Feasibility evaluation of the Reaching Out to Kids with Emotional Trauma (ROcKET) intervention in an elementary school: a single-arm, single-centre, feasibility study based on the RE-AIM framework

ABSTRACT

Objective The study purpose was to describe feasibility of implementation of the Reaching Out to Kids with Emotional Trauma (ROcKET) intervention. We hypothesised that the ROcKET intervention would be feasible in a poor resource school.

Design We performed a single-arm, single-centre feasibility study of an intervention pilot based on the RE-AIM framework.

Setting The intervention was delivered in a single K-4th elementary charter school in the Nashville, TN area, in a low-resource community.

Participants 57 elementary school children attending our partner school and reporting exposure to at least one adverse childhood experience (ACE) and their parents.

Interventions The Reaching Out to Kids with Emotional Trauma (ROcKET) intervention is a school-based multilevel intervention (individual child, family and school) that promotes positive health behaviours in children who have been exposed to ACEs.

Outcomes Outcomes were gathered qualitatively via focus groups. The primary outcome was feasibility. The secondary outcomes were implementation outcomes according to the RE-AIM framework, including Reach, Effectiveness, Adoption and Implementation.

Results Of 105 eligible children, 57 children and their parents participated (54%) with 31 (54%) girls, 47 (82%) Black/African American, 5 (9%) Hispanic and 5 (9%) white. The school staff implemented all planned ROcKET sessions with >90% fidelity in each session, and 52 (91%) of children who completed the final intervention session went on to complete 6 month follow-up assessments. The average attendance at the in-school child sessions was 57 students (87%), and 35 (61%) of parents attended at least one family session, with 25 (44%) of parents attending at least half of the family sessions. 13 (23%) parents participated in the focus groups. Qualitative data suggested high parent participant satisfaction, uptake of positive health behaviours targeted by the intervention and increased quality of life.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ A key strength of this study was the focus on qualitative information gathered from parents who participated in the intervention sessions which will be useful in designing the next pilot phase of the Reaching Out to Kids with Emotional Trauma intervention.

⇒ Limitations include lack of formal interviews or focus groups with non-participants, child participants and school staff, though staff feedback was informally gathered in stakeholder committee meetings.

⇒ Another limitation in the study methods is the lack of quantitative assessment of programme effectiveness outcomes.

Conclusions Our study suggests that the ROcKET intervention was feasible and acceptably delivered in a local elementary school with high reach to low-income and minority populations. These data suggest that schools, especially those serving low-income and minority children, can be an appropriate avenue for interventions designed to address health disparities. Data from this study will be used to advise a pilot study of the intervention.

INTRODUCTION

Adverse childhood experiences (ACEs) are childhood stressors that include child maltreatment and family dysfunction.1 2 Multiple studies have documented the risk between ACEs and poor health outcomes both in childhood and adulthood, including cancer, heart disease, alcoholism and drug abuse, depression, suicide attempts, smoking, sexually transmitted diseases, severe obesity and death.3 The mechanism by which ACEs lead to poor health outcomes is well described: ACEs lead to chronic activation of neurologic stress responses, the cumulative
effect of which results in altered allostatic load and later poor health outcomes. Despite these well-recognised associations between ACEs and poor health outcomes, which have been documented for decades, there remains a need for progress in developing strategies to disrupt the pathway between ACEs and poor health later in life.

Events categorised as ACEs in the literature include physical, sexual and verbal abuse, physical and emotional neglect, exposure to household mental illness or substance abuse, familial incarceration, witnessing domestic violence and losing a parent to divorce or death. Nearly 60% of the US population has been exposed to ACEs, with approximately 20% exposed to three or more. Additionally, exposure to ACEs is more prevalent among low-income and racial and ethnic minority populations. The differential exposure to ACEs among these populations is one potential etiologic explanation for disparities in the health conditions known to be associated with ACEs. Consequently, developing strategies to support children exposed to ACEs—especially children from communities with a disproportionate burden of chronic disease—may be one strategy to reducing health disparities.

Resilience has been described as adaptation to adversity that ‘transforms potentially toxic stress into tolerable stress’. In children, resilience is shaped by protective factors at the individual, family and community levels. Though structural and societal forces contribute to systems that add to trauma, building resilience and equipping families with positive health habits early in the pathway between ACE exposure and negative health outcome could mitigate the dysregulating effect of ACEs and minimise long-term poor health outcomes. Current interventions focus on primary prevention of ACEs at the policy level, or tertiary prevention at the healthcare level by treating the negative health outcomes stemming from ACE exposure once children begin to exhibit symptoms. Studies that evaluate secondary prevention of downstream health consequences of ACEs by building resilience in children who have been exposed to ACEs but not yet developed behavioural or health problems are limited. By developing these secondary prevention strategies, we aim to mitigate the long-term effects of chronic stress caused by ACEs in low-income and racial and ethnic minority communities. Furthermore, studies evaluating the implementation of resilience-building interventions in the school setting are lacking; by capitalising on school attendance in young children, we may be able to improve intervention reach and therefore downstream trauma-related health outcomes.

Reaching Out to Kids with Emotional Trauma (ROcKET) is a healthy-lifestyle intervention focused on building resilience among children exposed to ACEs who are not yet displaying behavioural challenges. The purpose of this study was to evaluate the feasibility and implementation outcomes of the intervention, as delivered in a school context, guided by the RE-AIM framework. We specifically sought to evaluate, using quantitative and qualitative methods, each of the RE-AIM domains; namely reach, effectiveness, adoption, implementation and maintenance. This was done with the goal of identifying key domains in organisational capacity to implement ROcKET. Understanding these key organisational readiness domains will help guide future ROcKET implementation efforts, and others like it, where school-based interventions among low-income and minority populations are a priority.

METHODS

We conducted a single-arm, single-centre feasibility study of the ROcKET intervention, based on the RE-AIM framework.

Our research group developed and tested the ROcKET intervention in a feasibility study of 57 K-4th graders in our partner school in Nashville, TN between October 2018 and May 2019. We used a convenience sample of local children attending our partner school for their education. We had no target participant number. ROcKET is a healthy-lifestyle intervention aimed at building resilience among children exposed to ACEs who are not yet displaying behavioural challenges. The intervention targets health behaviours and social/emotional development at three levels—(1) a child-level, (2) a family-level intervention and (3) a school-wide social and emotional learning curriculum (figure 1). The child-level curriculum consisted of 12 weekly 30 min sessions during the school day led by the school psychologist that included skill building in health behaviours, goal setting and mindfulness techniques. The family-level curriculum consisted of 12 weekly 60 min sessions after school led by school teachers that included facilitated topical discussions, interactive didactic sessions to build skills and knowledge, goal-setting and hands-on activities to reinforce lesson content. Teachers were trained via a multimedia web-based training platform that included written facilitator guides for each session, templates for session materials, videos demonstrating facilitation techniques and quizzes to gauge mastery of content for each module. Teacher facilitators had to score ≥90% on each quiz in order to facilitate the programme. Our partner school is a charter school serving a traditionally underserved community. Of the approximately 500 students enrolled (K-4), 96.1% are children of colour and 100% qualify for free or reduced lunch. Prior to study implementation, the school was already using a universal screener for social–emotional challenges and based on previous assessments had identified 83% of their students as needing relevant services. Children were screened for exposure to ACEs and were eligible for the intervention if their parents reported at least one ACE, which was the case for all children screened. We used the Medical Research Council’s framework for development and evaluation of randomised control trials (RCTs) for complex interventions to guide our feasibility evaluation.

Patient and public involvement

Members of the school setting organisation, including leadership, administrative staff and teachers, were...
involved in the design and conduct of the intervention sessions. Stakeholder committee meetings were held monthly before, during and after the intervention to give qualitative feedback beginning 1 year prior to project initiation. School administrators identified the intervention goals as an important need in their student population and gave input into the initial proposal and intervention design and implementation. Changes to the logistics of intervention implementation were made iteratively throughout this process.

**Conceptual models**

The conceptual model for our intervention merges the family–child framework of the Social Ecological Model (SEM) with the behavioural change principles of Social Cognitive Theory (SCT). The SEM places the child in the centre of a system that includes the family and that is subsequently affected by larger social and structural contexts, such as the school or local community. ROcKET leverages influencers from multiple levels of the child’s social ecology to support adaptive stress responses through health behaviours by including child-level sessions, family-level sessions and a school-wide curriculum (figure 1). Health behaviours are individual-level actions that include diet, physical activity and substance use, among others. SCT posits that a person’s health behaviours are influenced by social, cognitive and environmental factors. A central concept in SCT is self-efficacy, in which a person’s confidence in their ability to perform certain health behaviours affects their actual practices. As individuals build confidence and competence, they become more likely to sustainably engage in specific health-related practices. Our intervention curriculum provides children and parents with knowledge in key health behaviours areas such as nutrition, physical activity, sleep, media limits and parenting styles; it also focuses on behaviour change techniques including goal setting, self-monitoring and problem solving, all of which have been shown to improve self-efficacy and actual behaviour change based on SCT. Finally, ROcKET incorporates core principles from the framework developed by the Collaborative for Academic, Social and Emotional Learning (CASEL). This framework identifies five inter-related competencies to mitigate the effects of ACEs, including self-awareness, self-management, social awareness, relationship skills and responsible decision-making. Each of these models was applied throughout the curriculum design.

**Data collection**

**Survey**

Parents of enrolled children completed a self-administered survey before and after study implementation, which consisted of demographics and ACEs screening questions for their children (online supplemental appendix 1). We summarised these results using descriptive statistics (table 1).

**Focus groups**

Following the 12 week intervention, we conducted focus groups with parents of participating children. We invited all parents who attended any sessions to participate in the focus groups 1 week after their final intervention session; of these, we had 13 total focus group participants. We further invited all parents who initially enrolled in the study but did not attend any sessions to participate in phone interviews, given the reported challenge of transportation; of these, none chose to participate in a phone interview. Families at the school who did not enrol in the study did not participate in any qualitative data collection. Each group was conducted by the study coordinator in a room at the partner school and lasted 1 hour. Focus group participants were compensated with a $15 gift card. The focus group was based on a semistructured interview guide developed by the study team, seeking to elicit feedback on effective and ineffective aspects of the intervention implementation (online supplemental appendix 2). Focus groups were audio recorded and transcribed.

Given the relatively small number of focus group participants (13 total), we did not conduct hierarchical coding but rather the study team read transcripts in their entirety to learn about broad concepts and repeating themes. We used an inductive and theoretically driven approach with the goal of giving voice to participant experiences and
selected representative quotations to reflect key themes organised based on the RE-AIM framework.  

**Use of RE-AIM Framework**

We used the RE-AIM (Reach, Effectiveness, Adoption, Implementation and Maintenance) planning and evaluation framework to guide our evaluation of appropriateness of the setting and feasibility of the intervention.  

To assess reach, we calculated the proportion of eligible children who participated in the intervention, described the demographics of the participants and used qualitative methods to understand why families chose to participate. As this was a feasibility study, we did not seek to evaluate for effectiveness quantitatively. However, based on qualitative data from focus groups, we described participant satisfaction, uptake of goal behaviours, quality of life and any unintended negative consequences. To consider intervention adoption at the organisational level, we described the setting and used school feedback to assess facilitators and barriers to future adoption of a scaled-out intervention. We assessed intervention fidelity via direct observation by study staff. Qualitative data were gathered from focus groups to inform reasons for consistency to protocol or adaptations. The scope of this project was designed to evaluate feasibility of the implementation, so maintenance of the intervention or of individual behaviour changes were not assessed, though we did assess participant and school staff interest in maintenance of the intervention.

**RESULTS**

Participant characteristics are shown in table 1. Qualitative data were gathered from focus groups of 13 total parent study participants who attended at least one intervention session. Tables 2-4 show quotations from focus group participants by RE-AIM dimensions, which are summarised in the text.

**Reach**

The ROcKET intervention demonstrated higher-than-anticipated reach in an underserved, minority population. Of 105 eligible children, 57 children (54%) and their parents participated. Of children participants, median age was 6.6 (IQR 5.8, 9.6) years, and 54% were female. The parent-reported race and ethnicity of enrolled children was as follows: 82% Black/African American, 9% Hispanic and 9% white. Median age of the enrolled caregivers was 32.5 (IQR 29.4, 39.2) years. Among child participants, 46% had been exposed to 1 ACE, 26.5% to 2 ACEs, 14.3% to 3 ACEs and 1.2% to 4 ACEs.

The study population reflected the demographics of the school’s population: 96.1% of the school’s student population are identified by their parents or guardians as Black/African American or Hispanic, and 100% of the students qualify for need-based free school meals. The school population is representative of the zip code in which it is located; 78% of the population within the zip code identify as racial or ethnic minorities, and the median household income is US$31 756.  

There is an above-average rate of parent incarceration and single-parent homes. The community has poor access to healthy fruits and vegetables based on in-person assessment of grocery stores and corner markets using the Nutrition Environment Measures Survey. The zip code is assessed as having ‘very low’ Child Opportunity Indices overall, and across domains of education, health and environment and social and economic. Overall, the demographics of the participating families were representative of the source community.

Qualitative data identified several facilitators and barriers to family participation in the programme. Table 2 shows focus group quotations organised by the two identified themes: (1) motivations for participating and (2) reasons for not participating.
Facilitators
Programme advertising included Vanderbilt University Medical Centre’s (VUMC) logo and name. Several participants reported joining because of the reputation VUMC holds within the greater Nashville community. Parents reported that their children see paediatricians at VUMC and that they trust the legitimacy of programming associated with the institution. Having an established relationship with a Vanderbilt healthcare provider or being aware of research done by Vanderbilt from living in the surrounding community was described by parents as a motivating factor for study participation.
Several logistical and design decisions allowed for greater parental participation. Providing dinner during

Table 2 Focus group responses relating to programme reach

<table>
<thead>
<tr>
<th>Focus group theme</th>
<th>Representative quotations</th>
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<tbody>
<tr>
<td>Motivations for participating:</td>
<td>(My children are) seen (at) Vanderbilt and that’s their doctor. You know what I’m saying? So they was like, ‘Mommy let’s do it’. So that’s kind of what made me do it. My kids go to Vanderbilt.</td>
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<td></td>
<td>So I was already aware of the studies through Vanderbilt and stuff and I was like well, we can try it I guess.</td>
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<td></td>
<td>And I just really like that y’all provide us with dinners so we don’t have to go home with the hustle and bustle.</td>
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<td></td>
<td>The kids have after school sessions. So, after the afterschool sessions, coming to the class was very convenient. It was very convenient.</td>
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<td>Suggested reasons why families did not participate:</td>
<td>Now the survey, in the beginning, will actually run you away. It’s extremely long.</td>
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<td></td>
<td>If they’re car riders, they’ll get to come. But, bus riders, I think it’s hard for them to get back to the school.</td>
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<td></td>
<td>You’re thinking, oh this is for DHS (Department of Human Services) or somebody on me. I’m not fixing to go through this stuff… at first I was like, ‘Oh no. Miss (Social Worker)? Vanderbilt? They’re trying to get me on paper so they can take my children’. That’s what I thought.</td>
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<td></td>
<td>Let the grandparents join too. Because make it okay for them to know that they’re welcome to, because a lot of grandparents share responsibilities.</td>
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Table 3 Focus group responses relating to programme effectiveness

<table>
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<tr>
<th>Focus group theme</th>
<th>Representative quotations</th>
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<tr>
<td>Positive health behaviours implemented:</td>
<td>But for me, setting a current bedtime is a good thing. So now I’m kind of on a schedule, halfway but I’m working towards it.</td>
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<td></td>
<td>I learned… to take back to the home is… eating as a family and not having the TV as a distraction. That helps to take our time to eat instead of rush and eating just because you watching TV.</td>
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<td></td>
<td>(My child) really enjoyed trying all the foods.</td>
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<td></td>
<td>Monitoring how much time we use social media, when we can be doing other things. Especially when it’s not necessarily important. It’s just leisure.</td>
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<td></td>
<td>We took the electronics out of the house. Completely because I noticed that it played a big part in our family as far as not getting their work done or attitudes, stuff like that. So I just took that out for a month. Took it out for a month to see how it's working. It's been working and they appreciate it more.</td>
</tr>
<tr>
<td>Quality of live improvements:</td>
<td>I did put more family-oriented things like doing games, activities with my baby without the TV and stuff like that. I did implement things that we took within that course.</td>
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<tr>
<td></td>
<td>Being around these ladies. And, well, gentlemen when they’re here... it was almost like you gaining a family in a meeting. I enjoy coming to them. My kids enjoyed it.</td>
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<td></td>
<td>It does make us want to be more involved... even if we have to get off from work. You might be tired and wanna rush. But if they got something extra. It does make us want to push ourselves to still be involved.</td>
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<td></td>
<td>You know, like, because it does make us a family together in here but with the teachers. And it will make them connect more but it will also bring the school closer because they also have another supportive network for families that need that extra.</td>
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<tr>
<td></td>
<td>What made me want to come and want to come back is, I guess, the company of the other parents and being able to interact. And we have goals and stuff to talk about. And I’m not just coming to the school to get on to a kid. It’s something different. It was cool. I liked it.</td>
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</table>
the weekly sessions was a commonly mentioned facilitator of participation, by allowing parents to attend without the added time pressure of feeding children in the evening. Single parents reported that the logistics of work, after-school childcare, dinner and bedtime can be particularly taxing. The free meal was also described as a financial motivator for some. Furthermore, the healthy meals reinforced the nutritional information taught in the programme. Sessions were held from 5:30 pm to 7:00 pm on Tuesdays, which allowed parents to participate after work and return home before their children’s bedtime.

Barriers
Data from focus groups suggest several circumstances that likely prohibited other families from participating, including parents who work late, those with limited transportation options, families where grandparents or other relatives provide afterschool care and families who fear their children being removed from the home and, therefore, avoid perceived scrutiny of their family circumstances that could lead to Department of Human Services involvement. One reported challenge was that using long surveys at the first session disincentivised some parents from returning to further sessions. Participants suggested that larger initial gift cards could help overcome some of the intimidating aspects of the study.

Effectiveness
Table 3 shows focus group quotations organised by the two identified themes: (1) positive health behaviours implemented and (2) quality of life improvements. Perceived effectiveness of the ROcKET programme, as evaluated by qualitative data, suggested high parent satisfaction, uptake of positive health behaviours and increased quality of life. Participants were highly satisfied with the programme content, enjoying both the information taught and the results achieved at home. Participants referenced uptake of a wide range of positive health behaviours in themselves and in their children including increased water intake, maintaining a consistent bedtime and limiting screen time. Attrition rate was low at 9%.

Focus group participants reported improvements in quality of life in both home and school settings. Several reported improved family environments resulting from increased time spent together as a family without the interruption of screens. Parents also reported improved relationships with other parents and staff within the school and appreciated this developing sense of community. As a result of improved relationships with school teachers, parents became more involved in school activities.

Parents reported that additional communication between sessions, such as via text messaging, would increase accountability. They suggested using a messaging system that the school already employs as an easy modification to help participant involvement.

Adoption
Intervention adoption was considered at the school level. The school chosen for the intervention is a charter public school with a high degree of autonomy compared with non-charter public schools in the area. School leadership was interested in participating in the intervention and had the authority to do so. School staff completed all planned sessions at the individual, family and school levels for each of the two groups (one in the autumn and one in the spring semester). Scheduling sessions during the spring semester proved more challenging due to school vacation and testing days. No intervention adaptations were made.
Implementation

We conducted a school-wide training session with teachers on school-level components of the intervention prior to the start of the school year. Teachers reported a high level of perceived need for this kind of intervention in their school’s context during stakeholder meetings. Teachers leading the intervention were also trained on child and family-level components. Direct observation determined the school staff implemented the programme with fidelity to the curriculum greater than 90%. No intervention adaptations were made.

The enrolled children and their parents participated in the 12-week programme with meeting reminders from the study team to encourage continued participation, which parents reported were helpful; 91% of children who completed the intervention programme completed follow-up assessments 6 months later. The average attendance at the in-school child sessions was 87% of enrolled participants; 61% of parents attended at least one after-school family session and 44% of parents attended at least half of the sessions.

Table 4 shows focus group quotations regarding implementation, all of which fit into the identified themes of ‘Positive comments regarding implementation techniques’. Focus group participants reported that they found the ad hoc text message reminders for the weekly sessions from the study team to be particularly helpful. Parents appreciated the group-based nature of the intervention and reported being motivated by learning alongside other parents in similar circumstances and building a network of support. Using goal setting gave parents something to work towards and allowed them to take pride in their achievements, which encouraged continued participation. The gift card that participants received for participation was commonly mentioned as a motivating factor.

Maintenance

The RE-AIM framework recommends assessing maintenance of an implemented intervention at 6 months following completion. Unfortunately, the school was unable to offer the full ROcKET programme to additional families following completion of the feasibility trial due to lack of funding and the COVID-19 pandemic. Parents and school staff did report that they would be interested in maintaining the programme for a second year. In particular, parents reported their desire to repeat the programme with another child.

DISCUSSION

The purpose of this study was to evaluate the feasibility and implementation outcomes of a school-based, healthy-lifestyle behavioural intervention focused on building resilience among children exposed to ACEs. Overall, our study suggests that implementing this multi-level intervention was feasible in a local charter elementary school context. This is based on high levels of participation among our target population, successful adoption of all planned study sessions, high fidelity to intervention and high perceived acceptability and satisfaction among both school staff and families. These data suggest that schools, especially those that serve low-income and minority children, can be an appropriate avenue for interventions designed to address health disparities.

Key organisational features that contributed to feasibility included school leadership engagement and receptive organisational climate, a perceived legitimate intervention source, qualified external change agents, intervention trialability and alignment with perceived community needs. The trialability, or ability to test the intervention on a small scale within the organisation and reverse course if warranted, helped make the feasibility trial appealing to school staff. School leadership had a high degree of autonomy to implement curricular changes and were supportive of this intervention, which was fundamental to trial feasibility. One point raised by participants was that familiarity with the medical centre in the community helped to legitimise the intervention in the eyes of the participants. Importantly, rates of exposure to toxic stress in children attending the school were similar to those found in the zip code in which the school is located, but highly relative to the general paediatric population, making them the most appropriate target audience.

Our results emphasise the importance of a child’s context to their health and development. By including children, parents and teachers in the intervention, we influenced multiple levels of the child’s social-emotional environment, which is key to effective behavioural change interventions. A main benefit reported by both school staff and parents was increased connectivity within community. The school principal noted that parents enrolled in ROcKET became more involved in other after-school activities. In focus groups, parents also noted the benefit of building community with the school. One parent said: ‘…it does make us a family together…with the teachers. And it will…bring the school closer because they also have another supportive network for families….’

This is consistent with prior studies that have underscored the importance of investing in both children and their families to yield larger community and societal benefits by preventing long-term disease. Future interventions in school settings should consider measuring school-level outcomes, such as parent engagement, which may be key mediators for other health and educational outcomes.

Threats to feasibility of intervention implementation included perceived burden by parents of completing surveys during the intervention, the need for recurrent weekly reminders for parent participation, scheduling difficulties, transportation to and from family sessions, and lack of sufficient organisational support for intervention continuation following study cessation. Future programme implementation in school settings among low-income and minority populations should focus on identifying barriers to participation in the local community and developing strategies to support families in overcoming those barriers. To improve feasibility, it will
be important to identify additional support staff to help with non-curricular components of the intervention, including sending reminders, scheduling sessions and facilitating further communication with families.

We situate our feasibility study in the context of organisational readiness assessments for school-based social-emotional learning interventions with the goal of both demonstrating the feasibility of this specific intervention, and also advancing the field of implementation research. As previous literature has suggested, to implement interventions effectively, organisations require a balance between general readiness and intervention-specific readiness. The results from our study underscore the importance of this distinction, as the general receptivity of the school to an intervention of this type was necessary but not sufficient to achieve implementation. The study team needed to evaluate and facilitate alignment with specific study goals and identify the structures necessary to implement the intervention (eg, teachers to run sessions, school counsellor with availability during the week and space to conduct family sessions after school). The conduct of this study in a charter school allowed for our team to discuss readiness with stakeholders prior to implementation, which was key to the feasibility and acceptability of the programme for school and community stakeholders. We would continue to emphasise the importance of organisational readiness assessment prior to implementation of this type of school-based intervention in future studies, consistent with current recommendations.

This study had several limitations. Though we conducted focus groups with participating parents, we did not have follow-up interviews with child participants or a broad cross-section of school staff to assess their perceptions of facilitators and barriers. In measuring reach, we are limited in that the characteristics of non-participants, other than race, are unknown. This includes lacking information on ACEs within the non-participant population compared with those who chose to participate in the programme. Additionally, since we conducted focus groups with participating parents only, we can only hypothesise reasons for non-participation. Limitations in our assessment of programme effectiveness include the lack of quantitative outcomes measured during this feasibility trial, and lack of cost analysis. Measures of adoption at the setting level are limited by the singular setting of the trial. Maintenance measures are limited by lack of follow-up at six or more months after intervention completion. The charter school setting is a limitation as it has more autonomy to implement interventions compared with public schools, and the singular setting used also limits generalisability of our results. Of note, the objective of this project was to evaluate feasibility. As such, the limitations in quantitative effectiveness outcomes and long-term maintenance assessment are consistent with this stage of the project and will be addressed in the next phase.

Overall, our implementation of the ROcKET programme in a school setting proved both feasible and acceptable to intervention agents and parent participants. The setting was found to be appropriate for this behavioural change intervention in a high-risk population because it allowed us to influence multiple levels of participants’ environments. This allows for multilevel reinforcement of intervention content and behaviours. Researchers looking to implement behavioural interventions in the school context would benefit from trialling such interventions in organisations with invested leadership to maximise successful implementation. We plan to use lessons learnt from this study to inform a larger pilot RCT of the intervention in the school setting.

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Patient consent for publication Not required.

Ethics approval This study involves human participants. This work was approved by Vanderbilt University Medical Center’s Institutional Review Board under the reference number 181134. Participants gave informed consent to participate in the study before taking part.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data are available upon reasonable request. Data Sharing: This manuscript does not describe a clinical trial; as such, data will not be immediately available. However, de-identified participant data will be shared upon reasonable request following publication. Proposals should be directed to Ellen.McMahon@VUMC.org. To gain access, requestors will need to sign a data access agreement.

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