

STUDY PROTOCOL

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Feasibility and pilot study protocol of the SURE programme: a co-designed whole-school approach intervention to promote migrant-background adolescents wellbeing in secondary education

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Abstract

Background Adolescents with a migrant background may be at greater risk of experiencing poor mental health and psychosocial wellbeing. Whole-school approach (WSA) interventions with strong stakeholder commitment are considered to be a promising avenue for improving this population's wellbeing. Using such an approach, the co-designed universal SURE intervention aims to nurture a positive school climate and provide social support for migrant-background adolescents in Madrid, Spain, with the wider objective of bolstering adolescent wellbeing.

Methods Conducted in two medium-sized secondary schools in Getafe (Madrid), this research comprises two distinct components. First, a feasibility study utilises a pragmatic mixed-methods design to assess the implementation process and acceptability of the SURE intervention among students, staff, families, and community stakeholders. Second, an exploratory pilot study employs a quasi-experimental, non-equivalent control group design to estimate parameters for a future trial. During the 2025–2026 academic year, the intervention school will receive the SURE programme, while the comparison school follows the standard curriculum. Quantitative outcome data will be collected via self-report from students in 2° and 3° ESO (aged 13–15). Primary feasibility outcomes include recruitment and retention rates, intervention fidelity, and acceptability; secondary outcomes will be used to descriptively explore clinical mental health indicators (emotional symptoms, conduct problems, positive affect, and life satisfaction), alongside educational engagement and school participation.

Discussion This pilot and feasibility study aims to determine whether the SURE intervention procedures are acceptable and viable within the secondary education context. Findings will allow the research team to refine the intervention protocols, underlying mechanisms, and outcome measures. This process is essential to ensure the precision

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of estimates and the robustness of the research techniques before the SURE programme is scaled up and evaluated in a larger, definitive cluster randomised controlled trial.

Trial registration The trial was registered on the Open Science Framework (OSF) (Identifier: <https://doi.org/10.17605/OSF.IO/XQ52T>) before the enrolment of the first participant.

Keywords Adolescent wellbeing, Migrants and refugees, Pilot and feasibility study, School-based intervention, Whole-school approach, Protocol

Background and rationale

Mental health and psychosocial wellbeing of migrant-background adolescents

On the one hand, research estimates that between 10 and 20% of adolescents worldwide experience mental health problems [1]. On the other hand, the proportion of migrant students is increasing every year in Spanish schools, especially in state schools. It is known that migrant-background adolescents may be at higher risk of poorer mental health and psychosocial wellbeing due to stress experienced at various stages of the migration process [2], such related to economic difficulties [3, 4], traumatic experiences [5], acculturation challenges, and discrimination [6, 7]. Mental health and psychosocial problems can negatively influence everyday functioning in various life domains, including in the educational sphere [8]. If left unaddressed, poor adolescent wellbeing can lead to more severe mental health difficulties in adulthood, which, among other negative consequences, can further restrict this population's access to employment opportunities [9–11].

Schools as sites of intervention

Schools are environments where students spend most of their time; therefore, these settings become ideal for programmes aimed at promoting psychosocial wellbeing, particularly for those at higher risk [12, 13]. By promoting the inclusion of migrant-background adolescents, schools have enormous potential to help these students acclimate to local society, build meaningful connections with peers from diverse backgrounds, and enhance their sense of belonging—a factor strongly linked to good mental health [14]. Evidence shows that school-based interventions have great potential to enhance the wellbeing of adolescents, particularly those with migrant backgrounds [13]. For instance, interventions utilising expressive techniques, peer support, and cooperative learning about cultural topics have shown a positive impact on migrant wellbeing [15–17]. That said, comprehensive, multi-method interventions with strong stakeholder commitment may be most impactful [12].

A whole-school approach (WSA) employs a coordinated, systemic, and participatory model that addresses

wellbeing and mental health across multiple levels. It actively engages staff, students, families, and the wider community, while also considering cultural and environmental contexts [18–22]. Although evaluations of the effects of complex whole-school interventions on the wellbeing of students with migrant backgrounds remain limited, emerging evidence suggests that such approaches can positively influence students' social, emotional, and behavioural adjustment. These effects are achieved by transforming the broader school system into an open, supportive, and positive culture to foster psycho-emotional wellbeing [23]. These studies also demonstrate that WSA interventions are more likely to lead to lasting positive changes than classroom-only interventions [19, 24, 25]. Organisations such as UNESCO, the European Commission, WHO, and the UK National Institute for Health and Care Excellence (NICE) recommend this approach as a key strategy to promote psychosocial wellbeing [26–29].

The specific contribution of this protocol lies in its application within the Spanish public education sector, which is characterised by high levels of cultural and linguistic diversity. While WSA interventions have shown promise in Anglophone and other European contexts, testing the SURE intervention in this Mediterranean setting allows for an exploration of its feasibility and cross-cultural applicability across diverse student populations. This study represents a preliminary attempt to evaluate the potential suitability of universal and mental health promotion interventions for students from diverse migratory and socioeconomic backgrounds within the Spanish public school system.

The broader SURE project

The broader SURE research project aims to develop, implement, and evaluate an intervention programme (referred to interchangeably as the SURE intervention or SURE programme) designed to improve the wellbeing of migrant-background adolescents in secondary schools in the Madrid region. Adolescents are considered to be of migrant background if either they themselves or at least one of their parents are born outside of Spain [30]. The project follows a community-based, whole-school approach (WSA) with a focus on preventive measures.

The broader SURE project is being developed in three phases. The aim of phase 1 (2022–2024) was to identify protective and risk factors for adolescent psychosocial wellbeing through questionnaires and qualitative interviews. In addition, a realist review of the literature was also conducted to identify promising intervention strategies and mechanisms. During phase 2 (January–June 2025), our results from phase 1 were shared with relevant stakeholders, with whom our team collaborated to co-design the SURE intervention. More specifically, we developed a theory of change, detailing the precise mechanisms through which the SURE intervention could improve the wellbeing of adolescents, and created a programme manual. Phase 3 (June 2025–June 2026) will involve both the launch of our feasibility study in a secondary school in Getafe and the pilot evaluation of this intervention comparing the intervention school with a second school in the same location, during the 2025–2026 school year.

A synthesised summary of the project phases is provided in Table 1, while further details regarding the development and progression of the SURE project phases are available in the Supplementary Materials. In summary, while the cumulative evidence from phases 1 and 2 has established a robust theoretical and empirical foundation for the SURE intervention, its practical application within the complex ecosystem of Spanish public secondary schools remains to be explored in a real-world setting. Building on the contextual diversity and socioeconomic challenges identified in our preliminary research, a phased pilot approach is required. The current study addresses this gap by integrating a feasibility and exploratory pilot design to estimate key parameters for a future trial. These results will provide the evidentiary foundation needed to refine the intervention, ensuring its scalability and informing the design of subsequent trials.

Current study: objectives and research questions

The current study (i.e. phase III) will test the intervention over the course of one school year and has two overarching goals: first, to assess the feasibility and acceptability of the SURE intervention; and second, to descriptively explore targeted wellbeing outcomes among migrant-background adolescents. In accordance with the CONSORT extension for pilot and feasibility trials, the research questions addressed in this study are exploratory and descriptive. They are intended to provide preliminary evidence and estimate parameters for future research; consequently, they do not imply formal hypothesis testing or definitive statistical contrasts.

Feasibility and acceptability of the SURE intervention

The primary objective of this research is to assess the feasibility and acceptability of implementing and trialling the SURE intervention within the secondary education context of the Region of Madrid. This component involves a comprehensive process evaluation designed to determine the viability of the study's procedures and the intervention's integration into school settings. Specifically, the study will estimate the proportion of eligible participants that can be successfully recruited and retained across the various intervention activities, while identifying the specific barriers and facilitators to recruitment in this environment.

Furthermore, the evaluation will examine the acceptability of the programme among adolescent students, their families, school staff, and community stakeholders, ensuring that the intervention materials and tools are both appropriate and usable in the school context. Regarding implementation, the study seeks to understand how the intervention components and delivery processes function in a real-world setting, specifically assessing whether the programme can be implemented with fidelity to its core components while maintaining the necessary flexibility through its evidence-based catalogue. Finally, the study will evaluate the resources, time, training, and materials required for successful delivery, identifying the contextual factors that may influence the sustainable integration of the SURE programme into routine school services and structures.

Exploratory pilot study to estimate parameters and trends

The second objective is to conduct a pilot study to estimate the parameters required for a future definitive trial and to explore potential trends in students' mental health and educational outcomes. Given the pilot nature and the inclusion of only two school clusters, this study does not aim to establish formal causal inference or statistical significance. Instead, it seeks to evaluate the suitability of the selected outcome measures and to provide preliminary estimates of the intervention's potential impact. Specifically, this phase of the research aims to determine whether the data collection procedures and outcome measures are appropriate and sensitive enough to capture changes in the school context.

The study will explore descriptive changes reported by students in the intervention group regarding secondary mental health and educational outcomes—such as wellbeing and mental health indicators—in comparison to the comparison group. This exploration will also extend to comparing reported changes between migrant-background students and their non-migrant peers to identify any specific trends within the target population.

The study will descriptively examine how changes in school-climate-related outcomes might be associated with changes in adolescent wellbeing, providing a basis for refining the theoretical logic model of the SURE programme before its implementation at a larger scale.

Methods

Trial design

The trial has been registered on the Open Science Framework (OSF) (Identifier: <https://doi.org/10.17605/OSF.IO/XQ52T>) and comprises two components: a feasibility component and a pilot component. This protocol paper adheres to the CONSORT extension for external pilot and feasibility studies (PAFS) [31]. For the feasibility component, a pragmatic mixed-methods design will be employed. Observational and self-reported data on the implementation process will be collected from students, school staff, families, and broader community stakeholders during and after the intervention.

The pilot component of the study employs a quasi-experimental, non-equivalent control group design. One secondary school has been selected to implement the intervention, while a second school serves as a comparison group to provide insight into practice as usual and to assess the feasibility of trial procedures in a non-interventional setting. Approximately 140–200 students in the second and third years of secondary education are expected to provide data at baseline and post-intervention.

Study setting

The study will take place in two medium-sized secondary schools in Getafe, a city located 13 km south from the city of Madrid, with good public transport links. Getafe is renowned for being an important industrial and commercial location. With a total population of around 185,000, it is considered a diverse city, with around 16% of residents having been born in another country and 12% holding a non-Spanish nationality from one among 130 different countries [32]. Seven of these nationalities account for 62.82% of the foreign population: Romania, Morocco, Colombia, China, Bulgaria, Venezuela, and Ukraine. Both the intervention school and the control school are located in neighbourhoods with the highest percentages of foreign residents (30%) [32].

Participants and data collection procedures

Two inclusion criteria were applied for school participation. First, phase 3 schools must not have participated in previous phases of the SURE research project. Second, schools were required to have at least 30% of students with a migrant background. Schools were recruited with the assistance of the Education Department of the Getafe

Municipal Council. As recruitment relied on voluntary participation through municipal collaboration, participating schools may represent particularly motivated or resource-engaged educational environments. This may limit the generalisability of the findings to other school contexts.

Trial individual participants were recruited through schools that had previously agreed to participate. School principals and/or teachers were first informed about phase 3 of the project. Subsequently, all students and their primary caregivers were informed about the SURE project study via information sheets or regular school communications. Written consent to participate was then obtained from all study participants. To comply with data protection regulations in Spain, written consent was also obtained from the parents of adolescents under the age of 14 for the purpose of data collection.

Intervention participants will include secondary school students enrolled in compulsory secondary education (1° to 4° *Educación Secundaria Obligatoria* [ESO]), school staff, and other stakeholders such as families, community organisations, and public institutions. Although intervention activities will target all students in the school, only students enrolled in 2° and 3° ESO in June 2025 will be eligible to participate in the pilot component of the study, regardless of their family's country of origin. In Spain, 2° and 3° ESO correspond to the second and third years of *Educación Secundaria Obligatoria* (Compulsory Secondary Education), for students aged approximately 13 to 15 years.

For the feasibility component of the study, all students participating in the intervention activities will be eligible for the process evaluation. Parents or carers will be eligible if their child is enrolled at the intervention school. School staff will be eligible if they are employed as teachers or in other roles at the intervention school. Wider stakeholders will be included if they are members of local organisations responsible for policies or practices concerning adolescents, youth, and/or families of migrant origin.

Sample size justification

The sample size for this study was determined based on the objectives of feasibility and precision of estimates, rather than formal power calculations for hypothesis testing, which are not recommended for pilot studies [31]. Our target was to recruit all available students in the second and third years of secondary education within the two participating schools (2° and 3° ESO). This inclusive approach ensures that the intervention's 'whole-school' framework is comprehensively evaluated and provides sufficient descriptive data to inform the design of future definitive trials.

As baseline recruitment has been completed during the review process, the actual baseline sample can now be reported. A total of 294 participants were successfully enrolled ($n=195$ in the intervention school; $n=99$ in the comparison school). This sample provides sufficient descriptive information to estimate recruitment, retention, variability, and other feasibility parameters with useful precision for planning a future trial. It is also larger than commonly cited rules of thumb for pilot studies, which often suggest samples of approximately 50–70 participants to obtain reasonably stable estimates of the standard deviation for future sample size calculations [33, 34].

Interventions

The intervention school will receive the SURE programme throughout the 2025–2026 academic year, while the comparison school will not receive any additional intervention. The SURE intervention is a multi-component, co-designed, whole-school complex intervention aimed at improving the wellbeing of secondary school students with migrant and refugee backgrounds. Taking a community-based, universal, participatory approach, SURE implements evidence-based strategies that lead to a more positive school climate and greater social support for adolescents, thereby improving students' wellbeing. Moreover, SURE is a flexible, manualised programme that allows schools to select specific actions and interventions based on their unique needs and strengths [23]. It encompasses actions across the various ecological levels of a secondary educational institution. Specifically, SURE organises these actions into four components: component I—institutional plans and projects; component II—students and teaching staff; component III—families; and component IV—social entities, organisations, and institutions.

The programme's key features (*active ingredients* or *core components*) are as follows:

- The establishment and functioning of an Action Team, which serves as the central mechanism for intervention. This team is responsible for identifying needs, setting priorities, coordinating activities, disseminating information about SURE's activities and progress, and ensuring the effective implementation and monitoring of programme strategies. The Action Team represents the whole school community, including students, families, teachers, other school staff, and community organisations.
- The design and execution of a participatory needs assessment, led by the Action Team and involving active engagement from all stakeholders within the school community. This assessment is structured

around the four components to ensure that the intervention is contextually relevant and tailored to each school.

- In line with each school's specific context and needs, both the final content—*what* is implemented—and the process—*how* it is implemented—will be flexible and adaptable. Schools will choose the combination of actions from a catalogue of evidence-based strategies across the four components, selected through a participatory approach based on the findings of the needs assessment.
- Meaningful participation by all members of the school community, both as agents of change and, where appropriate, as recipients of the prioritised actions.

Figure 1 presents the initial SURE theory of change. The pathways of impact linking programme activities to student wellbeing outcomes are currently supported by evidence gathered during phases 1 and 2 of the overall SURE research project. Unless otherwise specified (e.g. for migrant-background students), the listed activities and outcomes apply to all students.

Feasibility and acceptability of the SURE intervention Outcomes, measures, and methodologies

In order to refine and prepare the SURE intervention to be implemented on a larger scale, the feasibility study will focus on identifying factors that will have facilitated or hindered the implementation. We also aim to assess the cultural relevance and acceptability of the SURE intervention for the following key stakeholders and participants: students, teachers, school management team, school counsellors, families, community-based organisations, and local policymakers. To this end, participants' experiences of implementing the intervention will be analysed through a variety of quantitative and qualitative measures, including fidelity checklists, researcher observations, interviews, focus groups, meeting notes, and self-reported measures for outcome measures. Table 2 provides a broad overview of the main datapoints to be collected as part of the feasibility study [35].

Data collection methods, participants, and analysis

'Flexible fidelity' of intervention components

To ensure the intervention's integrity while allowing for contextual adaptation, the SURE theory of change distinguishes between core components (non-negotiable elements) and flexible activities. Fidelity is monitored through a process evaluation that tracks the presence and quality of these core ingredients. While the 'what' (the active ingredients) remains constant to ensure theoretical alignment, the 'how' (specific actions) is tailored to each

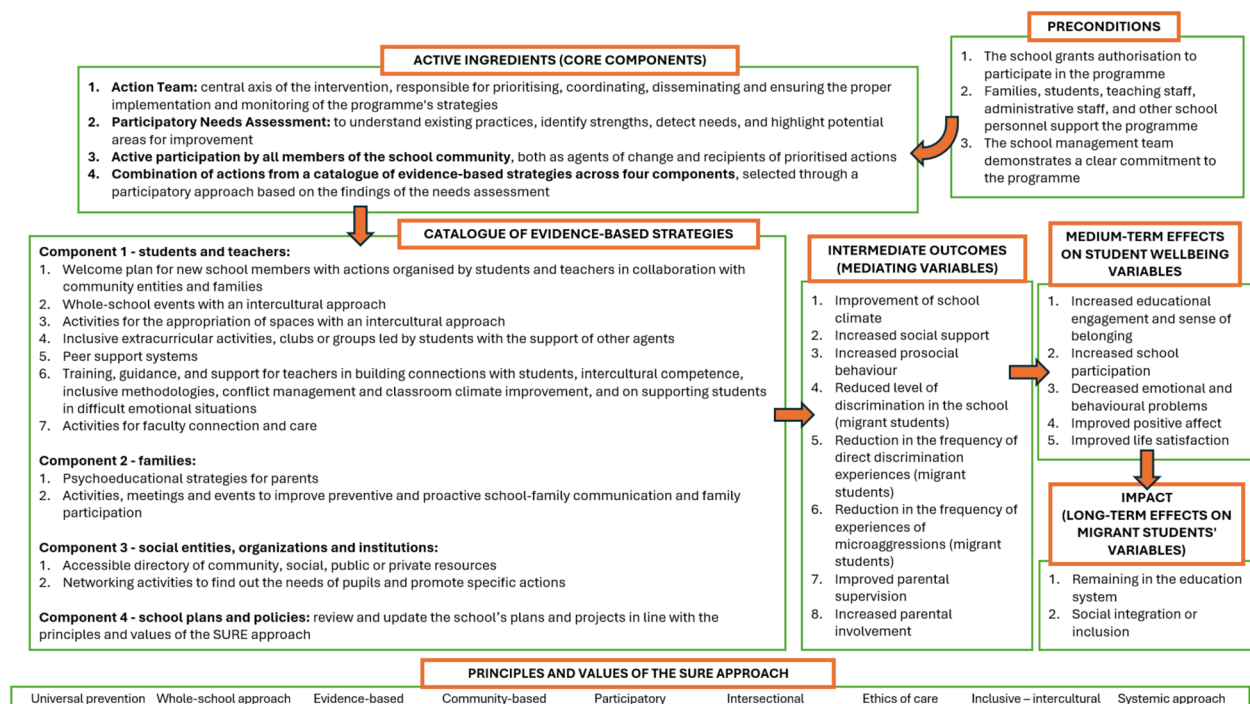


Fig. 1 SURE theory of change

school's unique needs as identified in the participatory assessment. This 'flexible fidelity' approach allows the intervention to remain responsive to the specific socio-economic and cultural dynamics, as well as the identified strengths and needs of the secondary schools without compromising its evidence-based foundation. A synthesised summary of these core components, target agents, examples of actions, and fidelity indicators is provided in Table 3.

Measurement of acceptability

Acceptability will be assessed using both quantitative and qualitative measures, with findings triangulated to provide a comprehensive understanding and inform programme adaptations for a future full trial. At the end of the 1-year intervention, participants will complete a brief acceptability questionnaire. The questionnaire will assess perceived knowledge and usefulness of the programme, satisfaction with content and delivery, relevance to student needs, and willingness to participate again or recommend to others. Responses will be rated on a Likert scale, and summary scores will be calculated to quantify overall acceptability levels. For the feasibility objectives, recruitment and retention rates will be calculated as proportions with their corresponding 95% confidence intervals to convey the precision of these process measures. Acceptability and implementation fidelity data will

be summarised using means, standard deviations, and frequencies. Missing data will be analysed to identify patterns that might inform the selection of primary outcomes for a future trial.

In addition, acceptability will be explored through semi-structured interviews and focus groups with students, staff, and parents (see [Interviews and focus groups](#) for sampling and analysis). Topics will include overall satisfaction with the programme, specific elements perceived as helpful or unhelpful, perceived impact on well-being and the classroom environment, and suggestions for improvement.

Interviews and focus groups

Participants and sampling. Purposive sampling will be used to recruit participants for qualitative interviews and focus groups. It is expected to include 10–15 students representing diverse levels of programme participation, 5–10 school staff members, including teachers, support staff, and leadership, and 5–7 parents and community stakeholders, where feasible.

Data collection methods. Semi-structured interviews and focus groups will be conducted at the end of the intervention period. Topic guides will explore experiences with recruitment, participation, acceptability, and perceived barriers and facilitators to implementation. All

Table 2 Feasibility study dimensions, research questions, and measurements

Feasibility dimension	Research questions	Further questions and explanation	Measurements and instruments
Recruitment capability	1. What proportion of eligible individual participants can be successfully recruited for each intervention activity within the specified recruitment period and school setting? What are the barriers and facilitators to recruitment in this setting?	How do the planned recruitment practices work in the school? Do recruitment practices need to be improved to increase recruitment rates and levels of informed consent? Are recruitment practices likely to result in the recruitment of the desired range of participants?	Recruitment logs, consent forms, school records, and pre-intervention adolescent self-report sociodemographic measures. Recruitment rate (e.g. number recruited per month/activity) Eligibility rate (e.g. % of screened participants who are eligible)
Acceptability of intervention	2. Is the programme acceptable to adolescent students, their families, school staff (teachers and management), and community stakeholders? Are the intervention materials and tools appropriate and usable in the school context?	Do participants perceive the intervention as appropriate, reasonable, fair, and potentially effective? Are participants unhappy with any aspect of the content or delivery of the intervention?	Post-intervention acceptability measure for all participating agents (see Measurement of acceptability below) Post-intervention focus groups
Intervention components (see further in Table 3)	3. How do the intervention components and delivery processes work in the real world? Can the programme be implemented with fidelity to its core components and with flexibility using the evidence-based catalogue?	Are actors able to implement the intervention with fidelity to the manual (as intended by developers?)	Action Team regular meeting notes Non-participant observation Interviews with intervention deliverers and recipients Teachers' implementation self-checklist, fidelity checklists, and observations
Participation	4. Can the programme achieve high levels of participation among students?	What motivated school and community agents to participate in the intervention? What aspects caused obstacles to participation? Are there specific personal attributes that help participants adhere to the intervention? How can participants be motivated to implement the programme? Is the school suitable for implementing the intervention? Are there any physical barriers or configuration issues impeding implementation? Which strategies were effective in motivating the school community to participate in the programme? Were there any counterproductive strategies?	Assessment of participation rates and diversity of the sample Participation rate (e.g. % of eligible participants who consent) Attendance records: how often students/stakeholders attend sessions or programme activities Average attendance per participant and drop-out rates Active engagement levels Reasons for non-participation Retention rate and sustained participation: participants who complete the programme versus those who drop out mid-way Diversity: participation across different student sub-groups (e.g. by age, origin, gender, grade level) to assess equity in reach Barriers to participation Attendance logs or sign-in sheets Surveys and observations to measure attention, enthusiasm, contribution during activities (pre-, mid-, and post-activities). Observation checklists (for engagement in sessions) Post-intervention focus groups or interviews (with students and staff) to identify reasons why students may choose not to participate or disengage over time
Feasibility in practice	5. Can the intervention be implemented with available resources, time, training, and materials? What contextual factors may influence a successful integration of the programme into routine school services and structures?	To what extent is the intervention aligned with the infrastructure of the school and other systems? Do all members of the school community acknowledge the existence of the programme?	Research team and Action Team regular meeting notes to address implementation issues and resource needs Post-intervention individual interviews and focus groups involving a sub-sample of all agents Post-intervention interviews with the school management team, teachers, and social entities

Table 3 Summary of SURE intervention components and fidelity

Core component or active ingredient	Target agents	Examples of actions	Fidelity assessment
Establishment and functioning of an Action Team	Students, teachers, school leadership, school counsellors, family representatives and CBO and services representatives.	Monthly coordination meetings; defining roles and responsibilities for intervention oversight.	Attendance logs; frequency of meetings; diversity of representation in minutes.
Design and execution of a participatory needs assessment	Students, school staff, and wider community stakeholders	Focus groups, observations, interviews and surveys to identify specific wellbeing gaps and school climate challenges.	Completion of a diagnostic report; documentation of diverse stakeholder input.
Combination of actions from a catalogue of evidence-based strategies	Students, teachers, whole-school events, community stakeholders, families	Short trainings, peer-support systems, student-led inclusive extracurricular activities, whole school events, revision of school plans and policies.	Logs of implemented activities; dose (number of sessions) and reach (% of target students).
Meaningful participation by all members of the school community	Entire school community (students, staff, parents, and local entities).	Student-driven communication, participatory budgeting, co-design of welcome protocols, community local services mapping	Qualitative interviews; self-reported levels of influence in decision-making processes

interviews and focus groups will be audio-recorded, transcribed verbatim, and anonymised.

Qualitative data analysis. Qualitative data will be analysed using thematic analysis following Braun and Clarke's six-phase approach [36]. An initial coding framework will be developed based on feasibility domains (e.g. recruitment, acceptability, implementation) and refined inductively as analysis progresses. Atlas.ti will be used for data management and coding. Findings will inform necessary adaptations for the full-scale randomised trial, particularly recruitment strategies and programme delivery logistics.

Action Team and Trial Management Team meeting notes

Meeting notes from the Trial Management Team (i.e. the research group responsible for the day-to-day operational oversight of the study) and the Action Team (i.e. the implementation or leadership team within the school) will be collected throughout the intervention period. These notes will document discussions about recruitment and engagement strategies, implementation challenges and solutions, stakeholder feedback, and decisions regarding adaptations to programme delivery. Notes will be thematically analysed to identify common implementation issues and facilitators.

Checklists, sign-in sheets, recruitment, attendance, and fidelity logs

Recruitment and participation logs will be maintained to track the number of students, families, and staff approached, consented, and enrolled, attendance records for each session or activity, and retention rates over the intervention period. These data will be summarised using descriptive statistics to evaluate recruitment capability and participation levels. Programme facilitators and school staff will complete standardised checklists and fidelity logs following each session or key programme activity. These logs will track activity delivery status (completed, modified, or omitted), adherence to core programme components, participant attendance, and time spent on each component. Quantitative analysis will be used to assess fidelity and consistency of implementation.

Observation field notes

Researchers will conduct non-participant observations of approximately 10% of selected programme sessions and school activities. Structured observation guides will focus on participant engagement and interaction, facilitator delivery style and adherence to the manual, and contextual factors affecting implementation. Field notes will be analysed qualitatively using thematic analysis to explore contextual factors influencing programme feasibility.

Pilot component of the study

Standardised, child-friendly, electronic questionnaires designed using the open-access ODK kit and the free and open-source software KoboToolbox will be used. To minimise respondent burden and ensure high data quality, the assessment will be conducted via Tablet-Assisted Self-Interviewing (TASI). The digital interface is designed for completion within a single 50-min 'tutorial' (advisory) period, a duration previously validated by the research team in a study involving 1670 secondary students in Madrid [37]. That study demonstrated that a similar—and in some cases, more extensive—digital protocol achieved high completion rates and procedural feasibility without significant evidence of respondent fatigue.

Measures and outcome assessment

Student pre-post assessment. The following secondary clinical and educational outcomes will be assessed to observe descriptive trends: (a) educational engagement assessed using the affective and the behavioural subscales from the School Engagement Questionnaire (*Cuestionario de Compromiso Escolar*; CCE) [38]; (b) school participation measured using five ad hoc items on a five-point Likert scale, based on previous studies by Granizo et al. and Høst et al. [39, 40]; (c) psychosocial wellbeing evaluated by examining the emotional and conduct problems subscales from the Spanish-validated Strengths and Difficulties Questionnaire [41], the positive affect subscale from the Spanish-validated version of the Center for Epidemiological Studies Depression Scale for Children and Adolescents (CES-DC) [42], and the Student's Life Satisfaction Scale (SLSS) [43].

In addition to the clinical and educational measures, the study evaluates the performance of scales targeting intermediate constructs, which are expected to act as mediators in subsequent experimental research (a) positive school climate measured using a Spanish-validated scale developed by the SURE team [44], based on various school climate measures [40, 45, 46]. This 23-item scale evaluates on a five-point Likert scale the presence of positive relations within school community, general peer support, and rule and norm acceptance; (b) perception of discrimination climate at school will be evaluated with six ad hoc items on a five-point Likert scale; (c) experiences of discrimination, assessed as the frequency of ethnic discrimination incidents enacted by different school agents (ad hoc indicator), as well as by the perception of ethnic microaggressions at school, capturing more subtle forms of ethnic discrimination towards migrant-background students. A six-item five-point Likert ad hoc scale was created to measure perceptions of microaggressions, based on the School-Based Racial Microaggressions Scale (SB-REMA) [47]

and the Racial Microaggression Scale (RMAS) [48]; (d) perceived social support at school from family, peers, and teachers will be measured using the Contextual Factors Questionnaire (*Cuestionario Factores Contextuales*; CFC) [49, 50]; (e) parental involvement and supervision assessed with the behavioural control subscale from the Adolescent Perception Scale of Parental Supervision [51] and the involvement subscale from the Peruvian-validated Steinberg Parenting Styles Scale [52]; (f) knowledge of community-based resources evaluated with three ad hoc items regarding the extent to which participants are aware of the community social support resources available to them if required; and (g) prosocial behaviour assessed using the prosocial subscale of the Spanish-validated Strengths and Difficulties Questionnaire [41].

While several outcomes rely on adapted or context-specific (ad hoc) measures, these instruments were selected to ensure cultural and situational relevance for migrant-background adolescents. Their use is supported by psychometric evidence from a previous 2024 study involving 1680 participants, where these scales demonstrated solid internal consistency. Specifically, Cronbach's alpha (α) coefficients were 0.801 for school sense of belonging, 0.697 for educational engagement, and 0.749 for school participation. Additionally, perceived social support from teachers, family, and peers showed Cronbach's alpha (α) values between 0.86 and 0.89, while equity-related measures yielded robust reliability, including coefficients for perceived discrimination (0.825), experienced discrimination (0.828), and ethnic microaggressions (0.791). A key objective of this 2025–2026 pilot study is to build upon this foundation by evaluating the psychometric performance and sensitivity to change of

these adapted instruments within the SURE framework prior to a full-scale evaluation.

Analysis plan

The inclusion of a comparison school is intended to evaluate the feasibility of trial procedures—including recruitment, retention, and data collection—within a non-intervention setting. Consequently, the analysis of this pilot component is strictly descriptive, focusing on parameter estimation rather than formal statistical inference. While full equivalence between the two schools cannot be guaranteed, they are comparable in terms of size, socioeconomic characteristics, and student demographics. We explicitly acknowledge potential threats to internal validity, such as baseline differences and contextual confounding.

To characterise changes over time and differences between groups, we will calculate mean differences between baseline (T0) and post-intervention (T1) for both the SURE programme and comparison groups. The magnitude of these changes will be estimated using descriptive statistics (means and standard deviations) and effect sizes (Cohen's d or Hedges' g) accompanied by 95% confidence intervals. In this context, confidence intervals and effect sizes are used to indicate the precision of estimates and preliminary signals of change, rather than to determine statistical significance.

Progression criteria to full randomised controlled trial (RCT)

Following the CONSORT extension for external pilot and feasibility studies (PAFS), Table 4 presents the pre-specified progression criteria that will inform the decision on whether, and how, to proceed with a full RCT. These criteria will be informed by data collected from both

Table 4 Progression criteria

Objectives	Criteria for success
School retention	The intervention and control school complete the study
Participant recruitment	≥70% of eligible students (2° and 3° ESO) consent to participate
Intervention adherence	≥70% of planned intervention activities delivered as intended
Participant engagement	≥70% of students attend at least 70% of activities
Stakeholder acceptability	Positive feedback from students, staff, and families via surveys/interviews
Data completeness	≥75% of participants provide complete baseline and follow-up data
Scale reliability	Cronbach's alpha ≥ 0.7 for key outcome measures
Measures sensitivity to change	Evidence of variability in outcome measures over time
Clinical and educational outcome trends	Improvement in at least one outcome in the intervention group vs. control
Effect size estimation	Descriptive evidence of a positive trend (e.g. Cohen's d reaching a threshold of 0.2) in at least one secondary clinical or educational outcomes
No evidence of harm	No adverse effects or negative trends in key outcomes
Implementation capacity	Schools report feasibility of embedding intervention activities in regular school schedule
Research logistics	No major barriers in data collection, consent, or collaboration with schools

the feasibility and pilot components of the study. Ongoing data will be monitored against these criteria in two ways: (a) as a standing agenda item during Trial Management Group meetings and (b) through the maintenance of a ‘lessons learned’ document, which will record problems encountered, efforts made to address them, and the outcomes of those efforts. These progression criteria are intended as guiding benchmarks rather than rigid decision rules and should be interpreted holistically rather than in isolation [53].

Discussion

The intended trial will provide evidence on the feasibility of intervention procedures, underlying mechanisms, outcome measures, and research methods. By adhering to Open Science practices—including pre-registration and data sharing—the SURE programme establishes a transparent framework.

Beyond its applied relevance, this study contributes to implementation science by treating schools as complex adaptive systems. A defining methodological feature—and potential ‘active ingredient’—of the intervention is the requirement for a participatory needs assessment in each school to guide the selection of specific evidence-based strategies. While the overarching framework was established through a co-design process involving 72 stakeholders, this school-level tailoring aims to operationalise contextual relevance as a core component of the SURE model, avoiding its treatment as a superficial or secondary adaptation.

Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s40814-026-01853-3>.

Supplementary Material 1.
Supplementary Material 2.
Supplementary Material 3.

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We would like to extend our gratitude to all co-designers of the SURE programme for their invaluable contribution. We also express our profound thanks to all adolescents, their families, teachers, and schools for making this project possible.

Data management (approved by the Ethics Committee)

Data collection

- **Quantitative data:** Quantitative data will be collected using the Open Data Kit (ODK), a free and open-source platform supporting Tablet-Assisted Self-Interviewing (TASI). TASI techniques reduce data entry errors by allowing participant responses to be entered directly into ODK Collect during the interview. Data will be routinely transmitted to a password-protected, encrypted remote server (ODK Aggregate Platform) hosted in Madrid. Only the principal investigator (PI) and authorised members of the research team will have full access. Participant responses will be stored under an automatic ID and a randomly generated serial number.
- **Observational data:** Trained research assistants will collect observational data on school procedures using tablet devices.

- **Qualitative data:** Focus groups will be audio-recorded and transcribed by research assistants trained in qualitative methods.
- **Dataset linking:** A unique school identification number will be used to link quantitative, observational, and qualitative datasets.
- **Data quality and monitoring**
- Research assistants will conduct on-site checks before uploading data from schools to the server.
- The PI will conduct weekly cross-checks between online and offline server data and the anonymised tracking lists maintained by research assistants.
- Regular PI field visits will be conducted to verify adherence to protocols.
- Weekly team meetings at the Universidad Autónoma de Madrid (UAM) office will monitor data collection progress and address issues.

Quantitative data handling

- Data will be exported from the ODK server to SPSS for analysis, where baseline and post-test datasets will be merged.
- Pseudonymised trial data will be cleaned by the PI and a research assistant.
- Consistency checks will be conducted, with discrepancies discussed with the relevant research assistant and, if necessary, with the wider research team.
- Use of CAPI procedures with built-in skip patterns is expected to minimise missing data.

Security and backup

All procedures will comply with GDPR (Article 17, Article 89(1), Article 4(3b), Recital 52, Recital 156, Recital 162, among others).

- **Physical security:** Signed consent forms will be stored in a locked filing cabinet in the PI's office at UAM. All other sensitive data will be stored electronically.

- **Unique coding:** Each participant will be assigned a unique code for storage and analysis. Qualitative transcripts will be pseudonymised and linked to school codes.

Backups:

1. Pseudonymised, encrypted data will be backed up on a secure hard drive stored in the PI's locked office at UAM.
2. Interview files will be backed up on an offline, password-protected server on the PI's computer.
3. An additional online backup will be maintained on OneDrive, managed by the Faculty of Psychology at UAM.

- **Secure transfer:** Sensitive files will only be transferred via secure file transfer services; email will not be used for sensitive data.

- **Confidentiality in reporting:** No participant names will be reported. Only aggregated data and general school-level information will be published.

Data sharing

The pseudonymised datasets generated during the feasibility and pilot study will be made publicly available in the Open Science Framework (OSF) repository: <https://archive.org/details/osf-registrations-xq52t-v1>.

Adherence to intervention protocols: The proposed study seeks to reduce potential barriers to adherence and participation by ensuring intervention flexibility and school ownership throughout the participation of students, teachers, and other school staff from the initial assessment via the Action Team, as well as during the flexible implementation and monitoring phases. Furthermore, a part-time research assistant will be hired to assist research during data collection and especially with the administrative tasks related to the evaluation of the programme and data storing. The proposed SURE programme will partner with implementer local CBOs, which will contribute to the intervention activities. Finally, the administrative assistant will also contribute with a partial-time role to help the team producing and updating the following activities and deliverables which can be very time-consuming in detriment to other important project tasks: 1. supporting in the organisation of meetings and activities, bureaucratic formal communication, and procedures with schools; 2. helping with the pre-analysis of data (e.g. collecting, storing, cross-checking, and cleaning anonymised data related to the consent and the identification of participants, as well as coding missing data and transcribing qualitative data); 3. assisting with the tracking and monitoring of visits and activities.

Reimbursement for participation. No monetary compensation will be given either to schools, school staff, community representatives, children, or their families. Only a small ‘thank you’ gift consisting of a USB device or stationery material will be provided to adolescent, parents, and school staff after each wave of data collection.

Trial registration

The trial was registered on the Open Science Framework (OSF) on 2nd June 2025 (Identifier: <https://doi.org/10.17605/OSF.IO/XQ52T>) prior to the enrolment of the first participant.

Authors' contributions

RHR, CdB, KvM, and LG conceived the study idea, led the overall study design, secured project funding, and provided project oversight. They also prepared ethics applications and managed institutional approvals. RHR, CdB, KvM, LG, and PP coordinated data collection, while MB, NP, KG, YC, and MK conducted data collection and contributed to the analysis for the formative phase (phase I). KvM, CdB, LG, RHR, PP, MG, MS, and VP coordinated the co-design workshops with schools, students, and community stakeholders, contributing to the development of intervention materials (phase II). RHR, PP, KvM, MG, MS, and VP managed study databases and quality control procedures for phases I and II. RHR, KvM, CdB, and LG led the integration of the formative research results into the development of the pilot study protocol and intervention theory of change. RHR, RO, LL, and YS contributed to the development of the feasibility and pilot study methodology. CdB, PP, RHR, KvM, LG, and MS led participant recruitment and data collection in schools (phase III). RHR and KvM drafted the initial version of the protocol manuscript. RO, CdB, LG, LL, PP, YS, MB, KG, NP, YC, MK, OH, AB, and NR contributed to critical revisions of the background, methods, and study rationale.

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Data availability

The datasets generated during the current feasibility and pilot study will be available in the Open Science Framework repository: <https://archive.org/details/osf-registrations-xq52t-v1>.

Declarations

Ethics approval and consent to participate

Ethics approval for this study was obtained from Comité de Ética de la Investigación (Universidad Autónoma de Madrid), CEI-128-2641, on 2nd December 2022.

Consent for publication

All authors reviewed, provided feedback, and approved the final manuscript.

Competing interests

None declared.

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