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BMC Public Health

STUDY PROTOCOL | Article in Press

Theatre-in-education for preventing illicit substance use among adolescents: protocol for a mixed-methods realist evaluation

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Abstract

Background Illicit substance use remains a significant public health challenge among adolescents in the UK, with prevalence particularly high in areas of South East England. Early intervention is critical for preventing escalation and promoting resilience in young people. Theatre-in-Education offers a promising approach, combining professional theatre performance with structured educational activities to engage students both cognitively and emotionally. Despite its growing use in Personal, Social, Health and Economic education, robust evidence on its effectiveness and mechanisms of action for substance use prevention is limited.

Methods This protocol describes a mixed-methods realist-informed evaluation of a multi-component Theatre-in-Education intervention delivered in secondary schools across East Sussex. The intervention comprises a live theatre performance, lesson plans, a teacher training webinar, and classroom discussions. The evaluation adopts a realist approach to explore not only whether the intervention works, but also how, for whom, and in what contexts. Quantitative data will be collected via pre- and post-intervention questionnaires with pupils and school staff to assess changes in knowledge, refusal self-efficacy, wellbeing, and social influences. Qualitative data will be generated through audience observations, creative pupil focus groups, interviews with school staff, and parent/carer focus groups. Data will be analysed using realist-informed evaluation and triangulation approaches, with integration of findings to develop context–mechanism–outcome configurations. A health economics analysis will be conducted to assess costs and benefits, including value for money. Analysis will also be carried out to assess potential impact on health inequalities.

Discussion This evaluation aims to provide vital evidence on the effectiveness, execution, and equity of Theatre-in-Education as a strategy for preventing illicit substance use in adolescence. By examining both outcomes and underlying mechanisms, the study will inform future adaptation and scale-up of arts-based interventions in drug education and contribute to understanding how best to support young people's health and wellbeing in diverse school contexts. The involvement of young people, school staff, and parents as active research partners ensures the study is responsive to real-world needs and settings.

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Trial registration The study was registered with the ISRCTN registry (ISRCTN52466797) on 24/04/2025.

Keywords Substance use prevention · Adolescents · Realist evaluation · Arts-based intervention · Theatre-in-Education · Health inequalities · Secondary schools

Abbreviations

COM-B	Capability, Opportunity and Motivation model of Behaviour change
ESCC	East Sussex County Council
PSHE	Personal, Social, Health and Economic
MANOVA	Multivariate Analysis of Variance

Illicit drug use among adolescents is a growing concern in the UK, particularly in areas affected by socioeconomic disadvantage and high exposure to County Lines drug trafficking routes [1]. National data indicate that 16.5% of young adults aged 16–24 report recent use of illicit substances, twice the rate observed among those aged 25–59 [2]. In East Sussex, 23% of pupils aged 14–16 report having ever used illegal drugs or solvents, compared to 4% of those aged 11–14 [3]. This sharp increase suggests that many young people begin experimenting with substances during this period. As such, prevention efforts may be most effective when targeted at younger pupils, ideally before the age of 14, prior to the onset of experimentation. Early intervention during this formative window may be critical for preventing initiation and fostering long-term resilience in young people.

East Sussex provides a useful context for evaluating school-based drug prevention interventions. This coastal county includes a mix of rural, coastal, and urban areas, and is characterised by substantial variation in affluence and deprivation both between and within communities [4]. In this study, we understand disadvantage primarily in terms of socioeconomic inequality, using eligibility for free school meals and school-level deprivation data as proxy indicators. While other dimensions, such as disability and neurodivergence, are relevant to young people's experiences, our health inequalities focus is shaped by the available structural data. The diverse and uneven distribution of disadvantage across East Sussex enables examination of how school context influences the implementation, mechanisms, and outcomes of public health interventions. These contextual features also mirror inequalities found elsewhere in the UK, supporting the potential for transferability of findings to other settings.

Schools play an important role in delivering preventative education, particularly through Personal, Social, Health and Economic (PSHE) education, which is guided by statutory Relationships and Health Education requirements introduced in England in 2019 [5]. While drug education is mandatory in state-funded schools in England and Wales, provision needs to extend beyond teaching about risks and harms and help children and young people develop skills to be prepared for the different contexts in which they may encounter illicit drugs. Wider evidence suggests that school prevention programmes which target core risk factors, such as emotional management and self-efficacy, resilience, independence, and self-control, can reduce drug use [6]. Programmes based on a combination of these social competencies and influence approaches have shown small, but consistent, effects in preventing drug use.

The intervention evaluated in this study is a pre-existing, multi-component Theatre-in-Education programme developed and delivered by East Sussex County Council (ESCC) as part of their wider PSHE education support offer for secondary schools. The centrepiece of the programme is *Time Out*, a one-hour live performance by Solomon Theatre Company [7] that explores peer pressure, substance use, mental health, and family stressors. This is complemented by pre- and post-performance lesson plans, a staff training webinar, classroom discussions, and take-home materials for parents. The Theatre-in-Education package was previously rolled out to all East Sussex state-funded secondary schools in spring 2023, reaching approximately 5,000 pupils. Feedback from pupils and teachers across previous cohorts has indicated high levels of engagement and acceptability. This study

protocol presents the first formal, mixed-methods evaluation of the intervention, aiming to assess its mechanisms of impact, equity of outcomes, and potential for broader implementation.

Arts-based interventions, and particularly Theatre-in-Education, offer a promising means of developing drug refusal skills. Theatre-in-Education integrates aesthetic and emotional engagement to foster reflection, dialogue, and social learning around difficult topics. A recent scoping review found that arts-based interventions, including drama and applied theatre, consistently contributed to small increases in knowledge, attitude shifts, and enhanced self-efficacy related to substance use prevention among young people [8]. Similarly, evaluations of Theatre-in-Education programmes indicate that students show engagement and retention of educational messages, particularly when performances are embedded within broader curricular activities [9].

The theoretical underpinning of the intervention draws from the COM-B model of behaviour change, which posits that Capability, Opportunity and Motivation must align to produce and sustain behavioural change [10]. This model has been widely applied in public health interventions, particularly those involving complex, socially embedded behaviours like adolescent substance use. Theatre-in-Education can influence all three domains of the COM-B model: it enhances psychological capability by increasing knowledge of drug-related harms and legal consequences (Capability); provides social opportunity through structured discussions and classroom activities that reinforce normative beliefs and peer support (Opportunity); and enhances reflective and automatic motivation by engaging pupils emotionally with relatable narratives, modelling decision-making strategies, and evoking empathy and identification with characters (Motivation). This alignment supports the development of self-efficacy, social identity, and coping strategies, key psychological mechanisms linked to reduced risk-taking behaviours in adolescence [11].

Despite promising early findings, rigorous evaluations of Theatre-in-Education in the context of drug prevention remain limited. Studies to date are often small-scale or rely on self-reported outcomes without exploring the contextual mechanisms that underpin change [e.g., 12, 13]. Systematic reviews have called for more robust designs, including mixed-methods studies that integrate quantitative assessments of outcomes with qualitative insights into programme engagement and acceptability [14, 15].

To address these limitations, we employ a realist evaluation approach, which is particularly suited to complex, context-dependent interventions. Realist evaluation seeks to unpack not just whether an intervention works, but also the mechanisms by which it produces change, the contexts in which it is effective, and for whom [16, 17]. This approach is essential for understanding the processes underlying impact and for guiding adaptation to new settings.

The underlying theory of change for the Theatre-in-Education intervention is captured in a co-produced logic model, developed with input from young people, school staff, and other stakeholders (see Additional File 1). The logic model maps the anticipated pathways from intervention activities to proximal outcomes (such as knowledge, attitudes, and refusal self-efficacy) as well as broader psychosocial processes including coping strategies, social support, and resilience. This model provides a shared framework for delivery and evaluation, and underpins the context–mechanism–outcome configurations that guide the realist evaluation. By exploring the cognitive, emotional and social mechanisms activated by the programme, and their variation across different school contexts and student subgroups, this study aims to address key evidence gaps and strengthen the evidence base for arts-based drug prevention. Ultimately, the evaluation will inform the adaptation and scale-up of Theatre-in-Education as a sustainable, effective component of PSHE education.

Aims and objectives

This research aims to evaluate the effectiveness and implementation of a multi-component Theatre-in-Education intervention designed to prevent and reduce illicit drug use among secondary school pupils. Delivered across the county of East Sussex, the intervention is situated within a broader programme of PSHE education and responds to the heightened prevalence of substance use and County Lines drug trafficking in coastal areas [1].

The evaluation takes a realist-informed approach to understand not only whether the intervention works, but also how, for whom, and in what contexts. It will explore how the Theatre-in-Education intervention influences key psychosocial factors such as refusal self-efficacy, social support, and young people's sense of agency. It will also examine how different stakeholders (pupils, teachers, and parents or carers) engage with the intervention and how it is experienced as a dramatic form, with particular attention to emotional and aesthetic responses. The evaluation further considers whether the intervention supports young people to develop positive coping strategies, stronger social identities, and greater self-worth, and whether these outcomes are experienced equitably across groups. Alongside this, the study will assess the economic case for Theatre-in-Education and examine its potential to reduce health inequalities, particularly in communities affected by structural disadvantage. Five core research questions guide the study:

1. To what extent does the implementation of a school-based theatre-in-education intervention effectively prevent and reduce illicit drug use (assessed through self-reports), and improve relevant social cognitions (antecedents) in years 8 and 9 secondary school pupils (12 to 14-year-olds)?
2. How do pupils, teaching staff, and parents/carers, understand and engage with the theatre-in-education intervention and this specific dramatic form (e.g. with reference to aesthetic and emotional engagement)?
3. What are the short-term outcomes related to nurturing engaged citizens, building positive coping strategies and associated identities for pupils, enhancing social capital, and increasing young people's self-efficacy and self-worth?
4. What are the economic benefits of the theatre-in-education intervention, considering costs, benefits, and their conversion to monetary values, and robustness of the results?
5. To what extent does the intervention contribute to a reduction in health inequalities, focusing on the interplay of illicit drug use and demographics that put young people from disadvantaged areas or backgrounds at higher risk?

By addressing these questions, the study will generate critical evidence to inform the delivery, adaptation, and potential national and international scale-up of Theatre-in-Education interventions within youth drug education and health promotion.

Methods

Study design

This study will use a mixed-methods, realist-informed evaluation to examine a Theatre-in-Education intervention designed to prevent illicit drug use among secondary school pupils in East Sussex. Led by ESCC and the University of Brighton, the evaluation adopts a hybrid effectiveness–implementation design to assess both outcomes and delivery processes. Grounded in realist principles, the study seeks to understand how the intervention works, for whom, and in what contexts [16, 17]. Data sources include pre- and post-intervention questionnaires with pupils and staff, audience observations, focus groups with pupils and parents/carers, and interviews with school staff and the theatre company performers. Table 1 outlines the overall project timeline.

Setting

The evaluation will be conducted in East Sussex, a county in South East England characterised by a mix of rural, urban, and coastal communities and marked socioeconomic contrasts. The area includes both affluent towns and areas of significant deprivation [4], making it a suitable setting for exploring how school-based prevention interventions operate across diverse local contexts.

Table 1 Study timeline for theatre-in-education evaluation (2025)

	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Governance meetings		●	●	●	●	●	●	●
Young Person Advisory Group meetings	●		●		●	●		
Pre-intervention survey	●							
Intervention delivery		●						
Audience observations		●						
Post-intervention survey		●	●					
Pupil focus groups		●	●					
School staff interviews		●	●	●				
Parent/carer viewing/focus groups					●			
Performers' interviews/group discussion					●			
Transcription			●	●	●			
Realist evaluation analysis				●	●	●		
Cost-benefit modelling and health inequalities analysis					●	●		
Reporting/dissemination							●	●

Note. ● = Activity occurring during this period

All state-funded secondary schools in the county are invited to participate in the Theatre-in-Education intervention. At the time of study planning, 29 schools had confirmed participation, including 23 mainstream and six special schools (state-funded schools that provide tailored education for pupils with special educational needs and disabilities), reaching an eligible population of approximately 4,500 Year 8 or 9 pupils (aged 12–14). This sample represents around 80% of the county's secondary schools, providing a robust basis for assessing the intervention across varied educational contexts.

For the purposes of the evaluation, two levels of participation are defined. All participating schools ($n = 29$) will be included in the intervention delivery and quantitative data collection. In addition, a purposive subsample of six schools (five mainstream and one special) will be selected for in-depth qualitative data collection, reflecting a range of coastal and inland settings, urban and rural areas, and varying deprivation levels.

Intervention description

The core component of the intervention is *Time Out*, a one-hour professional theatre production developed and delivered by Solomon Theatre Company for pupils in Years 8 or 9. The narrative follows a young person navigating family disruption, peer pressure, and exposure to drugs and alcohol, with key messages focused on emotional wellbeing, coping strategies, decision-making, and help-seeking. The performance is designed to be inclusive, relatable, and developmentally appropriate, embedding learning through emotional engagement and critical reflection.

To support integration into the school curriculum, ESCC will provide pre- and post-performance lesson plans aligned with national guidance and informed by the Young People's Advisory Group. These lessons address the legal, social, and health-related consequences of substance use and promote protective factors such as refusal skills and knowledge of support services. PSHE leads will also receive a contextual webinar and a digital resource pack to support consistent delivery and facilitate wider staff engagement.

Theatre-in-Education performances will be delivered in participating schools throughout March 2025. In participating schools, the intervention is delivered to either Year 8 or Year 9, depending on local curriculum arrangements. Pupils will be expected to complete preparatory PSHE lessons prior to the live performance and follow-up lessons in the weeks afterward. Lesson resources were developed by ESCC and are publicly available online [18]. A summary of the intervention delivery, data collection, and public involvement activities is shown in Fig. 1.

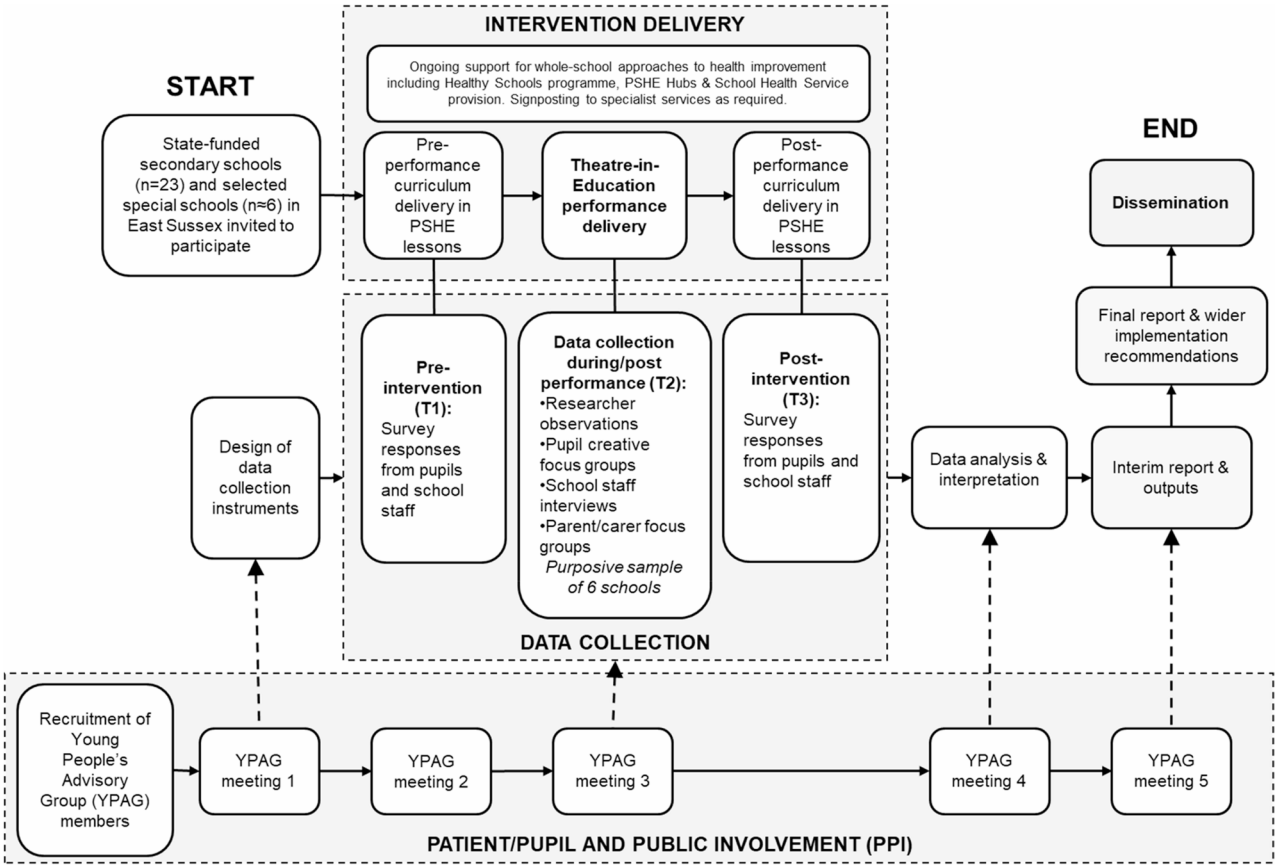


Fig. 1 Flow diagram of intervention delivery, data collection, and public involvement activities across the Theatre-in-Education evaluation

Participants and recruitment

Pupils, school staff, and parents/carers will be recruited via participating schools. All participants are required to have sufficient English language proficiency to understand study information and participate in the relevant data collection activities. Recruitment is structured around the data collection components outlined in Table 1, with different participant groups contributing to specific quantitative and qualitative activities as described below. At the time of submission, data collection was at different stages across components, with questionnaire data collection and pupil focus groups completed, school staff interviews ongoing, and parent/carer and performer data collection yet to commence.

Pupils (questionnaires and focus groups)

The target population includes pupils in Years 8 or 9 (aged 12–14) enrolled in participating secondary schools. All pupils in the relevant year groups will be invited to complete pre-intervention (T1) and post-intervention (T2) questionnaires. For in-depth qualitative data collection, a purposive sample of 45 pupils (across six schools) will be selected by teaching staff to participate in focus groups. Teachers will be provided with guidance to ensure diversity in terms of gender, background, and confidence level. Within the six schools selected for in-depth qualitative data collection, one will be a special school, supporting the inclusion of pupils with additional needs. Teachers will be consulted to ensure that pupils identified as at risk of distress are not invited to participate.

School staff (questionnaires and interviews)

Up to 20 staff involved in the planning or delivery of the Theatre-in-Education intervention (e.g. PSHE leads, classroom teachers, and members of school leadership) will be invited to participate in individual interviews. School contacts will be asked to pass on information to relevant staff who are present during the performance. Staff will also be invited to complete pre- and post-intervention questionnaires assessing their confidence and preparedness to deliver substance misuse education.

Parents and carers (focus groups)

Up to 36 parents and carers will be recruited across three focus groups via participating schools. Eligibility criteria are having a child in a participating school and having viewed a recording of the theatre performance. Interested parents will be invited to sign up via a secure form circulated through standard school communication channels (e.g. newsletters, emails). Full study information will be provided in advance.

Theatre company performers (interviews/group discussion)

Three professional actors involved in the Time Out Theatre-in-Education performance will be invited to participate in either a focus group or an individual interview, depending on their availability and preference. Eligibility for participation includes having performed in Time Out during its delivery as part of the intervention. Solomon Theatre Company will act as the intermediary and will approach eligible performers, providing them with information about the study and asking them to contact the lead researcher (CC) directly if they are interested in taking part.

Public and participant involvement

Priority 1–54, a youth engagement organisation, is providing support to enable a Young People's Advisory Group to shape the research. Three groups, established at participating secondary schools, are meeting regularly to advise on key aspects of the study. Their feedback informed revisions to the Theatre-in-Education performance (*Time Out*), which will subsequently be delivered in its updated form across all schools. The Young People's Advisory Group also contributed to the design and refinement of data collection tools. They will continue to play an active role in interpreting findings and co-developing accessible dissemination materials.

Quantitative data collection: all schools

Questionnaires for pupils and school staff will be made available approximately three weeks before the start of the school performances, allowing for completion of baseline (pre-intervention) data collection. Post-intervention questionnaires are distributed after the final school performance has been delivered and remain open for three weeks. This schedule enables consistent timing across schools while allowing pupils and staff time to reflect on the intervention. Full questionnaire instruments are provided in Additional File 2.

Pupil questionnaires

Pre- and post-intervention questionnaires will be administered to Year 8 or 9 (12–14 years old) pupils in participating schools to assess the impact of the intervention on psychosocial antecedents of substance use. These include knowledge, attitudes, refusal self-efficacy, perceived social influences, behavioural intentions, and self-reported behaviours. Questionnaires will be completed in class using school computers or mobile devices via Qualtrics, a

secure GDPR compliant survey platform. Teachers will administer the questionnaires using standardised materials, including a scripted introduction and guidance slides provided by the research team.

To preserve anonymity while allowing for individual-level linkage across timepoints, pupils generated a unique identifier based on non-identifiable personal attributes (such as favourite colour, hobby, birth month, and a two-digit number). No names, contact details, or dates of birth will be collected. The linkage file is stored securely by the University of Brighton research team on a GDPR-compliant SharePoint site with networked, password-protected access and will not be shared with schools. This approach enables individual-level tracking without collecting names or other directly identifying information.

The questionnaire combined items adapted from validated instruments with custom-developed items tailored to the intervention and school context. Draft questionnaires are reviewed by the Young People's Advisory Group to ensure relevance and accessibility for pupils aged 12–14.

Post-intervention only, pupils' engagement with and emotional response to the theatre performance are assessed using items adapted from the Theatre Audience Experience Questionnaire and the Audience Experience Index [19, 20]. These items assessed attention, emotional connection, relatability, and perceived value of the performance. General wellbeing is measured using the WHO-5 Wellbeing Index [21], alongside a single-item stress rating adapted for this study [22]. Knowledge and refusal self-efficacy are assessed pre- and post-intervention using items adapted from the Drug Knowledge Questionnaire [23] and the Self-Efficacy for Drug Avoidance scale [24]. Perceived social norms and peer or media influences are measured using items adapted from the Social Media Influence Scale [25], the Monitoring the Future Survey [26], and research concerning Social Norms Theory [27]. These items explored perceived accessibility of drugs, exposure to drug-related content, and peer influence in school and online environments. Attitudes and behavioural intentions are assessed using adapted items from the Theory of Planned Behaviour [28] and the Reasons for Drug Use Scale [29]. Pupils are asked about their likelihood of future use and their beliefs about the potential consequences of drug use. Self-reported behaviours relating to drug use are assessed through custom-developed items tailored to the age group and school context. These included questions on lifetime and recent substance use, unplanned use, and situational or emotional triggers such as stress, social pressure, and curiosity.

All items use five-point Likert-style response formats unless otherwise specified. Pupils are reassured of anonymity at the time of completion to reduce response bias and support honest reporting. Internal consistency of multi-item scales will be assessed using Cronbach's alpha. Full questionnaire instruments and item wording are provided in Additional File 2.

School staff questionnaires

School staff will complete pre- and post-intervention questionnaires designed to assess their confidence, preparedness, and experiences related to the theatre-in-education intervention. The questionnaire is developed specifically for this study and did not draw on previously validated instruments. Item content is informed by national PSHE curriculum guidance, local implementation plans, and consultation with project delivery partners in East Sussex.

Pre-intervention items captured staff role, professional development webinar attendance, self-rated knowledge, and confidence in delivering PSHE content on illegal drug use. Staff are also asked about their usual teaching methods, perceived pupil preparedness, and available school support structures. Post-intervention, the questionnaire will repeat the same confidence and knowledge items to assess change and included additional questions on the use and perceived effectiveness of the intervention resources. These include ratings of lesson plans, perceived pupil engagement, and the relevance and impact of the *Time Out* performance. Staff will also report on implementation feasibility, school context, and whether they would recommend the package to others. Most items are rated using five-point Likert scales, with some multiple-choice and open-ended responses to capture implementation detail and feedback. Full item wording and response options are provided in Additional File 2.

Qualitative data collection: six focus schools

Qualitative data will be collected in a purposive subsample of six schools selected from the wider group of participating schools. All sessions will be co-facilitated by the lead author (CC) and a trained research assistant. Semi-structured topic guides will be used for focus groups and interviews with pupils, parents/carers, and school staff. Each guide reflects a specific stakeholder group and is informed by realist evaluation principles and the project's initial programme theory, drawing on the intervention's logic model. Topic guides are co-developed with the research team, local delivery partners, and the Young People's Advisory Group, and follow a consistent structure covering emotional and cognitive responses to the intervention, perceived short-term outcomes, and suggestions for improvement. Full topic guides are provided in Additional File 3. All sessions will be audio recorded, transcribed verbatim, and anonymised.

Observations

Semi-structured observations of the *Time Out* performance will be conducted in all six schools to assess audience-level engagement. Two observers, the lead author and a research assistant from ESCC, will attend each performance. Observers will be seated apart to ensure full audience coverage and will use a structured template to record mood, reactions, social dynamics, and signs of engagement/disengagement. The lead author facilitated a training session in which research assistants are guided to avoid making assumptions about individuals and to focus instead on recording observable group-level behaviours. Notes will be compared after each session to identify common patterns and enhance consistency. Observational findings will inform the broader realist evaluation by contextualising how the intervention is received in diverse school settings.

Pupil creative focus groups

Creative focus groups will be held within three weeks of the performance in each school and will last between 30 and 60 min. Teaching staff will purposively select up to 12 pupils per group to reflect a mix of engagement levels, communication styles, and backgrounds, with a focus on pupils aged 12–14. Sessions will take place during class time in private spaces on school premises. Teachers will be asked not to attend the groups; however, in some schools, staff presence may be required due to their internal safeguarding procedures. Where staff may be present, additional efforts will be made to reassure pupils of confidentiality and minimise disruption to group dynamics.

A structured topic guide will explore pupils' emotional and cognitive responses to the *Time Out* performance and associated PSHE lessons, including perceived relevance, refusal self-efficacy, and coping strategies. Creative methods such as drawing tasks, emotion cards, and optional non-verbal prompts are embedded throughout to support accessibility, engagement, and age-appropriate self-expression. These tools will be used to facilitate discussion but will not be retained for formal analysis. At the time of submission, transcription will be underway.

School staff interviews

Semi-structured interviews will be conducted with PSHE leads, classroom teachers, and senior leaders involved in planning or delivering the intervention. Participants will be identified in collaboration with each school's designated contact. Interviews will take place either in person (in private rooms on school premises) or via Microsoft Teams, depending on staff availability and preference. Each interview will last approximately 30–45 min and will follow a topic guide aligned with the realist evaluation framework. Topics include integration of the intervention into existing PSHE provision, observed pupil responses, staff confidence in delivery, contextual enablers and barriers, and perceived mechanisms of change. Data collection will be ongoing at the time of submission.

Parent and carer focus groups

Focus groups with parents and carers will be conducted virtually via Microsoft Teams, following viewings of a recorded version of *Time Out*, which will be identical to the in-school performance. Up to three focus groups are planned, each involving approximately 6–12 participants. Parents and carers will be recruited through standard school communication channels and express interest via a secure online booking system. Sessions will last up to two hours (including screening and focus group) and will be facilitated by the lead author and a trained research assistant.

Each session will follow a structured topic guide tailored to this group and aligned with the realist evaluation framework. Discussions will explore parental perspectives on the intervention, its perceived relevance, and its influence on family conversations about substance use and wellbeing. Participants will not be asked to share their names, and display names will be anonymised during the session. Contact details will be used solely to share session links and post small value vouchers (see Ethical Considerations) and will be deleted immediately after use.

Theatre company performers

A focus group discussion or interviews (depending on the performer's availability and preferences) will be conducted via Microsoft Teams. A realist-informed topic guide will explore the actors' reflections on delivering the performance in varied school settings, perceived audience engagement, emotional responses, adaptations made during performances, and their interpretation of the intervention's messages and potential impacts.

Data analysis

A mixed-methods approach will be used to analyse evaluation data, combining statistical and qualitative techniques in line with realist evaluation principles [16, 17]. The analysis will focus on understanding how, for whom, and in what contexts the intervention may produce change.

Quantitative analysis will focus on questionnaire data from pupils and school staff. Descriptive and inferential statistics will be used to assess pre- to post-intervention change in key outcome domains, such as knowledge, refusal self-efficacy, and behavioural intentions. Mixed-effects models will be employed to account for clustering at the school level, and Multivariate Analyses of Variance (MANOVA) will be used to test changes over time. Analyses will adjust for relevant pupil- and school-level characteristics (e.g. year group, school type) to explore subgroup effects. Patterns of missing data will be examined and reported. Depending on the extent and nature of missing data, appropriate handling strategies such as multiple imputation, complete-case analysis, or sensitivity analyses will be considered. Final decisions will be guided by the distribution of missing data and established guidance for educational survey research.

Qualitative data from interviews, focus groups, and observations will be analysed using NVivo (Version 14). A combination of inductive and deductive coding will be applied, with initial codes informed by the programme logic model and evaluation questions. Coding will be structured around realist evaluation principles, with data coded directly into context–mechanism–outcome categories. This approach will support the identification and refinement of explanatory context–mechanism–outcome configurations, illustrating how the intervention is experienced and interpreted across different stakeholder groups and settings. Case comparisons may be used to explore variation across school contexts.

Integration of qualitative and quantitative findings will be achieved through triangulation, comparing themes and patterns across data sources to identify areas of convergence and divergence. This process will inform iterative refinement of the programme theory and support a nuanced understanding of implementation, engagement, and impact.

Cost-benefit analysis and health inequalities work will be led by Unity Insights, a specialist analytics organisation. Using HM Treasury's Green Book methodology [30] Unity Insights will estimate the intervention's

direct and indirect benefits, assess cost-effectiveness, and model long-term outcomes under a range of scenarios, including Monte Carlo simulations. They will also examine how the intervention may influence health inequalities by analysing variation in engagement and outcomes across school-level characteristics, such as levels of socioeconomic disadvantage and gender composition, where data are available. This work will draw on primary evaluation data and relevant local and national datasets to assess value for money and equity of impact across diverse school communities.

Ethical considerations

All study procedures were reviewed and approved by the University of Brighton Cross-School Research Ethics Committee (Ref: 15238 and 15229). The evaluation was designed to prioritise participant wellbeing, informed voluntary participation, and data confidentiality throughout.

For pupil questionnaires, an opt-out parental consent approach will be used, supported by accessible plain-language information sheets. Pupils will provide age-appropriate assent at the start of the online questionnaire. Informed consent will be obtained from school staff at the start of their online questionnaire. All participation will be voluntary, and participants can decline or withdraw at any time. No names or identifying details will be collected.

For qualitative components, including focus groups and interviews, written informed consent will be obtained from all adult participants and opt-in consent from parents/carers of participating pupils. Pupils will provide written assent prior to participation. For virtual sessions with adult participant groups, verbal consent will be obtained at the start of each session using a script approved by the University's Cross-School Ethics Committee. Written informed consent will be obtained from in-person interviews. All participants will be informed of their right to withdraw at any time and that no identifiable information would be included in transcripts or outputs.

Safeguarding and distress protocols will be in place for all data collection activities. Researchers will be briefed on school safeguarding procedures and will follow university-approved protocols for managing participant distress or disclosure of harm. Teachers will be consulted to ensure that pupils identified as at risk are not invited to participate in focus groups. Pupils will be informed of our duty to follow school safeguarding procedures at the start of the session. The creative activities used in pupil focus groups are designed to support accessibility and minimise emotional discomfort. All research activities will be scheduled in consultation with school staff to avoid disruption and align with local safeguarding expectations.

All audio recordings and transcripts will be stored securely on an encrypted university SharePoint platform. Audio recordings will be deleted after transcription has been completed. Transcripts will be anonymised during processing, and no identifiable information will be included in reporting.

No financial incentives will be provided; however, parents/carers, performers and members of the Young People's Advisory Group will receive small value vouchers as a token of appreciation, in line with institutional reward and recognition policies. The research team worked closely with ESCC and participating schools to ensure that all procedures adhere to local safeguarding, consent, and data protection standards.

Dissemination

Findings from this evaluation will be disseminated through a range of academic, practitioner, and public channels to maximise reach and impact. Planned outputs include peer-reviewed journal articles, conference presentations, and summary briefings for stakeholders, including local authorities, schools, and public health practitioners.

To support knowledge translation into practice, a toolkit will be developed in collaboration with ESCC, outlining key learning and practical recommendations for other local authorities and schools considering Theatre-in-Education approaches to drug prevention. This may include guidance on implementation, lesson planning, and working with youth advisory groups.

Dissemination will also include accessible materials co-produced with the Young People's Advisory Group, such as infographics, short reports, and a film or digital resource sharing key findings from a pupil perspective. These materials will be tailored to suit different audiences, including young people, families, educators, and policymakers.

All outputs will follow best practices for inclusive and ethical dissemination, with findings shared in a way that protects participant confidentiality while amplifying stakeholder voices. Where appropriate, findings will also be shared back with participating schools and young people in formats that are age-appropriate and accessible.

Discussion

This mixed-methods realist evaluation protocol outlines an ambitious and timely study designed to address a critical gap in adolescent drug prevention. Theatre-in-Education interventions have shown promise in enhancing young people's knowledge and self-efficacy in health-related domains [9] but robust evaluations exploring their mechanisms of change and contextual effectiveness remain scarce. This study responds to national calls for innovative, evidence-based prevention strategies and builds on an existing, well-established programme implemented in East Sussex secondary schools.

The Theatre-in-Education intervention is underpinned by the COM-B model of behaviour change, which conceptualises behaviour as a function of psychological capability, social opportunity, and motivation. By drawing on this model, the intervention aims to strengthen young people's ability to make informed, health-promoting decisions in situations involving peer influence or exposure to drugs. Its emotionally engaging and contextually relevant content is intended to activate cognitive and social mechanisms such as self-reflection, empathy, and peer dialogue. These mechanisms may, in turn, foster greater awareness, resistance to peer pressure, and ultimately a reduction in risk-taking behaviours.

The realist approach adopted here enables the evaluation to move beyond simple questions of efficacy and instead ask: what works, for whom, in what circumstances, and why? This is especially important given the diversity of school contexts, pupil characteristics (including neurodiversity and socioeconomic background), and local drug-related risks. Such an approach allows the evaluation to account for variation in outcomes and implementation, and to identify potential risks of widening rather than reducing health inequalities.

A notable strength of this study is its hybrid effectiveness-implementation design, which foregrounds issues of feasibility, acceptability, and potential for scale-up. The inclusion of an economic evaluation and health inequalities analysis adds further value, offering policy-relevant insights into the potential return on investment and differential impacts across subgroups. Moreover, the integration of creative, participatory methods, particularly through the Young People's Advisory Group, ensures the intervention and evaluation remain youth-centred and responsive. These approaches not only support the co-production of knowledge but also provide a route to more authentic interpretation and dissemination.

Limitations and feasibility challenges

Operationalising this design at scale presents several challenges. Firstly, there are logistical complexities involved in coordinating across multiple schools while ensuring fidelity and consistency of intervention delivery. Some components of the intervention (e.g. PSHE lessons) and data collection (e.g. questionnaires) rely heavily on schools for planning and implementation. While considerable effort has been made to provide teachers with clear guidance and comprehensive resources, the research team and intervention delivery team ultimately have limited control over how linked lessons are delivered within schools. To address this, qualitative data will be collected from schools to capture variation in the delivery of materials. These qualitative data will also enable an exploration of potential differences in outcomes linked to real-world variations in school implementation.

These variations offer a unique opportunity to better understand the feasibility and real-world acceptability of the intervention.

Secondly, although the evaluation aims to capture immediate and short-term outcomes such as refusal self-efficacy, knowledge gains, and attitudinal shifts, measuring sustained behavioural changes in illicit substance use within the relatively short timeframe of the project is not feasible. Behavioural changes, particularly those related to complex social issues such as adolescent substance use, often unfold gradually over extended periods. However, by incorporating robust measures of psychosocial precursors to behaviour (including coping strategies, perceived social support, and emotional engagement) and through detailed triangulation with qualitative data collected from pupils, school staff, and parents/carers, the study aims to provide comprehensive insights into the mechanisms through which early signals of change occur. This combined methodological approach will enable an identification of initial shifts in pupils' attitudes, intentions, and perceived abilities to manage drug-related pressures, thereby providing valuable predictive indicators of potential long-term impacts. Ultimately, this integrated perspective will support informed recommendations for subsequent longer-term evaluations and programme refinements.

Finally, the evaluation relies primarily on self-report questionnaire measures, which introduces certain methodological limitations. Self-reported data can be subject to various response biases, notably social desirability bias, where respondents might under-report illicit substance use or over-report desirable behaviours due to concerns about judgement, confidentiality, or potential repercussions. Additionally, recall bias could impact accuracy, particularly when participants are asked to report past behaviours or attitudes retrospectively. To mitigate these biases, anonymity and confidentiality will be ensured in questionnaire administration, clearly communicating to participants that honest answers are crucial and that their responses cannot be traced back to them individually. Nonetheless, the inherent limitations of self-reporting should be acknowledged, and results interpreted accordingly, supplemented by triangulation with qualitative findings to enhance validity and reliability of the overall evaluation.

Conclusion

This realist evaluation will provide insights into the effectiveness, implementation, and equity of a Theatre-in-Education intervention for adolescent substance use prevention. The inclusion of pre- and post-intervention questionnaire data will enable the quantification of short-term changes in key psychosocial outcomes, complementing the realist analysis of mechanisms and context. The findings will inform refinement of the current programme and guide future research, as well as contribute to the wider evidence base for arts-based approaches in health education. Through accessible, co-produced outputs, this work will support the broader adoption and adaptation of evidence-informed prevention strategies in diverse educational settings.

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Authors' contributions CC drafted the first version of the manuscript. She designed the qualitative data collection tools in line with realist evaluation principles and is leading all qualitative data collection. She also coordinated the submission process and oversaw preparation of the manuscript for publication. DB and JH are joint principal investigators. All authors contributed to the study design, provided critical revisions, and approved the final version of the manuscript.

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Data availability No datasets were generated or analysed during the current study.

Declarations

Ethics approval and consent to participate Ethical approval for this study was granted by the University of Brighton Cross-School Research Ethics Committee C (CREC-C), via two linked applications (Ref: 15238 and 15229). All procedures performed in this study will be conducted in accordance with the ethical standards of the institutional research committee and with the 1964 Declaration of Helsinki and its later amendments.
Informed consent will be obtained from all participants. For pupil participants, parental consent procedures and pupil assent will be used, in accordance with procedures described in the manuscript.

Consent for publication Not applicable.

Competing interests The authors declare no competing interests.

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