

Community-Embedded Research Advisory Group as a Co-Creation Strategy to Support the Integration of Mental and Substance Use Disorder Screening and Management into Indian Primary Care: A Mixed-Methods Study

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Abstract

Background

Stakeholder engagement is essential for implementing complex health interventions, yet evidence on how such engagement operates within primary healthcare systems in resource constrained settings remains limited. As part of the ICMR-MINDS study, a Research Advisory Group (RAG) was established in Punjab, India, as a co-creation-based implementation strategy to support the implementation of the ICMR-MINDS objectives in Punjab.

Methods

This mixed-methods study examined the feasibility, functioning, and implementation contributions of the RAG across thirteen monthly meetings spanning from March 2025 to April 2026. Quantitative data on stakeholder attendance and composition were analyzed descriptively. Qualitative data from meeting transcripts were analyzed using thematic analysis, with findings mapped onto the Exploration, Preparation, Implementation, and Sustainment (EPIS) framework and evaluated against co-creation principles (equity, reciprocity, reflexivity, and transformative engagement).

Results

Sixty-four unique participants contributed 155 appearances across the study period. Transitioning meetings from District Hospital to community-based Health and Wellness Centres nearly doubled both unique participation (18 to 46) and total appearances (43 to 112), particularly among women and primary care workers. Thematic analysis identified six overarching themes: limited medicine access and trust; mental health stigma and sociocultural beliefs; socioeconomic vulnerability; family and community gatekeeping of help-seeking; organizational readiness; and contextual adaptation of health information materials. These insights informed adaptations to ICMR-MINDS implementation in the state, including decentralized medicine access, street-theatre-based awareness programs, revised education materials, and workforce training adaptations.

Conclusion

A community-embedded, flexibly structured RAG is a feasible and generative implementation strategy within resource-constrained Indian primary healthcare, which can translate stakeholder experience into actionable and context-specific strategies to support implementation. Sustaining such collaborations requires attention to core-membership continuity and clear pathways for post-project sustainability.

Background

The Indian Council of Medical Research's Multistate Implementation Research Study (ICMR-MINDS) was designed to integrate the screening and management of common mental disorders and substance use disorders (MSUDs) into routine non-communicable disease (NCD) care across multiple states and levels of the public health system. The intervention comprises five core components: (1) integrated screening for depression, anxiety, psychosis, and alcohol and tobacco use among patients receiving NCD care; (2) standardised, evidence-based treatment and referral pathways across levels of care; (3) a digital decision-support platform to facilitate screening, referral, and care coordination; (4) capacity building through cascade training and supportive supervision; and (5) patient engagement activities focused on mental health education and stigma reduction. The overarching aim of ICMR-MINDS project is to generate real-world, context-specific evidence on scalable, feasible, and cost-effective approaches to integrate mental health and substance-use screening and management within routine NCD services (Ruben et al., 2025). Multistate implementation of the project commenced in 2024 across seven states in India.

Successful implementation of complex health interventions requires the meaningful engagement of stakeholders with diverse knowledge, expertise, and lived experience. Furthermore, clear guidance remains lacking on distinguishing genuine stakeholder collaboration from tokenistic involvement (1). Despite the potential positive impacts of stakeholder engagement (SE), limited information is available on SE processes, particularly in the South Asian context (2,3). Although it is well established in health research in high-income countries, researchers in low- and middle-income countries (LMICs) are increasingly recognising the importance of meaningful and contextually appropriate stakeholder engagement (4).

Researchers, healthcare providers, policymakers, patients, caregivers, and community representatives may have different priorities, expectations, and perceptions of feasibility, and implementation strategies therefore need to account for these competing needs (5–7). Moreover, collaborative structures may be vulnerable to differences in expectations between researchers and community stakeholders, changes in institutional and political environments, and dependence on researcher-provided resources and support, further affecting ownership, accountability, and accessibility (8,9).

We, the research team leading implementation in Punjab, a northern state of India, established a Research Advisory Group (RAG) as an implementation strategy, informed by principles of co-creation and public and patient involvement (PPI) (10). The RAG brought together patients, family members and caregivers, primary healthcare workers (medical officers, community health officers, and ASHAs), Non-Governmental Organisations (NGOs) and community representatives, and members of the research team. This collaborative structure was intended to facilitate dialogue, identify contextual barriers and opportunities, and develop practical, locally relevant strategies to support the implementation of ICMR-MINDS in Punjab.

PPI in mental health research is increasingly recognized as a means of incorporating lived experience and community perspectives into research processes. For example, Lived Experience Advisory Panels

(LEAPs) have been used to inform research design and dissemination across different settings, including recent work involving young people in Latin America (11). However, advisory structures embedded specifically within implementation research remain comparatively underdocumented (12). Similarly, a recent narrative review of 26 mental health PPI advisory groups found increasing use of such structures but considerable variation in their functioning, roles, and evaluation, highlighting the need for more systematic understanding of how advisory groups operate and influence the implementation processes (13).

Against this background, this RAG in the Punjab state provided an opportunity to understand stakeholder engagement as an embedded implementation strategy within a large-scale public health implementation program. Rather than treating SE as a supplementary consultation exercise, the RAG was established as a forum for stakeholders to contribute their experiential, clinical, community, and research knowledge to identify implementation challenges and co-develop contextually appropriate responses. Examining this process can provide insight into both the feasibility of such collaborative structures within the Indian public health system and the practical ways in which co-creation principles can be translated into implementation practice.

The present study, therefore, aims to:

1. Explore the feasibility of establishing and maintaining a Research Advisory Group within the realities of the Indian primary healthcare system,
2. Examine how principles of co-creation were enacted within the Research Advisory Group
3. Document the contribution of the Research Advisory Group implementation strategies for integrating MSUD screening into routine NCD services under the ICMR-MINDS study

Methods

Study Design

This study used a mixed-methods design to address its primary objectives. It was reported in accordance with the Good Reporting of A Mixed Methods Study checklist (14). Quantitative and qualitative data were collected concurrently across the study period. Quantitative data, including participant attendance, demographic composition, and engagement patterns across Research Advisory Group (RAG) meetings, were used to examine Objective 1 and provide empirical evidence on the feasibility of the RAG. Qualitative data, derived from RAG meeting discussions, were used to address Objectives 2 and 3 of this study. This reflects a convergent mixed methods study design in which qualitative and quantitative strands were analysed concurrently to build a combined narrative of account of RAG's feasibility and functioning. Integration was carried out by the core research team. The research team consisted of psychiatrists, public health physicians, psychiatric social workers, psychologists, and researchers.

Theoretical Framework

The Exploration, Preparation, Implementation, and Sustainment (EPIS) framework (15) was used to guide the qualitative analysis of the RAG meeting discussions. EPIS conceptualises implementation as a dynamic process that progresses through four interrelated phases: Exploration, during which implementation needs, service gaps, and contextual determinants are identified; Preparation, which involves planning, adapting systems, and building implementation readiness; Implementation, where evidence-based practices are introduced and actively supported through training, facilitation, and ongoing problem-solving; and Sustainment, which focuses on maintaining and integrating new practices into routine service delivery. Across each phase, the framework considers the influence of both inner-context factors (within implementing organizations) and outer-context factors (broader policy and health system environments), as well as the interactions between these contexts. EPIS was considered an appropriate framework for this study because the RAG functioned throughout the implementation process, enabling examination of how stakeholder engagement informed implementation decisions, contextual adaptations, and strategies over the course of thirteen months and beyond.

Study Setting

The study was conducted in Mohali district, Punjab.

Composition and Operating Principles of the Research Advisory Group

The group comprised stakeholders representing different levels of the health system and the community. This included individuals with lived experience of mental health and substance use disorders; family members and caregivers; Community Health Officers (CHOs); Accredited Social Health Activists (ASHAs); Multipurpose Health Workers (MPHWs); Medical Officers and Rural Medical Officers; psychiatrists; psychiatric social workers; local self governance (Sarpanchs, i.e., elected heads of village councils); representatives from non-governmental organisations (NGOs); and members of the research team. This multidisciplinary composition enabled the incorporation of clinical, community, policy, and lived-experience perspectives into implementation planning and decision-making.

The research team maintained a facilitative role, and effective communication was central to the advisory group's functioning, allowing participants to freely express their challenges and experiences, in line with recommended practices for operating and maintaining advisory boards (16,17). Meetings followed structured but flexible agendas that allowed sufficient time for discussion while accommodating emerging issues. Research updates were communicated in clear, non-technical language, and local languages were used whenever appropriate to facilitate understanding and encourage participation. Weekly team discussions within the research were conducted to reflect on

emerging findings and minimize researcher assumptions during interpretation, an approach consistent with reflexive practice in participatory advisory board research (14).

Participant Recruitment

Stakeholders were purposively recruited based on their roles in mental health service delivery, program implementation, and lived experience of mental health conditions, consistent with recommended approaches to forming community and research advisory boards (13,14). During the initial phase, patients receiving mental health treatment were identified and invited with the support of the district hospital psychiatrist, and the research team conducted repeated visits to facilitate engagement and encourage participation. Community Health Officers (CHOs) were enrolled after obtaining permission from the Senior Medical Officer (SMO). Following the transition of meetings from the district hospital to Health and Wellness Centres (HWCs), additional members were identified with the support of CHOs and ASHAs.

Ethical Approval

Ethical approval for the study was obtained from the Institutional Ethics Committee of Postgraduate Institute of Medical Education and Research (PGIMER), Chandigarh (Approval No. PGI/IEC/2023/EIC001534; IEC-11/2023-2934). All participants involved during the meeting discussions provided written informed consent prior to participation. Participants were informed about the voluntary nature of participation, confidentiality of responses, and their right to withdraw from the study at any stage without any consequences.

Data Collection

For quantitative analysis, attendance records were maintained for all thirteen RAG meetings conducted between March 2025 and April 2026, capturing participant identity, stakeholder category (patient, family member, primary care worker, secondary care worker, NGO representative, community leader), gender, and age category at each session. These records were used to construct participant- and meeting-level attendance datasets, enabling analysis of unique participant reach, repeat engagement, and compositional change across the transition from the District Hospital (DH) to Health and Wellness Centre (HWC) venues.

Qualitative data were collected through a series of RAG meetings conducted throughout the implementation period. Discussions focused on stakeholders' experiences, barriers and facilitators, contextual adaptations, and future recommendations for improving integrated mental healthcare delivery. Meetings were audio-recorded with participants' consent and supplemented by detailed field notes, attendance records, meeting minutes, and documentation of decisions and action points. This documentation enabled tracking of implementation issues and follow-up of recommendations across successive meetings.

Data Analysis

Descriptive statistics were used to summarise participant's composition (by stakeholder category, gender, and age group) and attendance patterns (median, interquartile range, and range of participants per meeting). Attendance frequency distributions were calculated to assess the extent of repeat engagement among unique participants. Compositional change following the transition from DH to HWC was examined by comparing the proportional distribution of appearances by stakeholder category, gender, and age group across the two phases, with percentage change calculated for each subgroup. Analyses were conducted in SPSS, and results are presented descriptively; no inferential statistical testing was performed, given the study's implementation-focused, feasibility-oriented aims.

Qualitative data were analyzed using Braun and Clarke's approach to thematic analysis, specifically their codebook thematic analysis (18). This approach is situated between reflexive ("big Q") and coding reliability ("small q") thematic analysis, incorporating elements of both (18). It is well-suited to studies with clearly defined research questions and implementation objectives, where researchers begin the analysis with some prior understanding of the objectives under investigation while remaining open to insights emerging from the data.

The analysis followed Braun and Clarke's six-phase process. To gain a comprehensive understanding of the dataset's depth and breadth, SS, NG, and MM familiarised themselves with the data by reading and re-reading all interview transcripts. The initial round of coding was conducted independently by two researchers (NG and MM), after which SS undertook a second cycle of coding and analysis. This iterative auditing process enriched the interpretation of the data and strengthened the analytical rigor.

Following initial data familiarisation, an initial codebook was developed, informed by the study's implementation objectives. The coding process evolved iteratively throughout the analysis, with the codebook continuously refined to incorporate new insights, concepts, and patterns identified in the data.

All thirteen meeting discussions were coded using the evolving codebook. During the second cycle of analysis, related codes were reviewed, compared, and organized into broader themes that captured meaningful patterns across the dataset.

In parallel with this inductive process, a deductive layer of analysis was applied using the Exploration, Preparation, Implementation, and Sustainment (EPIS) framework selected to examine factors and emerging themes across both implementation phases and system levels (outer context, inner context, bridging factors, and innovation factors). This dual inductive-deductive approach allowed the analysis to remain grounded in participants' own accounts while situating findings within a recognized implementation science framework capable of tracking change over time and across levels of the health system. Throughout the coding process, the research team maintained a reflexive log to document interpretive decisions and discuss surface assumptions with the senior researcher AG, as those could otherwise go unchecked in the analysis.

Results

1. Quantitative Results

Meeting Frequency and Venue:

Thirteen RAG meetings were conducted between March 2025 and April 2026. Five meetings were held at the District Hospital (DH) between March and June 2025, after which the venue shifted to the Health and Wellness Centre (HWC), where a further eight meetings were held between September 2025 and April 2026 (Supplementary table 1).

Participant Characteristics

Sixty-four unique participants contributed a total of 155 appearances (Supplementary Table 2). Primary care workers (Rural Medical Officer, Community Health Officer, Multipurpose Health Worker, and Accredited Social Health Activist attached to the HWC) constituted the largest contributor group by total appearances, accounting for 40.6% of all appearances (n = 63) despite comprising only 18.7% of unique participants (n = 12), reflecting high repeat engagement within this group. Patients accounted for the largest share of unique participants (42.2%, n = 27) but a comparatively smaller share of total appearances (27.8%, n = 43). Family members constituted 29.7% of unique participants (n = 19) and 23.9% of appearances (n = 37). Secondary care workers, NGO representatives, and community leaders collectively accounted for a smaller share of engagement, contributing 7.7% of total appearances.

With respect to gender, women accounted for the majority of total appearances overall (59.3%, n = 92), although unique participants were more evenly split between men (53.1%, n = 34) and women (46.9%, n = 30) (Supplementary Table 3), indicating that female participants attended more frequently on average than male participants.

Age distribution was concentrated in two categories: participants aged 25-40 years accounted for 71.9% of unique participants (n = 46) and 67.1% of total appearances (n = 104), while those aged 40 - 60 years accounted for 28.1% of unique participants (n = 18) and 32.9% of appearances (n = 51). No participants were recorded in the 18–25 or above-60 age categories (Appendix Table 4).

Attendance Patterns

Attendance per session ranged from 4 to 18 participants, with an overall median of 13 participants per meeting (IQR: 8.5–15.5). Median attendance was higher at HWC meetings (median 13.5; IQR 13.0–16.0; range 10–18) than at DH meetings (median 8; IQR 4.5–13.0; range 4–17) (Supplementary Table 5).

The most common attendance pattern was participation in a single meeting, observed among 27 participants (42.2%). Sixteen participants (25.0%) attended two meetings, seven (10.9%) attended three, and nine (14.1%) attended four. One participant attended six meetings (1.6%), and four participants attended all eight HWC meetings (6.3%) (Supplementary Table 6).

Change in Engagement Following Transition from District Hospital to Health and Wellness Centre:

A marked shift in breadth and intensity of engagement was observed following the transition from the DH to the HWC. Unique participants increased from 18 during the DH phase (5 meetings) to 46 during the HWC phase (8 meetings), and total appearances increased correspondingly from 43 to 112 (Supplementary Table 7).

Across participant categories, patient attendance rose from 23.3% of appearances during the DH phase to 29.5% during the HWC phase (+26.1% relative increase). Primary care worker attendance increased from 34.9% to 42.9% of appearances (+22.9%), while family member participation remained comparatively stable (+4.3%). Secondary care worker attendance fell from 16.3% to 0% (100%), consistent with this cadre being based at the DH and not routinely present once meetings relocated. NGO representation remained unchanged, and community leaders who were absent from DH meetings accounted for 1.8% of appearances during the HWC phase.

Gender composition shifted substantially following the transition. Male attendance decreased from 65% of appearances during DH meetings to 31% during HWC meetings (-52.3%), while female attendance increased from 35% to 69% (+97.1%) (Supplementary Table 9). Age distribution remained largely stable across settings (Supplementary Table 9).

2. Qualitative Findings

2.1. Thematic Analysis:

The RAG meetings generated rich insights into the factors that affect the integration of MSUD services in primary care settings. Thematic analysis of discussions across multiple meetings identified overarching themes described below.

Theme 1. Access to, Trust in, and Perceived Quality of Public-Sector Medicines

Access to psychotropic medicines emerged as one of the most prominent concerns in RAG discussions, framed as a prerequisite for integrating mental health services into primary care. Beyond availability alone, participants described supply interruptions and misconceptions about the quality of medicines that undermined patients' trust in public mental health services.

Patients' experiences illustrated how inconsistent availability of medicines affected treatment adherence and increased the likelihood of discontinuation, particularly among individuals unable to purchase medicines out of pocket. One patient described repeated interruptions in access to medicine: *"I have been coming here since July for my medicine, but later they told me it was not available and that they don't receive that medicine anymore."*

Healthcare workers also recognized these challenges and attributed them to broader supply chain constraints, as they were required to ration limited resources while attempting to maintain treatment

continuity. A MO described the difficult decisions required when medicines were in short supply, *"Sometimes, I receive 50 tablets, or I have 5 strips of medicine. There are many people here, so I can only distribute small amounts. I can't provide a full dosage because everything is recorded."* (MO)

Beyond availability, discussions also consistently highlighted widespread mistrust of government-sourced medicines. ASHA workers reported that community members frequently questioned the effectiveness of medicines provided through public facilities: *"People say that the medicines from government centres are not as effective."* (ASHA Worker)

Caregivers similarly described how these perceptions were reinforced by private-sector actors. One caregiver explained, *"The private chemists put this idea in people's minds that government medicines are not effective."* (Caregiver)

Another caregiver further reflected, *"When we visit private doctors, they try to sell their own prescribed medicines due to commission-based systems, saying that government medicines are less effective."* (Caregiver)

These narratives demonstrated that mistrust was not solely due to individual misconceptions but was also socially reinforced through interactions with private healthcare providers and their local pharmacy networks. RAG facilitators did not interpret these concerns solely as community misconceptions. Instead, they recognized that inconsistent medication supplies and inadequate communication about treatment within the health system had also collectively contributed to mistrust of the government health sector. During one discussion, a facilitator proposed improving transparency through the routine public display of medicine stocks:

"Due to mistrust, patients start doubting where the medicines are going. If we put up a board displaying the available stock of medicine on a particular day, it could reduce mistrust." (Facilitator)

This suggestion illustrates how stakeholders moved beyond identifying implementation barriers towards co-producing feasible organizational solutions. Rather than focusing exclusively on strengthening procurement systems, participants emphasized transparent communication, patient counseling, and community engagement as mechanisms to rebuild confidence in government mental health services.

Theme 2: Mental Health Stigma and Sociocultural Beliefs

The RAG discussions consistently identified stigma as one of the most pervasive barriers to integrated mental health service delivery. Across stakeholder groups, mental illness was frequently associated with stigma, leading to delayed symptom recognition, concealment, and reduced engagement with services. Patients described experiencing judgment after initiating treatment: *"I started taking medicine, and people began asking me if I was okay... Just like fever is an illness, this is also an illness. But if the brain is affected, people say, 'What will you do now?'"* (Patient)

Providers observed that stigma extended beyond the individual to affect entire families: *“Many families fear social judgment if someone is identified as having a mental illness.”* (CHO) These accounts suggested that concerns about family reputation and social standing often outweighed the perceived benefits of seeking mental health treatment; participants noted, for instance, that families worried a diagnosis could affect children’s marriage prospects.

Confidentiality emerged as a related concern, particularly in closely connected rural communities, where fear of village *gossip* discouraged disclosure of symptoms to healthcare workers and reduced willingness to participate in screening. Importantly, participants distinguished stigma from limited mental health awareness, as poor literacy prevented some from recognizing symptoms, but stigma discouraged those who *did* recognize distress from acknowledging it or seeking help.

This distinction also shaped the RAG’s recommendations, which extended beyond awareness campaigns to actively challenge social norms, integrating anti-stigma messaging into community meetings, school awareness programs, and routine healthcare consultations in the OPD, alongside stronger confidentiality practices and respectful consultation spaces. Collectively, these discussions framed stigma as a structural implementation challenge operating at individual, family, community, and institutional levels, requiring sustained and collaborative engagement among providers, families, and local organizations rather than a *one-off* intervention.

Theme 3: Socioeconomic Vulnerability and Structural Risk: Predisposing factors for MSUDs

Participants consistently described MSUDs as consequences of broader socioeconomic adversity rather than isolated medical conditions. Across all stakeholder groups, unemployment, financial insecurity, family conflict, and social disadvantage were perceived to increase psychological distress while simultaneously limiting individuals’ ability to access and sustain treatment.

Healthcare workers frequently linked unemployment and financial hardship to worsening mental health and substance use. A CHO observed that *“unemployment, financial problems, and family conflicts contribute to mental health issues and substance use.”*

A Sarpanch (elected village representative) emphasized that *“easy availability of substances contributes to increasing substance use,”* while an RMO noted that *“lack of recreational and livelihood opportunities increases vulnerability towards substance abuse.”* They further linked *“domestic violence and lack of livelihood opportunities”* with increasing vulnerability to mental health and substance use problems, demonstrating that stakeholders viewed substance use, family conflict, and socioeconomic disadvantage as closely interconnected rather than independent issues.

Patients and caregivers described the financial consequences of living with chronic mental illness, illustrating how socioeconomic vulnerability also limited continuity of treatment. One caregiver explained the impact of illness on household income, *“My husband has been on medication for a year. Earlier, he*

used to run away, stay awake at night, and get very angry. Now he stays calm, but he doesn't do any work. If he doesn't work, how will the children eat?" (Caregiver)

Theme 4: Family and Community as Gatekeepers of Help-seeking

Participants consistently described help-seeking for mental health services as a collective decision made with caregivers and family rather than an individual one. Families played a central role in recognizing symptoms, determining when professional care was needed, and shaping which treatment options were considered acceptable, a process further influenced by community norms, cultural beliefs, and advice from relatives or neighbors. As one caregiver explained, *"At the outset of symptoms, many people think it is stress or a temporary behavior, so they delay treatment."* Families often sought help only once symptoms became severe, reflecting limited recognition of early warning signs.

Elders and relatives frequently guided decisions about where to seek care, and many families first approached faith healers or religious institutions as trusted, culturally familiar sources of support. One caregiver noted, *"Many families first visit religious places, Babas, or traditional healers when someone shows symptoms of mental illness or substance use."*

Theme 5: Limited Organizational Readiness and Opportunities for Health System Strengthening

Although participants broadly supported integrating mental health services into primary care, they consistently identified organizational barriers constraining implementation, workforce pressures, inadequate infrastructure, referral challenges, and confidentiality concerns, which stakeholders framed as health system gaps requiring strengthening.

Workload emerged as a recurring concern: *"Frontline workers already have a heavy workload, which makes it difficult to spend enough time building trust and conducting proper conversations...one ASHA alone can't do everything."* (ASHA Worker) Inadequate infrastructure similarly compromised service quality. CHOs noted a *"lack of dedicated infrastructure for counseling and consultations... shared spaces do not ensure privacy,"* a concern patients also echoed, reporting discomfort discussing personal issues in non-private consultation areas. Referral pathways were flagged as unclear, with one CHO noting that *"referral and tracking systems for patients with severe or recurring symptoms should be strengthened through CHOs and ASHAs."*

Referral pathways emerged as additional organizational challenges. Frontline workers described difficulties navigating referral systems and maintaining follow-up, particularly for individuals requiring ongoing care. Participants also emphasized that *"Referral pathways should be clearer for patients and families,"* while CHOs noted that *"Referral and tracking systems for patients with severe or recurring symptoms should be strengthened through CHOs and ASHAs."* Stakeholders viewed structured referral mechanisms and regular follow-up as essential to improving treatment continuity, with one ASHA worker noting, *"Regular follow-up improves adherence and continuity of care."*

Facilitators reframed these challenges as opportunities for system strengthening, recommending regular training and supervision, dedicated counseling spaces, improved referral tracking, and streamlined documentation, with one participant noting that *“Health & Wellness Centres can become trusted centres if referral systems are strengthened.”*

Participants recognized that integration required strengthening the health system beyond the availability of medicines, a competent, confident workforce, clear referral pathways, and multidisciplinary collaboration. Frontline providers were willing to take on mental health responsibilities but wanted more training: *“If we receive proper training, we can identify these patients early during our home visits and encourage them to seek treatment.”* (ASHA Worker) Medical Officers similarly emphasized the need for clear clinical pathways and supportive supervision, rather than simply adding responsibilities to existing staff.

Theme 6: Contextual Adaptation of Information Education Communication (IEC) Materials

The RAG discussions played a central role in refining intervention materials for local acceptability and usability. Participants consistently found the existing IEC materials too lengthy, technical, and inaccessible across varying literacy levels; patients wanted simpler explanations of illness, treatment duration, and the purpose of medication, while caregivers sought clearer information on referral pathways and expected recovery timelines.

ASHA workers recommended greater use of visuals: *“The pamphlets should have more pictures so that people who cannot read, can also understand.”* CHOs proposed simple flowcharts for mental disorder symptoms and referral steps, and other participants recommended that the content be in Punjabi rather than technical medical terminology..

2.2. Integrative Synthesis of RAG onto EPIS levels and Phases:

Mapping the thematic findings onto the EPIS framework demonstrated that the Research Advisory Group (RAG) generated implementation insights spanning the outer context, inner context, bridging factors, and innovation characteristics (Figure 1).

2.3. EPIS Framework Mapping

Each prominent theme discussed during the RAG discussions was mapped onto the phases of EPIS, namely Exploration, Preparation, Implementation, and Sustainment, illustrating how stakeholder input evolved across these phases over time (Table 1). Importantly, RAG’s participatory structure translated these themes into contextually relevant adaptations to support the implementation of the ICMR-MINDS project.

Table 1: Table of themes mapped onto the EPIS framework.

Theme	Exploration	Preparation	Implementation	Sustainment
Medicine Access, Trust, and Quality	Patients raised inconsistent access to medicine at the DH/PHC.	Planned discussion with SMOs and State Program Officers on medicine issuance at the DH/PHC level	Decentralized medicine availability at PHCs; formal proposal to DHS for regulatory authorization; new procurement pathway created outside the Essential Drug List; stock-transparency board proposed	Regular follow-up with pharmacists on stock levels; proposed integration of a pharmacist dashboard into the CDSS
Stigma and Sociocultural Beliefs	Patients and CHOs/ASHAs surfaced experiences of judgment, concealment, and confidentiality fears during RAG discussions.	Planned community-meeting content and confidentiality protocols for frontline worker consultations. Planned to conduct community awareness programs through Nukkad Natak (street theatre play format).	Conducted 17 Nukkad Natak sessions in community settings (in Gurudwaras, HWCs, Schools). Implemented in collaboration with local NGOs and volunteers. Culturally grounded, interactive street-theatre format. Anti-stigma messaging integrated into community meetings, school programs, and village campaigns;	Community engagement along with healthcare providers, community leaders, and NGOs, as an ongoing requirement rather than a one-off campaign.
Socioeconomic Vulnerability and Structural Risk	Providers and caregivers identified unemployment, financial insecurity, and family conflict as both predisposing factors and barriers to treatment continuity.	Planned linkage of mental health services with existing social protection schemes (In collaboration with NGOs Red Cross Safe Hands). Explored collaboration with Jadon Se Judon; however, their focus on private school children was not aligned with the goals of the project) Vocational training and livelihood programs to	Healthcare workers began informing eligible families about disability certification and livelihood programs during routine consultations.	Routine incorporation of welfare-scheme information into standard mental healthcare delivery.

be explored as a preventive strategy.

NGOs prepared to facilitate vocational training and employment opportunities for recovery and reintegration for people with substance use disorder.

Rehabilitation & Social Reintegration, ASHAs to facilitate enrolment in employment schemes.

Family and Community as Gatekeepers

Caregivers described delayed help-seeking, normalization of symptoms as “stress,” and reliance on faith healers as a first step.

Planned caregiver psychoeducation and community-targeted awareness activities.

ASHA repeated household visits to build trust; caregivers to engage in psychoeducation and counseling, along with patients.

Continued family- and community-level engagement to normalize early recognition and reduce delays in care-seeking.

Limited Organizational Readiness and Opportunities for Health System Strengthening

Workforce overload, lack of private consultation space, and unclear referral pathways were identified by ASHAs, CHOs, and patients.

Raise issues regarding dedicated counseling spaces/infrastructural changes with the district health administration.

Discuss solutions to strengthen referral/tracking systems.

ASHAs and CHOs planned to ensure continuity of care by following up with referred patients telephonically

Referral and tracking systems anchored through CHOs and ASHAs; documentation streamlined through the introduction of referral cards. Evaluating the efficacy of referral tracking to determine if patients successfully consulted the Medical Officer, initiated treatment, and maintained continuity of care through follow-up..

HWCs are positioned as long-term, trusted centers contingent on sustained strengthening of the referral system.

	Providers expressed willingness but low confidence in managing MSUD cases without further training; fragmentation across care levels noted.	Planned issuance of referral cards, standardised documentation, and a refresher-training scheduled for healthcare workers.	Conducted refresher training sessions focussing on psychoeducation and counselling techniques for CHOs	Regular refresher training, mentorship, and supportive supervision framed as a continuous, not one-time, process.
Contextual Adaptation of IEC Materials	Patients and caregivers reported that existing IEC materials were too technical and inaccessible across literacy levels.	These discussions informed planned revisions incorporating Punjabi-language content, helpline numbers, visual symptom guides.	Iterative revision of IEC materials to include pictures, flowcharts, and locally relevant examples.	follow-up visits to healthcare facilities to confirm continued use and engagement with revised IEC materials.

2.4. Demonstrating Co-creation principles within RAG

Functioning of the RAG was further informed by the principles of co-created implementation collaborations proposed by Pérez et al. (1). These principles, including equity, reflexivity, reciprocity, relationship facilitation, and transformative and personalized engagement, provided the conceptual foundation for fostering meaningful stakeholder participation, shared decision-making, and collaborative problem-solving throughout the implementation process, as showcased in *Table 2* below. These measures helped ensure that all members, irrespective of their familiarity with research methods, could engage meaningfully in discussions and contribute their perspectives.

Table 2: *Table of Co-creation Principles supported by illustrated examples from RAG discussions*

Co-Creation Principle	Definition	Illustrative Examples from RAG discussions
Equity in Relationship Building	Experiential and professional insight is treated on equal footing, with patients and caregivers included as equal contributors to problem identification and solution design.	Facilitators and researchers emphasized the role of patients and caregivers in the program's design and implementation. Primary beneficiaries of the initiative are patients and their families. As families play a central role in care and decision-making, both patients and caregivers were included to gather their perspectives. Their suggestions would help refine the program and support the delivery of services at the primary healthcare level.
		In the first meeting at DH, patients stressed that they faced difficulty accessing psychotropic medications consistently at DH and PHC. The discussion also reflects reflexivity, as the Psychiatrists acknowledged systemic shortcomings in the procurement and supply of medicines rather than attributing responsibility to patients. By recognizing that uninterrupted access to medicine is a responsibility of the healthcare system, they critically reflected on institutional practices and identified areas for improvement.
		Patients highlighted that the leaflet was too lengthy and that many people lacked information about why medicines were prescribed or where treatment could be accessed. Patients and caregivers explained confusion surrounding treatment duration and referral pathways, while ASHA workers emphasized the need for simpler language that could be understood across varying literacy levels. These experiences were incorporated alongside suggestions from CHOs, RMOs, MHWs, and NGO representatives regarding visual aids, treatment information, and support services, illustrating that lived experience and professional expertise were equally valued in shaping the educational resource materials for spreading mental health awareness regarding symptoms of CMDs and psychotropic medications
		Patients and caregivers explained that families often sought care from traditional or faith healers before approaching primary care centers, while CHOs similarly observed that reliance on alternative treatment delayed medical consultation. Rather than viewing families as barriers to care,

RAG members considered them as essential partners in implementation. Participants had a shared understanding that caregivers should be involved in psychoeducation, counseling, and community awareness activities to improve early recognition of mental health problems and strengthen treatment adherence

A caregiver's account of initially mistaking mental illness for blood pressure problems was used as a teaching example for ASHAs and CHOs to improve symptom recognition in the community

Reciprocity and Mutuality

Bidirectional knowledge exchange, with learning flowing both from professionals to community members and from community members back to professionals.

CHOs and ASHAs acknowledged that they don't pay much attention to mental health issues after facilitators gave prompts to patients to discuss their symptoms

The discussions reflected reciprocity and mutuality through the exchange of knowledge between patients, caregivers, community health workers, and facilitators. Rather than knowledge flowing solely from professionals to participants, the facilitator actively encouraged participants to share their experiences and used these narratives to build collective understanding)

Rather than having professionals direct the redesign of the IEC material, participants built on one another's ideas to develop shared solutions. Patients identified practical barriers to understanding the leaflet, caregivers highlighted gaps in treatment information, healthcare providers recommended simplifying clinical information, and NGO representatives suggested incorporating illustrations, flowcharts, and confidential helpline information

Reflexivity

Researchers and facilitators critically examine how their own assumptions and institutional position shape the collaborative's dynamics and interpretation of findings.

During the consultation, the patient described difficulties obtaining prescribed medication, stating that the pharmacy had refused to dispense atenolol because the prescription was deemed outdated. The psychiatrist explained that pharmacies may decline to dispense medication when patients present an expired prescription rather than obtaining a new consultation. The patient further shared that they had requested the pharmacy to provide a small quantity of the medication (Atenolol) due to their urgent need. In response, the psychiatrist noted that the patient should have informed him and that he would have arranged the medication. This exchange demonstrates the psychiatrist's reflexivity, as he

moved beyond simply explaining institutional procedures to acknowledge his own capacity to intervene and support the patient. By recognizing that his own actions could have mitigated the patient's difficulty in accessing essential medication, the psychiatrist reflected on his role within the healthcare system and emphasized a patient-centered approach to care.

The Community Health Officer shares observations from fieldwork, explaining that despite being offered free medicines, many patients refuse them because they believe government medicines are ineffective. Instead of simply reinforcing the CHO's observations or correcting patients, the facilitator reflects on what these experiences imply for the healthcare system. This exchange demonstrates reflexivity as the facilitator interpreted the Community Health Officer's field experiences as evidence of a broader challenge within the healthcare system. Rather than viewing patients' reluctance solely as a knowledge deficit, the facilitator/researcher reflected that the healthcare system itself needed to build trust, thereby acknowledging the role of healthcare providers and institutions in shaping patients' perceptions and treatment decisions.

***Transformative
and
Personalized
Engagement***

The collaborative process offers value to the study while also being a meaningful, enriching experience for individual participants.

Facilitators observed growing openness among CHOs and ASHAs to detect symptoms early and engage in referral; RAG members made voluntary commitments extending beyond their formal roles, mobilizing other patients, pursuing school partnerships, and building NGO linkages.

Discussion

In this paper, we present evidence that a multidisciplinary research advisory group is feasible within India's primary healthcare system. Feasibility was evidenced not only by the RAG's continuation over a thirteen-month period, but by the pattern of engagement that developed following the shift in venue. The near-doubling of unique participants (from 18 to 46) and the corresponding rise in total appearances (from 43 to 112) after this transition suggest that proximity to the community, rather than institutional setting, was a key determinant of participation. This is consistent with the broader observation that HWC-based meetings drew substantially higher median attendance than DH-based meetings, and that attendance increased most among patients and primary care workers, the two groups most directly embedded in community-level service delivery. Taken together, findings from quantitative analysis

indicate that the transition from a hospital-based to a community-based (HWC) venue was accompanied by a marked broadening of stakeholder engagement, particularly among women and primary care workers, alongside a corresponding decline in participation by hospital-based secondary care staff, while the age profile of participants remained largely unchanged. A further point is the composition of the RAG's members' turnover, which departs from how advisory or participatory groups are typically constituted. Existing mental health PPI advisory groups have commonly been organised as standing structures with defined membership and expectations of ongoing participation, although considerable variation exists in how groups are constituted and sustained (13). In contrast, the Punjab RAG demonstrated substantial turnover: 42.2% of participants attended only a single meeting, and only a small subset (4 participants) attended all eight HWC phase meetings. This suggests a hybrid model of engagement anchored by a core group of engaged repeat participants (particularly primary care workers, who accounted for disproportionately high appearances relative to their unique numbers) while continuously incorporating new voices at each session. This dual pattern of participation may itself represent a novel and resource-appropriate approach to stakeholder engagement in LMIC implementation contexts, where sustaining fixed group membership over more than a year is often logistically difficult given competing clinical duties, and the voluntary nature of participation.

The functioning of the RAG closely reflected the co-creation principles outlined by Pérez Jolles et al. (1). Equity in relationship-building was evident in how patients, caregivers, and frontline workers were positioned as equal contributors alongside clinicians and researchers, with their lived experiences directly shaping decisions about access to medicine, IEC material design, and family engagement strategies. Reciprocity and mutuality were reflected in the bidirectional flow of knowledge across meetings, where professional and experiential knowledge informed one another rather than moving in a single direction. Reflexivity was evident when facilitators and healthcare workers actively reconsidered institutional assumptions in light of participant accounts, rather than attributing challenges solely to patient behavior. Finally, transformative and personalized engagement was reflected in the voluntary commitments some members made beyond their formal roles, such as mobilizing other patients or building partnerships with NGOs.

With respect to action points generated during discussions, some recommendations arising from RAG meetings, such as the medicine availability, revised IEC materials, refresher training sessions for healthcare workers, and conducting awareness sessions within the community, were carried forward and implemented in subsequent phases. Others were only partially progressed or not consistently revisited across meetings, as they were not well within the scope of the implementation project's dynamic priorities and some were not addressed due to systemic constraints.

Inconsistent medicine supply and diminished trust in public-sector care are among the action points which were consistent across several meetings. Findings from the MANAS trial in Goa also identified erratic availability of antidepressants in local pharmacies and concerns about side effects as barriers to sustained treatment, prompting the trial to actively monitor and promote their availability in local pharmacies as an implementation strategy (19). Similarly, RAG discussions generated this action point in

this context, and the implementation team followed up with senior medical officers to make them available in the district.

Stigma generated the most extensive discussion within the RAG. Evidence on how best to address stigma within frontline worker training remains limited (20), and a recent systematic review similarly found that task-sharing mental health screening implementation is frequently constrained by structural challenges, including societal stigma around mental health (21). RAG participants proposed practical adaptations such as, CHOs recommended framing screening in more accessible language during routine consultations as a “stress check” rather than a “mental health screening,” and suggested that screening should prioritize conversation and understanding over merely form-filling in the digital application.

Participants also noted persistently low community awareness of what mental health screening actually involves. In response, community health awareness sessions were conducted in the form of *Nukkad Natak* (street theatre plays) to make information more accessible and engaging. Confidentiality emerged as a further priority, closely tied to infrastructural barriers: the lack of adequate consultation spaces was described as contributing to patients’ greater trust in private healthcare. This reflects a broader pattern in which structural-level discrimination, the absence of private consultation spaces, adequate resources, and policies to support mental health, compounds stigma’s negative impact on people with mental health conditions and thereby delays appropriate treatment (22).

Healthcare worker’s training needs were similarly reframed as context-dependent rather than uniform; there is no one-size-fits-all approach to training non-specialists, since implementation is shaped by providers’ prior training, experience, prior roles, cultural expertise, and organizational support (23). CHOs and ASHAs themselves acknowledged that common symptoms were often missed during routine OPD days, prompting booster training sessions with CHOs and Medical Officers focused on identifying symptoms likely to be overlooked in busy outpatient settings. These were complemented by monthly case-based learning sessions with CHOs.

Workforce capacity constraints also emerged as recurring barriers in similar studies focusing on mental health integration: Mendenhall et al.’s (24) district-level situation analysis across five LMICs (Ethiopia, India, Nepal, South Africa, and Uganda) for the PRIME program, and in Petersen et al.’s (25) six-country study of integration scale-up. These studies found that specialist workforce shortages constrained the time available to supervise non-specialist frontline workers taking on task-shared responsibilities. RAG discussions also acknowledged these challenges, with some healthcare workers needing supportive supervision and others needing time to build the trust required for mental health screening conversations.

Translation to Policy and Practice

The RAG functioned as an active forum of generation of actionable strategies to support implementation of the ICMR-MINDS project in the state. It is consistent with calls to embed stakeholder structures as co-producers of context-specific strategy. Its open, flexibly attended format was a deliberate

accommodation for a resource-constrained setting within the Indian Primary Healthcare system, allowing CHOs, ASHAs, and MPHWs to engage despite competing demands without sacrificing continuity through core members. Ultimately, genuine adherence to co-creation principles, visible follow-through on advisory input, not just consultation, determined whether participation translated into meaningful influence. This model can be translated to other mental health implementation projects in other low-resource settings.

Limitations

The open-group format also created challenges in building a broad, representative collaborative while sustaining a stable “core” membership capable of tracking implementation decisions over time. Pérez Jolles et al. (1) note that co-created collaboratives risk becoming unstable or diluted when membership turnover is high, since institutional memory and trust take time to build; our attrition patterns suggest this risk was present, even as overall engagement grew.

The group’s sustainability beyond the project period also remains an open question. Over one year and thirteen meetings, the RAG evolved meaningfully, but what happens next, once project funding and support end, is unresolved. Similarly, the transferability of RAG in other Indian states may require local adaptations based on cultural and health-system related variations. Moreover, how can RAG’s mandate be expanded to include wider public engagement, especially for dissemination, advocacy, and system-level uptake, needs careful examination in future research. Some challenges raised by RAG members such as mitigating structural and socioeconomic risks could not be addressed, owing to systemic constraints beyond the project’s control. Continued participation by patients and family members also declined over time, likely reflecting the lack of monetary compensation for their involvement, underscoring the need for structured compensation to sustain equitable representation in future iterations. Finally, despite efforts to engage NGOs, engagement from community-based organizations (CBOs) remained limited throughout because of competing goals of CBOs and limited resources.

Conclusion

This mixed-methods study demonstrates the feasibility of a community-embedded, flexibly structured Research Advisory Group as a strategy to support the implementation of integrated MSUD care within routine non-communicable disease services in India’s resource-constrained primary healthcare system. Rather than depending on a fixed membership, this RAG operated as a hybrid model anchored by a core of repeat participants while continuously drawing in new voices, offering a resource-appropriate alternative to the stable-membership advisory structures typically described in the literature. At the same time, the findings underscore that the value of such collaboration depends on genuine follow-through on advisory input, and that its promise is tempered by challenges: high membership turnover, declining participation among patients and family members in the absence of structured compensation, limited engagement from community-based organizations, and an unresolved pathway to sustainability once project funding ends. Future research should therefore examine how core-membership continuity can be

maintained alongside open participation, whether structured compensation improves equitable representation over time, and how such advisory structures can be institutionalized and sustained within the health system.

Abbreviations

ASHAs: Accredited Social Health Activist

ICMR: Indian Council of Medical Research

CBOs: Community Based Organisations

CHOs: Community Health Officers

DH: District Hospital

HWC: Health and Wellness Centres

LMICS: Low and middle income countries

MSUDs: mental and substance use disorders

MO: Medical Officer

MPHW: Multipurpose Healthworker

NCD: Non-communicable diseases

LEAPs: Lived Experience Advisory Panels

PPIE: Patient and Public Involvement and Engagement

RAG: Research Advisory Group

SE: Stakeholder engagement

SMO: Senior Medical Officer

Declarations

Ethics approval and consent to participate: This study was conducted in accordance with the ethical principles of the Declaration of Helsinki. Ethical approval for the study was obtained from the Institutional Ethics Committee of the Postgraduate Institute of Medical Education and Research (PGIMER), Chandigarh (Approval No. PGI/IEC/2023/EIC001534; IEC-11/2023-2934). All participants involved during the meeting discussions provided written informed consent prior to participation. Participants were

informed about the voluntary nature of participation, confidentiality of responses, and their right to withdraw from the study at any stage without any consequences.

Consent for publication: Not applicable

Availability of data and materials: All data generated or analysed during this study are included in this published article [and its supplementary information files].

Competing interests: We declare no competing interests. N.D., A.G., and P.V. are staff members of ICMR. The opinions expressed by them in this paper are their own and do not necessarily reflect the policy of ICMR.

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Authors' contributions: AG led project investigation, administration and supervision. SS and AG led the conceptualization, methodology, investigation, and data curation. SS drafted the original manuscript and conducted the final round of coding and thematic analysis. BBG and MS conducted the quantitative analysis, while NG and MM conducted the initial round of coding. AG, ND, PV, and provided supportive supervision and contributed to the review and approval of the final manuscript. SB helped in project administration and supportive supervision throughout the study period. All authors reviewed and edited the manuscript and approved the final version.

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Figures

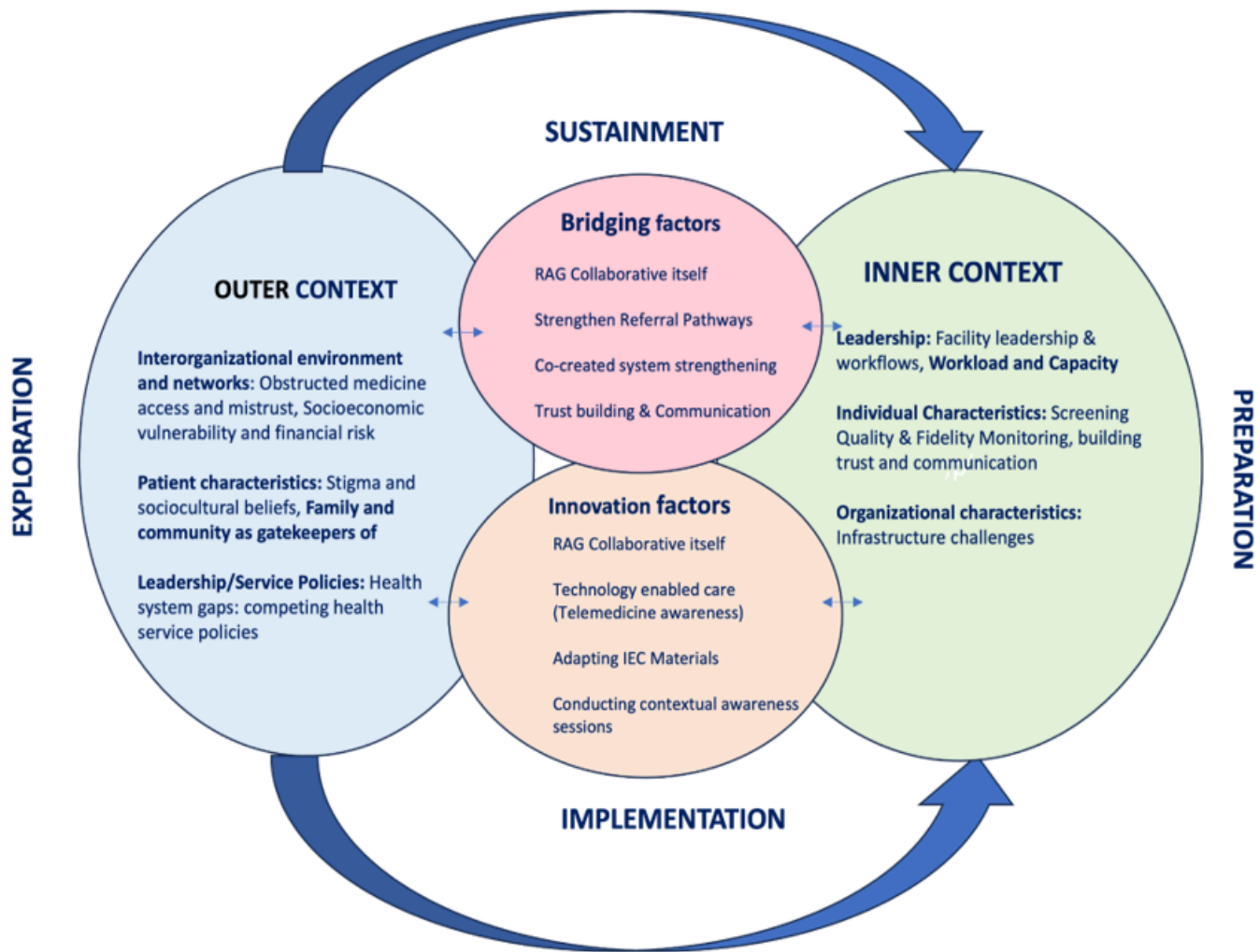


Figure 1

Mapping of thematic findings to the EPIS framework. The figure illustrates how themes generated through the thematic analysis align with the EPIS implementation determinants across the outer context, inner context, bridging factors, and innovation factors. The findings demonstrate the interconnected influence of community, organizational, and intervention-level factors on the implementation of integrated mental health services in primary care, while highlighting the RAG's role as a collaborative mechanism for co-producing implementation adaptations.

Supplementary Files

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