

Article

Feasibility of Tiyanjane: A Family–School–Community Intervention Promoting Parental Involvement in the Education of Children with Disabilities in Malawi

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Abstract: Evidence-based and theory-informed interventions focusing on parents of children with disabilities in low-income countries are scarce. This study examined the feasibility of Tiyanjane, a 12-week pilot intervention developed to promote parental involvement in the education of children with disabilities in Malawi. A mixed-method approach was employed based on five aspects of Bowen’s feasibility framework: acceptability, demand, implementation, practicality, and limited efficacy. Twenty-one participants (13 caregivers, four teachers, and four local leaders) participated in the study. Standardised measures, namely the Parent and Family Adjustment Scale (PAFAS) and the Multidimensional Scale of Perceived Social Support (MSPSS), were employed to evaluate changes in parental practices, adjustments, and perceived social support. Qualitative data were collected using focus groups and in-depth interviews to assess the feasibility of the intervention. Tiyanjane showed promise in promoting parental involvement in the education of children with disabilities. The intervention demonstrated high fidelity, achieving 100% retention and 95% attendance. Local resources, commitment from participants and facilitators, and strong family school–community ties enabled the practicality and execution of the intervention. Significant improvements were observed in the PAFAS and MSPSS scores across the assessed post-intervention outcomes. Minor logistical issues including resource and implementation challenges were reported. Tiyanjane was feasible for the facilitators and participants in the Malawian context. Further studies are needed to assess the programme’s adaptation, integration, and expansion in other contexts before scaling up.

Keywords: parent involvement; children with disabilities; community engagement; education; feasibility study; family–school–community partnerships; low-income countries; supportive relationships

1. Introduction

Article 24 of the United Nations' Convention on the Rights of Persons with Disabilities (UNCRPD) stipulates that state parties must ensure that persons with disabilities have access to inclusive quality education on an equal basis with others. However, persons with disabilities often experience less favourable educational outcomes than their non-disabled peers (Kuper et al. 2018). They are less frequently enrolled in school, less likely to complete primary or secondary education, and have fewer years of schooling (UNESCO 2018). It is important to address the educational challenges faced by children with disabilities by supporting their learning both at home and at school. One effective strategy is encouraging parental involvement in the education and social development of children with disabilities (Bariroh 2018; Roy and Giraldo-García 2018; Yilmaz Bodur and Aktan 2021). Parents play a crucial role in supporting their children's cognitive and emotional development while also promoting inclusive school practices that recognise and respond to each child's individual needs (M. L. Banks and Zuurmond 2015; Butler et al. 2022). Consistent with other studies (Ljungberg and Schön 2023; Klein-Cox et al. 2023), we use the terms 'parents' and 'caregivers' interchangeably in this study.

Approximately 240 million children worldwide have disabilities, with about 80% living in low- and middle-income countries, where there is a significant need for parenting support (UNICEF 2021; Martins et al. 2024). Research has shown that culturally sensitive and community-focused programmes are essential for effectively supporting children with disabilities (Zuurmond et al. 2019; Smythe et al. 2023; Nalugya et al. 2023). For instance, programmes and interventions that provide education and social support to family caregivers have been shown to influence stress levels and the overall quality of life (Linden et al. 2024). However, in low-resource settings, such as Malawi, few interventions have been developed to support caregivers of children with disabilities. Barriers such as poverty, limited resources, psychological stress, and societal stigma exacerbate the challenges that families encounter when supporting their children's education (Lynch et al. 2024; L. M. Banks et al. 2017; Musendo et al. 2024; Mbazzi et al. 2020). L. M. Banks et al. (2022) emphasised the necessity of providing further support to these families by collaborating with schools and communities, along with implementing laws, policies, and monitoring mechanisms to ensure that positive and inclusive school experiences for children with disabilities are possible and become the norm (L. M. Banks et al. 2022).

Despite the recognised importance of parental involvement, there is a significant gap in culturally sensitive, evidence-based interventions in Malawi that are designed to engage parents of children with disabilities in education. Yet, there is a growing demand for theory-driven studies to enhance feasibility, acceptability, and delivery in practical settings (O'Cathain et al. 2015). The Medical Research Council (MRC) strongly supports the implementation of an initial "feasibility" phase when developing and evaluating complex interventions (Craig et al. 2008). This stage pertains to an early assessment to ascertain whether a programme is viable and beneficial before committing resources to full-scale trials (Campbell et al. 2000; Hallingberg et al. 2018; Skivington et al. 2021). However, in most LMICs, empirical evidence regarding the role of caregivers in supporting the education of children with disabilities is limited, resulting in a limited understanding of their experiences in both educational and social contexts (Jumbe et al. 2022).

This study builds on a recent systematic review that highlighted the lack of culturally grounded, community-driven interventions supporting parental involvement in the education of children with disabilities in low-income settings (Musendo et al. 2023), alongside related evidence from similar contexts (M. L. Banks and Zuurmond 2015; Zuurmond et al. 2019; Kuper et al. 2018; Singal 2016; Smythe et al. 2022; Lynch et al. 2024), which collectively emphasise the need for context-specific, inclusive approaches. While it is widely

acknowledged that parental involvement is essential for the social development of children, especially in social interaction, communication, and emotional regulation, the literature provides limited insight into this relationship with regard to individuals with disabilities (Lee 2022; Wondim et al. 2021; Roy and Giraldo-García 2018). This study aims to fill this gap by investigating how the Tiyanjane intervention fosters family involvement to improve social development outcomes for children with disabilities in Malawi.

To fill this research gap, it is essential to develop and implement targeted interventions that will improve the academic and social outcomes of children with disabilities through their caregivers in low-resource settings. The research presented in this paper centres on a new intervention that was co-developed with stakeholders in Malawi, called Tiyanjane, which translates to “Let us unite” in Chichewa. This initiative is grounded in Epstein’s theory of overlapping spheres of influence (Alfasi et al. 2018; Epstein 2018), which identifies six key areas of parental involvement: parenting, communication, volunteering, learning at home, decision making, and community collaboration (Joy Caño et al. 2016). It emphasises the interconnected roles of families, schools, and communities in nurturing a supportive educational environment (Stacer and Perrucci 2013; Kimaro and Machumu 2015). As supported by the recent literature, the Tiyanjane intervention was designed to be culturally sensitive by explicitly considering and integrating community norms, values, and practices through active stakeholder engagement (Degnan et al. 2018; Dan et al. 2024).

This study aimed to assess the feasibility of the Tiyanjane family–school–community intervention using Bowen’s framework (Bowen et al. 2009). Specifically, we explored the acceptability of the programme, the demand among participants, the success of implementation, the practicality of delivery in a low-resource setting, and preliminary changes in parenting practices and perceived social support. Our principal research question was linked to the broader inquiry that characterises most feasibility studies, asking, “...whether a future trial can be conducted, should be conducted, and if so, how?” (Eldridge et al. 2016; Hallingberg et al. 2018). We conducted the study to assess the feasibility of Tiyanjane by asking how acceptable the intervention was to those delivering and receiving it, the resource needs, and whether further testing and scale-up are warranted (Smith et al. 2023).

2. Materials and Methods

2.1. Study Design

We conducted this feasibility study using a prospective mixed-method design, focusing on five components of Bowen’s feasibility framework: acceptability, demand, practicality, implementation, and limited efficacy (Bowen et al. 2009). The study did not include three other components—adaptation, integration, and expansion—as they were deemed more closely related to scaling existing programmes and, therefore, not applicable at this stage. This feasibility study adopted a participatory research approach to enhance community engagement, cultural relevance, and stakeholder involvement throughout the design and implementation of the pilot stage. We selected participatory methods to strengthen our feasibility assessment, as the recent methodological literature supports their effectiveness in improving contextual suitability and acceptability of interventions (Scher et al. 2023; Vaughn and Jacquez 2020; Bergold and Thomas 2012).

Following the MRC guidelines for developing complex interventions (Skivington et al. 2021), we took several steps to guide the pilot and feasibility assessment of Tiyanjane. First, we systematically reviewed the literature on interventions involving parents of children with disabilities (Musendo et al. 2023). For the purpose of this study, disability was defined in alignment with the UN Convention on the Rights of Persons with Disabilities (UNCRPD), encompassing long-term physical, mental, intellectual, or sensory impairments that interact with societal barriers (UNCRPD 2006). The second step involved a qualitative,

formative study that explored the factors (barriers and facilitators) influencing parental involvement in Malawi (Musendo et al. 2024). Third, we co-designed a pilot intervention using participatory workshops and consensus-building meetings with parents, teachers, community members, and other stakeholders in Northern Malawi (Musendo et al. 2025). This pilot intervention was implemented between March and July 2024.

2.2. Setting

This research was conducted in the rural Kalambwe area of Nkhata Bay District, Malawi. A rural setting was preferred because most of Malawi's population (approximately 84%) resides in rural areas (National Statistics Office 2019). The pilot activities revolved around a local primary school in the Kalambwe community, which had a student population of 803 (51% female) at the time of the study in 2023–2024. The school had 72 children with disabilities enrolled in mainstream classes. It was also involved in our formative study, in which we identified the main factors influencing parental involvement in their children's education (Musendo et al. 2024). Kalambwe School was selected to participate in the pilot study due to its demonstrable active involvement, interest, and commitment throughout the intervention development phase.

2.3. The Intervention

Tiyanjane, (Let Us Unite) is a community-based programme developed to promote parental involvement in the education of children with disabilities in Malawi. The intervention content was informed by earlier community consultations conducted in Malawi as part of the Tiyanjane project, where caregivers and teachers shared needs around parental involvement in supporting their children's development education (Musendo et al. 2025). The intervention was conducted using in-person activities. To implement the activities, four local facilitators—a teacher, a parent, a person with a disability, and a community member—received five days of training and support to work closely with 20–25 male and female participants (parents, teachers, and local leaders). A summary of the intervention components was described using the Template for Intervention Description and Replication (TIDieR) checklist (Hoffmann et al. 2016), which is presented in Table A2. Alongside the two weeks allocated for training, the facilitators and participants conducted two-hour practical sessions on a mutually agreed day for ten weeks. An outline of these weekly sessions is presented in Table A3. A participant was considered to have 'completed' the intervention if they had participated in eight or more sessions, which was deemed appropriate for the participant's circumstances through discussion with the facilitators and the research teams.

2.4. Participants and Recruitment

We used active recruitment strategies, such as seeking referrals from school administrators/teachers, disability advocacy groups, and individuals who participated in earlier stages of this research, to identify potential participants for the study. At the time of recruitment, Kalambwe Primary School had 72 enrolled learners identified as having disabilities. From this group, 13 caregivers (11 female) were purposively selected to participate in the intervention based on predefined eligibility criteria, availability, willingness to commit to the programme, and informed consent. The predefined eligibility criteria are outlined in Table A2 and include: (i) being a parent or primary caregiver of a school-aged child with a disability (6–17 years) enrolled at the participating school, (ii) being a schoolteacher of a learner with disabilities at the school, or (iii) being a local community leader involved in school governance structures, such as the school management committee. All prospective participants were expected to commit to the 12-week intervention period to be eligible.

Caregivers were asked the Washington Group Questions to assess the type and severity of their children's functional difficulties (Washington Group 2020). A total of 21 participants

(13 parents, 4 teacher and 4 local leaders) met the inclusion criteria, provided informed consent, and were enrolled in the study. It is important to recognise that the 25 caregivers identified do not encompass the entire group of caregivers for the 72 children with disabilities enrolled at the school. Instead, potential participants were identified for screening through collaboration with teachers and local gatekeepers, using screening checklists, to ensure they met the eligibility criteria for participation. More details on the participants' flow, including recruitment and retention records, are provided in Appendix A, Figure A1.

The sociodemographic characteristics of the 21 recruited Tiyanjane participants are presented in Table 1. The average age varied by group, with parents and caregivers averaging 42.9 years (range: 20–73), teachers at 38.3 years (range: 30–49), and local leaders at 50.5 years (range: 30–62). Most of the participants were female (81%). Education levels were lower among parents, with 54% not completing primary school, whereas all teachers had post-secondary education. Employment varied, with 62% of the parents being self-employed. Among children with disabilities, 38% had physical impairments, whereas 31% had hearing or visual impairments. None of the caregivers had a child with intellectual disabilities, a limitation we noted in our co-design paper, further underscoring the low enrolment of children with intellectual disabilities in the Malawian school system (Musendo et al. 2025).

Table 1. Description of the participants' characteristics.

Characteristics	Parents/Caregivers (n = 13)	Teachers (n = 4)	Local Leaders (n = 4)
Gender	11 Female 2 Male	4 Female 0 Male	3 Female 1 Male
Age Range (years)	Range: 20–73 Mean: 42.9 (SD: 13.4)	Range: 30–49 Mean: 38.3 (SD: 8.3)	Range: 30–62 Mean: 50.5 (SD: 12.5)
Marital Status	9 Married/Living together (69%) 3 Widowed (23%) 1 Single (8%)	3 Married/Living Together (75%) 1 Divorced (25%)	2 Married/Living Together (50%) 2 Widowed (50%)
Education Level	7 Primary Incomplete (54%) 3 Primary Complete (23%) 3 Secondary Incomplete (23%)	4 More than Secondary (100%)	2 Secondary Incomplete (50%) 2 Secondary Complete (50%)
Occupation	8 Self-employed (62%) 4 Unemployed (31%) 1 Student (8%)	4 Employed (100%)	2 Self-employed (50%) 1 Agriculture (25%) 1 Unemployed (25%)
Household Size	Range: 3–10 Mean: 6.9 (SD: 2.1)	Data not collected	Data not collected
Children's age (years)	Range: 6–15 Mean: 11.5 (SD: 2.4)	Data not collected	Data not collected
Child's Disability	5 Physical (38%) 4 Hearing (31%) 4 Visual (31%)	N/A	N/A

2.5. Data Collection

Ethical approval for this study was obtained from the Ethics Committees of the London School of Hygiene & Tropical Medicine and the University of Livingstonia, Malawi. The participants, all aged 18 and above, were informed of the study purpose, the voluntary nature of their participation, and their right to withdraw from the study at any stage of the interview or discussion. Each participant provided written or thumb-printed informed consent to participate in this study. All the interviews were conducted in both safe and private classrooms at a local school. To limit potential biases, power imbalances and

perceived coercion data were collected by independent research assistants, both male and female, who were not directly affiliated with schools, communities, or local organisations.

Data were collected by the first author (D.J.M.) and by three local research assistants. Two research assistants were female (B.C. and E.N.), and one was male (C.K.). Following the training offered by the lead author, B.C. and C.K. administered pre- and post-intervention quantitative surveys and monitored intervention fidelity through weekly fidelity checks, including attendance registers and after-action review meetings (Crowe et al. 2017). D.J.M., B.C., and E.N. participated in the post-intervention follow-up qualitative study. The data collection methods are described below.

2.5.1. Quantitative Measures

Eligible participants provided their basic sociodemographic data at the time of their consent. They also participated in surveys at baseline and within one-month post-intervention. We used two validated tools to assess limited efficacy. Parenting practices and family adjustment, including family relationships and teamwork, were assessed using the PAFAS-Parent and Family Adjustment Scale (Mejia et al. 2014). The 30-item PAFAS prompts participants to evaluate parental consistency, coerciveness, positive encouragement, family relationships, and teamwork. The PAFAS Parenting domain includes four subscales: Parental Consistency (0–15), Coercive Parenting (0–15), Positive Encouragement (0–9), and Parent–Child Relationship (0–15). The Family Adjustment domain includes Parental Adjustment (0–15), Family Relationships (0–12), and Parental Teamwork (0–9). Each of the 30 items was rated from 0 to 3, with some items being reverse-scored (i.e., 0 = 3, 1 = 2, 2 = 1, 3 = 0) before calculating the total score for each subscale. The PAFAS has demonstrated validity and reliability among parents of typically developing children and those with developmental/intellectual disabilities in Australia (Kelly et al. 2022). The PAFAS has also been validated in four non-English languages, including Spanish, Chinese, Indonesian, and Portuguese (Martins et al. 2024), as well as in another study using data from 15 different countries (Pandya 2018), demonstrating promising psychometric properties across diverse LMIC settings.

Social support was assessed using a global measure of perceived support, known as the MSPSS—Multidimensional Scale of Perceived Social Support tool (Garbacz et al. 2015). This 12-item questionnaire assessed perceptions of support from family, friends, and significant others on a scale of 1 (very low) to 7 (very high). The MSPSS has demonstrated strong psychometric properties, including construct validity and internal consistency across numerous cultural contexts, including among Chinese (Wang et al. 2017) and Korean (Jeong et al. 2013) parents of children with cerebral palsy. In this study, we used the standard scoring and interpretation approach for each subscale. Neither the PAFAS nor the MSPSS has ever been employed among parents of children with disabilities in Malawi. We translated the PAFAS and MSPSS tools into Chichewa and then back into English to ensure accuracy. To ensure that the questions made sense in the Malawian context, we pretested them with caregivers and adjusted them based on their feedback.

2.5.2. Observational Monitoring

Practical session activities were progressively monitored by combining the observation and discussion techniques. A fidelity checklist, which included attendance logs, was used along with weekly after-action reviews by the research team and facilitators to share observations of the activities. The outcomes of these reviews were recorded in weekly diaries and communicated to the first author, who participated in a series of virtual feedback sessions.

2.5.3. Qualitative Measures

Within a month of completing the pilot intervention, follow-up interviews and focus groups were conducted with participants (parents, teachers, and local leaders) and facilitators to explore the programme's acceptability, demand, implementation, practicality, and initial efficacy testing (Bowen et al. 2009). The details of the definitions of these concepts are available in Table A1. B.C. and E.N. facilitated three focus groups with caregivers and local leaders in Chichewa. D.M. held one focus group with teachers and conducted in-depth interviews with four facilitators in English. These discussions were held to gather participants' perspectives and experiences of the intervention, aligning them with good practice recommendations in implementation research (Hamilton and Finley 2019). The main focus group and interview questions asked for participants' and facilitators' experiences with the programme, including what they found helpful or challenging. They also explored how parents applied what they had learned, any difficulties faced at home and in the community, and ideas for improvement. The discussions also covered the perceived changes in family life, children's education, and community support. Given the critical role of social connections, participants were also asked to share how community support networks facilitated learning and improved parenting practices. Each focus group lasted 60–90 min, and in-depth interviews lasted 30–45 min.

2.6. Data Management and Analysis

The interviews and focus groups were recorded using encrypted digital audio recorders. They were then transcribed and translated from Chichewa into English, where applicable. All data were anonymised using unique identifiers and stored securely in a password-protected system accessible only to the research team. The study employed a mixed-methods approach to assess the feasibility of the Tiyanjane intervention. Both qualitative and quantitative data were analysed in alignment with five domains of Bowen's feasibility framework: acceptability, demand, implementation, practicality, and limited efficacy.

Qualitative data from focus groups and in-depth interviews with facilitators were analysed thematically using the framework method for the analysis of qualitative data (Gale et al. 2013). We followed Braun and Clarke's six-phase thematic framework (Braun and Clarke 2006) to analyse the data. First, we familiarised with the transcripts and progressed through coding, theme generation, review, definition and interpretation. Data were organised, uploaded, and coded using ATLAS.ti software version 24.0.0, following essential transcript and quality checks. We coded the data using both deductive (informed by Bowen's framework) and inductive (emerging from the data) methods. Initial coding was conducted by D.M. and C.M., with refinement conducted in discussion with B.C. to ensure rigour and consensus. The findings from the thematic analysis provided insights into four feasibility domains, i.e., acceptability, demand, implementation, and practicality. These were complemented by observation records from weekly fidelity checks and after-action reviews conducted by the research team. These additional sources allowed us to assess how consistently the intervention was delivered and reflect on adaptations that were made during implementation (Pérez et al. 2020).

Quantitative data from pre- and post-surveys were used to assess the limited efficacy domain of the study. Parenting practices and family adjustment were evaluated using the PAFAS (Mejia et al. 2014), while social support was measured using the MSPSS (Zimet et al. 1988). Survey data were entered into SPSS v25 and analysed by D.M. and M.C. Descriptive statistics were used to summarise sociodemographic data. Before inferential testing, the normality of the variables was assessed using the Shapiro–Wilk test (Rochon et al. 2012), which confirmed that the assumptions for parametric testing were met. Paired t-tests were then conducted to evaluate changes in pre- and post-intervention scores. Mean differences

and confidence levels were reported to quantify the magnitude of the change (Moreau and Wiebels 2021).

A comprehensive summary of how each feasibility domain is addressed is presented in Table A1.

2.7. Researcher Reflexivity, Positionality, and Trustworthiness

Reflexivity and consideration of positionality are crucial for maintaining the integrity of the study. The research team engaged in self-reflection to understand how our background could influence various aspects of the research process and outcomes. The first author, leveraging his Zimbabwean and community development experience, had relevant knowledge of the participatory methods essential to the study's context. The lead author had previously collaborated with CCAP's Inclusive Education Programme and Sense Scotland in an independent evaluation capacity. These prior engagements informed the identification of key community needs and inspired the development of this research study, while the research itself was conducted independently from programme implementation. Recognising the impact of being an outsider, the team held regular review meetings to reflect on, consider, and address potential biases. To enhance the trustworthiness of the study, we collaborated with a multi-stakeholder Project Support Group in Malawi alongside a five-member academic advisory panel from the LSHTM. We also received an invaluable local mentorship from a senior researcher at a university in Malawi.

3. Results

Overall, the participants responded positively to the intervention, indicating its feasibility and appropriateness for addressing the factors influencing parental involvement in children's education, particularly for those with disabilities. Despite some initial resistance and distrust stemming from past negative experiences with other agencies, the satisfaction levels among caregivers and local leaders were high. Participants affirmed their intention to continue the programme's activities and implement learned strategies, although they acknowledged challenges related to sustainability and resources. An interpretation of the primary focus areas presented in this section is provided in Table A1.

3.1. Acceptability

3.1.1. Perceived Appropriateness

Tiyanjane was considered to be appropriate for local contextual needs and priorities. Study participants felt that the programme addressed misconceptions surrounding parental roles in educating their children with disabilities. Teachers appreciated the programme's relevance in its focus on engaging parents in home and school settings. A teacher noted, "The part of the programme that focused on parental involvement at home and school was beneficial. Before this programme, caregivers struggled to engage in their children's education" (T4, Female). A local leader welcomed the decision to participate in the programme, emphasising that the community now recognises the importance of uniting and supporting children with disabilities (CL1, Male). The respondents emphasised unity and collaboration among participants and facilitators in addressing their real challenges. A facilitator remarked, "We identified the problems faced by the parents and discussed how to overcome them, determining who would be responsible for resolving the issues" (F2, Male).

3.1.2. Initial Resistance

The Tiyanjane intervention met its target, engaging 13 caregivers from 12 families, four teachers, and four community leaders as participants. However, some community members hesitated to join the programme. One concern raised was distrust of the intentions

of external agencies in the community regarding their programmes. Some male participants expressed negative experiences with previous initiatives that exploited their children's disabilities or misused personal information for their benefit. One male parent said, "Some men are still reluctant [to participate in Tiyanjane]. In the past, organisations took [personal] records and used them elsewhere, reporting higher numbers than the real needs of their donors. This has caused some people to hesitate to trust the new programmes, thinking their names will be misused" (P6, Male). Some caregivers were also concerned that the programme would not fulfil its promises. For example, a parent stated, "At first, when they [the local facilitators] told us they were registering children with disabilities, we were doubtful. We thought it might end up like many other programmes that never follow their promises" (P7, Female).

3.1.3. Satisfaction

Participants and facilitators were generally satisfied with their experiences as part of the pilot intervention. Caregivers, particularly mothers, expressed satisfaction that their children had received additional support from their participation in the programme. One female parent shared, "When Tiyanjane members [facilitators] visited [during recruitment], I explained how my child has difficulty hearing, and we used to shout for him to hear properly. Now, when we call him, he hears better. Even at school, he used to sit behind the class, making it harder to hear, but the teacher now lets him sit in front where he can hear better" (P3, Female). Local leaders also expressed satisfaction: "We also love Tiyanjane. It is in our hearts now" (CL2, Female 2). Participants liked the lessons learned from their activities, such as structured meetings, home visits, and community sensitisation. A community leader stated, "We are very grateful for this programme. It has opened our eyes to things we did not know before" (CL3, Female). There were no reports of dissatisfaction expressed by the participants.

3.1.4. Intent to Continue the Use

Almost all the participants were willing to continue with Tiyanjane's activities after the pilot phase ended. Several parents emphasised not wanting the group to end its activities and their commitment to "continue the work" (F1, Female) or "keep the momentum" (F2, Male) of the programme. Recognising the programme's value, the participants committed to continue buying school materials for their children by contributing small amounts of money to a village bank. One parent mentioned that their contribution helped them buy school material (P8, Female). Local leaders were also willing to extend the programme's reach to villages beyond Kalambwe. However, teachers and local leaders acknowledged the potential challenges of sustaining programme activities outside the formal structure or resources provided by Tiyanjane. One teacher stated, "It will take extra effort from us to keep caregivers engaged and to remind them of the importance of their roles" (T2, Female). A local leader also highlighted the need for funding to continue certain activities, such as providing school materials and support for children.

3.2. Demand

3.2.1. Actual Use

The participants were eager and felt able to implement and practice the methods and lessons learned from the programme. A teacher mentioned practical examples of the skills learnt: "Another strategy we learned was involving parents more actively in their child's education. For example, we now send simple homework assignments that parents can help their children with, strengthening the relationship between home and school" (T1, Female). Compared to the past, a parent reported, "Teachers who were not previously giving homework are now giving homework. Children also improve because we help

them write homework” (F1, Female). Other teachers reported being able to adapt their teaching methods to accommodate disabled learners and create more inclusive lesson plans. Nonetheless, teachers, caregivers, and facilitators acknowledged the potential difficulties in maintaining the use and momentum after structured assistance from Tiyanjane ended.

3.2.2. Expressed Demand

Participants saw the programme as necessary because it met important community needs. Many families in this area also showed an interest in joining. One community leader noted that outreach efforts increased local interest in the project. A parent participant explained, “Other people are contacting us, expressing their desire to join” (P8, Female). All participants remained active throughout the 12-week implementation period, and none of them dropped out of the study. The participants also agreed that there was a high demand for the programme. However, others could not enrol because they specifically targeted a limited number of participants for the pilot initiative, namely caregivers from 12 families. One parent noted that among the many [reported as 72] children with disabilities enrolled at the participating school, Tiyanjane selected only a few (P13, Female). However, there was a need to “ensure that other children are also supported and do not feel excluded” (P13, Female).

3.2.3. Perceived Benefits

Nearly all the participants felt that Tiyanjane encouraged better connections and mutual understanding among the involved people. Teachers provided extra support and collaborated with the families to address the challenges faced by their children. Local leaders also observed benefits, noting “a good relationship between parents, teachers, and children. This has been a positive development, helping us to move forward and address the challenges children face” (CL4, Male). Teachers also reported developing new skills, such as “how to adjust teaching methods to accommodate learners with disabilities. I have learned how to create more inclusive lesson plans and ensure that all learners, regardless of their abilities, can participate and succeed in the classroom” (TF1, Female). Several parents reported benefits for children who became more actively involved in learning at home and school, such as increased confidence and engaging in classes with peers. One parent shared, “I have seen a change in my child, the way she was before, and how she is now, that there is a clear difference. She used to be shy, even with teachers, but now she can communicate well with them” (P8, Female).

3.3. Implementation

3.3.1. Degree of Execution

All planned activities (see Table A2) were carried out as scheduled, with only minor adjustments made on implementation days. Although most activities occurred on Wednesday afternoons, minor adjustments were implemented to align them with stakeholder availability. This was especially important for advocacy meetings and community awareness events to ensure that intervention plans remained on track. Planned meetings with parliamentary representatives did not occur because they were busy and unavailable until the end of the pilot phase. Delays in starting sessions owing to late arrivals were also experienced, although they were promptly addressed through improved coordination. One facilitator explained the negative implications of these delays, stating, “We needed to ensure that we started on time. In some sessions, we had delays because some parents arrived late, which affected the session’s timing” (F3, Female). A community leader also highlighted the need for better planning in the provision of materials, suggesting, “We should also make sure the activity guidelines are available in advance so that everything is well-prepared” (CL2,

Male). Overall, the participants felt that the quality of the programme's execution was high because of the strong collaboration between the participants and facilitators.

3.3.2. Success or Failure of Execution

Tiyanjane's recruitment and retention rates indicated successful pilot implementation with minimal participant attrition (see Figure A1). Of the 29 persons screened for eligibility, 21 (four teachers, four leaders, and 13 caregivers) met the eligibility criteria and consented to participate. Findings from our monitoring tools (fidelity checklists and after-action reviews) showed consistent delivery of weekly practical sessions, such as home visits, community awareness events, parent–teacher conferences, class observations, and action planning. The programme recorded 100% participant retention during the duration of the study. Overall, there was a 95% participation rate during the 12-week programme (teachers 98%, facilitators 96%, caregivers 95%, and local leaders 90%). The lowest attendance rate among participants was 86%. Respondents felt the programme's success was rooted in the participants' open communication and understanding. A facilitator observed, "The key success of the programme was the increased communication between parents and teachers. This communication allowed parents to better understand their children's needs" (F4, Male).

3.4. Practicality

3.4.1. Factors Affecting Implementation

Parents, teachers, and community leaders highlighted the key factors affecting the pilot's success of the pilot. Strong commitment and acceptance from parents play crucial roles. A facilitator noted that caregivers were "open about their child's needs and willing to seek help" (F4, Male), reinforcing the importance of a united approach. The community also positively received and supported the programme, enabling smoother implementation. One leader observed, "We found it easy because the committee members, teachers, and parents have come together like a union" (CL3, Female). Teachers aim to facilitate better understanding and support for families. One parent shared, "We worked well together without any problems. The organisation was good, and the instructions we received were clear" (P9, Female). At the same time, Tiyanjane facilitators were dedicated and reported to play an essential role in ensuring that the programme ran smoothly. However, some challenges were noted, including resource shortages, such as educational materials required by parents to support their children and tools or materials needed by participants for school volunteering activities, such as cleaning or minor classroom repairs. The scheduling issues were also addressed. For example, one teacher highlighted these difficulties, noting, "We needed to ensure that we started on time. We had some delays because the parents arrived late, which affected the session timing" (T4, Female).

3.4.2. Amount or Types of Resources Needed to Implement

The successful implementation of Tiyanjane was linked to the provision of resources, including homework books, training handouts, and promotional materials (branded bags and t-shirts), to enhance visibility and community engagement. Participants, including caregivers, also contributed resources such as tools, materials, and wheelbarrows from their homes to help with school cleaning, highlighting group members' high levels of engagement. A community leader mentioned, "There were times when we needed to write things down, but we had to find materials ourselves" (CL3, Female). Participants and facilitators highlighted the need for more resources, including books, teaching aids, and training materials, to help parents grasp the information presented in the programme more effectively. One facilitator mentioned, "Some caregivers needed extra support to understand the lessons and having more resources would have helped" (F1, Female).

Despite these shortcomings, participants showed a willingness to contribute and ensure that the programme completed its activities.

3.5. Limited Efficacy

3.5.1. Effects on Parents' Behaviours

Table 2 presents the pre- and post-intervention scores for the PAFAS measures reported at baseline and one month after pilot completion. Although most pre-intervention variables did not follow a normal distribution, most post-intervention variables were normally distributed. In the PAFAS, while higher scores on each subscale reflect greater parenting or family functioning challenges, a lower score indicates positive parenting behaviours and stronger family relationships (Martins et al. 2024). For example, higher scores on the Coercive Parenting subscale indicate more frequent use of harsh disciplinary strategies, while higher scores on Positive Encouragement reflect lower use of praise or reinforcement (Baumann et al. 2019). While changes were markedly positive across all parenting practice outcomes, the most notable improvement was in parental consistency, with mean scores improving from 8.62 (SD = 1.76) to 1.58 (SD = 0.49) post-intervention. Regarding family adjustment, the largest improvement was observed for family relationships, with the mean score improving from 3.85 (SD = 2.85) to 0.81 (SD = 0.88).

Table 2. Results from pre- and post-intervention surveys with caregivers based on PAFAS measures.

Outcome	Pre-Intervention Mean (SD)	Post-Intervention Mean (SD)	Mean Difference (95% CI)	p-Values
PAFAS Parenting Practices				
Parental Consistency	8.62 (1.76)	1.58 (0.49)	7.03 (5.82 to 8.25)	<0.001
Coercive Parenting	6.15 (3.05)	1.28 (0.42)	4.88 (2.97 to 6.78)	<0.001
Positive Encouragement	1.46 (1.05)	0.03 (0.09)	1.44 (0.84 to 2.03)	<0.001
Parent–Child Relationship	3.85 (1.28)	0.03 (0.08)	3.82 (3.03 to 4.6)	<0.001
PAFAS Family Adjustment				
Parent Adjustment	3.23 (1.48)	0.58 (0.38)	2.65 (1.91 to 3.38)	<0.001
Family Relationships	3.85 (2.85)	0.81 (0.88)	3.04 (1.53 to 4.55)	<0.001
Parental Teamwork	2.11 (1.54)	0.62 (0.49)	1.75 (0.6 to 2.9)	0.009

3.5.2. Effects on Perceived Social Support

The pre- and post-intervention MSPSS scores are presented in Table 3. Higher MPSS scores indicate greater support from family, friends, and significant others (Zimet et al. 1988). Improvements were observed across all three outcomes, with the most considerable change observed within the friends subscale, indicating increased social connection (3.48 (SD 1.42) pre-intervention to 5.35 (SD 0.76) post-intervention). The increase in MSPSS scores after the intervention shows a shift from moderate to high perceived social support among participants. According to MSPSS guidelines, mean values above 5.1 indicate a high level of support, which was clear across the family, friend, and significant other subscales. This suggests that participants experienced a substantial improvement in their perceived emotional and relational support.

Table 3. Results from pre- and post-intervention surveys with caregivers based on MSPSS measures.

Outcome	Pre-Intervention Mean (SD)	Post-Intervention Mean (SD)	Mean Difference (95% CI)	<i>p</i> -Values
Perceived Social Support (MSPSS)				
Significant Other Subscale	4.02 (1.46)	5.38 (0.49)	1.37 (0.51 to 2.22)	0.005
Family Subscale	3.21 (1.31)	4.21 (1.3)	1 (0.27 to 1.73)	0.011
Friends Subscale	3.48 (1.42)	5.35 (0.76)	1.87 (1.04 to 2.69)	<0.001 **

** significant at $p < 0.01$.

4. Discussion

Our findings suggest that the Tiyanjane pilot intervention was feasible, particularly regarding the programme's acceptability, practicality, implementation, demand, and limited efficacy. The programme achieved full retention (100%) and adherence (95%). Participants expressed that the intervention was successfully implemented, with activities delivered as planned, despite the resource constraints. According to the pre- and post-survey data, there were significant improvements in the PAFAS and MSPSS scores across all assessed outcomes after the intervention, suggesting a positive impact on parental behaviour and support. These findings indicate the programme's potential through the collaboration of families, schools, and communities. The reported challenges included practical issues such as delays in starting times and insufficient resources, initial reluctance among certain community members to enrol, and concerns about what will happen when structured support for the programme is no longer available.

Feasibility research can help bridge the gap between research and practice by guiding early improvements in intervention strategies (Smith et al. 2023). Since this study serves as a preliminary feasibility investigation, our primary objective was to assess the feasibility of the Tiyanjane intervention rather than to definitively establish causal claims about its impact on children's social development. Our study highlights key elements that could enhance effective programme execution, such as community ownership, collaboration, flexibility in planning activities, and ensuring the timely availability of essential resources, which aligns with the findings of previous studies. For example, the benefits of community and stakeholder engagement, as well as supportive networks, have been highlighted in earlier studies of parental involvement (Haldane et al. 2019; Yilmaz Bodur and Aktan 2021; McLinden et al. 2018; Musendo et al. 2024). Involving local stakeholders at various stages helped to ensure that the findings were grounded, relevant, and applicable within the sociocultural context of our participants.

The practical implementation of this participatory research study was partly facilitated by continuous feedback mechanisms that allowed for timely identification and resolution of emerging challenges using after-action reviews. Meanwhile, participatory research and practice methods can yield beneficial results, particularly in resource-constrained settings (Guthold et al. 2023). Insights from other feasibility studies, including Participatory Learning and Action for Disability (PLA-D) intervention in Uganda (Kuper et al. 2023) and the Juntos initiative in Brazil (Smythe et al. 2023), underscore the importance of mobilising stakeholders to achieve positive effects. In our context, the results can help position Tiyanjane as a viable intervention to address the locally identified educational challenges faced by families of children with disabilities in low-income settings.

Although the evidence from this feasibility study is preliminary, our research contributes to the existing knowledge by providing empirical evidence on the feasibility of community-based interventions within Malawi. It also offers a practical framework for implementing similar interventions and building stronger family-school-community part-

nerships in other low-income settings. The pilot study has provided groundwork for tailoring and refining the program; however, further work is needed to inform policy implications and whether and how to scale-up this intervention. For example, there is a need to assess the programme in other sociocultural and geographical settings, as well as to assess the long-term impact and sustainability. Future research must also include comparative analyses with other family–school–community initiatives to help understand the conditions under which such programmes can be sustained and incorporated into policy.

Our findings should be considered within the context of the strengths and limitations of this study. We used a mixed-methods approach, utilising several data sources, to provide rich insights into research phenomena that may not be fully understood using only qualitative or quantitative methods. The application of Bowen’s feasibility framework (Bowen et al. 2009) offers a structured process and an opportunity to assess multiple facets of feasibility (Teresi et al. 2022). However, this study has some limitations. First, it involved a single community in a rural area of Malawi. Consequently, these findings may not be generalisable to other populations and settings, including families and individuals living in urban areas. Second, the pilot intervention was tested only once within a brief timeframe, making the assessment of integration, scalability, and sustainability impractical. Third, a potential limitation of this study is that the assessment primarily relied on responses from participants and facilitators in the programme only, which may not fully capture the broader community or institutional perspectives. Fourth, the participants were familiar with the researchers observing this programme. There is a risk of social desirability bias in their responses, as they may have provided more socially acceptable answers; to gain a more comprehensive understanding of the feasibility of the intervention, future research should consider involving other stakeholders such as policymakers, school administrators, and disability advocacy groups or organisations. While the use of paired-sample t-tests provided valuable exploratory insights into participant-level changes, the small sample size ($n = 21$) limits the generalisability of these findings. However, as a feasibility study, our aim was not to test the effectiveness of the intervention but to examine its implementation and identify signals of potential impact. The sample size was sufficient for these exploratory purposes and will inform the design of future, more robust studies.

5. Conclusions

To our knowledge, this is the first co-designed intervention study to assess a family–school–community programme supporting children with disabilities in Malawi. Our study presents preliminary evidence that a parental involvement programme is feasible within the Malawian context, with parental behaviour and support improvements. The achievements of the intervention concerning its acceptability, demand, implementation, practicality, and limited efficacy underscore the importance of culturally sensitive community-based programs in enhancing educational outcomes for children with disabilities. The intervention requires further testing with a more diverse sample and long-term follow-up. Before proceeding to larger-scale studies, it is necessary to extend the pilot and feasibility testing to other families in different contexts, including urban settings. Future research should include rigorous longitudinal studies and randomized controlled trials. This will help us better understand how effective and sustainable parental involvement interventions are and provide clearer insights into their impact on children’s social development outcomes. While grounded in the Malawian context, the approach and lessons learned from this study may offer practical considerations for other low-resource settings seeking to strengthen inclusive education through family–school–community partnerships. Assessing the scalability of the intervention’s scalability and its integration into existing systems across various

settings is vital for improving parental support, which will ultimately benefit the academic and social development of children with disabilities.

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Data Availability Statement: The original contributions of this study are included in this article. Further enquiries can be directed to the corresponding author.

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Appendix A

Table A1. Tiyanjane feasibility framework. The study was primarily informed by Bowen’s feasibility framework, focusing on five of eight constructs, including acceptability, demand, implementation, practicality, and limited efficacy, alongside 13 outcomes or areas of focus (Bowen et al. 2009).

Construct	Areas of Focus/ Analysis Code	Meaning of Analysis Code	Sources of Data
Acceptability To what extent was the programme suitable, satisfying, or attractive to programme recipients?	Perceived Appropriateness	How well participants believe Tiyanjane fits within the cultural, educational, or social framework of their community. This includes views on whether program activities, focus, and methods align with their values and needs.	FGDs and IDIs Recruitment and retention flow of participants
	Initial Resistance	This reflects participants’ initial reluctance, doubts, or fear of joining the program or their hesitation towards certain activities. It includes cultural resistance, lack of understanding, or mistrust of the program’s goals.	
	Satisfaction or Dissatisfaction with Participation	Refers to the level of satisfaction or dissatisfaction expressed by participants (parents, facilitators, and teachers) with Tiyanjane. It captures how they feel about their involvement, the program activities, and results observed in their children or within the community.	
	Intent to Continue	Captures participants’ desire or intention to continue applying the methods or lessons from Tiyanjane after the formal program ends. It also includes challenges related to continued use of Tiyanjane.	

Table A1. *Cont.*

Construct	Areas of Focus/ Analysis Code	Meaning of Analysis Code	Sources of Data
Demand To what extent was the programme used, and/or is it likely to be used?	Actual Use	Participants' initial reluctance, doubts, or fear of joining the program or their hesitation towards certain activities. It includes cultural resistance, lack of understanding, or mistrust of the program's goals.	FGDs and IDIs Sociodemographic data Monitoring data: Fidelity checklist and attendance register After action reviews
	Expressed Demand	Focuses on the level of interest or intention expressed by participants to engage in, continue, or discontinue with Tiyanjane or similar interventions.	
	Perceived Benefits	Refers to the perceived need for Tiyanjane or similar interventions within the community. This code also includes any mention of growing interest from families or communities that were not initially part of the program.	
Implementation To what extent and in what manner is the intervention successfully delivered to the intended participants?	Degree of Execution	Refers to how well the planned activities of Tiyanjane were carried out according to schedule and expectations.	FGDs and IDIs Sociodemographic data Monitoring data After action reviews
	Success or Failure of Execution	Focuses on the overall success or failure of specific activities or components of the program. It considers whether activities met their objectives and the reasons behind their success or failure.	
	Amount or Types of Resources Needed to Implement	Captures the resources (e.g., time, materials, financial support) required to successfully implement the Tiyanjane program, as well as any gaps in these resources that affected implementation.	
Practicality To what extent has the intervention been delivered to the intended participants using available means, resources, and circumstances?	Factors Affecting Implementation	Reported issues or factors that either facilitate or hinder the smooth implementation of Tiyanjane. Coders should identify references to logistical, cultural, financial, or resource-related challenges that made implementing the program difficult, as well as aspects that made it easier (e.g., community support, alignment with cultural values, or availability of resources). Factors can include parental willingness, teacher cooperation, community infrastructure, or external support.	FGDs and IDIs Monitoring data: Fidelity checklist and attendance register
	Success or Failure of Execution	The degree to which participants and facilitators were able to carry out the activities as intended by Tiyanjane. Deviations or challenges that prevented participants from adhering to the program's intended structure are also noted.	
Limited Efficacy To what extent does the intervention show promise of being effective and successful with the intended population?	Impact on Parents' Behaviour	Direct or indirect positive or negative changes made or experienced by Tiyanjane participants, particularly on parental practices, e.g., consistency, coerciveness, and encouragement as well as family adjustment, including family relationships and parental teamwork.	Pre- and post-surveys FGDs
	Family Functioning Support and Relationships	Refers to perceived outcomes of Tiyanjane, especially in terms of improvements in reported support by the participants from family, friends and significant others.	

Table A2. Description of the Tiyanjane pilot intervention using the TIDier checklist.

Item	Description
Name	Tiyanjane: A family–school–community intervention promoting parental involvement in the education of children with disabilities in Malawi.
Why	To promote family–school–community collaboration and foster a supportive network by enhancing parental knowledge, opportunities, and confidence in advocating for inclusive practices and ultimately improving the educational experiences of children with disabilities.

Table A2. *Cont.*

Item	Description
Who (Participants)	Participants included caregivers of children with disabilities, teachers, and community leaders from the Kalambwe School catchment area. Caregivers were eligible if they were 18 years or older, caring for a school-aged child (6–17 years) with a disability enrolled at Kalambwe Primary School, resided locally, and could commit to the 12-week programme. Caregivers were identified in collaboration with local gatekeepers, including school authorities and representatives from the CCAP Inclusive Education Programme and MACOHA. Eligible caregivers were purposively selected to ensure a mix of impairment types and demographic diversity, although in practice, most children had physical, hearing, or visual impairments, with no caregivers of children with intellectual disabilities available. Teachers were eligible if they were currently teaching at Kalambwe Primary School and had one or more learners with disabilities in their classroom. Community leaders were selected based on their involvement in school governance or community-based support structures (e.g., School Management Committees, PTAs, or Mother Groups). They were eligible if they resided in the Kalambwe area and held a leadership or support role relevant to school or disability inclusion. All the participants were eligible if they were willing to participate in the programme for its full duration and consented to be part of the study.
What (Materials)	Participants received training handouts, worksheets containing the necessary materials, and activity instructions for each session. Promotional materials like branded homework booklets, bags, and T-shirts were provided to enhance visibility and community engagement. Visual aids/flipcharts, games, songs, and storytelling techniques were used during training sessions.
What (Procedures)	The intervention involved 10 weekly participatory sessions split into two phases. Each phase was preceded by three days of training the participants (parents, teachers, and local leaders), followed by weekly practical sessions over five weeks to reinforce and practice the skills learned. The study participants represented three groups that met specific criteria: caregivers, teachers, and local leaders. Caregivers were adults aged 18 and older responsible for children with disabilities between the ages of 6 and 17 enrolled at Kalambwe Primary School. Teachers taught at least two students with disabilities in their classes, while local leaders were active members of the school's management committee.
Who Provided	The Principal Investigator provided four facilitators (two females and two males) with an initial five-day training, which they then delivered to 21 participants: four local leaders, four teachers, and 13 parents.
How	Sessions were conducted with parents, teachers, and local leaders in large and small groups. All the activities were delivered face-to-face in school, community, and home settings, encouraging participatory learning and engagement.
Where	Sessions took place at a local rural primary school and within participants' residences for home visits for personalised family support and activity planning.
When and How Much	The intervention lasted 12 weeks, with one 2-hour session per week. All the activities were conducted during term time, and no activities were conducted during school holidays. Necessary infrastructure included meeting spaces at the school, and we reimbursed all the participants and facilitators for weekly transport expenses.
Tailoring	The intervention was tailored to Malawi's local educational and sociocultural context. Small groups, known as T-hubs, allowed the facilitators to personalise their support based on the participants' specific needs.
Modifications	Slight modifications were made based on feedback from participants during weekly after-action reviews. For example, to address initial concerns, additional focus was placed on supporting parents' understanding of disabilities during home visits. The days for community awareness and family time activities were moved to more suitable days.

Table A2. *Cont.*

Item	Description
How Well (Planned)	Fidelity was monitored through facilitator reports, after-action reviews, and attendance registers. The principal investigator and a local project support group supported facilitators weekly and continuously to ensure the intervention was delivered consistently according to the protocol.
How Well (Actual)	The intervention was delivered as planned, with high levels of engagement from both participants and facilitators. Some families who were initially hesitant became more engaged as the programme progressed.

Table A3. A summary of Tiyanjane’s session topics and activities.

Session	Topic	Activity Description for Each Session
1	Creating a Support System	Home visits by teachers and community leaders to understand family needs and priorities.
2	Goal Setting and Action Plans	Caregivers, teachers, and leaders develop individualised education support plans for children and families.
3	Supporting Children to Learn at Home	Strategies for assisting children with homework and academic engagement.
4	Volunteering in Schools	Caregivers, teachers, and leaders participate in schoolwork activities to enhance engagement.
5	Strengthening Family Bonds	Fun family days and activities to support emotional well-being.
6	Parent–Teacher–Child Conferences	Structured feedback meetings to track student progress and to set learning goals.
7	Classroom Observations	Parents and community leaders observe and provide feedback on inclusive teaching practices.
8	Advocacy and Influence	Training of participants on disability rights and advocacy for inclusive education policies.
9	Action Plan Follow-Ups	Review of previous commitments and progress in supporting children’s education.
10	Community Awareness Event	Parents, teachers, and leaders campaign on the importance of disability-inclusive education.

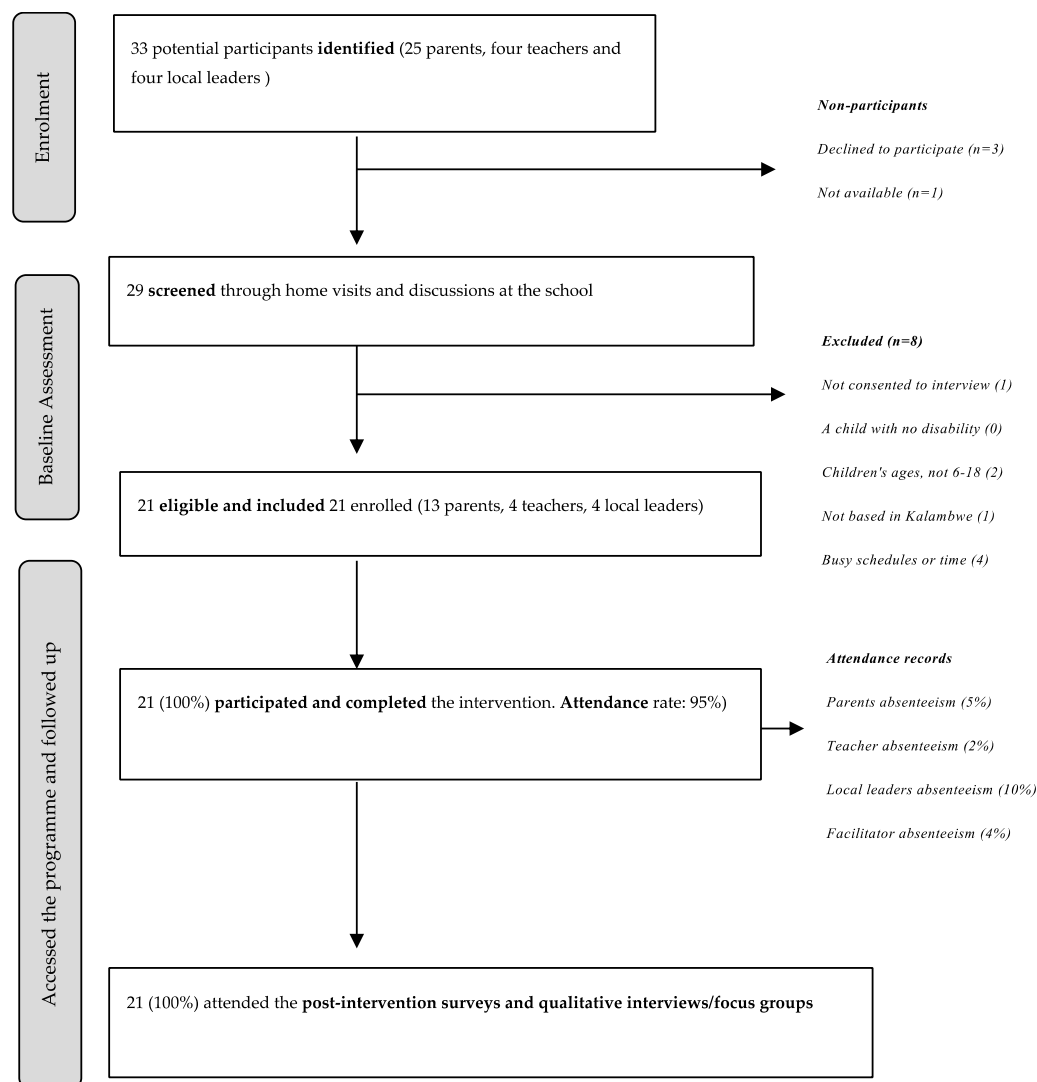


Figure A1. Participants' flow—recruitment and retention records.

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