents experience higher levels of GBV in terms of homophobic and transphobic bullying and sexual harassment,(22) national

samples have demonstrated that these adolescents also experience higher rates of physical and sexual DRV.(23)

Longitudinal impacts of DRV and GBV are numerous. In adolescence, both perpetrators and victims report increased risky sexual behaviour, substance use and depressive symptoms;(9, 10, 24) in adulthood, survivors of DRV and GBV are more likely to be re-victimised (25) and more likely to report poorer mental and physical health.(26) In particular, a systematic review of longitudinal studies found that both DRV and GBV experiences as adolescents were predictive of adult experiences of domestic violence.(27) Another way in which DRV and GBV are inequity-generating is in their exacerbation of health inequalities between men and women;(17) in particular, earlier onset of intimate partner violence leads to greater impacts on mental and physical health in adulthood.(26) In addition, there are strong intersections with other inequalities, such as race/ethnicity and sexuality.(22) DRV and GBV generates inequalities between heterosexual and cisgender young people and their sexual minority peers, such as an increased burden of suicidal ideation arising from experiences of DRV and GBV.(22) Importantly, a key source of these inequalities in mental health is the shared impact of school context, including prevalence and response to DRV and GBV, both of which point to the importance of school-based intervention.(28)

Description of the intervention

Our proposed systematic review focuses on school-based interventions for the prevention of DRV or GBV, provided to students in compulsory education (aged 5 to 18). These interventions draw on a range of approaches used in the school context, from 'traditional' classroom-based instruction as part, or distinct from, RSE through to school-level resourcing and restructuring. Didactically led programmes have been extensively evaluated. For example, Safe Dates, included an RSE curriculum;(29) Second Step included classroom-based social and emotional learning;(30) and TakeCARE used a video-based programme to teach bystander behaviour, or increased self-efficacy to intervene, with the goal of reducing DRV and GBV.(31) However, explicit consideration of structural components is important given the presence of school 'hot spots' for violence, including DRV and GBV,(32) and the potential value of staff-led responses in terms of increased monitoring and other place-based approaches.(33) Indeed, prior reviews have not attended to these structural components. For example, Safe Dates increased services to adolescents in abusive relationships, and sought to upskill teachers and community service providers.(29) In addition, Shifting Boundaries, which compared a didactic and structural package against a structural-only package (building-based restraining orders, greater faculty and security staff in hot spots, school media campaign) and against no intervention, found reductions in sexual violence perpetration in the structural-only intervention alone.(34) To our knowledge, structural components have not yet been considered in a systematic review. The mechanisms through which interventions may impact DRV and GBV outcomes are accordingly broad, including improved knowledge and self-efficacy, improved reporting and bystander behaviours and better conflict resolution skills through to changes in school culture and responses (28) and social norms at the group level.(12)

Rationale for the current study

Our proposed systematic review is urgently needed to a) address limitations in existing systematic reviews; b) provide urgently needed information in the policy context, and c) go beyond estimates of effectiveness to provide usable information for practitioners and policymakers regarding the design and implementation of school-based interventions, including curricula, for DRV and GBV prevention.

First, scoping of previous reviews reveals critical limitations. In preparation for this application, we searched the Cochrane and Campbell Libraries, PROSPERO and Ovid MEDLINE to identify existing systematic reviews relating to DRV or GBV in young people and schools. Search strategies are documented below. Our searches identified six systematic reviews published since 2013.(6-9, 35, 36) Previous systematic reviews in this area:

1) focused on interventions for the prevention of DRV, rather than GBV, and have not specifically synthesised GBV-related evidence;(6-9, 35)
2) have not conducted comprehensive searches using a range of terminology for DRV and GBV outcomes;(6-9, 35)
3) have not broadened beyond specific intervention models (e.g. bystander interventions);(7)

4) considered interventions across age ranges and settings rather than focusing on interventions in compulsory education settings specifically, which is most relevant to inform policy;(7, 9, 35, 36) or
5) have not examined heterogeneity in effectiveness.(6-9, 35, 36)

Only one review considered implementation aspects and cost-effectiveness of interventions, but was focused on domestic abuse and did not seek to analyse components or mechanisms of action.(8) However, we identified several limitations with the search methods used in this and other systematic reviews. Four reviews did not provide reproducible strategies for bibliographic database searches.(6, 8, 35, 36) Search strategies were not comprehensive, and did not combine use of relevant subject headings (i.e. MeSH in MEDLINE) with a variety of free text terms.(6-8, 35) Bibliographic database searches were restricted using unvalidated filters for methodological study designs (6, 35) or used unreliable database limits for specific age categories.(8)

The collective impact of these methodological limitations is that existing reviews provide only partial and biased pictures of the evidence base. We note that three reviews (6, 8, 35) did not include at least one RCT that was identified by one of the other systematic reviews. Our own scoping determined that one major review (6) missed at least two relevant RCTs;(37, 38) another major review did not include three relevant RCTs;(37-39) and a third review (35) did not include at least one eligible RCT.(40) Indeed, a key reason for considering DRV and GBV jointly rather than separately or as exchangeable outcomes is that artificial distinctions between these constructs have led to variable inclusion of studies, outcomes and effect estimates both across and within prior reviews.(6-9, 36) For example, we identified inconsistency in the application of inclusion criteria in reviews with a similar scope; de la Rue and colleagues (6) excluded an eligible RCT (39) that was included in Fellmeth and colleagues' earlier review.(9) That is, reviews did not include all relevant studies, either with respect to the range of DRV and GBV outcomes or even with respect to DRV alone, and there is no recent comprehensive review-level evidence on the effectiveness of school-based interventions for GBV specifically.

Second, and by corollary, artificial distinctions between outcomes and intervention strategies preclude a clear picture of the evidence and do not meet policy and practice needs. The shared mechanisms linking DRV and GBV constitute an important reason to consider these outcomes jointly. Prior reviews (6, 7, 35) have excluded important forms of GBV that may or may not occur in the context of dating relationships, such as unwanted sexting, coercive control and sexual harassment. In addition, existing reviews have used search strategies insensitive to structural intervention components (e.g. school-level policy change), and have not specifically sought to synthesise evidence for structural components.

Collectively, these omissions, inconsistencies and restrictions in scope are important because they preclude a clear picture of the evidence for intervention strategies, both collectively and comparatively. Of 27 eligible RCT publications we identified in scoping the size of the available evidence, 10 included DRV outcomes alone; nine included both DRV and GBV outcomes; and eight included GBV outcomes alone. This initial search suggests that a) trials reporting DRV outcomes are 'under-synthesised' in respect of intervention impacts on GBV outcomes, and b) a review explicitly including GBV outcomes would amplify the included evidence base by about half.

Moreover, these omissions are also important because they render previous reviews of limited utility in informing policy and practice. First, as schools move away from single-issue interventions in the context of increasingly crowded timetables, understanding how interventions can target multiple related outcomes will meet a growing policy and practice need.(41, 42) DRV and GBV, given shared mechanisms and risks, form an ideal candidate for 'joint action'. Similarly, while it is important to consider these outcomes jointly, it is also important to identify which intervention strategies are most effective for one type of outcome or another, and which intervention strategies are best bets across the range of DRV and GBV outcomes. Second, attention to how interventions include multiple and multilevel strategies is important as single-issue, single-component interventions are more likely to wash out of complex systems such as schools.(43, 44) No previous reviews identified have sought to synthesise components in this way, nor to understand multilevel functioning of interventions. Third, a focus on didactic interventions alone without synthesis of structural and organisational intervention strategies, does not account for the potential role of multilevel interventions in reducing health inequalities.(45) Fourth, and finally, attention to internet-mediated DRV (46) meets a pressing policy and practice need identified

with stakeholders to understand how digital culture in school and youth contexts shapes newer forms of violence.

Third, the evidence base is of sufficient evaluability to generate policy-relevant evidence that goes beyond 'does it work?' Our scoping work in preparation for this review (see below, 'Size of available literature') uncovered a rich evidence base sufficient to go beyond questions of effectiveness. Yet despite the richness of the available evidence, we were unable to find in our scoping searches any comprehensive treatment of intervention components, implementation or intervention functioning. As noted above, prior reviews have not sought to explore comprehensively heterogeneity in intervention effectiveness by intervention characteristics, nor have prior reviews examined impacts on health inequalities. Importantly, the size of the evidence base also means a targeted synthesis that focuses on school-based interventions in compulsory education, as opposed to for adolescents generally,(7, 9, 35, 36) can unearth insights on how school contexts specifically shape intervention functioning and effectiveness.

While these questions are methodologically interesting, they are, more importantly, directly relevant to UK policy and practice, with scope to inform responses to sexual violence for young people beyond schools as well. Exploring and synthesising which intervention characteristics are most important for preventing DRV and GBV, what kinds of issues implementers are likely to face, and how interventions are most likely to function in local contexts can support local decision-making and commissioning. As RSE becomes a statutory subject, schools will seek to develop and implement programmes that address DRV and GBV prevention and improve responses to these outcomes. Policy and practice stakeholders and young people consulted in preparation for this application identified the need for evidence that could be used to select, develop and implement locally relevant interventions. For example, the recent statutory guidance on RSE noted that in secondary school, students should understand 'how stereotypes, in particular stereotypes based on sex, gender, race, religion, sexual orientation or disability, can cause damage (e.g. how they might normalise non-consensual behaviour or encourage prejudice)' and 'what constitutes sexual harassment and sexual violence and why these are always unacceptable'.(47) Despite this guidance, policy and practice stakeholders noted a lack of clarity or clear evidence as to the best ways to achieve these goals. These stakeholders also noted the importance of including sexuality-based bullying as part of GBV, especially in light of the Government Equalities Office campaign against homophobic, transphobic and biphobic bullying.

From a research perspective, syntheses going beyond intervention effectiveness can shape forward development and implementation of best bet interventions against developing evidence of heterogeneity in effectiveness.(36) This review is especially timely given our experience with the recently concluded NIHR-funded pilot trial of Project Respect, a school-based DRV prevention intervention. The first UK trial of an intervention to prevent DRV in young people, Project Respect initially intended to adapt two related interventions found to be effective in the United States: Safe Dates (29) and Shifting Boundaries.(34) The adaptation and optimisation process suggested that it would be unlikely to yield an effective intervention in UK school settings. Thus, a systematic review that 'deconstructs' existing interventions to better understand intervention functioning would be an essential starting point to develop a relevant evidence base on effective strategies for DRV and GBV prevention specifically in UK school contexts. Indeed, a key finding of Project Respect was that reconsidering types and combinations of components would be critical before undertaking further intervention development.

Finally, the lack of consideration of health inequalities in this evidence base is a major gap as yet unaddressed in a systematic review. This information is vitally important to prevent implementation of interventions that may exacerbate inequalities in respect of a problem already marked by exceptionally large social gradients in long-term impact.

In sum, a new, mixed-method systematic review with expanded search strategies and a clear remit including both DRV and GBV as eligible outcomes can:

- address inconsistencies across prior systematic reviews;
- ameliorate gaps in the understanding of GBV alongside DRV;
- draw on the evaluability of the evidence base across multiple types of evidence; and
- generate timely, relevant and innovative evidence for policy, practice and research.

AIMS AND OBJECTIVES

Research aim and questions

Our overarching aim is to understand, via systematic review, the functions and effectiveness of school-based interventions for the prevention of DRV and GBV. This aim is supported by the following research questions:

- RQ1. What are the theories of change and components of evaluated interventions?
- RQ2. What factors affect the implementation of evaluated interventions?
- RQ3. Are interventions effective and cost-effective in preventing DRV and GBV and reducing social inequalities in these outcomes?
- RQ4. What do process evaluations and mediator and moderator analyses suggest about intervention mechanisms and how these are contingent on context?
- RQ5. Based on the findings of RQs 1-4, what factors are important for joint effectiveness on DRV and GBV outcomes?

Research objectives

These questions are supported by the following objectives, which are linked to the flowchart provided as an attachment:

- To register a protocol and undertake searches by 1 Sep 2020;
- To identify primary studies by 1 Oct 2020;
- To pilot data extraction and appraisal by 1 Nov 2020;
- To map components and synthesise theories by 1 Jan 2021;
- To synthesise factors affecting implementation by 1 Apr 2021;
- To synthesise evidence of effectiveness, cost-effectiveness and equity by 1 Sep 2021;
- To complete data extraction and appraisal of studies by 1 Sep 2021;
- To synthesise evidence of mediation and moderation by 1 Dec 2021;
- To complete three consultations with policy and practice stakeholders by 1 Jan 2021;
- To complete consultations with youth stakeholders by 1 Feb 2021;
- To integrate findings across all research questions by 1 Feb 2022;
- To generate a full report for *Public Health Research* by 1 Mar 2022;
- To complete a dissemination event by 1 Mar 2022.

METHODS

Overview of research design

We will undertake a mixed-method systematic review in which different types of evidence relating to school-based interventions for the prevention of DRV and GBV will be synthesised to understand if, how and in what ways these interventions are effective. Our proposed systematic review will follow best-practice conduct (York Centre for Reviews and Dissemination; Cochrane Handbook) and reporting guidelines (Preferred Reporting Items for Systematic Reviews and Meta-Analysis [PRISMA], including extensions relating to equity; Enhancing Transparency in Reporting the Synthesis of Qualitative Research [ENTREQ]). This protocol is registered in PROSPERO.

Size of available literature

The last major review of school-based interventions (6) identified 11 randomised controlled trials from a search run in July 2013. In order to identify RCTs published since then, we conducted a scoping search of Ovid MEDLINE and CENTRAL (Cochrane Central Register of Controlled Trials). This search was conducted on 21 Nov 2019. We utilized a search strategy based on a prior Cochrane review on prevention of DRV (9) and incorporating additional terms to describe both DRV or GBV outcomes, and the school setting, combining this with a validated filter for RCT study designs. This search retrieved 27 relevant reports of randomised trials published internationally since 2013, with 6 of these studies published in 2019 alone. We also carried out searches to quantify the volume of process evaluation and implementation evidence. We used the above search strategy combined with search terms suggested by Cargo and colleagues (48) to retrieve implementation studies. This search identified 16 process evaluations with three published in 2019.

Collectively, these searches suggest a rapidly growing yet manageable body of evidence that is of sufficient maturity to justify the multiple syntheses described below. The full database

search that will be undertaken if the review is funded would encompass a greater number of databases and would not include study design terms to avoid bias in locating qualitative evidence.

Inclusion and exclusion criteria

Types of population. We will include studies with children in compulsory education (e.g. aged 5 to 18 years) who are attending school.

Types of intervention. Guided by our logic model, we will include evidence relating to interventions implemented in school contexts with students separate from, or as part of, RSE. These interventions could include one or more of:

- Individual behavioural intervention (e.g. individual learning modules or apps);
- Group or classroom-based intervention or practices (e.g. as part of RSE; delivering DRV and GBV prevention content in other academic sessions;(41) delivery of content in groups during school hours);
- Network-based approaches, such as public opinion leader interventions;
- Staff training and other service provision in schools (e.g. to recognise and respond better to sexual violence (33)); or
- Local and school policy change (49) to address structural factors relating to DRV or GBV, or to change school responses to DRV or GBV.

Interventions may be single-component or multi-component, or implement the same type of approach (e.g. group or classroom-based intervention) in a range of ways, for example by differentiating instruction over a range of school years. Included interventions must focus in whole or in part on DRV and GBV, and may be universal, selective or indicated; may be primary prevention (reducing incidence of DRV and GBV) or secondary prevention (improving responses to DRV and GBV); and may focus on gender-specific groups (e.g. boys or girls only).

We will exclude interventions that:

- do not seek to address DRV and GBV outcomes, for example interventions focusing on another health promotion topic, such as healthy eating, with an ‘opportunistic’ effect on DRV or GBV outcomes, but that do not describe prevention of DRV or GBV in intervention descriptions;
- are not delivered in compulsory education (e.g. university-based sexual violence prevention, or youth services); or
- are not delivered at least in part in school contexts.

Types of control. Comparators may include business as usual, waitlist control or another active intervention.

Types of outcome. We will include outcomes relating to the full scope of DRV and GBV behaviours. These include:

- DRV perpetration or victimisation, including physical violence; emotional violence, including isolation; coercive control, including internet-mediated DRV; sexual assault in the context of relationships;
- GBV perpetration or victimisation, including harassment and bullying on the basis of gender or sexuality, including homophobic and transphobic bullying; internet-mediated GBV, such as unwanted sexting or forwarding of sexts; unwanted sexual contact, such as groping; sexual assault; sexual harassment and rape; and
- Knowledge and attitudes related to DRV and GBV, such as rape myth acceptance, bystander attitudes and GBV-condoning norms.

Outcomes may include self-reported behaviours or experiences (e.g. were you groped in the last year; did you call someone names because of their sex or because you thought they were gay), teacher-reported behaviours (e.g. how many times did you see students engaging in sexual harassment) or official reports (e.g. how many sexual harassment incidents were reported in the last year). Outcome measures will be quantitative and may include categorical, continuous or count measures. Measures may be composite items (a range of DRV behaviours collected as a count of behaviours) or may be behaviour-specific. Behavioural outcomes may focus on: behaviours over a

specific period; frequency (monthly, weekly or daily); the number of episodes of a behaviour; or an index constructed from multiple measures. Economic analyses may also include health-related quality of life. We will exclude knowledge and attitude outcomes relating to gender or violence norms generally.

We will not include evaluations where outcomes relate only to honour-based violence outwith school and peer groups, forced marriage or female genital mutilation as these outcomes are potentially less amenable to curriculum-based school-based interventions oriented towards prevention in family contexts.

Types of study. Types of study included are categorised by research question.

- For RQ1, we will use intervention descriptions and descriptions of theories of change across all included evidence.
- For RQ2, we will draw on process and implementation evidence from eligible interventions that examines intervention delivery or receipt and how delivery was influenced by provider, user or context characteristics. This evidence may be qualitative (e.g. description of acceptability of interventions) or quantitative (e.g. measurement of intervention fidelity).
- For RQ3, we will draw on randomised trials, including cluster trials. We will also draw on any economic evaluations or modelling studies linked to these trials; that is, evidence that seeks to relate intervention costs and savings to health and wellbeing outcomes or benefits. Finally, we will include moderation or subgroup analyses linked to these trials that explore equity-relevant characteristics.
- For RQ4, we will draw on evidence included in RQ2 alongside mediation and moderation studies linked to randomised trials included as part of RQ3.
- RQ5 draws on all included evidence.

Search methods for the identification of studies

We will search the following bibliographic databases from inception and without limitation on date, language or publication type.

- MEDLINE, Embase, PsycINFO, Social Policy and Practice (OvidSP);
- CINAHL, ERIC, British Education Index, Education Research Complete, EconLit, Criminal Justice Abstracts (EBSCO*host*);
- Cochrane Database of Systematic Reviews (CDSR) and the Cochrane Central Register of Controlled Trials (CENTRAL);
- NHS Economic Evaluation Database (NHS EED via the Centre for Reviews and Dissemination);
- Social Science Citation Index and Conference Proceedings Citation Index (Web of Science, Clarivate Analytics);
- Australian Education Index, ProQuest Dissertations & Theses Global, Sociological Abstracts including Social Services Abstracts (ProQuest);
- Trials Register of Promoting Health Interventions (TRoPHI) and Bibliomap (EPPI-Centre);
- Campbell Systematic Reviews (Campbell Collaboration).

We will not restrict searches by date as our review is not an update of prior reviews, but rather has a broader scope in terms of outcomes and evidence included. We will use a sensitive search strategy designed by an experienced information specialist. This search strategy was peer-reviewed by another experienced information specialist in preparation for this application. The search strategy will include both free-text terms (i.e. searches in the title and abstract) and subject headings (e.g. MeSH in MEDLINE) for the school setting and DRV/GBV outcomes. In order to identify studies to answer review questions regarding outcome and economic evaluations, intervention theory, process and implementation evidence, and mediation and moderation evidence, no filters for specific study designs will be applied. Search strategies for MEDLINE, PsycINFO and CENTRAL are presented below. Pilot searches using these strategies demonstrated an acceptable number of hits given the scope of the review planned.

We will search trial registers to identify ongoing or unpublished research (clinicaltrials.gov, WHO ICTRP) and we will conduct searches for grey literature including conference abstracts, reports and theses from web searches, repositories of grey literature (e.g. OpenGrey.eu) as well as searches of websites identified in initial scoping searches (including VAWnet; www.vawnet.org).

Finally, we will use supplementary search methods to identify any studies not captured by our sensitive database strategies. We will review the reference lists of existing systematic reviews for relevant literature. We will apply a cluster-based approach (50) to capture theory underpinning evaluated interventions, and identify any missed 'sibling' studies. The cluster-based approach uses contact with authors; forward and backward citation chasing on included studies or "pearl" citations (we will use Scopus, Web of Science and Google Scholar for citation chasing); and targeted searches using first and last author names, project names (for e.g. Project Respect, Shifting Boundaries or Safe Dates) or study identifiers. Finally, we will hand-search journals that published included studies which we found only via reference checking and which are not indexed on databases we have searched (initially for the last 5 years and if these elicit at least one new included study, further back to the date of the earliest study included from database searches).

Selection of primary studies

Search results will be downloaded into EndNote for deduplication. Subsequently, a single search file will be uploaded to EPPI-Reviewer software. Two reviewers will pilot the screening of successive batches of 50 titles/abstracts, meeting to discuss disagreements, calling on a third reviewer where necessary. Once 90% agreement is reached, each title and abstract will be reviewed independently and in duplicate, assisted by EPPI-Reviewer's priority screening functionality. Records retained after this stage will be accessed in full text and assessed against the inclusion criteria in duplicate, and assigned to one or more evidence types (implementation/process, outcome, economic evaluation, mediation and moderation).

Data extraction and appraisal

Two reviewers will undertake data extraction independently using standardised, piloted forms. Where disagreements occur, a third reviewer will be involved.

Intervention descriptions and theories of change will be extracted as free text across included evidence. When extracting theories of change, we will focus on constructs, mechanisms and any contextual contingencies affecting these, as well as other theories cited. For all studies where relevant, we will extract information on: basic study details (study location, timing and duration; individual and organizational participant characteristics); study design and methods (design, sampling and sample size, allocation, blinding, control of confounding, accounting for data clustering, data collection, attrition, analysis); process evaluation findings and interpretation; outcome measures (timing, reliability of measures, intra-class correlation coefficients, effect sizes); relevant mediation and moderation analyses; and economic data (inputs and outputs relating to costs, consequences/benefits, disaggregated by time period where appropriate). The two reviewers will independently enter data from the data extraction forms into EPPI-Reviewer 4. If included studies are reported in languages that cannot be translated by the review team, a review author will complete the data extraction form in conjunction with a translator.

Published reports may be incomplete in a wide range of ways. For example, they may not: present information on all the outcomes that were measured (possibly resulting in outcome reporting bias); provide sufficient information about the intervention for accurate characterisation; or report statistical information necessary for the calculation of effect sizes. In all cases where there is a danger of missing data affecting our analysis, we will contact authors of papers wherever possible to request additional information. If authors are not traceable or sought information is unavailable from the authors within two months of contacting them, we will record that the study information is missing on the data extraction form, and this will be reflected in our risk of bias assessment for the study.

Assessment of quality and risk of bias

Two reviewers will assess the quality of each empirical report. The two reviewers will then meet to compare their assessments, resolving any differences through discussion and, where necessary, by calling on a third reviewer.

Qualitative studies will be appraised using the EPPI-Centre tool.(51) This will address the rigour of: sampling; data collection; data analysis; the extent to which the study findings are grounded in the data; whether the study privileges the perspectives of participants; the breadth of findings; and depth of findings. These assessments will then be used to assign studies to two categories of 'weight of evidence'. First, reviewers will assign a weight (low, medium or high) to

rate the reliability or trustworthiness of the findings (the extent to which the methods employed were rigorous/could minimise bias and error in the findings). Second, reviewers will assign an additional weight (low, medium, high) to rate the usefulness of the findings for shedding light on factors relating to the research questions. Guidance will be given to reviewers to help them reach an assessment on each criterion and the final weight of evidence. Findings from critical appraisal will be used to inform synthesis, including by describing the qualitative strength of findings in evidence syntheses.

We chose the EPPI-Centre tool given our prior experience with this tool in other NIHR-funded systematic reviews of qualitative research.(32,41,51) A key strength of this tool is that it generates appraisal in terms of both study relevance and study trustworthiness, both of which are important in qualitative evidence synthesis. In addition, the tool reflects the degree to which qualitative findings privilege participant voices, which is important given our focus on generating evidence that speaks to local implementers' needs. Finally, the EPPI-Centre tool separates weight of evidence decisions into two categories. This is relevant because our experience with systematic reviews of process evaluations is that studies relating to exceptionally relevant interventions may not provide rich data; conversely, process evaluations of interventions that only address knowledge and attitudes, rather than behaviours, may provide especially meaningful data that illuminate both how interventions function and how interventions were implemented. Thus, distinguishing between these two weights of evidence will sensitise our analysis and help in prioritising most relevant and most trustworthy findings in synthesis.

Randomised trials will be appraised using the Cochrane risk of bias tool.(52) For each study, reviewers will judge the likelihood of bias for: sequence generation and allocation concealment; blinding (of participants, personnel, or outcome assessors); incomplete outcome data; selective outcome reporting; other sources of bias (e.g. recruitment bias in cluster-randomised studies); and intensity/type of comparator. Each study will subsequently be identified as 'high risk', 'low risk' or 'unclear risk' within each domain. Economic evaluations and modelling studies linked to randomised trials will be appraised using the Drummond (53) or Philips (54) checklists respectively. These checklists require the analyst to answer 24 questions regarding each study, ranging from the type of economic evaluation (e.g. cost-utility analysis) to the time horizon and rationale for the choice of modelling approach.

Finally, we will assess reporting bias in trials according to Cochrane Handbook guidance.(52) We will reduce the effect of reporting bias by focusing synthesis on studies rather than publications and avoiding duplicated data. We will attempt to detect duplicate studies and, if multiple articles report on the same study, we will extract data only once. We will prevent location bias by searching across multiple databases. We will minimise language bias by not excluding any article based on language.

Data analysis

Our analysis will proceed in a convergent design with RQs 1-4 informing RQ 5.

RQ1. We will use intervention components analysis (55) to analyse intervention descriptions across all included evidence. Intervention components analysis is an inductive approach to comprehensively describing and categorising intervention components in a target body of evidence. This is an appropriate method to describe intervention components when these components do not fit into pre-existing taxonomies of behaviour change, which is especially the case in this review given the diverse, contextually situated and frequently multilevel nature of included interventions. Two reviewers will use open coding to generate a comprehensive list of possible intervention descriptors from five different intervention descriptions. The two lists will be compared and combined. Using principles of axial coding, the two reviewers will proceed through the remaining intervention descriptions, collapsing codes and adding new ones as required and meeting periodically to compare codes, determine if new axial codes are required and organise axial codes into categories. The final result is a comprehensive list of descriptors to characterise included interventions, organised by relevant categories. Indicative descriptors include specific activities and actions (e.g. didactic sessions, role-play, use of literature, review of school policies) characterised by frequency, intensity and duration and groups involved (students; faculty/staff; parents/community), organised by level(s) of intervention (individual, group/classroom,

organisational/environmental), included populations and participant age group and gender (e.g. single-gender or mixed-gender interventions).

We will also synthesise theories of change based on intervention descriptions and accounts embedded in individual studies' theories of change. Drawing on methods used in previous theory syntheses,(56) this inductive analysis will include a lines-of-argument synthesis.(57) Lines-of-argument synthesis is an appropriate method based on its understanding that each included study examines a 'part of the whole'; that is, each study's account of theory of change represents one possible part of how school-based interventions can work to reduce DRV and GBV broadly. Analysis will be undertaken using thematic grids,(58) and will first occur within similar intervention types informed by the intervention components analysis. Information from each relevant study (first-order constructs) will be listed in the rows and columns of each grid, and reviewers will read across each row and column to reciprocally translate findings across studies. Two reviewers will undertake this with a subset of studies first to understand and agree a common approach. Subsequently, both reviewers will proceed through each set of studies by intervention type, meeting to agree findings. The findings from each intervention type (second-order constructs) will then be compared against each other using a 'higher-level' iteration of these thematic grids to produce an overarching theory of change (third-order constructs). The outcome of this synthesis will be a hierarchically organised account of the mechanisms by which interventions are theorised to function in reducing and preventing DRV and GBV and the contexts in which these mechanisms are most likely to operate, broadly across interventions and specifically within intervention types.

For both the intervention components analysis and the synthesis of theories of change, two reviewers will undertake analysis in parallel, with periodic meetings among the analysis team to validate the developing framework. We will additionally check findings with our advisory and stakeholder groups for face validity. These checks will focus on identifying which intervention components are most promising in the UK context on the basis of relevance and fit with existing school curricula, intervention strategies and cultures, and which contexts and mechanisms are most likely to be relevant to the UK educational system.

RQ2. We will synthesise data from implementation and process evidence and from 'informal' evidence in outcome evaluations (e.g. statements in discussion sections) to identify salient factors affecting intervention implementation and how these relate to context. Because it is frequently impossible to pool statistical results relating to intervention implementation, we will treat this evidence alongside qualitative evidence. We will use thematic synthesis (59) to synthesise these data. Thematic synthesis is apposite as it is a flexible method that seeks to understanding findings across studies, without necessarily imposing a theoretical framework or 'theorising' the data, while still preserving the value of reciprocal translation (57) in understanding patterns of findings across studies rather than merely summarising these. Thematic synthesis includes both descriptive, or in vivo, themes that describe the specific content in included studies, and analytical themes that cut across findings from multiple studies.

Synthesis of implementation and process evidence will begin with a tabulation and descriptive coding phase. First, reviewers will create a table of included studies reporting information on study type, methods, context and sample; interventions evaluated; and summarised findings. Two reviewers working in parallel will then undertake pilot analysis of two reports that have been appraised as being of high quality and relevance. The reviewers will read and re-read the results from these reports, applying line-by-line codes to capture the content of the data. They will draft memos explaining these codes. Coding will begin with descriptive codes which closely reflect the words used in theory/findings sections. The reviewers will then group and organise codes, applying analytical codes reflecting higher-order themes. The two reviewers will meet to compare and contrast their coding of these first two studies for each synthesis, developing an overall set of codes. Third, the two reviewers will proceed to code the remaining studies for each synthesis drawing on the agreed set of codes but developing new descriptive and analytical codes as these arise from the analytical process, and again writing memos to explain these codes. At the end of this process, the two reviewers will meet to compare their sets of codes and memos. They will identify commonalities, differences of emphasis and contradictions with the aim of developing each overall analysis which draws on the strengths of the two sets of codes and which resolves any contradictions or inconsistencies, drawing on a third reviewer if necessary to achieve this. The outcome of this synthesis will be an account of barriers and facilitators that intervention

implementers can match to their own context. We will sensitivity analyse all findings by considering whether findings relate to high-income country contexts or low-income and middle-income country contexts, in order to better understand the applicability of findings to the UK context.

In addition to routine auditing of findings by the investigator team, we will present findings to our advisory and youth stakeholder groups for feedback. The goal of this will be to ensure that findings are relevant to intervention implementers in the UK, and to identify which findings are especially salient in the UK education context.

RQ3. Included trials will first be organised by intervention type as informed by findings from RQ1, and relevant outcomes will be hierarchically categorised by type of DRV or GBV behaviour or experience (e.g. perpetration/victimisation; general measures of DRV, emotional DRV, physical DRV; general measures of GBV, sexual assault, physical harassment, verbal harassment). We will distinguish between different intervention follow-up times (up to one year from baseline; more than one year from baseline).

After organising results from outcome evaluations by intervention, outcome and timepoint, we will produce a narrative account of intervention effectiveness. This narrative account will include both a comprehensive table of included studies reporting information on study design, methods, context and sample, interventions evaluated, and summarised findings, alongside forest plots to describe visually the range and precision of estimates of intervention effectiveness. We will then examine the extent of heterogeneity among the studies (as determined both by a Cochran's Q test and by inspection of the I^2). If an indication of substantial heterogeneity is determined (e.g. study-level I^2 value greater than 50%) that cannot be explained through meta-regressions, we will investigate this further using subgroup and sensitivity analyses.

We will then meta-analyse study findings where possible. We will begin by first analysing within intervention, outcome and timepoint categories to estimate specific intervention effects on specific outcomes and then considering, if appropriate, meta-analysis across intervention categories and across outcome categories. Meta-analyses will first consider different behaviours, experiences and forms of perpetration and victimisation separately, considering, for example, violence in dating relationships and not in dating relationships; specific perpetration behaviours and more general measures of any DRV perpetration. Outcome categories will then be collapsed to the extent that results are meaningful to estimate overall impacts of interventions on DRV and GBV. We will sensitivity analyse all meta-analyses by whether evidence arises from high-income settings or low-income or middle-income settings, using a standard subgroup difference-based test to identify any statistical differences in effectiveness that may shape the relevance of overall results to the UK context.

The key metric for all meta-analyses will be odds ratios. Where outcome measures are continuous, these will be converted to odds ratios using the logistic transformation. Where necessary, we will use a random effects robust variance estimation meta-analysis model to synthesise effect sizes. This is because outcome evaluations are likely to include multiple measures of conceptually related outcomes. Robust variance estimation meta-analysis improves on previous strategies for dealing with multiple relevant effect sizes per study, such as multilevel meta-analysis, meta-analysing within studies or choosing one effect size, by including all relevant effect sizes but adjusting for inter-dependencies within studies.(60) Unlike multivariate meta-analysis, it does not require the variance-covariance matrix of included effect sizes to be known. Where meta-analyses are performed, we will include pooled effect sizes in forest plots, with the individual study point estimates weighted by a function of their precision.

We will check that cluster randomised trials have accounted for unit of analysis issues. Prior to synthesis, we will check for correct analysis (where appropriate) by cluster and report values of: intra-cluster correlation coefficients, cluster size, data for all participants or effect estimates and standard errors. Where proper account has not been taken of data clustering, we will correct for this by inflating the standard error by the square root of the design effect. Where intra-cluster correlation coefficients are not reported, we will contact authors to request this information or impute one, based on values reported in other studies. Where imputation is necessary, we will undertake sensitivity analyses to assess the impact of a range of possible values.

We will use the GRADE approach as described in the Cochrane Handbook for Systematic Reviews of Interventions to present the quality of evidence and 'Summary of findings' tables. The

downgrading of the quality of a body of evidence for a specific outcome will be based on five factors: limitations of study; indirectness of evidence; inconsistency of results; precision of results; and publication bias. The GRADE approach specifies four levels of quality (high, moderate, low and very low). If sufficient studies are found, we will draw funnel plots to assess the presence of possible publication bias (trial effect versus standard error). While funnel plot asymmetry may indicate publication bias, this can be misleading with a small number of studies. We will discuss possible explanations for any asymmetry in the review in light of our number of included studies. We will assess the impact of risk of bias in the included studies via restricting analyses to studies deemed to be at low risk of selection bias, performance bias and attrition bias.

Next, we will produce a narrative account of findings from economic evaluations by intervention type. Measures of costs and indirect resource use, modelled impacts on health-related quality of life where provided, and cost-effectiveness will be summarised using tables. Where information is available, the tables will be presented by time horizon so that both the short and longer-term economic effects can be identified. Measures of costs, indirect resource use and cost-effectiveness will be adjusted for currency and inflation to the current UK context. These data will be used to inform a narrative synthesis of economic analyses and applicability to the UK context. We do not intend to perform de novo economic modelling since the identified interventions and their outcomes are likely to be diverse.

As a final synthesis step, we will assess equity effects by drawing on moderation analyses to illustrate how interventions impact health inequalities, focusing on ethnicity, socio-economic position, gender, sexuality and age. Moderation analyses considering differential intervention effectiveness on these equity-relevant characteristics will be organised by intervention type and outcome category and narratively synthesised. Harvest plots will be used to graphically depict how interventions ameliorate or worsen social gradients on specific outcomes by equity-relevant characteristics.(61) Where possible and where sufficient data exist, we will extend our random effects robust variance estimation meta-analyses using meta-regression to estimate how equity-relevant characteristics of study populations relate to intervention effectiveness.

We will present the findings from meta-analyses to stakeholders in our advisory and youth groups to understand which interventions are ‘best bets’ in the UK context based on both effectiveness and relevance to the UK educational system.

RQ4. We will use implementation and process evidence, mediator and moderator analyses, and ‘informal’ evidence from included studies (e.g. discussion of how interventions were implemented in outcome evaluation discussion sections) to identify mechanisms by which interventions impact DRV and GBV outcomes and associated contextual contingencies. Mechanisms will focus on understanding causal chains by which interventions are likely effective, including proximal and antecedent steps (e.g. increasing engagement, addressing social norms, knowledge and attitudes) leading to distal effects on outcomes. Informed by realist synthesis (62) and best-fit framework synthesis (63), reviewers will use findings from RQ1 as a framework to infer and induce mechanisms from studies. Best-fit framework synthesis is a flexible form of framework analysis for the synthesis of diverse study types. Importantly, it accounts for the possibility that previously ‘untheorised’ findings may emerge as relevant from included study findings. Our approach is informed by realist synthesis in that we aim to understand the links between contexts and mechanisms in generating outcome patterns.

First, we will produce a narrative account of mediation and moderation evidence, drawing on a table of included studies linking mediation and moderation analyses to their ‘parent’ outcome evaluations, and linking mediating and moderating variables to the outcomes for which they are analysed. The narrative account will be organised by intervention type, seeking to draw out similarities in mediating and moderating pathways across outcome categories.

Next, using the context-mechanism findings from the theory synthesis in RQ1 as a template, two reviewers will code the same set of five studies (spread across qualitative and quantitative implementation and process evidence, and mediation and moderation studies). This is to ensure a common understanding of how the theory synthesis can be used to code these studies, and discussing where additional codes may be needed. Once agreement is reached, two reviewers will code included studies independently and in duplicate, developing and consolidating additional codes where needed and comparing results periodically between reviewers. They will

identify which mechanisms from RQ1 are a) supported by evidence, b) remain unevidenced, and c) were previously untheorised but should be considered in future evaluation.

Findings will be periodically discussed in meetings of the investigator group, and will be presented to the advisory and youth stakeholder groups. These groups will provide additional insights in revisiting contexts and mechanisms previously discussed in RQ1, and in identifying which previously untheorized contexts and mechanisms are especially salient in the UK context.

RQ5. The final step of the synthesis integrates findings across all RQs to identify how components, mechanisms and implementation factors relate to effectiveness across DRV and GBV outcomes.

First, we will use meta-regression and pattern matching to understand which components are most effective across both DRV and GBV. We will revisit meta-analyses undertaken in RQ3 and use components identified in RQ1 to estimate how inclusion or exclusion of a specific component is associated with intervention effectiveness. These analyses will be undertaken by outcome type and timepoint, but not intervention type, and will be estimated using random effects robust variance estimation meta-analyses. Of interest will be a) the magnitude, precision and direction of the regression coefficient associated with presence of an intervention component and b) the reduction in between-study variance resulting from using an intervention component as a meta-regressor. We will examine the same meta-regressor across a range of components and use pattern-matching (64) to identify how specific components are consistently associated with improved or reduced effectiveness across a range of DRV and GBV experiences and behaviours. While meta-regression is by nature an exploratory analysis, the outcome of this work will be a suggested set of best bet components that are associated with effectiveness over a broad range of DRV and GBV outcomes.

Second and where appropriate, we will use qualitative comparative analysis (QCA) to identify how different implementation and intervention characteristics combine to form pathways to effectiveness, including on health inequalities. QCA focuses on understanding configurations of conditions that form pathways to effectiveness in interventions.(65) Given that interventions are likely to report diverse types of outcomes using different measurement approaches, QCA is especially apposite as it transforms numerical estimates into a calibrated measure of whether or not an intervention is effective. QCA is especially appropriate as it focuses on how different implementation and intervention characteristics act in concert to ‘unlock’ pathways to effectiveness. Informed by findings from RQ4, we will develop several candidate groups of implementation and intervention characteristics and consider how these characteristics form pathways to effectiveness. We will code included outcome evaluations as to the presence or absence of these implementation and intervention characteristics where this has not been done already, and classify outcome evaluations as to their effectiveness. For the purposes of this analysis, we will describe effectiveness in several ways, each corresponding to a separate model:

a) interventions that are effective in reducing DRV vs interventions that are not effective in reducing DRV;
b) interventions that are effective in reducing GBV vs interventions that are not effective in reducing GBV; and
c) interventions that are jointly effective on DRV and GBV vs interventions that are only effective in one or neither domain.

We will then generate truth tables to understand combinations of characteristics by each outcome, and seek to resolve any contradictory configurations (i.e. where combinations of characteristics span both effective and ineffective interventions). We will use Boolean minimisation to identify common pathways to effectiveness across each of the three models, and compare findings across models to note which pathways are specific to DRV or GBV outcomes and which pathways are specific to joint effectiveness of DRV and GBV outcomes, and thus should be considered when seeking to address both types of outcomes jointly.

We will present the findings of this analysis to the advisory and youth stakeholder groups to consider how best bet components are relevant in the UK context, and how identified pathways from QCA may be especially important in shaping forward evaluation and implementation in UK schools.

Socioeconomic and health inequalities

Health inequalities, including by socioeconomic status, form a central part of the planned research. We will specifically explore how school-based interventions ameliorate or worsen social gradients in DRV and GBV, including by socioeconomic status, race and ethnicity, and gender and sexuality. This is a central part of RQ3 and has not been previously considered in a systematic review. Analyses will include meta-regressions to statistically test, and harvest plots to graphically depict, how interventions impact these social gradients.

DISSEMINATION, OUTPUTS AND ANTICIPATED IMPACT

Dissemination

We will use a diverse strategy of dissemination to communicate our findings to different key audiences: a) policymakers and evidence brokers, including those advising on and commissioning RSE in schools (e.g. Department for Education, PHE, Education Endowment Foundation, and PSHE Association); b) practitioners, including school leadership networks, teachers, and school nurses; c) public, including community providers/third sector organisations, young people and parents/carers; and d) academics from a range of disciplines.

In addition to the full monograph for *Public Health Research*, we will develop a targeted briefing report for both policy and practice audiences. We will work with our advisory group (see below) to refine and disseminate these publications. To reach our academic audience, we will publish at least four peer-reviewed articles in open-access international journals addressing each of the main research questions, and disseminate our work through presentations at academic conferences spanning education, violence prevention, child development and public health. The research will have a project webpage on the NIHR Applied Research Collaboration South West Peninsula website (https://www.arc-swp.nihr.ac.uk/), which is publicly accessible, with a plain English briefing available for young people and parents/carers to download.

We will also produce a webinar for the School Health Research Network, which covers all secondary schools in Wales, and for the Education Endowment Foundation's Research Schools Network. In addition, we will co-produce a dissemination event with AYPH, which has a national network of stakeholders. We have used this in past NIHR-funded systematic reviews to generate wide-ranging interest and policy impact. We will also work with multi-academy trusts to disseminate learning, which is important given the training and coordination role trusts take on in respect of RSE curricula.

How outputs will enter health and care systems and society

We will consult our advisory group about suitable routes; however, we anticipate using the PenARC project web presence and other social media (e.g. blog, Twitter etc.) to promote and disseminate materials and attend relevant events with briefing notes and posters. We will also consult our evidence broker networks to consider how our policy and practice briefings can be provided alongside their Resource Support for schools (e.g. the EEF Teaching and Learning Toolkit, the PHE Rise Above Resources, and the PSHE Advanced Resources). This is an area of specialism of the investigator team: VB has contributed to national guidance for schools by the EEF on parent engagement and social-emotional learning, as well as a review for Welsh Government to inform their allocation of resource to prevent and respond to gender-based violence, while GJMT has contributed to international guidelines on adolescent mental health services led by the World Health Organization. We have costed in dissemination activities to publicise research findings.

Possible barriers to research, development, adoption and implementation

One challenge for evidence brokers and intervention developers who seek to have research translated in school-based settings is the devolved nature of service commissioning in education. Under current arrangements, the Department for Education requires schools to have an RSE curriculum in place by September 2020 but schools may develop their own policy on how to address this, to reflect their particular ethos and in consultation with parents, pupils and their Board of Governors. Since the Department for Education's remit is not to prescribe *how* schools should deliver this curriculum, schools must be sufficiently expert to judge appropriate form or intervention choice. This devolution of choice/commissioning to school-level (as compared to NICE directed guidance, for example) elevates the importance of our research on effective components, which

will provide evidence-based recommendations to inform schools' choices; however, it also relies on all schools a) having access to this evidence, b) understanding its implications for their context, and c) having the staffing, social and economic resources at school-level to implement the recommendations.

We have sought to mitigate these challenges by working with national standard-setters in RSE, such as the PSHE Association and the Sex Education Forum, as key evidence brokers; by including input from charities working in related areas, such as domestic violence generally, and who may be poised to support adoption and implementation of evidence from additional angles; and by including input from commissioners in prioritisation for this work. This input has informed our dissemination and engagement plans.

Anticipated impact

This study comes at a critical time in education & health policy and practice. From September 2020, all schools in England will be required to have a Relationships Education (Primary) and Relationships and Sex Education (Secondary) (RSE) curriculum in place. Promoting healthy dating relationships and preventing violence (being safe) are key components of that directive. However, the last major research reviews in this area found emerging but inconclusive evidence of effectiveness, limiting recommendations to those who must implement provision for children and young people. Thus, a chief impact of the research will be to provide new knowledge regarding the components, implementation, mechanisms, and effectiveness of school-based interventions to prevent dating and relationship violence and gender-based violence, to aid policymakers, evidence brokers and school-level leaders to make evidence-based decisions. This will help to shape the development and implementation of 'best bet' interventions. It is possible that these 'best bet' interventions will require economic or resource allocation beyond that currently imagined or provided, particularly to ensure that they do not widen existing health inequalities; therefore, the impact of this research will be to contribute to national policy conversations about the resources and context required to implement high-quality, evidence-based RSE. Finally, the research will add to public understanding and awareness of the outcomes of participation in RSE for children and young people.

INFORMING AND ENGAGING STAKEHOLDERS

Our approach to dissemination and engagement will be informed by the model of knowledge mobilisation developed by Davies et al.(66) We will consider: the purpose and goals of knowledge transfer; what knowledge is most appropriate to our main audiences; connections and networks among the recipient groups; which people, roles and positions are involved; what actions and resources are available to them; and the contexts in which they operate. Our dissemination activity will build on engagement we have already begun: teachers and school leaders informed prioritisation of these review questions and the initial logic model. Our work with schools in Project Respect signalled the need to revisit the evidence to 'reconstruct' appropriate and effective school-based interventions for DRV and GBV in the UK context, and any dissemination will respond to these directions from our stakeholders.

To support the project's goals of generating policy and practice-relevant evidence for the UK, we have planned an ambitious programme of engagement and involvement including a) a policy and practice advisory group, b) consultation with youth experts in public health through ALPHA and a bespoke group, and c) consultation with youth experts directly affected by DRV and GBV. We will also consult directly with schools identified through our existing policy and practice networks in England (e.g. the South West Teaching Schools Alliance and Education Endowment Foundation Regional Delivery team) and Wales (School Health Research Network) to understand the relevance of our findings to their contexts by proactively contributing to network events and seminars. These stakeholders will inform dissemination and the relevance of identified intervention components to schools in England and Wales.

Advisory group. Throughout the project, we will liaise with stakeholders through a project advisory group, which will be led by the Association for Young People's Health (AYPH). Members of the advisory group are key stakeholders driving professional and practice developments in school health and DRV and GBV prevention. Representatives include the PSHE Association, the national coordinating group for standards in personal, social and health education in the UK; the

Sex Education Forum, which leads professional development of RSE in England; the School Health Research Network, which covers all secondary schools in Wales; Yorkshire MESMAC, a nationally leading charity on LGBT+ health; Standing Together Against Domestic Violence, a nationally leading charity in domestic violence prevention and response; SPLITZ, a specialist support service for survivors of DRV and GBV; and GALOP, a leading advocacy group on GBV and DRV in LGBT youth; and Devon County Council, to represent commissioners' perspectives. This advisory group will meet three times during the study with a focus on grounding systematic review findings in UK-relevant policy and practice messages and in supporting dissemination. Specifically, the advisory group will

a) consider intervention components and intervention theories from RQ1 to identify key candidates for further consideration in the UK context;
b) relate implementation findings from RQ2 to the English and Welsh context, with particular regard to how barriers and facilitators are likely to impact implementation of interventions;
c) consider findings from RQs 3-5 to consider which kinds of interventions, including in terms of components included and contexts implemented, are appropriate for further investigation and investment; and
d) refine our syntheses, and our reporting and dissemination of these syntheses.

We anticipate that were this review to inform a further proposal for intervention development or optimisation, we would continue to collaborate with these organisations including via co-production and piloting.

Consultation with ALPHA and a bespoke young person's advisory group. Over the lifetime of the project, we will consult twice with ALPHA (Advice Leading to Public Health Advancement), a specialist youth group hosted in DECIPHer at Cardiff University to ensure the ongoing relevance of our work to youth health and wellbeing. Similarly, we will consult with a bespoke young person's group coordinated by AYPH. Overseen by senior staff from AYPH, two meetings of this bespoke advisory group will be planned and led by AYPH's participation lead. Young people on the group will be recruited from London and across England with a particular focus on ensuring a breadth of experience and background. AYPH youth advisors will also assist in the planning for these sessions. To ensure this breadth of experience and background, AYPH will recruit via a range of routes including their partners Brook, Street Games, Youth Access, UK Youth and We are with you (formerly Addaction) as well as partners from across the Health and Wellbeing Alliance which include carers organisations, LGBT organisations and Gypsy Roma Traveller organisations. AYPH will have an accessible application process and will select young people to ensure as much diversity as possible against relevant protected characteristics. As part of these consultations, we will examine which identified intervention components are especially relevant and acceptable in the UK context, as well as what kinds of contextual factors and mechanisms are most likely to be relevant in UK schools. Input from ALPHA will refine our syntheses and will inform reporting.

Consultation with young people as stakeholders affected by DRV and GBV. AYPH will support the engagement of young people who have been affected by sexual violence as key stakeholders with a unique perspective on the issues addressed in this research. The perspectives of these young people are vital in thinking about which interventions would work best for them in a school context. Qualitative feedback from young people involved in AYPH's current work has highlighted that some school-based interventions focused on sexual violence are further stigmatising and traumatising to those young people affected by the issues, particularly the use of graphic videos. This demonstrates the danger of some interventions further exacerbating inequalities unless young people are fully involved in the whole process. Consultations with young people will relate to all RQs considered, with particular interest in identification of interventions for forward development.

To underpin consultation, AYPH will undertake small-group or one to one consultations with four to five young people affected by sexual violence. These will be led by a specialist participation worker. Consultations will be transcribed with consent or, should consent not be given, notes will be taken and agreed with the young person. Costs for young people's time have been included and will be provided as a voucher. In addition, AYPH will support a youth advisor from our rights-based sexual violence project to attend one or more project committee meetings to directly inform the discernment process for the programme. The youth advisors are paid AYPH associates. Young

people involved in the research will be invited to help interpret the final messages which may include reading user-friendly versions of the findings or attending discussions about key messages.

It is importance to stress that all young people involved in this work will be fully supported. They will not be at a point of crisis when they are engaged in the work, we will ensure they have a connection with a project local to them who can provide ongoing support should they need it and they will also have the support of AYPH's specialist participation worker. Safeguarding arrangements will be overseen by AYPH.

Finally, young people's voices will be represented on the advisory group by means of AYPH representation. AYPH will provide ongoing senior involvement in the project committee with a focus on representing the views and experiences of young people. Whilst this is a proxy for direct engagement it will provide an important link between the direct engagement activities with young people and schools and the discernment and decision making processes of the project committee. This will assist us to ensure that consideration of young people's experiences are at the forefront throughout the programme.

RESEARCH GOVERNANCE AND ETHICS

The principal investigator is responsible for the conduct and delivery of the work. The sponsor of the research is Pam Baxter, Senior Research Governance Officer at the University of Exeter. The co-applicants will form an investigator committee which will meet monthly throughout the project, overseeing its conduct. These meetings will be minuted to keep a record of tasks, deadlines and responsibilities. The research involves no human participants and draws solely on evidence already in the public realm, so RAS approval is not required. However, given the extensive use of consultation, review and approval by the University of Exeter research ethics committee will be sought. The team will follow relevant guidelines and best practice including the Social Research Association's (SRA) ethical guidelines and refer also to guidance recommended by the National Coordinating Centre for Public Engagement.

EXPERTISE

The combined project team includes experts across relevant review methods and substantive areas; all have considerable background in researching schools and health. Prof G.J. Melendez-Torres, Professor of Clinical and Social Epidemiology and director of the Peninsula Technology Assessment Group at the University of Exeter, is an expert review methodologist with special interest in DRV and GBV. GJMT will lead the project, including managing the systematic reviewers, with specific focus on RQs 1, 3, 4 and 5. GJMT has specific expertise in advanced methods of meta-analysis, including robust variance estimation meta-analysis, meta-regression and QCA, and is an experienced systematic reviewer of economic evaluations. GJMT is supported by Dr Vashti Berry, Senior Research Fellow in the NIHR ARC South West Peninsula at the University of Exeter and expert in school-based interventions and DRV/GBV. VB will provide substantive expertise in the area and co-chair the project advisory group. GJMT is also supported by Prof Chris Bonell, Professor of Public Health Sociology at London School of Hygiene and Tropical Medicine. CB is an experienced systematic reviewer and triallist in school-based interventions, with expertise in synthesis of intervention theory and implementation evidence. He will focus on RQ 1 and 2. Dr Honor Young is Lecturer at the Centre for the Development and Evaluation of Complex Interventions for Public Health Improvement (DECIPHer) at Cardiff University, and an expert in DRV/GBV prevention in school settings. She will coordinate consultation with ALPHA and dissemination with the School Health Research Network. CB was PI, and GJMT and HY co-Is, of the recently concluded NIHR-funded pilot trial of Project Respect. In addition, Emma Rigby, Chief Executive of AYPH, is a public involvement-facing co-applicant. ER additionally leads the Young People's Health Partnership and is a well-known expert in youth participation and health. She will coordinate stakeholder involvement with youth directly affected by DRV and GBV and co-chair the advisory group; her costs are included as part of PPI activities.

Day-to-day support will be provided by Naomi Shaw, an experienced information specialist with expertise in systematic reviews of complex bodies of evidence. Dr Caroline Farmer, Research Fellow in the Peninsula Technology Assessment Group, and Dr Noreen Orr, Research Fellow in Evidence Synthesis for Modelling and Health Improvement, will provide day-to-day project leadership. Dr Farmer is a systematic reviewer with expertise in guideline development, meta-

analysis and systematic reviews of economic evaluations. Dr Orr is a systematic reviewer with specialism in qualitative research.

Search strategies

Database: Ovid MEDLINE(R) ALL

1 exp Intimate Partner Violence/ (9443)
2 Gender-Based Violence/ (187)
3 Stalking/ (202)
4 Rape/ (6258)
5 Sex Offenses/ (8843)
6 Battered Women/ (2618)
7 Spouse abuse/ (7347)
8 Coercion/ (4590)
9 Domestic violence/ (6362)
10 Homophobia/ (514)
11 (stalking or stalker*).ti,ab. (792)
12 rape*.ti,ab. (11713)
13 "intimate partner violence".ti,ab. (7333)
14 IPV.ti,ab. (6234)
15 (gender* adj3 violen*).ti,ab. (1614)
16 GBV.ti,ab. (1119)
17 SRGBV.ti,ab. (1)
18 (domestic adj3 (abuse* or abusive or aggressi* or assault* or attack* or bully* or coerc* or cyberbully* or femicid* or harass* or homicid* or injur* or manipulate* or murder* or rape* or threaten* or violen* or victimi?ation or revictimi?ation or re-victimi?ation)).ti,ab. (6852)
19 "violence against women".ti,ab. (2357)
20 ((date or dating) adj3 (abuse* or abusive or aggressi* or assault* or attack* or bully* or coerc* or cyberbully* or femicid* or harass* or homicid* or injur* or manipulate* or murder* or rape* or threaten* or violen* or victimi?ation or revictimi?ation or re-victimi?ation)).ti,ab. (2521)
21 ((relationship* or partner* or acquaintance* or non-stranger* or nonstranger*) adj3 (abuse* or abusive or aggressi* or assault* or attack* or bully* or coerc* or cyberbully* or femicid* or harass* or homicid* or injur* or manipulate* or murder* or rape* or threaten* or violen* or victimi?ation or revictimi?ation or re-victimi?ation)).ti,ab. (17096)
22 ((boyfriend* or boy-friend* or girlfriend* or girl-friend*) adj3 (abuse* or abusive or aggressi* or assault* or attack* or bully* or coerc* or cyberbully* or femicid* or harass* or homicid* or injur* or manipulate* or murder* or rape* or threaten* or violen* or victimi?ation or revictimi?ation or re-victimi?ation)).ti,ab. (47)
23 (interpersonal adj3 (abuse* or abusive or aggressi* or assault* or attack* or bully* or coerc* or cyberbully* or femicid* or harass* or homicid* or injur* or manipulate* or murder* or rape* or threaten* or violen* or victimi?ation or revictimi?ation or re-victimi?ation)).ti,ab. (2408)
24 (sexual* adj3 (abusive or aggressi* or assault* or attack* or bully* or coerc* or cyberbully* or femicid* or harass* or homicid* or injur* or manipulate* or murder* or rape* or threaten* or violen* or victimi?ation or revictimi?ation or re-victimi?ation)).ti,ab. (15314)
25 ((coerc* or forced or unwanted or nonconsensual or non-consensual) adj2 sex*).ti,ab. (2140)
26 (grope or groped or groping).ti,ab. (143)
27 (sext or sexts or sexting).ti,ab. (205)
28 (homophobi* or transphobi* or biphobi* or homonegativ*).ti,ab. (1656)
29 ((LGB or LGBT* or homosexual* or lesbian* or gay or bisexual* or queer* or transgender* or transsexual*) adj3 (abuse* or abusive or aggressi* or assault* or attack* or bully* or coerc* or cyberbully* or femicid* or harass* or homicid* or injur* or manipulate* or murder* or rape* or threaten* or violen* or victimi?ation or revictimi?ation or re-victimi?ation)).ti,ab. (694)
30 "long live love".ti,ab. (4)
31 (greendot or "green dot").ti,ab. (28)
32 "project respect".ti,ab. (27)
33 ("Media Aware" or mediaaware).ti,ab. (5)
34 TakeCARE.ti,ab. (14)
35 "Fourth R".ti,ab. (24)
36 "Safe Dates".ti,ab. (22)
37 "Shifting boundaries".ti,ab. (49)
38 "Teen choices".ti,ab. (4)
39 "good schools toolkit".ti,ab. (2)
40 "mentors in violence prevention".ti,ab. (5)

41 "Expect Respect".ti,ab. (8)
42 "Second Step".ti,ab. (10861)
43 SS-SSTP.ti,ab. (1)
44 "It's your game".ti,ab. (11)
45 DaVIPoP.ti,ab. (0)
46 (Benzies adj2 Batchies).ti,ab. (1)
47 or/1-46 (80242)
48 Schools/ (37741)
49 exp School Health Services/ (22932)
50 Students/ (57984)
51 Curriculum/ (74823)
52 school*.ti,ab,jw. (290038)
53 (pupil or pupils).ti,ab. (21779)
54 (classroom* or class-room*).ti,ab. (17039)
55 or/48-54 (419318)
56 47 and 55 (5566)

Database: APA PsycInfo
1 intimate partner violence/ (11565)
2 stalking/ (824)
3 exp rape/ (5940)
4 sex offenses/ (10106)
5 sexual harassment/ (2567)
6 battered females/ (3136)
7 coercion/ (2287)
8 domestic violence/ (11438)
9 sexting/ (265)
10 (stalking or stalker*).ti,ab. (1367)
11 rape*.ti,ab. (8885)
12 "intimate partner violence".ti,ab. (7991)
13 IPV.ti,ab. (5129)
14 (gender* adj3 violen*).ti,ab. (2262)
15 GBV.ti,ab. (132)
16 SRGBV.ti,ab. (0)
17 (domestic adj3 (abuse* or abusive or aggressi* or assault* or attack* or bully* or coerc* or cyberbully* or femicid* or harass* or homicid* or injur* or manipulat* or murder* or rape* or threaten* or violen* or victimi?ation or revictimi?ation or re-victimi?ation)).ti,ab. (10407)
18 "violence against women".ti,ab. (2942)
19 ((date or dating) adj3 (abuse* or abusive or aggressi* or assault* or attack* or bully* or coerc* or cyberbully* or femicid* or harass* or homicid* or injur* or manipulat* or murder* or rape* or threaten* or violen* or victimi?ation or revictimi?ation or re-victimi?ation)).ti,ab. (2774)
20 ((relationship* or partner* or acquaintance* or non-stranger* or nonstranger*) adj3 (abuse* or abusive or aggressi* or assault* or attack* or bully* or coerc* or cyberbully* or femicid* or harass* or homicid* or injur* or manipulat* or murder* or rape* or threaten* or violen* or victimi?ation or revictimi?ation or re-victimi?ation)).ti,ab. (23371)
21 ((boyfriend* or boy-friend* or girlfriend* or girl-friend*) adj3 (abuse* or abusive or aggressi* or assault* or attack* or bully* or coerc* or cyberbully* or femicid* or harass* or homicid* or injur* or manipulat* or murder* or rape* or threaten* or violen* or victimi?ation or revictimi?ation or re-victimi?ation)).ti,ab. (78)
22 (interpersonal adj3 (abuse* or abusive or aggressi* or assault* or attack* or bully* or coerc* or cyberbully* or femicid* or harass* or homicid* or injur* or manipulat* or murder* or rape* or threaten* or violen* or victimi?ation or revictimi?ation or re-victimi?ation)).ti,ab. (3672)
23 (sexual* adj2 (abuse* or abusive or aggressi* or assault* or attack* or bully* or coerc* or cyberbully* or femicid* or harass* or homicid* or injur* or manipulat* or murder* or rape* or threaten* or violen* or victimi?ation or revictimi?ation or re-victimi?ation)).ti,ab. (40777)
24 ((coerc* or forced or unwanted or nonconsensual or non-consensual) adj2 sex*).ti,ab. (2934)
25 (grope or groped or groping).ti,ab. (189)
26 (sext or sexts or sexting).ti,ab. (377)
27 (homophobi* or transphobi* or biphobi* or homonegativ*).ti,ab. (4532)
28 ((LGB or LGBT* or homosexual* or lesbian* or gay or bisexual* or queer* or transgender* or transsexual*) adj3 (abuse* or abusive or aggressi* or assault* or attack* or bully* or coerc* or cyberbully* or femicid* or harass* or homicid* or injur* or manipulate* or murder* or rape* or threaten* or violen* or victimi?ation or revictimi?ation or re-victimi?ation)).ti,ab. (1424)
29 "long live love".ti,ab. (5)

30 (greendot or "green dot").ti,ab. (31)
31 "project respect".ti,ab. (15)
32 ("Media Aware" or mediaaware).ti,ab. (8)
33 TakeCARE.ti,ab. (6)
34 "Fourth R".ti,ab. (30)
35 "Safe Dates".ti,ab. (25)
36 "Shifting boundaries".ti,ab. (86)
37 "Teen choices".ti,ab. (4)
38 "good schools toolkit".ti,ab. (1)
39 "mentors in violence prevention".ti,ab. (10)
40 "Expect Respect".ti,ab. (16)
41 "Second Step".ti,ab. (1362)
42 SS-SSTP.ti,ab. (4)
43 "It's your game".ti,ab. (9)
44 DaVIPoP.ti,ab. (1)
45 (Benzies adj2 Batchies).ti,ab. (0)
46 or/1-45 (95746)
47 exp schools/ (68949)
48 school based intervention/ (18430)
49 students/ or high school graduates/ or high school students/ or junior high school students/ or kindergarten students/ or middle school students/ or preschool students/ (86673)
50 exp curriculum/ (116519)
51 school*.ti,ab,jn. (385470)
52 (pupil or pupils).ti,ab. (25172)
53 (classroom* or class-room*).ti,ab. (86978)
54 or/47-53 (550100)
55 46 and 54 (8682)

Cochrane Database of Systematic Reviews (CDSR) and the Cochrane Central Register of Controlled Trials (CENTRAL) (Wiley): Search strategy

#1 MeSH descriptor: [Intimate Partner Violence] explode all trees
#2 MeSH descriptor: [Gender-Based Violence] explode all trees
#3 MeSH descriptor: [Stalking] explode all trees
#4 MeSH descriptor: [Rape] explode all trees
#5 MeSH descriptor: [Sex Offenses] explode all trees
#6 MeSH descriptor: [Battered Women] explode all trees
#7 MeSH descriptor: [Spouse Abuse] explode all trees
#8 MeSH descriptor: [Coercion] explode all trees
#9 MeSH descriptor: [Domestic Violence] explode all trees
#10 MeSH descriptor: [Homophobia] explode all trees
#11 (stalking or stalker*):ti,ab,kw
#12 rape*:ti,ab,kw
#13 "intimate partner violence":ti,ab,kw
#14 IPV:ti,ab,kw
#15 (gender* near/3 violen*):ti,ab,kw
#16 GBV:ti,ab,kw
#17 SRGBV:ti,ab,kw
#18 "violence against women":ti,ab,kw
#19 (domestic near/3 (abuse* or abusive or aggressi* or assault* or attack* or bully* or coerc* or cyberbully* or femicid* or harass* or homicid* or injur* or manipulat* or murder* or rape* or threaten* or violen* or victimisation or victimization or revictimisation or revictimization or re-victimisation or re-victimization)):ti,ab,kw
#20 ((date or dating) near/3 (abuse* or abusive or aggressi* or assault* or attack* or bully* or coerc* or cyberbully* or femicid* or harass* or homicid* or injur* or manipulat* or murder* or rape* or threaten* or violen* or victimisation or victimization or revictimisation or revictimization or re-victimisation or re-victimization)):ti,ab,kw
#21 ((relationship* or partner* or acquaintance* or non-stranger* or nonstranger*) near/3 (abuse* or abusive or aggressi* or assault* or attack* or bully* or coerc* or cyberbully* or femicid* or harass* or homicid* or injur* or manipulat* or murder* or rape* or threaten* or violen* or victimisation or victimization or revictimisation or revictimization or re-victimisation or re-victimization)):ti,ab,kw
#22 ((boyfriend* or boy-friend* or girlfriend* or girl-friend*) near/3 (abuse* or abusive or aggressi* or assault* or attack* or bully* or coerc* or cyberbully* or femicid* or harass* or homicid* or injur* or

manipulat* or murder* or rape* or threaten* or violen* or victimisation or victimization or revictimisation or revictimization or re-victimisation or re-victimization)):ti,ab,kw
#23 (interpersonal near/3 (abuse* or abusive or aggress* or assault* or attack or coerc* or cyberbully* or femicid* or harass* or homicid* or injur* or manipulat* or murder* or rape* or threaten* or violen* or victimization or revictimisation or revictimization or re-victimisation or re-victimization)):ti,ab,kw
#24 (sexual* near/2 (aggressi* or assault* or attack or coerc* or cyberbully* or femicid* or harass* or homicid* or injur* or manipulat* or murder* or rape* or threaten* or violen* or victimization or revictimisation or revictimization or re-victimisation or re-victimization)):ti,ab,kw
#25 ((coerc* or forced or unwanted or nonconsensual or non-consensual) near/2 sex*):ti,ab,kw
#26 (grope or groped or groping):ti,ab,kw
#27 (sext or sexts or sexting):ti,ab,kw
#28 (homophobi* or transphobi* or biphobi* or homonegativ*):ti,ab,kw
#29 ((LGB or LGBT* or homosexual* or lesbian* or gay or bisexual* or queer* or transgender* or transsexual*) near/3 (abuse* or abusive or aggressi* or assault* or attack* or bully* or coerc* or cyberbully* or femicid* or harass* or homicid* or injur* or manipulate* or murder* or rape* or threaten* or violen* or victimisation or victimization or revictimisation or revictimization or re-victimisation or re-victimization)):ti,ab,kw
#30 "long live love":ti,ab,kw
#31 (greendot or "green dot"):ti,ab,kw
#32 "project respect":ti,ab,kw
#33 ("Media Aware" or mediaaware):ti,ab,kw
#34 TakeCARE:ti,ab,kw
#35 "Fourth R":ti,ab,kw
#36 "Safe Dates":ti,ab,kw
#37 "Shifting boundaries":ti,ab,kw
#38 "Teen choices":ti,ab,kw
#39 "good schools toolkit":ti,ab,kw
#40 "mentors in violence prevention":ti,ab,kw
#41 "Expect Respect":ti,ab,kw
#42 "Second Step":ti,ab,kw
#43 SS-SSTP:ti,ab,kw
#44 "It's your game":ti,ab,kw
#45 DaVIPoP:ti,ab,kw
#46 (Benzies near/2 Batchies):ti,ab,kw
#47 {OR #1-#46}
#48 MeSH descriptor: [Schools] explode all trees
#49 MeSH descriptor: [School Health Services] explode all trees
#50 MeSH descriptor: [Students] this term only
#51 MeSH descriptor: [Curriculum] explode all trees
#52 (school*):ti,ab,kw
#53 (pupil or pupils):ti,ab,kw
#54 (classroom* or class-room*):ti,ab,kw
#55 {OR #48-#54}
#56 #47 AND #55

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