

BMJ Open Cultural adaptation of the 4Rs and 2Ss multiple family group therapy for adolescents living with HIV and their families in Ghana: a systematic community-based participatory study

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ABSTRACT

Background Multiple family group therapy (MFGT) using the 4Rs and 2Ss (rules, responsibility, relationships, respectful communication, stress management and social support) framework has demonstrated effectiveness in addressing mental health and behavioural problems in high-income countries. However, the MFGT requires cultural adaptation for sub-Saharan African contexts where family structures, traditional healing practices and community support systems differ substantially from Western therapeutic models.

Objective To systematically document the cultural adaptation process of the 4Rs and 2Ss MFGT intervention for adolescents living with HIV (ALHIV) and caregivers in Ghana.

Methods This qualitative participatory cultural adaptation study employed a four-phase stakeholder engagement process guided by the Theory of Triadic Influence, Social Action Theory and the Stirman adaptation framework. This research reports the adaptation phase of a larger three-phase randomised controlled trial (NCT06701942). Thirty-four stakeholders, including ALHIV, parents, extended family members and healthcare providers, participated across the four phases. Community-based participatory research principles ensured authentic cultural integration while preserving intervention fidelity. Systematic documentation categorised all modifications as content, contextual or implementation changes using Stirman's established adaptation framework.

Results The adapted 'Abusuafo Apomuden' not only preserved all core therapeutic components of the MFGT but also allowed for integration of traditional proverbs, extended family networks, spiritual practices and community support systems. Key modifications included expanded group size (10–20 families), trilingual facilitation, task-shifting to health professionals and peer mothers, and interactive activities incorporating drumming, storytelling and traditional games while maintaining therapeutic focus on depression, anxiety and antiretroviral therapy adherence.

Conclusion All six core intervention goals were preserved while enhancing cultural relevance. The adaptation introduces proverb-based therapeutic dialogue and

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ The theory-driven, community-based participatory research-based systematic adaptation using the Stirman framework ensured transparent and reproducible documentation of all modifications.
- ⇒ A comprehensive integration of extended family networks, traditional Ghanaian cultural practices and spirituality was achieved through genuine multi-stakeholder partnership.
- ⇒ Considering the single-district, predominantly Dangbe cultural context, findings may require further adaptation for other Ghanaian ethnic groups.
- ⇒ Pre-implementation phase does not provide evidence of clinical effectiveness, feasibility or sustainability of the adapted intervention.

Susu-based community support structures as novel cultural integration strategies for MFGT. This documented adaptation process provides a replicable model for implementing family-based interventions in West African contexts; clinical effectiveness will be tested in the forthcoming randomised controlled trial.

Trial registration number ClinicalTrials.gov (NCT06701942).

INTRODUCTION

Ghanaian family structures are characterised by strong extended family networks, with multiple generations often living in close proximity and sharing caregiving responsibilities.^{1,2} The concept of 'family' extends beyond nuclear units to include grandparents, aunts, uncles and cousins who play active roles in child-rearing and decision-making.^{3,4} Traditional authority structures emphasise respect for elders, with communication patterns that follow hierarchical norms, which may conflict with Western therapeutic approaches that emphasise egalitarian dialogue.^{5,6}

Child-rearing practices in Ghanaian cultures reflect collectivist values where children are viewed as belonging not only to their biological parents but to the entire extended family and community. The Akan proverb 'Yenkasa, akoma see' (literally 'if we don't speak, the heart will get spoiled') emphasises the importance of collective guidance and correction in child development.⁷⁻⁹ Traditionally, multiple family members assume parenting roles, with maternal uncles (wofa) holding special responsibility for nephews and nieces in matrilineal systems, while paternal aunts (ante) play crucial nurturing roles.² This distributed parenting model means that adolescents typically receive guidance, discipline and emotional support from various family members rather than exclusively from biological parents. Decision-making regarding children's health, education and behavioural issues often involves consultation with elders and extended family members, reflecting the communal nature of child welfare.¹⁰⁻¹² These traditional child-rearing patterns have significant implications for HIV care delivery, as treatment decisions and adherence support may require involvement from multiple family members who may hold varying levels of knowledge about HIV and different attitudes toward biomedical care.

Community support networks in Ghana operate through various traditional mechanisms, including mutual aid societies (Susu groups), religious congregations and traditional governance structures led by chiefs and queen mothers.¹³ These systems provide both material and emotional support during times of crisis, including health challenges.^{11 12} Understanding and leveraging these existing support structures is crucial for intervention sustainability and cultural relevance.

Traditional healing and mental health concepts in Ghanaian culture often emphasise spiritual and communal dimensions of wellness that differ from biomedical models.¹⁴ Mental health challenges may be understood through frameworks of spiritual imbalance, family discord or community disruption rather than individual pathology.¹⁵ Successful interventions must bridge these conceptual differences while respecting cultural worldviews and integrating traditional healing practices where appropriate.

Multiple family group therapy (MFGT) has emerged as an effective psychosocial intervention for addressing complex behavioural and mental health challenges among adolescents and their families. The '4Rs and 2Ss' framework, focusing on rules, responsibility, relationships, respectful communication, stress management and social support, provides a structured approach to family strengthening that has demonstrated effectiveness across diverse populations.^{16 17}

Evidence from high-income countries consistently demonstrates MFGT's efficacy in improving family functioning, reducing adolescent behavioural problems and enhancing treatment adherence. Randomised controlled trials in the United States have shown significant improvements in child behaviour problems and family functioning

among families participating in MFGT compared with individual therapy or treatment as usual.^{18 19} For adolescents living with HIV (ALHIV), MFGT has demonstrated improvements in viral suppression rates and mental health outcomes.²⁰

Previous adaptations of MFGT in sub-Saharan Africa provide encouraging evidence for cross-cultural transferability. In Uganda, the adaptation to 'Amaka Amasanyufu' ('happy families') successfully integrated local cultural practices while maintaining core therapeutic components, achieving 85% session attendance and high participant satisfaction.²¹ Similarly, South African adaptations demonstrated feasibility and preliminary effectiveness in improving family communication and HIV care engagement.²²

Cultural adaptation of evidence-based interventions is essential for ensuring effectiveness, acceptability and sustainability in diverse cultural contexts. Meta-analytic evidence demonstrates that culturally adapted interventions show significantly larger effect sizes ($d=0.46$) compared with non-adapted interventions ($d=0.32$) when implemented with ethnic minority populations.²³ The importance of adaptation is particularly pronounced in sub-Saharan African contexts where family structures, communication patterns and healing traditions differ substantially from Western frameworks.²¹

Despite the growing evidence base for MFGT and the documented success of its sub-Saharan African adaptations, no culturally adapted version of the 4Rs and 2Ss framework exists for ALHIV and their families in Ghana. This gap is significant given the distinct socio-cultural context of the Lower Manya Krobo District, where extended family structures, traditional authority systems, communal child-rearing practices and spiritually oriented conceptualisations of health and illness differ substantially from both Western settings where the original intervention was developed and from the Ugandan and South African contexts where prior adaptations were conducted. Without systematic cultural adaptation, evidence-based interventions risk low acceptability, poor engagement and attenuated effectiveness among Ghanaian ALHIV and their families, outcomes that would undermine efforts to address the substantial mental health and antiretroviral therapy (ART) adherence burden in this population. The present study addresses this gap by documenting the systematic cultural adaptation of the 4Rs and 2Ss MFGT for ALHIV and their families in the Lower Manya Krobo District, Ghana, using a four-phase community-based participatory research (CBPR) process guided by the Theory of Triadic Influence (TTI), Social Action Theory (SAT) and the Stirman adaptation framework. Findings from this adaptation process contribute to the growing implementation science literature on culturally responsive family-based mental health interventions in sub-Saharan Africa and offer a replicable model for adapting evidence-based interventions in comparable low- and middle-income country settings.

Study objectives

The primary objective of this study was to systematically document the cultural adaptation process of the 4Rs and 2Ss MFGT intervention for ALHIV and their families in the Lower Manya Krobo District, Ghana. This adaptation, renamed 'Abusuafoɔ Apomuden' ('Healthy Families in Twi'), aimed to maintain intervention fidelity while ensuring cultural appropriateness and relevance for the Ghanaian context.

The secondary objectives were to (1) describe the specific modifications made to intervention content, format and delivery using the Stirman adaptation framework, (2) present a replicable adaptation methodology guided by the TTI and SAT and (3) provide a framework for future cultural adaptations of family-based interventions in sub-Saharan African contexts.

Original 4Rs and 2Ss multiple family group therapy intervention

The 4Rs and 2Ss MFGT intervention was developed by McKay *et al* at the Institute for Juvenile Research, University of Illinois at Chicago, to address the disproportionate burden of disruptive behaviour disorders (DBDs) such as oppositional defiant disorder (ODD) among children (aged 7–13 years) and families in poverty-impacted urban communities in the United States.²⁴ ODD is a chronic and impairing mental health disorder afflicting between 1% and 21% of the population, with children living in poverty experiencing DBDs at rates up to four times higher than their more affluent peers. However, as many as 80% do not receive services.²⁵

Drawing on a common elements approach, the 4Rs and 2Ss MFGT integrates group therapy techniques, systemic family therapy and behavioural parent training, informed by family systems theory, structural family theory and social learning theory.^{21 25} The model is listed on the Substance Abuse and Mental Health Services Administration National Registry of Evidence-Based Programmes and Practices and is associated with improvements in child behaviour problems, caregiver depression and stress among predominantly low-income minority families.²⁵ In the original format, 6–8 families participate in 14 weekly sessions of approximately 90 min each, co-facilitated by a male and female therapist, with sessions structured around information delivery, group discussion, family practice exercises and homework tasks.^{24 25} Providers delivering the original model attend a 5-hour training session covering the theoretical foundations, session-by-session content delivery and facilitation techniques for managing multi-family group dynamics, followed by bimonthly supervision over the course of implementation.²⁵ The original training protocol does not describe specific cultural competency training or bilingual facilitation components.

The therapeutic rationale of the MFG format is well established: families practise new behaviours in a protective, supportive environment; peer feedback is often less threatening than therapist feedback; and participation

reduces social isolation while building mutual aid networks.^{24 26} The curriculum is organised around the 4Rs (rules, responsibility, relationships and respectful communication) and 2Ss (stress management and social support)—each with defined therapeutic goals spanning the intrapersonal, interpersonal and socio-ecological levels of family functioning.^{21 24 25} The key goals of each 4Rs and 2Ss component are provided in detail in the original MFGT manual (online supplemental file 1: original MFGT model).

Tested in randomised controlled trials, the 4Rs and 2Ss have been found to significantly reduce child behaviour problems and improve family functioning^{18 19} and have been successfully adapted for ALHIV in South Africa and Uganda, demonstrating the cross-cultural durability of its core components and providing the empirical precedent for the present Ghanaian adaptation.^{21 22 27} Crucially for the present adaptation, the MFGT has involved 6–8 families in the United States and 12–20 families in South Africa and has been facilitated in both countries by lay counsellors, community health workers, village health teams and parent peers, consistent with task-shifting strategies, demonstrating the model's flexibility in workforce deployment across resource-constrained settings.^{22 27} These adaptations also necessitated substantial expansions to facilitator training beyond the original 5-hour protocol, incorporating cultural competency, community language proficiency and population-specific clinical content. This precedent informed the development of the enhanced 3-day training programme for the Abusuafoɔ Apomuden adaptation described in Section 3.2.

Theoretical framework for the adaptation

Theory of triadic influence

TTI provided the primary theoretical foundation for the cultural adaptation process, offering a comprehensive framework for understanding multiple factors influencing health behaviours among ALHIV.^{28 29} TTI organises behavioural determinants into three interacting streams across proximal, distal and ultimate levels of causation.³⁰

The intrapersonal stream encompasses individual-level factors including self-efficacy beliefs, HIV knowledge and medication attitudes³¹ while incorporating traditional beliefs about illness causation and cultural coping mechanisms in the Ghanaian context.³² The social normative stream captures family and peer influences on behaviour, particularly relevant in Ghana's collectivist culture where extended family networks significantly impact treatment decisions and daily support for ALHIV.^{33 34} The cultural attitudinal stream addresses broader socio-cultural factors including HIV-related stigma, traditional authority structures, religious beliefs and community healing practices.^{2 28}

The adaptation leveraged TTI's multi-level approach by engaging multiple family generations, incorporating traditional decision-making processes, integrating traditional proverbs and aligning intervention content with prevailing cultural attitudes while maintaining

effectiveness for addressing depression, anxiety and ART adherence among Ghanaian ALHIV.²⁹

Social action theory

SAT complements TTI by providing a framework for understanding behaviour change mechanisms within family systems.³⁵ SAT emphasises the dynamic interaction between individual self-regulatory capabilities and environmental contexts in promoting sustainable behaviour change, making it particularly relevant for family-based interventions targeting chronic disease management.³⁶

SAT's focus on empowerment and capacity-building aligned well with Ghanaian cultural values, emphasising collective responsibility and community problem-solving.² The adaptation incorporated traditional decision-making processes and mutual aid practices to enhance environmental support while strengthening individual self-efficacy for managing HIV and mental health challenges.

Stirman adaptation framework

The Stirman adaptation framework provided a systematic approach for documenting and categorising all modifications made during the cultural adaptation process.³⁷ The framework categorises changes as content (traditional proverbs integration and cultural healing practices), contextual (expanded group size and community health worker facilitators) or implementation modifications (bilingual materials and cultural advisory groups).³⁷ This framework ensures transparency and replicability while maintaining accountability for preserving intervention fidelity during adaptation. Its systematic documentation approach enables precise tracking of all changes made, preserving the original intervention's core therapeutic components.

METHODS

Design

This qualitative participatory cultural adaptation study employed a four-phase stakeholder engagement process guided by the TTI, SAT and the Stirman adaptation framework. The study was conducted as part of a larger randomised controlled trial registered on ClinicalTrials.gov (NCT06701942) and published as a protocol elsewhere (<https://doi.org/10.1371/journal.pone.0325854>). Reporting of adaptation methods follows the Template for Intervention Description and Replication checklist³⁸ (online supplemental file 2). The adaptation phase documented in this manuscript precedes the pilot implementation and evaluation phases currently underway in the Lower Manya Krobo District, Ghana.

Study setting and population

The cultural adaptation was conducted in the Lower Manya Krobo District, located in the Eastern Region of Ghana. This district has a population of approximately 87 000 people, predominantly from the Dangbe ethnic group, with Twi also widely spoken.³⁹ The Atua

Government Hospital served as the primary implementation site for the adaptation process. This facility operates as one of the main healthcare centres in the district, providing comprehensive HIV services including specialised care for ALHIV. The hospital has established dedicated adolescent clinic days and operates several HIV support programmes, making it an ideal setting for family-based intervention development.⁴⁰ The facility's catchment area encompasses both urban and rural communities with varying socio-economic profiles, providing access to diverse stakeholder perspectives.

The target population consisted of ALHIV aged 10–22 years and their families receiving care at Atua Government Hospital. The inclusion criteria for ALHIV were as follows: confirmed HIV-positive status, awareness of their HIV status, age 10–22 years, receipt of care at Atua Government Hospital and a minimum of 3 months on ART. Caregivers were eligible if they were the primary caregiver for at least 6 months for an ALHIV receiving care at the facility. This age range was selected to address the developmental transition from adolescence to young adulthood, a critical period for HIV care engagement and mental health vulnerability.⁴¹ Families included biological parents, guardians, grandparents and other extended family members involved in caregiving, reflecting the prevalent extended family structures in Ghanaian society.²

Adaptation methodology

The adaptation process followed a systematic four-phase stakeholder engagement approach guided by CBPR principles and previous successful adaptations.^{21 42} This methodology emphasised collaborative decision-making, cultural responsiveness and community ownership throughout the adaptation process.⁴³

The theoretical frameworks were identified and selected by the research team prior to the engagement process, drawing on their established use in prior sub-Saharan African MFGT adaptations.²¹ Stakeholder contributions were distinct from framework selection: stakeholders determined the substantive content of adaptations, including specific cultural elements, session activities, scheduling preferences, facilitator characteristics and contextual modifications. The adaptation was theoretically grounded in the TTI, SAT and the Stirman adaptation framework to ensure systematic documentation and cultural integration while maintaining intervention fidelity.^{28 35 37} The TTI framework guided the identification of individual, family and community-level factors that required cultural adaptation, while SAT informed the integration of environmental context and the enhancement of self-regulatory capability.²⁹

Stakeholder engagement followed CBPR principles emphasising equitable partnership, shared decision-making and capacity building. TTI guided identification of intrapersonal, social normative and cultural attitudinal factors requiring adaptation during phases 1 and 2; SAT informed integration of environmental support structures (eg, Susu groups, peer mentors and extended family

networks) and self-regulatory capacity-building during phase 3; and the Stirman framework structured systematic documentation of all modifications throughout phases 3 and 4, categorising each change as content, contextual or implementation-related. CBPR principles ensured that the stakeholder input remained the primary driver of decision-making at each stage, with theoretical frameworks serving as lenses for organising and interpreting that input rather than as prescriptive protocols. Rather than operating a separate advisory board, the stakeholder group performed both data generation and collective decision-making roles across the adaptation phases, with formal consensus-building exercises conducted in phases 3 and 4.⁴² Stakeholders were positioned as co-researchers and agents of change rather than passive recipients of intervention, ensuring cultural authenticity and community ownership.⁴³ The engagement process prioritised local knowledge and cultural expertise while maintaining scientific rigour in adaptation decisions.

CBPR principles guided all phases of the adaptation, with the following key principles operationalised: (1) acknowledging community as a unit of identity with shared values and norms, (2) building on community strengths and resources, (3) facilitating collaborative partnerships in all research phases, (4) integrating knowledge and action for mutual benefit, (5) promoting co-learning and empowerment processes, (6) involving cyclical and iterative processes, (7) addressing health from ecological perspectives and (8) disseminating findings to all partners.⁴²

The adaptation process incorporated cultural humility principles, recognising the research team's limitations in understanding local culture and positioning community stakeholders as cultural experts.⁴⁴ Regular reflection sessions among research team members addressed potential biases and ensured respectful engagement with traditional practices and beliefs.

Phase-by-phase description

The 4Rs and 2Ss framework was selected as the intervention for adaptation based on (1) its demonstrated effectiveness for ALHIV in addressing ART adherence, depression and anxiety in prior trials²²; (2) the availability of a successful sub-Saharan African precedent: the Ugandan Amaka Amasanyufu adaptation²¹; and (3) alignment with the POSSIBLE-Africa Initiative funder's mandate to adapt evidence-based family-based interventions for ALHIV in Ghana.

Phase 1: stakeholder mapping and engagement

Recruitment strategy employed purposive sampling to identify a minimum of 30 stakeholders representing diverse perspectives on family functioning, HIV care and mental health in the Lower Manya Krobo District.⁴⁵ Recruitment prioritised stakeholders with influence and expertise in adolescent HIV care, family dynamics, traditional healing and community leadership. Stakeholder categories included (1) parents of ALHIV; (2) older family

members, including grandparents, aunts and uncles; (3) adolescents and young adults living with HIV; and (4) health professionals including nurses and community health officers. Initial awareness creation involved individual meetings with key stakeholders to introduce the project, explain the adaptation process and invite participation. These meetings emphasised the empowerment of stakeholders as agents of change and cultural experts essential for successful adaptation.⁴³ The original 4Rs and 2Ss framework was presented using culturally appropriate language and examples to facilitate understanding and initial feedback.

Phase 2: curriculum review and consultation

Expert review process involved the principal investigator, research team, supervisors and local cultural experts (community health workers with a minimum of 5 years' residency in the Lower Manya Krobo District and familiarity with Dangbe and Twi cultural norms, together with two district public health officers with backgrounds in community health programming) conducting systematic review of the original MFGT manual to assess cultural relevance and identify adaptation needs.⁴⁶ Review criteria included alignment with Ghanaian family structures, compatibility with traditional communication patterns, relevance of examples and activities and integration potential with existing support systems. *Stakeholder feedback collection* occurred through two consecutive focus group discussions (FGDs) and in-depth interviews (IDIs): one with healthcare providers and another with caregivers and ALHIV representatives. Stakeholder feedback was collected through independent FGDs and IDIs and was not influenced by the preliminary findings of the expert review; integration of both inputs occurred during phase 3. Discussions addressed enabling factors for the intervention, practical implementation considerations, and suggested modifications.⁴⁷ Data collection continued until thematic saturation was achieved. *Key decision areas* addressed during stakeholder consultation included optimal family composition for group sessions, appropriate group size reflecting Ghanaian communal values, preferred timing and duration of sessions, facilitator characteristics, preferences and training needs, intervention location preferences, target behaviours for intervention focus, expected outcomes and success indicators and culturally appropriate interactive activities. The findings derived from stakeholder engagement activities (enablers) have been published in *PLOS Global Public Health* by Boakye and Adjorlolo,⁴⁸ whereas results pertaining to implementation barriers have been published in *BMJ Open* by Boakye and Adjorlolo.⁴⁹ Subsequent engagement sessions included policymakers, hospital administrative leaders, public health officials and community health workers with a minimum of 5 years of residency in the Lower Manya Krobo District and familiarity with local cultural norms. These stakeholders were consulted to obtain feedback on culturally congruent adaptations of the intervention's 4Rs and 2Ss

components. Their feedback facilitated the integration of culturally relevant content into the original MFGT manual.

Qualitative data generated in phases 1 and 2 were analysed using a contextual thematic analysis approach following Braun and Clarke's six-step framework, as detailed in the two published stakeholder engagement papers.^{48 49} Coding employed a hybrid deductive–inductive strategy: deductive codes were derived from Consolidated Framework for Implementation Research domains, whereas inductive codes captured emergent culturally specific themes. Initial coding was conducted independently by two researchers using QDA Miner software, with discrepancies resolved through discussion. Analysis was conducted within and across the three stakeholder groups (ALHIV, caregivers and healthcare providers) to identify both convergent perspectives (shared barriers and enablers across groups) and divergent perspectives (group-specific priorities). In cases of divergence, both perspectives were preserved in the adaptation through flexible design rather than privileging one group's view. The key themes from the barriers analysis were resource and logistic constraints, stigma and confidentiality concerns, organisational capacity challenges and individual participation barriers. The key enablers themes were existing support systems and infrastructure, healthcare worker willingness, practical scheduling and privacy considerations, material support needs, content preferences and spiritual integration. These themes directly informed specific modification decisions during phase 3 content revision, using two prioritisation criteria: (1) *cultural imperative*, modifications judged essential by the majority of cultural experts and community stakeholders were incorporated regardless of the original protocol; and (2) *fidelity preservation*, proposed modifications were assessed for impact on the core therapeutic mechanism of each 4Rs/2Ss component, and any change that would alter a core mechanism was rejected or redesigned to achieve the same cultural goal without compromising therapeutic integrity.

Phase 3: content revision

Research team responsibilities involved systematic integration of stakeholder feedback with the MFGT intervention components under supervision of experienced cultural adaptation researchers.⁵⁰ The team used collaborative decision-making processes to balance stakeholder recommendations with intervention fidelity requirements. *Integration of stakeholder feedback* followed structured protocols for evaluating and incorporating suggested modifications. All suggestions were categorised using the Stirman framework, assessed for impact on core intervention components and prioritised based on cultural importance and implementation feasibility.³⁷ Modifications preserving therapeutic mechanisms while enhancing cultural relevance received highest priority. *Cultural sensitivity considerations* guided all content revisions, ensuring respectful integration of traditional practices, appropriate use

of local languages and proverbs, alignment with religious and spiritual beliefs and recognition of traditional authority structures.⁵¹ Regular consultation with cultural advisors prevented inadvertent cultural appropriation or misrepresentation.

Phase 4: finalisation and approval

Iterative review process involved presenting revised curriculum to stakeholder groups for validation and additional feedback. Multiple review cycles ensured comprehensive stakeholder input and consensus building around final adaptations.⁵² Review sessions used structured feedback forms and facilitated discussions to gather specific input on each session. *Stakeholder validation* required majority endorsement of final adaptations by each stakeholder category before implementation approval. Validation criteria included cultural authenticity, practical feasibility, therapeutic integrity and community acceptability.⁵² Stakeholders could request additional revisions until consensus was achieved. *Final approval criteria* included preservation of core intervention mechanisms, integration of essential cultural elements, practical implementability within existing healthcare infrastructure and stakeholder consensus across all represented groups. The adapted intervention received formal endorsement from traditional authorities and healthcare leadership before implementation planning.

Documentation framework

The Stirman adaptation framework provided systematic documentation of all modifications made during the cultural adaptation process.³⁷ This framework categorises modifications as content (changes to intervention materials, activities or techniques), contextual (changes to format, setting, personnel or population) or implementation-related (changes to training, supervision or evaluation procedures).

Application of the Stirman coding system involved two research team members independently coding all identified modifications, with discrepancies resolved through discussion and consultation with linguistic and cultural advisors.⁵³ Coding included specification of modification type, rationale for change, level of implementation (individual, family and community) and anticipated impact on intervention outcomes. The *modification categorisation process* documented who initiated each modification, which specific aspects were changed, why the modifications were deemed necessary and how the changes aligned with cultural values while preserving therapeutic integrity.³⁷ This systematic approach ensured transparency and replicability for future adaptation efforts. Fidelity monitoring approach established procedures for ongoing assessment of core component preservation throughout the adaptation process.²⁸ Regular fidelity reviews ensured that cultural modifications enhanced rather than compromised intervention effectiveness, maintaining accountability to evidence-based practice standards while respecting cultural authenticity (figure 1).

Abusuafo Apomuden — adaptation classification framework

Adapted from Stirman *et al.* (2013). *Implementation Science*, 8, 65.

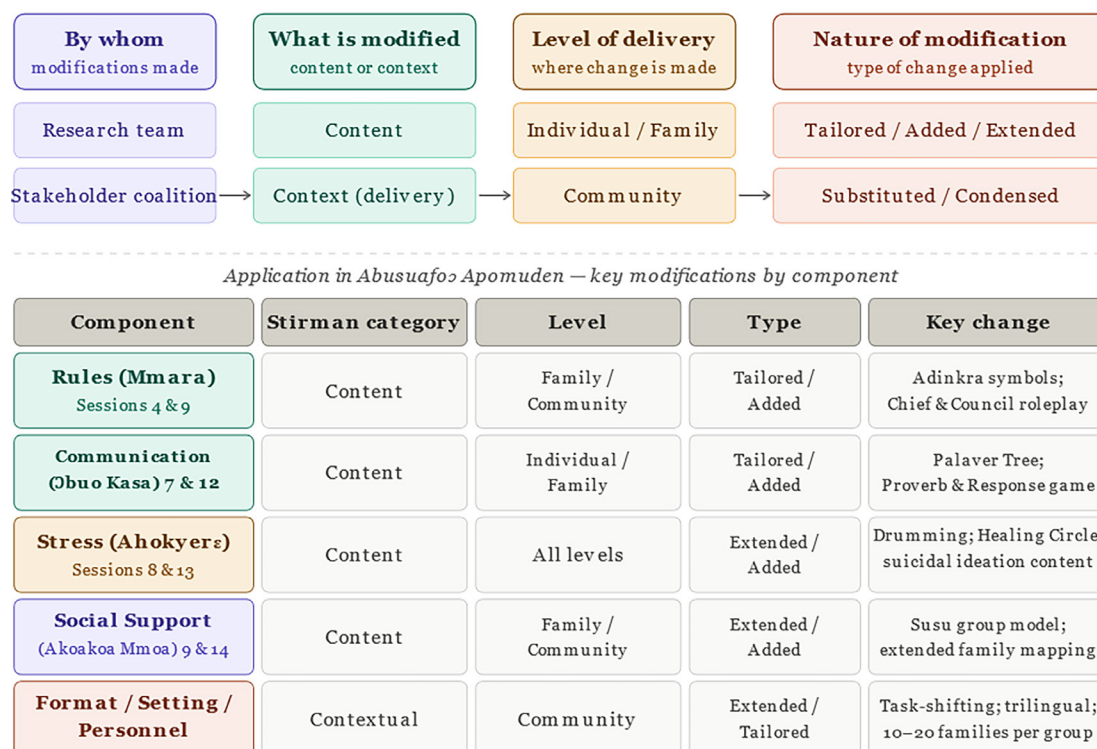


Figure 1 Classification of modifications to the 4Rs and 2Ss framework in the Abusuafo Apomuden (healthy families) cultural adaptation for adolescents living with HIV, Lower Manya Krobo District, Ghana. Framework dimensions adapted from Stirman *et al.*³⁷ *Implementation Science*, 8, 65. Figure redrawn by authors; no copyrighted material reproduced. Boakye *et al.*, NCT06701942.

Figure 1 presents the conceptual framework that guided the systematic documentation of all modifications made during the cultural adaptation process, adapted from Stirman *et al.*³⁷ The framework organises adaptations along four key dimensions: by whom modifications were initiated (research team or stakeholder coalition), what was modified (intervention content or context of delivery), at what level of delivery modifications were made (individual, family or community) and what was the nature of the modification (tailored, added, extended or condensed). As applied in the present study, this framework enabled transparent and reproducible categorisation of all changes made to the original 4Rs and 2Ss MFGT, distinguishing between contextual modifications and content modifications. The lower panel of the figure illustrates how each of the six 4Rs and 2Ss components, together with the overall format, setting and personnel changes, maps onto the Stirman classification system, demonstrating that all adaptations were systematically documented and that no core therapeutic component was removed or replaced.

RESULTS

Stakeholder characteristics

A total of 34 stakeholders participated in the cultural adaptation process, exceeding the minimum target of 30

participants and ensuring diverse representation across all stakeholder categories. The demographic profile reflected the Lower Manya Krobo District's population characteristics, with 68.8% (n=22) female participants and ages ranging from 16 to 67 years (mean age=38.4 years).

Stakeholder representation included parents and primary caregivers of ALHIV including older family members (n=6; 17.6%), adolescents and young adults living with HIV (n=6; 17.6%), health professionals including five nurses and four community health officers (n=9; 26.5%), five district public health officers with varied specialisation in mental health, HIV, nutritional health, administration and policy analyst (n=5; 14.7%) and one district HIV coordinator (n=1; 2.9%). Hospital leadership and policy makers were represented through the medical superintendent, administrator, nurse manager, pharmacy superintendent, HIV coordinator, data manager and human resource manager from Atua Government Hospital, ensuring institutional buy-in and operational feasibility (n=7; 20.6%). Educational levels varied from no formal education (n=2; 5.9%) to university degree (n=12; 35.3%), with most participants having completed tertiary education (n=22; 64.7%).

Engagement levels remained consistently high throughout the adaptation process, with the majority

honouring the invitations to stakeholder meetings.³⁸ Participation quality was assessed through speaking frequency during discussions, with 30/34 of stakeholders actively contributing ideas and feedback during each session. District health personnel, health professionals and caregivers demonstrated particularly high engagement, attending all three sessions and providing extensive cultural guidance. ALHIV participants showed initial hesitancy but increased participation following rapport building, ultimately achieving moderate active participation rates.

Language preferences influenced participation patterns, with the majority of stakeholders preferring to communicate in English and a few in Twi or Dangbe. Simultaneous interpretation was provided when needed to ensure full participation across language groups, contributing to the increased engagement levels observed.⁴⁴

Systematic modifications

Table 1 presents a systematic overview of all modifications made to the original 4Rs and 2Ss framework, organised by component, Stirman category, ecological level and modification type. Following Stirman *et al*,³⁷ modifications are classified as contextual (changes to format, setting, personnel or population) or content (changes to materials, activities or techniques), and further categorised as tailored, added or extended.

Contextual modifications

Format modifications addressed group composition and session structure to align with Ghanaian communal values. Group size was expanded from 6–8 families in the original intervention to 10–20 families, reflecting the collective approach to child-rearing common in Ghanaian culture.² The session structure was modified to accommodate extended family participation, with flexible seating arrangements that allowed multiple generations to participate comfortably. Language delivery was adapted from English-only to trilingual facilitation (English, Dangbe and Twi) with real-time interpretation to ensure accessibility across linguistic groups.⁵⁰

Setting modifications shifted the intervention location from clinical settings to hospital-based venues (conference room) with enhanced privacy accommodations. Stakeholder feedback indicated preference for healthcare facility-based delivery while emphasising privacy concerns common in small communities.⁵⁴ Scheduling was adapted to accommodate the preferred 'Fridays' and 'Sundays after church' timing, reflecting the central role of religious activities in participants' weekly routines. Session duration was extended from 90 min to 2 hours to allow for culturally integrated session activities.

Personnel modifications involved transitioning from clinician-led facilitation to a task-shifting approach using health professionals and peer mothers as co-facilitators.⁵⁵ This modification addressed healthcare workforce limitations while leveraging trusted community relationships. Training approaches were adapted from individual clinical

training to group-based, culturally integrated training emphasising cultural humility, traditional communication patterns and conflict resolution methods.

Population modifications expanded the target group from children with behavioural problems to ALHIV and their families, using a universal family strengthening approach to reduce HIV-related stigma.⁴¹ Age range was adjusted from 7 to 13 to 10–22 years to address HIV care transition needs from adolescent to adult services. The inclusion approach shifted from problem-focused recruitment to universal invitation, reducing stigmatisation while maintaining therapeutic focus on depression, anxiety and ART adherence.⁵⁶ This approach recognises that all families affected by HIV face challenges and can benefit from support, while avoiding the shame and reluctance that comes with being singled out as 'problematic'.

Content modifications

Core framework adaptations

Rules (Mmara) adaptations preserved all six original intervention goals while integrating traditional Ghanaian authority structures and conflict resolution mechanisms.¹⁶ Traditional proverbs such as 'Se wo da nsu ano a, wohwe wo ho' ('If you are at the riverside, you look after yourself') were incorporated into rule-setting discussions to enhance cultural relevance. Community elder wisdom was integrated into family rule-making processes, respecting traditional hierarchy while promoting parent-child dialogue. Examples shifted from Western family contexts to Ghanaian household expectations including respect for elders, communal responsibility and traditional gender roles adapted for modern family structures.

Responsibility (Asedee) modifications maintained the original four intervention goals while expanding role definitions to include extended family caregiving responsibilities common in Ghana.^{11 12} Traditional age-grade responsibilities were integrated into expectation-setting activities, acknowledging customary work roles while promoting educational achievement. Community service obligations were incorporated as examples of family responsibility, reflecting the collective nature of Ghanaian society. Extended family economic contributions were recognised alongside nuclear family responsibilities, validating traditional support systems.

Relationships (Abusuabo) adaptations preserved the original two intervention goals while expanding relationship-building activities to include multi-generational family networks.² Traditional storytelling practices were integrated into family bonding activities, providing culturally familiar methods for relationship strengthening. Seasonal celebration planning was incorporated to align family time with traditional festivals and community events. Extended family conflict resolution mechanisms were incorporated alongside parent-child communication skills, reflecting the collective approach to family problem-solving.

Respectful Communication (Obuo Kasa) modifications maintained all four original intervention goals while

Table 1 Systematic adaptation documentation matrix (Stirman *et al*³⁷ 2013 framework)

No.	Component	Modification	Stirman category	Type	Level
Section A: contextual modifications					
A1–A2	Format: group size and duration	Group size was expanded from 6–8 to 10–20 families. Session duration was extended from 90 to 120 min to accommodate culturally integrated activities.	Contextual	Extended	Family/ community
A3–A4	Format: language and structure	Trilingual facilitation (English, Dangbe and Twi) with real-time interpretation; flexible multi-generational seating with separate ALHIV peer breakout structure for sensitive topics	Contextual	Tailored	Individual/ family
A5–A6	Setting: location and scheduling	Shifted to dedicated private conference room at Atua Government Hospital (screened entrance, no HIV signage); rescheduled to Sundays post-church (1:00–4:00 PM) with Friday alternative	Contextual	Tailored	Community
A7–A8	Personnel: facilitator model and training	Task-shifting from licensed clinicians to nurses, community health officers and peer mothers as co-facilitators; 3-day culturally integrated training covering MFGT core components, bilingual facilitation, traditional conflict resolution and HIV-specific communication; competency assessed via role play and self-rating	Contextual/ implementation	Tailored	Community
A9–A10	Population: target group and age range	Expanded from children aged 7–13 years with conduct difficulties to ALHIV aged 10–22 years and their extended families; universal non-stigmatising invitation approach adopted to reduce HIV-related stigma	Contextual	Extended	Individual/ family/ community
Section B: content modifications—core 4Rs/2Ss components					
B1–B2	Rules (Mmara)	Traditional authority structures and elder wisdom were integrated into rule-setting; proverbs incorporated (eg, 'Sε wo da nsu ano a and wohwe wo ho'); 'family constitution creation' using Adinkra symbols and 'chief and council role-play' using traditional governance structures were added.	Content	Tailored/ added	Family/ community
B3–B4	Responsibility (Aseɖee)	Role definitions were extended to include extended family caregiving, age-grade responsibilities and Susu group contributions; 'family tree of contributions' mapping exercise and 'traditional work exchange' simulation were added.	Content	Extended/ added	Family/ community
B5–B6	Relationships (Abusuabɔ)	Relationship activities were extended to multi-generational networks; Ananse storytelling and seasonal festival planning were incorporated; 'storytelling circles' and 'family time planning workshop' using Ampe and Oware games were added.	Content	Extended/ added	Family/ community
B7–B8	Respectful communication (Obuo Kasa)	Ghanaian hierarchy, proximity norms and palaver system principles were integrated; proverb use was incorporated (eg, 'Sε wo were fi na wo sankofa a yenkyi'); 'palaver tree simulation' and 'proverb and response games' were added.	Content	Tailored/ added	Individual/ family
B9–B10	Stress management (Ahokyere)	Traditional coping mechanisms were integrated (drumming, dancing, prayer and Ananse storytelling); HIV-specific stressors were added (disclosure fears, stigma and suicidal ideation); 'community healing circles' and 'traditional coping practices workshop' were added	Content	Tailored/ extended/ added	Individual/ family/ community

Continued

Table 1 Continued

No.	Component	Modification	Stirman category	Type	Level
B11–B12	Social support (Akoakoa Mmoa)	Susu groups incorporated as primary community support example and ART transport funding model; ceremony networks integrated into support mapping; ‘extended family support mapping’ activity using locally produced family tree templates were added.	Content	Extended/added	Family/community
Section C: cross-cutting content additions					
C1	All components: spiritual integration	Opening and closing prayers or libation ceremonies were added to all sessions accommodating Christian and traditional spiritual practices; milestone blessing ceremonies were integrated; spiritual support mobilisation was incorporated into social support activities.	Content	Added	Family/community
C2	All components: HIV-specific content	HIV-specific content was integrated throughout all six components: ART adherence support (social support and responsibility); disclosure and confidentiality management (communication and rules); stigma coping (stress and relationships); suicidal ideation and mortality fears (stress management)	Content	Added	Individual/family
C3	All components: traditional governance	Lineage-based family introductions and community commitment rituals were added to opening sessions; traditional authority framing (chief/elder language) was used in group norming activities.	Content	Added	Community
Section D: implementation modifications					
D1	Evaluation instruments	Culturally validated instruments were selected: PHQ-9 (depression), GAD-7 (anxiety), Wilson’s ART Adherence Measure, Family Assessment Device, Berger HIV Stigma Scale-SF, MSPSS and PLHIV Resilience Scale (all validated in African contexts).	Implementation	Tailored	Individual
D2	Fidelity monitoring system	A culturally adapted dual fidelity checklist was developed, covering core component delivery, cultural element integration, facilitator competency, participant engagement and safety protocols; regular fidelity review meetings with research supervisor were established.	Implementation	Added	Community
Abusuafoɔ Apomuden (healthy families): cultural adaptation of the 4Rs and 2Ss MFGT for ALHIV in Ghana. Note: All 24 original intervention goals were preserved across the six 4Rs/2Ss components. Modification types: <i>tailored</i> = existing element adapted; <i>added</i> = new element introduced; <i>extended</i> = scope expanded. Stirman categories: contextual = format/setting/personnel/population changes; content = materials/activities/techniques; implementation = training/evaluation changes. ALHIV, adolescents living with HIV; ART, antiretroviral therapy; GAD-7, Generalized Anxiety Disorder-7; MGFT, Multiple Family Group Therapy; MSPSS, Multidimensional Scale of Perceived Social Support; MSPSS, Multidimensional Scale of Perceived Social Support; PHQ-9, Patient Health Questionnaire-9; PLHIV, people living with HIV; 4Rs and 2Ss, rules, responsibility, relationships, respectful communication, stress management and social support; SF, Short Form.					

adapting communication styles to respect Ghanaian cultural hierarchy and traditional respect patterns. Traditional greeting and conversation protocols were integrated into communication training, honouring elder respect while promoting family dialogue. Community palaver system principles were adapted for family conflict resolution, providing culturally authentic methods for addressing disagreements. Proverb usage was incorporated into family communication enhancement using traditional wisdom transmission methods.

Stress (Ahokyerɛ) adaptations preserved the original four intervention goals while specifically addressing

HIV-related stressors, including disclosure fears, stigma experiences and treatment burden.⁵⁴ Traditional coping mechanisms, including drumming, dancing and storytelling, were integrated into stress management training, providing culturally familiar tools for anxiety and depression management. Community support mobilisation strategies were incorporated, leveraging traditional mutual aid systems for mental health support. Spiritual practices, including prayer and meditation, were integrated into stress relief activities, honouring both Christian and traditional spiritual traditions.

Social Support (Akoakoa Mmoa) modifications maintained all four original intervention goals while expanding support identification to include extended family networks and traditional community systems. Traditional mutual aid societies (Susu groups) were incorporated as examples of community support, demonstrating existing cultural mechanisms for crisis assistance. Ceremony support systems were integrated into support mapping activities, recognising the role of cultural celebrations in family/community bonding. Extended family support mapping activities were developed to help families identify and strengthen their traditional support networks such as creating ongoing family connections for ART adherence.

Session-specific adaptations

Introduction sessions incorporated opening prayer/libation ceremonies honouring both Christian and traditional spiritual practices, traditional family introductions acknowledging lineage and extended family relationships, and community commitment rituals establishing group solidarity.⁴² HIV-specific content was integrated throughout sessions addressing knowledge gaps, misconceptions and cultural beliefs about HIV causation and treatment. Interactive activities were developed for each session incorporating traditional games, storytelling circles and community problem-solving methods to enhance engagement and cultural authenticity (online supplemental file 3: adapted MFGT manual)

Implementation modifications

Training curriculum enhancements were delivered over 3 days and included MFGT core therapeutic component delivery, culturally adapted facilitation techniques, bilingual (English/Dangbe/Twi) facilitation, traditional conflict resolution methods and HIV-specific communication. Competency was assessed through observed role-play and facilitator self-rating scales.⁵⁰ Community engagement techniques were incorporated into facilitator training, emphasising relationship-building and cultural humility principles. Traditional conflict resolution and communication methods were taught alongside therapeutic techniques to ensure cultural authenticity in intervention delivery.

Evaluation measure adaptations used culturally validated instruments including the Patient Health Questionnaire-9 for depression, Generalized Anxiety Disorder-7 for anxiety, Wilson's Self-Reported Adherence Measure for ART adherence, Family Assessment Device for family functioning, Berger HIV Stigma Scale-Short Form for HIV-related stigma, Multidimensional Scale of Perceived Social Support for social support assessment and People Living with HIV Resilience Scale for resilience measurement (all validated for African contexts).^{57–60}

Cultural integration strategies

Spiritual and religious integration addressed the central role of faith in Ghanaian culture through multiple

mechanisms. Opening and closing prayers were incorporated into all sessions, accommodating both Christian and traditional spiritual practices based on participant preferences. Blessing ceremonies for family milestones were integrated into relationship-building activities, honouring traditional spiritual beliefs while promoting family bonding. Community spiritual support mobilisation was incorporated into social support activities, recognising religious congregations as primary support sources for many families.

Extended family network utilisation reflected the predominant family structure in Ghanaian society through comprehensive integration of multi-generational support systems.^{2 11} Multi-generational therapy participation was accommodated through flexible session structures and culturally appropriate seating arrangements. Extended family support system mapping helped families identify and strengthen existing traditional support networks. Traditional caregiving role clarification addressed confusion about responsibilities while honouring customary family structures. Community childcare network strengthens connections between families and broader support systems beyond biological relatives.

Fidelity preservation

The cultural adaptation successfully preserved intervention fidelity by maintaining all core components of the original 4Rs and 2Ss framework—rules, responsibility, relationships, respectful communication, stress management and social support—with no elements removed or substantially altered.²⁸ The multiple family group format and all original session goals were retained exactly as designed, ensuring therapeutic mechanisms remained intact.¹⁶ Evidence-based therapeutic techniques were preserved while integrating culturally appropriate delivery methods, such as incorporating traditional conflict resolution methods that achieved similar outcomes using culturally familiar processes.^{50 51} Throughout the adaptation process, regular fidelity monitoring ensured that cultural modifications enhanced rather than compromised intervention effectiveness, maintaining accountability to evidence-based practice standards while achieving cultural authenticity.³⁷

Interactive activities for family bonding

Activity categories

Rules-based activities were designed to enhance family rule-setting and conflict resolution through culturally familiar governance structures. The *family constitution creation* activity engaged families in collaborative development of visual family agreements using traditional Adinkra symbols and local proverbs, fostering shared decision-making while honouring cultural symbolism.⁶¹ Each family member contributed one rule while explaining its cultural significance, promoting mutual understanding and respect. The *chief and council role-play* allowed family members to alternate between leadership and advisory roles, mirroring traditional Ghanaian

governance structures led by chiefs and elders.² This activity enhanced understanding of different perspectives in rule-making while teaching respect for authority and democratic participation within cultural frameworks.

Responsibility activities focused on acknowledging family contributions and clarifying role expectations through traditional community practices. The *family tree of contributions* mapping exercise created visual representations of each member's unique contributions using colourful tree drawing with leaves representing individual achievements and responsibilities. This activity promoted mutual appreciation and recognition of extended family involvement in caregiving common in Ghanaian households. The *traditional work exchange* simulation practised communal work-sharing arrangements based on historical community cooperation systems, teaching interdependence and collective responsibility through role-playing scenarios where family members supported each other during challenges.

Relationship activities strengthened family bonds through culturally meaningful storytelling and planning exercises. *Storytelling circles* provided structured opportunities for families to share traditional stories, family histories and HIV-related resilience narratives, with each family receiving 15 min for presentation and audience participation. These activities preserved cultural heritage while creating shared memories and processing difficult experiences through narrative frameworks. *Family time planning workshops* engaged families in collaborative development of weekly bonding activities using locally available resources, with activity cards featuring traditional Ghanaian games (Ampe and Oware), cooking together and participation in ceremonies (such as marriages) to ensure cultural relevance and practical feasibility.

Communication and support activities

Palaver tree simulation recreated traditional community conflict resolution processes within family contexts, arranging participants in traditional circular formations with designated speaking protocols.⁶² The activity used speaking sticks passed among participants, with elder guidance and respectful listening requirements mirroring customary palaver practices. Families practised addressing conflicts using traditional discussion methods while adapting principles for modern family communication needs. This simulation provided safe spaces for expressing concerns and collaborative problem-solving within culturally authentic frameworks that honoured traditional authority while promoting democratic dialogue.

Proverb and response communication games enhanced parent-child communication through interactive traditional wisdom transmission. Parents shared culturally relevant proverbs such as 'Se wo were fi na wo sankofa a yenkyi' ('It's not wrong to go back for what you forgot'), with children responding through questions, interpretations or personal applications.^{63 64} These games bridged generational communication gaps while teaching cultural

values, moral principles and problem-solving wisdom embedded in traditional sayings. The interactive format promoted bidirectional communication while respecting traditional knowledge transmission patterns.

Community healing circles combined traditional group support mechanisms with modern therapeutic stress management techniques. Families shared stress experiences within sacred circular arrangements, followed by collective brainstorming of culturally appropriate solutions. Cultural elements included soft drumming, traditional call-and-response patterns and community prayer or meditation based on participant preferences. HIV-specific stressors including disclosure fears, stigma experiences and treatment burden were addressed through group wisdom and mutual support, reducing isolation while building community solidarity.

Traditional coping practices workshop integrated evidence-based mental health interventions with authentic Ghanaian cultural practices. Group drumming sessions used traditional instruments for stress relief, with facilitators explaining the neurological benefits of rhythmic activities while honouring ancestral healing practices.⁶⁵ Traditional dance movements for anxiety management incorporated gentle accessible movements coordinated with breathing techniques, accommodating participants of all ages and physical abilities. Collective prayer and meditation sessions offered both Christian and traditional spiritual approaches for depression support, with guided gratitude practices and healing visualisations adapted to cultural and religious preferences. A sample of the adaptation session material is available as online supplemental file 4

DISCUSSION

The cultural adaptation of the 4Rs and 2Ss intervention to *Abusuafo Apomuden* demonstrated the feasibility of achieving a systematic balance between maintaining intervention fidelity and ensuring cultural responsiveness. All foundational therapeutic components were preserved while incorporating substantive cultural modifications designed to enhance relevance and acceptability among Ghanaian families. This systematic approach ensured that therapeutic processes remained intact, whereas cultural elements enhanced rather than replaced evidence-based components, challenging assumptions that meaningful cultural adaptation necessarily compromises core therapeutic components.^{27 37 50} Whether this preservation of fidelity translates into clinical effectiveness among ALHIV and their families in Ghana remains to be confirmed by the forthcoming randomised controlled trial (NCT06701942).

The four-phase participatory engagement process positioned ALHIV and families as cultural experts and co-researchers rather than passive recipients, aligning with CBPR principles.⁴² This collaborative approach proved invaluable in identifying subtle cultural nuances and building local capacity essential for sustainable

implementation. Community members contributed insights about communication patterns, family dynamics and social structures that substantially enhanced intervention relevance while fostering genuine ownership of the adaptation process.

A notable achievement of this adaptation was the systematic bridging of Western therapeutic approaches with traditional Ghanaian healing practices, creating a culturally congruent intervention framework designed to honour both biomedical and indigenous health concepts. Interactive activities incorporating drumming, storytelling, palaver tree discussions and festival integration were developed to provide culturally authentic experiences while targeting therapeutic objectives related to depression, anxiety and ART adherence. Rather than presenting competing paradigms, the adaptation was designed to create synergistic combinations where traditional practices are anticipated to enhance therapeutic processes, though empirical confirmation of these mechanisms awaits the forthcoming trial.

Cross-cultural comparison with the Ugandan *Amaka Amasanyufu* adaptation revealed important insights about the transferability of the 4Rs and 2Ss framework while highlighting context-specific needs. Both adaptations maintained fidelity while achieving meaningful cultural integration, suggesting that the 4Rs and 2Ss framework may be sufficiently robust to accommodate diverse African cultural contexts.²¹ However, distinct differences—including Ghana's incorporation of Twi proverbs, accommodation of both Christian and traditional Akan spiritual practices and preference for larger group sizes reflecting communal child-rearing traditions—underscore the necessity of deep, context-specific cultural understanding rather than generic cross-cultural adaptations.

The Ghanaian adaptation contributed several innovations not previously documented in the MFGT adaptation literature. These include the systematic incorporation of traditional mutual aid societies (Susu groups) into social support activities, comprehensive traditional ceremonial integration strategies and, most distinctively, the integration of Akan and Dangbe proverbs into therapeutic dialogue.^{21 22} This proverb integration represents a novel approach designed to provide culturally resonant communication of therapeutic concepts while honouring oral tradition cultures; its therapeutic utility will require empirical evaluation in the planned trial.

Drawing on lessons from previous African adaptations, this intervention proactively addressed structural barriers alongside cultural content modifications.²² Transportation barriers, scheduling conflicts with traditional obligations and healthcare system constraints were addressed through flexible delivery approaches, culturally informed timing and task-shifting strategies incorporating peer mentorship and community health workers. This comprehensive approach recognised that cultural appropriateness alone is insufficient without simultaneously addressing structural implementation obstacles, a principle supported by the implementation science literature.

This adaptation offers a replicable model for culturally adapting family-based interventions in sub-Saharan African contexts and contributes to the growing adaptation science literature. The systematic balance between fidelity and cultural responsiveness, innovative cultural integration strategies documented and community-based participatory approach offer valuable insights for future adaptation efforts across diverse African settings. The process demonstrates that evidence-based interventions can be meaningfully indigenised without compromising core therapeutic components. Whether this fidelity to core mechanisms translates into improved clinical outcomes for ALHIV and their families in Ghana will be determined by the forthcoming randomised controlled trial (NCT06701942).

Limitations

This adaptation process had several important limitations. A further limitation is the high proportion of stakeholders with tertiary education (64.7%), which may not reflect the literacy levels of all families affected by HIV in the district. Preferences for certain activity formats and written materials may therefore reflect a more educated constituency, and additional piloting with lower-literacy families will be important before full implementation. Traditional leaders such as chiefs and queen mothers, who hold significant community authority and influence health decision-making, were not directly consulted, though linguistic and cultural experts provided valuable review and input. Stakeholder representation may have been biased toward more engaged community members with potential underrepresentation of marginalised populations, and sex representation favoured females, potentially limiting male perspectives. The single-district focus on the predominantly Dangbe cultural context limits generalisability across Ghana's diverse ethnic groups and regions, which may require distinct adaptation approaches. The predominantly Dangbe cultural context may not translate directly to Akan, Ewe or Northern Ghanaian cultural contexts without additional adaptation efforts. Finally, this pre-implementation documentation represents anticipated rather than experienced acceptability, preventing assessment of actual implementation effectiveness and sustainability, which will require validation through future implementation experience and participant feedback.

Implications

Contributions to cultural adaptation science

This adaptation makes significant contributions to cultural adaptation science by demonstrating that comprehensive cultural integration is achievable without compromising intervention fidelity or therapeutic effectiveness.³⁷ The systematic documentation using established theoretical frameworks (TTI, SAT and Stirman adaptation framework) provides a replicable methodology for adapting evidence-based interventions while maintaining scientific rigour and cultural authenticity. The successful balance

between fidelity preservation and cultural responsiveness challenges prevailing assumptions about necessary trade-offs in adaptation work, instead demonstrating how thoughtful integration can enhance both therapeutic effectiveness and cultural resonance.

The participatory engagement methodology developed offers a template for meaningful community involvement that transcends traditional consultation approaches to achieve genuine partnership. By positioning community members as cultural experts and co-researchers, this approach ensures that adaptations reflect authentic lived experiences rather than external assumptions about cultural needs. This collaborative framework builds local capacity and ownership essential for sustainable implementation while contributing valuable insights to CBPR methodologies.

Practical models for African contexts

The adaptation provides a practical and transferable model for implementing family-based interventions across sub-Saharan African contexts characterised by extended family structures, traditional healing practices and community-centred support systems.⁴⁶ The stakeholder engagement methodology, cultural integration strategies and interactive activity development offer concrete approaches for adapting Western-developed interventions to diverse African cultural contexts while preserving therapeutic mechanisms essential for effectiveness.

The innovative cultural integration strategies, particularly systematic proverb incorporation, festival integration and traditional mutual aid society involvement, provide specific examples of deep structural adaptation that maintains therapeutic integrity while achieving authentic cultural resonance. These innovations offer foundational elements that future adaptations can build on while conducting their own context-specific cultural work, using this adaptation as a foundation rather than a prescriptive template.

CONCLUSION

This study successfully demonstrated the feasibility of conducting a high-fidelity cultural adaptation of the 4Rs and 2Ss MFGT intervention for ALHIV and families in Ghana. The systematic four-phase process preserved all core therapeutic components while achieving meaningful cultural integration through incorporation of traditional proverbs, governance structures, extended family networks, spiritual practices and community support systems. The CBPR approach positioned stakeholders as cultural experts and co-researchers, ensuring authentic adaptation and community ownership. The resulting 'Abusuafoɔ Apomuden' intervention successfully bridged Western therapeutic approaches with traditional Ghanaian healing practices, creating a culturally congruent intervention designed to maintain evidence-based therapeutic mechanisms; clinical effectiveness will

be evaluated in the forthcoming randomised controlled trial (NCT06701942).

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