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Reconceptualizing integrated people-centred health services: Towards a mechanism-sensitive model using realist evaluation

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A B S T R A C T

Background: The World Health Organization's Framework on Integrated, People-Centred Health Services (IPCHS) proposes five interdependent strategies to guide health system transformation. In low- and middle-income countries (LMICs), implementation of IPCHS is often fragmented due to limited understanding of how its strategies interact in practice. Community Health Workers (CHWs), situated between households and formal health systems, offer a unique lens to examine these dynamics.

Methods: This study used a multi-phase realist approach, integrating a realist synthesis and two realist evaluations in KwaZulu-Natal, South Africa. Findings from each phase contributed to refining an initial programme theory into a dynamic, mechanism-sensitive model that captures how IPCHS strategies function interdependently. Findings were analysed using context–mechanism–outcome (CMO) configurations. Systems thinking tools, including causal loop diagrams, were used to visualise mechanism chaining and feedback loops across system levels and strategies.

Results: Three cross-cutting meta-mechanisms: trust, motivation, and professional legitimacy (with institutional support) were found to underpin CHW performance across all five IPCHS strategies. These mechanisms interacted recursively, meaning activation or erosion of one affected others. People-centred care is not the outcome of any single strategy but rather emerges from the alignment and interaction of mechanisms triggered by multiple strategies in different contexts. When mechanisms align, they reinforce CHW performance and advance IPCHS; when misaligned, they contribute to system fragility and poor outcomes.

Conclusion: People-centred care is an emergent property of aligned, interacting IPCHS strategies, as opposed to isolated interventions. Further research should test and refine the proposed mechanism-sensitive approach to implementing the IPCHS framework.

1. Introduction

Efforts to strengthen health systems in low- and middle-income countries (LMICs) have increasingly acknowledged the limitations of fragmented service delivery models and the need to transition toward approaches that are more equitable, comprehensive, and responsive to community needs (Khatri et al., 2023; Sheikh et al., 2014a; World Health Organisation, 2016). In response, the World Health Organization (WHO) developed the Integrated, People-Centred Health Services (IPCHS) framework as a strategic guide to support this shift (World Health Organisation, 2016). The IPCHS framework proposes five mutually reinforcing strategies: (1) engaging and empowering people and communities; (2) strengthening governance and accountability; (3) reorienting the model of care; (4) coordinating services within and across sectors; and (5) creating an enabling environment. Collectively, these strategies place individuals at the centre of health systems to ensure that care is aligned with their preferences and needs, promoting the integration of services across health and related sectors (World Health Organisation, 2016). While this study is grounded in the IPCHS framework, it does not seek to revise the framework conceptually or offer a purely theoretical critique. Instead, it interrogates the framework through the lens of community health workers (CHWs), examining how

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their roles and practices reflect, operationalise, and at times challenge the IPCHS strategies in real-world settings. In doing so, the paper offers a practice-oriented perspective on the framework's application in community health systems.

Although the IPCHS articulates a vision that is compelling and transformational for health systems, it acknowledges that these strategies are interdependent and that a lack of progress in one area may undermine progress in others. However, the framework does not elaborate on the dynamic relationships between strategies or provide actionable direction on how they can be operationalised in practice (Hafiz et al., 2024). This lack of operational guidance is especially notable in many LMICs, where health systems remain fragmented, operationally siloed, and structurally constrained (Hafiz et al., 2024; Khatri et al., 2023). This often leads to less than effective implementation of people-centred care, leading to the patchwork adoption of individual strategies, disjointed reforms, and inefficiencies that overlook the lived experiences of frontline implementers and the communities they serve (Hafiz et al., 2024). Consequently, even well-intended reform may end up failing to achieve the synergistic and system-wide transformation that is required for people-centred care. Therefore, bridging this gap between reform intent and meaningful change requires a renewed focus on key enablers of people-centred care, namely, CHWs.

In the South African primary health care system, CHWs are community-based, household-facing health workers who operate at the interface between households, primary care facilities, and intersectoral community structures (Buthelezi et al., 2025a; Murphy et al., 2021; Schneider et al., 2018; Schneider and Lehmann, 2016). Working primarily through Ward-Based Primary Health Care Outreach Teams, they assess household health needs, support adherence, facilitate referrals, and provide follow-up, with responsibilities that extend beyond service delivery to include coordination of care within their catchment areas (Lehmann and Sanders, 2007; Schneider et al., 2018; Schneider and Lehmann, 2016).

Within this context, CHWs play a central role in operationalising the WHO IPCHS framework, particularly in sub-Saharan Africa (Buthelezi et al., 2025b). Their community embeddedness allows them to deliver culturally appropriate care through sustained relationships with the community, positioning them as frontline enablers of integrated, people-centred services (Glenton et al., 2013; Kok et al., 2015). Importantly, the nature of CHWs' work demands that multiple IPCHS strategies are executed in tandem. For example, establishing trust with households (Strategy 1) and coordinating referrals across sectors (Strategy 4), or participating in governance structures through community forums or multisectoral platforms (Strategy 2) (Usangiphile E Buthelezi et al., 2025c). This makes CHWs a powerful lens to study how the IPCHS strategies interact dynamically in practice.

Regardless of their central role in delivering PHC services, research on CHWs has primarily focused on programme performance indicators while under-theorizing their roles and functions in the communities they serve (Schneider and Lehmann, 2016). While these indicators are important, they often fail to capture the deeper mechanisms and contextual factors that shape the work of CHWs within integrated, people-centred care systems. As a result, the relational, institutional, and systemic complexities that CHWs navigate, particularly across different IPCHS strategies, remain unexplored. Furthermore, CHWs do not encounter governance, community engagement, or care reorientation as isolated elements; rather, they experience these dimensions simultaneously and in a dynamic interplay (Buthelezi et al., 2025b). Therefore, a siloed application on IPCHS risks overlooking synergies, tensions, and feedback loops that are fundamental to understanding how strategies interact in practice and the mechanisms at play. This fragmentation may also limit the ability of policymakers and implementers to design interventions that reflect the interdependent nature of integrated, people-centred systems.

To address these gaps, our study adopts a realist approach to interrogate how CHWs operationalise the IPCHS framework in practice, by examining how their roles and functions reflect or contest the interaction of the five strategies across diverse community health system contexts. Realist evaluation offers a particularly fitting methodological lens for this purpose, by asking not just what works, but for whom, in what circumstances, and how (Pawson and Tilley, 1997). By focusing on the mechanisms and contextual drivers shaping CHWs' work, this study aims to advance both theoretical and practical insights into how integrated, people-centred care can be more effectively designed and operationalised.

This paper adopts a realist, theory-building focus, using CHW practice as an empirical lens to refine understanding of how integrated, people-centred care is produced within complex health systems by drawing on findings from three interlinked realist studies: a realist synthesis (Buthelezi et al., 2025b) and two realist evaluations of CHW activities in the province of KwaZulu-Natal, South Africa (Buthelezi et al., 2025a; Buthelezi et al., forthcoming). Collectively, these studies provide a unique opportunity to explore how mechanisms operate across the IPCHS framework within a single health system and to investigate how the framework's five mutually reinforcing strategies interact in practice through the everyday roles and activities of CHWs. From each study, evidence is selectively integrated through retroductive realist analysis to inform the refined programme theory and middle-range theories presented in this article. Specifically, this research article aims to (1) identify key cross-cutting mechanisms that shape CHWs' work in delivering integrated people-centred care, (2) conceptualize the dynamic interplay of mechanisms within and across the IPCHS strategies, and (3) develop middle-range theories that deepen theoretical understanding while offering practical insights for implementing integrated, people-centred health services.

2. Methods

2.1. Conceptual and analytical approach

This study employed a multi-phase realist approach, integrating findings from a realist synthesis and two rounds of empirical realist evaluation, to progressively develop and refine a programme theory for CHW optimisation in IPCHS delivery.

Realist evaluation bases its approach on realist philosophy principles to study outcome development through the analysis of context-mechanism interactions. Rather than asking whether an intervention works, it seeks to understand what works, for whom, in what contexts, and why (Pawson and Tilley, 1997). Therefore, this theory-driven approach is especially suitable to evaluate complex interventions and unpacking context-mechanism interactions, especially when operationalising frameworks like the IPCHS, which involves multiple interacting components, diverse actors, and layered contextual factors. Furthermore, through unpacking the generative mechanisms triggered in specific contexts, realist evaluation can provide nuanced insights into how integrated, people-centred care can be successfully or poorly implemented and sustained in the real-world setting. The key theoretical concepts that underpin this realist analysis, including definitions, are summarised in Appendix 1.

In this synthesis, the five IPCHS strategies functioned as flexible heuristic anchors which guided the identification and organization of context–mechanism–outcome configurations (CMOCs). This analytical approach allowed researchers to study how different strategies interact with each other in practice to reveal their interconnected relationships and the cascading effects they produce across different levels of the healthcare system. By recognizing the fluid boundaries and interconnected nature of the IPCHS strategies, the synthesis intended to accurately reflect on the complexity of implementing people-centred care through CHWs, and to identify the contextual conditions and mechanisms under which strategic synergies strengthen or cripples their roles and functions.

To guide this process in a rigorous and transparent manner, the study

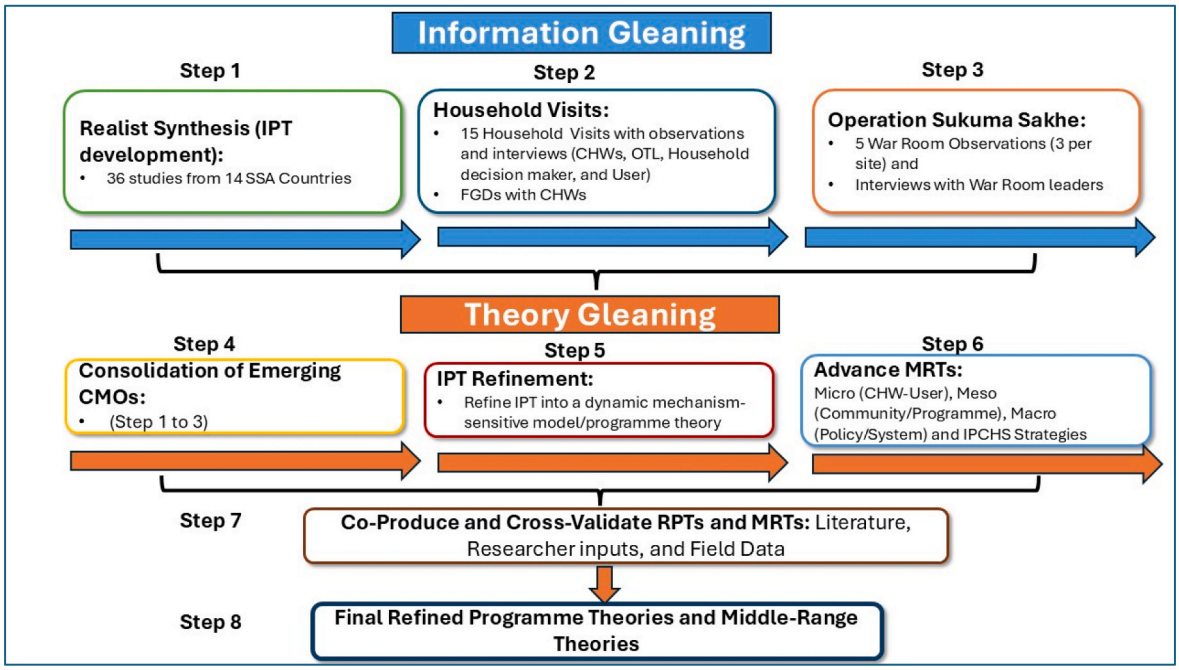

Fig. 1. Realist synthesis and evaluation workflow: Multi-phase model for IPCHS integration.

drew on the Realist and Meta-narrative Evidence Syntheses: Evolving Standards (RAMESES II) guidelines to inform the design and reporting of the findings (Wong et al., 2016), while adapting them to suit the iterative and multi-phased nature of this realist synthesis and evaluation process. The study used the following 8 steps (Fig. 1): 1) Theory gleaning through realist synthesis; 2) Synthesising findings from primary data collected during household visits by CHWs in a district in KwaZulu-Natal; 3) Synthesising findings from primary data collected on the role and functions of CHWs in intersectoral structures in a district in KwaZulu-Natal; 4) Consolidation of emerging CMO configurations from steps 1 to 3; 5) Refinement of the Initial Programme Theory (IPT) into a dynamic, mechanism-sensitive model; 6) Advancement of middle-range theories across micro (household), meso (community/programme) and policy levels; 7) Co-production and validation of refined programme theories and middle-range theories using literature, researcher inputs, and empirical field data; and 8) Final synthesis and theorization of realist-informed programme theory and system-level insights. Across all phases, data collection and primary analysis were led by the first author, with iterative sense-making, theory refinement, and adjudication undertaken collaboratively by the full research team (co-authors).

2.2. Data sources (information gleaning)

This manuscript draws on a single, multi-phase realist programme of research comprising three analytically integrated realist studies conducted sequentially in KwaZulu-Natal, South Africa, between 01 November 2022 and 26 July 2023. These studies were undertaken as part of a broader formative research programme aimed at strengthening people-centred community health system competence in South Africa. Each study constitutes a distinct yet interconnected phase within the same programme of inquiry, with findings intentionally layered and synthesized to support progressive theory refinement. The first study, a realist synthesis, developed an initial conceptual framework to theorize how CHWs contribute to integrated, people-centred care (Usangiphile E Buthelezi et al., 2025c). The second study involved primary data collection at the community and household levels to empirically test and refine the IPT developed in the first study (Buthelezi et al., 2025a). The third study concentrated on the Operation Sukuma Sakhe (OSS) War Room platform to explore systemic and governance-related factors that underpin successful or unsuccessful intersectoral collaboration, a critical but previously underexplored aspect of CHW optimisation in the second study (Buthelezi et al., forthcoming). Collectively, these studies were synthesized and layered to understand how CHWs' roles and functions can be improved to support the successful implementation of integrated, people-centred health services. Table 1 summarises the information gleaning process.

Table 1
Overview of information gleaning steps.

Steps	Study Focus	Data Source	Output
Step 1	Realist Synthesis	36 studies from 14 SSA countries	Initial Programme Theory (IPT)
Step 2	Empirical Testing (Household-Level)	Observations, interviews, FGDs in 5 rural SA communities	Refinement of IPT into Middle-Range Theories
Step 3	Intersectoral Collaboration (OSS War Rooms)	Observations, interviews, document analysis	Expansion of IPT to include collaborative governance

2.2.1. Step 1: realist synthesis (development of the initial programme theory)

Step 1 comprised a realist synthesis of peer-reviewed intervention studies examining CHW roles and functions in the delivery of integrated, people-centred care, primarily within low- and middle-income health system contexts. The synthesis focused on identifying how, why, and under what contextual conditions CHW-led interventions contributed to integrated people-centred outcomes. Included studies reported on CHW-involved interventions with sufficient detail to extract context–mechanism–outcome (CMO) configurations, including information on implementation conditions, actor reasoning, and system-level influences. The aim of the realist synthesis was to develop an IPT on how CHWs support the delivery of IPCHS in sub-Saharan Africa (Buthelezi et al., 2025b). Guided by the RAMESES II standards and realist principles (Wong et al., 2016), the synthesis examined how, why, and under what conditions CHW interventions contribute to people-centred outcomes. A six-phase process was undertaken: (1) defining the review scope and constructing IPTs using the IPCHS framework as a heuristic

guide, (2) systematically searching peer-reviewed literature (between year 2014 and 2024) across five databases, (3) applying realist relevance and rigour criteria to appraise quality, (4) extracting data on contexts, mechanisms, and outcomes, (5) synthesising evidence using retroductive reasoning to develop context–mechanism–outcome (CMO) configurations, and (6) refining the IPT through iterative team discussions.

A previously published realist synthesis formed the foundation for this study, drawing on 36 intervention studies across 14 sub-Saharan African countries (Buthelezi et al., 2025b). This synthesis generated 101 context-mechanism-outcome (CMO) configurations, which were distilled into 17 thematic CMO sets aligned with the five IPCHS strategies. The resulting initial programme theory is summarised in Appendix 2. A full account of the search strategy, study selection, and synthesis procedures is reported elsewhere (Buthelezi et al., 2025b).

2.2.2. Step 2: household-level interactions - health care professionals, CHWs, and household members

Building on the conceptual groundwork established in Step 1, the second phase of the study involved empirically testing and refining the IPT through primary data collection. As part of the broader realist synthesis and evaluation, this phase was conducted across five rural communities in the district of uMgungundlovu, KwaZulu-Natal, South Africa, with a particular focus on how CHW–household interactions trigger or inhibit key mechanisms essential for the delivery of integrated people-centred care in a real-world setting (Buthelezi et al., 2025a).

Briefly, fifteen household case studies were conducted in collaboration with local clinics, CHWs, and households. Each case included a structured observation of a CHW home visit, followed by interviews with the CHW, the service user, and the household decision-maker. This resulted in a total of 40 in-depth interviews and 15 observations. To further explore systemic enablers and barriers, and to triangulate findings, additional interviews were conducted with Outreach Team Leaders (OTLs) and Operational Managers (OMs) (an OM was interviewed where there was no assigned OTL supporting CHWs). This resulted in a total of 5 interviews and an overall study total of 45 interviews. Additionally, three focus group discussions (FGDs) were held with CHWs (12–15 participants per clinic/FGD) to deepen the understanding of contextual dynamics shaping CHW practice (Buthelezi et al., 2025a).

This empirical component examined how candidate mechanisms identified in the realist synthesis (step 1) were activated, modified, or constrained across different contextual conditions and IPCHS strategies. This step involved qualitative data collection and realist analysis to test, refine, and extend candidate CMO configurations through iterative retroduction and enabled the development of empirically grounded middle-range theories (MRTs) (Buthelezi et al., 2025a).

2.2.3. Step 3: intersectoral collaboration within Operation Sukuma Sakhe War Rooms

In Step 3 of the broader realist evaluation of CHWs and the IPCHS framework, we sought to address key gaps identified in Step 2. One such gap was the limited development of programme theories related to intersectoral collaboration and governance mechanisms. To explore these underdeveloped areas, we conducted a focused sub-study using *Operation Sukuma Sakhe* (OSS) - a provincial platform in KwaZulu-Natal that facilitates intersectoral service delivery by bringing together health and non-health sectors through ward-level "War Room" meetings at the community level (Province of KwaZulu-Natal, 2011).

Data were collected from five communities within the uMgungundlovu District, each with an operational War Room. In each site, three War Room meetings were observed over time (totalling 15 observations) to capture both routine and non-routine dynamics. Observations focused on CHW participation, leadership, intersectoral interactions, and decision-making. During the final visit to each War Room, semi-structured interviews were conducted with War Room leaders (either Ward Councillors or interim chairpersons) to understand governance processes, stakeholder engagement, and CHW roles.

Data were collected by a team of three experienced researchers with over 30 years of combined experience in community health, using structured observation templates and audio recordings. All data were transcribed verbatim in isiZulu and translated into English. Transcripts and field notes were analysed thematically using NVIVO (version 15) and guided by the realist Context-Mechanism-Outcome (CMO) framework.

To enhance analytical depth, DeepSeekAI (Version R1) was used to support the identification and reasoning of CMO configurations. These AI-generated CMO patterns were treated as prompts for researcher refinement rather than definitive findings. This was done through cross-validation with empirical data, OSS policy documents, and contextual field insights. Additionally, causal loop diagrams (CLDs) were developed using Vensim (Version 10.2.0) to visualise system dynamics in case management and referral processes. This iterative and multi-method approach enabled refinement of programme theories on intersectoral collaboration and governance mechanisms as they influence CHW capacity to deliver integrated, people-centred care.

2.3. Synthesis and theory gleaning

2.3.1. Step 4: consolidation of CMOs across steps 1 to 3

Following the completion of the three empirical steps: realist synthesis (Step 1), household-level fieldwork (Step 2), and intersectoral collaboration case study (Step 3), we undertook a structured consolidation of CMO configurations. Using NVivo-assisted matrix coding and cross-case comparison, CMOs were first analysed within each phase, then synthesized across phases to identify shared demi-regularities and variations. The process was guided by a realist logic of enquiry, using retroduction to infer the causal mechanisms that could plausibly explain observed outcomes in different phases and contexts (Jagosh, 2020; Mukumbang et al., 2021). This involved repeatedly asking: "*What needs to be true in this setting for this outcome to occur? Is this happening in this context and strategy only or under different contexts and across IPCHS strategies?* And what *reasoning or process is being triggered here?*". These iterative inferences helped us move beyond descriptive coding towards explanatory insights that formed the basis for overarching CMOs and middle-range theorizing.

2.3.2. Step 5: refining the initial programme theory into a dynamic mechanism-sensitive model

Building on step 4, the consolidated CMOs were used to refine the IPT into a dynamic, mechanism-sensitive model - that is, a model in which mechanisms are central to causal explanations linking context and outcomes, rather than as secondary to structures or activities. Through an iterative process of causal mapping, retroduction, and team-based interpretive workshops, we examined how mechanisms interacted not in isolation, but across domains of the WHO IPCHS framework. Using systems thinking (Barbrook-Johnson and Penn, 2022), we identified how mechanisms activated within one IPCHS strategy could interact with those involved in other strategies, forming interdependent chains that contribute to the success or failure of CHWs' delivery of IPCHS outcomes. This dynamic interplay was visualized through causal loop diagrams, which illustrated both reinforcing and constraining feedback loops across system levels. This step enabled us to conceptualize the programme theory not as a linear chain but as a complex dynamic system, shaped by relational and structural dynamics that operate across strategies. Furthermore, to support the interpretation of the findings, emerging CMO configurations were presented using IF–THEN statements to provide narrative explanations of how specific contexts and mechanisms interacted to produce desired or unintended outcomes of integrated people-centred care (Greenhalgh et al., 2011; Wong et al., 2016).

2.3.3. Step 6: unpacking the IPCHS framework through middle-range theories across system levels

With a dynamic model in place, we proceeded to formulate MRTs aligned with each of the five IPCHS strategies. Drawing on the refined CMOs and informed by multi-level data [micro (household), meso (community/programme), macro (policy/system), each MRT articulated the conditions under which specific mechanisms led to people-centred outcomes. Retroduction continued to guide this process, distinguishing mechanisms that were cross-cutting from those that were context-contingent. The MRTs were designed to explain not only what works, but also *for whom*, *how*, and *under what conditions*, offering transferable insights for programme design and policy implementation.

2.3.4. Step 7: cross-validation of refined programme theories and middle range theories

The refined programme theory (RPT) and resulting MRTs were developed through a rigorous process of literature triangulation, team-based adjudication, and iterative cross-referencing with empirical data. This process required cross-verification of emerging RPTs and MRTs with the original data sources to confirm explanatory coherence, while matching the findings to realist literature (Buthelezi et al., 2025b) and concurrently running interpretive meetings to evaluate their plausibility and consistency. These multiple layers of internal validation ensured that the RPTs and MRTs were not only empirically grounded but also theoretically sound and practically relevant for informing CHW programme governance and the design of people-centred health systems.

2.3.5. Step 8: final refined programme theories and middle range theories

In the final synthesis step, the refined programme theory was presented as a dynamic, mechanism-sensitive model using causal loop diagrams (CLDs) to visualise the interactions happening between mechanisms operating within and across different IPCHS strategies. Mechanism chaining was also illustrated through CLDs that mapped how mechanisms triggered within one IPCHS strategy activated or constrained mechanisms in others, highlighting the interdependencies that exist. To provide greater explanatory clarity, the MRTs were thematically organised across three system levels: micro (individual, household and CHW interactions), meso (collaborative governance through OSS, and clinics via OMs and OTLs), and macro (policy). This categorisation reflects both the scale of interaction and the primary actors or structures involved at each level. While we recognise that some mechanisms may operate across or between levels, this structure enabled a layered interpretation of how CMO patterns unfold, offering a more nuanced understanding of how people-centred care is enabled or constrained across different tiers of the health system.

2.4. Ethical considerations

Ethical approval for all components of the study was obtained from the Biomedical Research Ethics Committee (BREC) at the University of KwaZulu-Natal (Ref: BREC/00002768/2021). Informed consent was secured from all participants prior to data collection. All procedures were conducted with strict adherence to confidentiality and cultural sensitivity.

3. Results

The findings of this study present the synthesis and refinement of a mechanism-sensitive programme theory for Integrated People-Centred Health Services (IPCHS) as it relates to the sphere of CHW roles and activities, drawing on findings from three prior realist studies. While each study contributed distinct insights, a literature-based realist synthesis (Buthelezi et al., 2025b), a household-level empirical study (Buthelezi et al., 2025a), and a governance-focused realist evaluation (Buthelezi et al., forthcoming), this article does not repeat or reproduce those results. Instead, it focuses on the theory-building process: how mechanisms identified in individual studies interact across IPCHS strategies, what cross-cutting (meta-mechanisms) emerged, and how these were consolidated into a dynamic, context-sensitive programme theory. Across the manuscript, evidence from each study is selectively drawn on and analytically integrated through realist synthesis and retroduction to inform the refined programme theory and middle-range theories in the Results section. For full details of the individual CMOs and study-specific results, the reader is referred elsewhere (Buthelezi et al., 2025a, 2025b; Buthelezi et al., forthcoming). The sections below highlight the novel contributions of this synthesis: the identification of meta-mechanisms, evidence of mechanism interaction across strategies, the final refined programme theory, and middle-range theories.

3.1. Emergence of meta-mechanisms across IPCHS strategies

As the programme theory was refined, several key mechanisms emerged as central to the delivery of integrated, people-centred care, these include trust (encompassing community trust in CHWs, institutional trust in the health system, and systemic trust across sectors); motivation (both in terms of the internal drivers that sustain CHWs in their roles and the motivation of community members to engage with care and services); professional legitimacy (how CHWs are perceived and accepted as credible actors within the system); and institutional support (referring to the organisational and structural conditions that enable CHWs to function effectively) (Buthelezi et al., 2025a, 2025b). These mechanisms consistently emerged across different IPCHS strategies, system levels, and settings. This indicates that they were not confined to specific configurations but appeared as recurrent generative processes that shaped the outcomes across contexts and different IPCHS strategies. To reflect their cross-cutting influence, in this study, we referred to them as meta-mechanisms. This builds on Westhorp's 2012, 2014 articulation of meta-theoretical mechanisms where these mechanisms are described as recurrent, higher-level patterns of change observed in complex interventions and multi-level systems (Westhorp, 2012, 2014). Westhorp argues that identifying such abstracted mechanisms is essential for theorizing causal regularities that are transferable across diverse settings, particularly in systems characterised by complexity, non-linearity, and emergent outcomes.

3.1.1. Trust, motivation, professional legitimacy, and institutional support as meta-mechanisms

3.1.1.1. Meta-mechanism 1: trust. The delivery of people-centred care by CHWs is fundamentally enabled by trust as a core relational mechanism. Cultivated through cultural embeddedness, confidentiality, respectful engagement, and consistent follow-up, trust fosters disclosure, cooperation, and sustained relationships between households and the communities they serve. As a mechanism, trust is important, especially in contexts that are often marked by stigma, marginalisation, or limited resources, and in settings where formal health systems are usually perceived as inaccessible, unfriendly, or non-responsive (Buthelezi et al., 2025a, 2025b).

Findings from this synthesis indicate that when CHWs are perceived as trustworthy and non-judgmental, they often gain access to sensitive household information and become conduits for early diagnosis, treatment adherence, and psychosocial support. In this way, trust operates not only as a precondition for meaningful engagement but also as a key enabler of sustained, integrated, and responsive care (Buthelezi et al., 2025a, 2025b).

Beyond interpersonal or relational dynamics, trust also operates at institutional and systemic levels. For example, in the context of governance, trust is shaped by the extent to which CHWs are seen as legitimate representatives of the health system, an image fostered through uniforms, supervision, and transparency of CHW roles (Assegaai and

Schneider, 2022; Schneider and Lehmann, 2016). Furthermore, in settings where governance structures are fragmented, or CHWs are treated as expendable volunteers, trust in the broader health system deteriorates, compromising CHWs' legitimacy (Perry et al., 2014; Scott et al., 2018). In addition, trust also chains into the coordination of services across sectors, especially in cases where CHWs' multisectoral roles are not recognised, respected, and valued by other actors such as NGOs and local government departments. This leads to poor care continuity and weak intersectoral case resolutions, as demonstrated in the OSS intersectoral governance structure in KwaZulu-Natal (Buthelezi et al., forthcoming).

In addition, trust as a meta-mechanism enables the reorientation of care from facility-based to community- and home-based models. When community members perceive CHWs as trustworthy, households are more willing to accept preventive care, counselling, and referrals outside of formal clinical settings (Grant et al., 2017; Madzivhandila and Ngcobo, 2024). Within the IPCHS strategy of creating enabling environments, trusted CHWs can effectively bridge the relational and cultural gulf between the formal health systems and service users, particularly where clinical settings are marked by fear, stigma, or language barriers (Draper et al., 2024; Grant et al., 2017).

Therefore, trust operates as a meta-mechanism that enables or constrains the performance of CHWs across all five IPCHS strategies to deliver people-centred care. It is both a product of relational practice and a precondition for institutional and systemic effectiveness in community-based care.

3.1.1.2. Meta-mechanism 2: motivation. Motivation emerges as a central mechanism that drives CHWs' performance and resilience in the face of complex system-level and community-level demands. Anchored in intrinsic values such as compassion, altruism, duty, and a sense of solidarity with the communities they serve, motivation enables CHWs to continue their work despite limited resources, long hours, and difficult working conditions (Stansert Katzen et al., 2022). Across our study sites, during household visits, CHWs consistently voiced a strong moral commitment to improve health outcomes, even going an extra mile beyond their prescribed roles and drawing on personal resources to address service delivery gaps (Buthelezi et al., 2025a). This intrinsic motivation from CHWs emerged as a critical enabler of people-centred responsiveness, ensuring continuity of care, strengthening trust, and reinforcing community engagement.

However, the development of intrinsic motivation does not function independently nor is it self-sustaining; it is strongly influenced by the broader governance environment. This includes employment conditions as well as mechanisms for professional recognition, feedback and material support provision (Buthelezi et al., 2025a; Greenspan et al., 2013; Olaniran et al., 2022). In contexts where CHWs are faced with insufficient renumeration, unstable employment contracts, and inadequate supervisory support, their morale and motivation deteriorate, leading to increased attrition (Kigozi et al., 2020). On the contrary, when CHWs are fairly compensated, meaningfully engaged in decision-making structures, and supported through regular feedback and recognition, their intrinsic motivation is reinforced (Ormel et al., 2019). Therefore, motivation functions as a core and meta-mechanism that links governance structures to CHW performance across other IPCHS strategies to facilitate the delivery of people-centred care.

Motivation also plays a crucial role in enabling adaptive behaviours within the IPCHS enabling environments strategy (Buthelezi et al., 2025a). For example, CHWs demonstrate flexibility, persistence, and creativity in the face of increasing community demands. This includes responding to a broad scope of emergencies, managing large caseloads (100 plus households per CHW instead of 60 per month), and navigating fragmented service pathways, all of which relies on maintaining high levels of personal drive (Buthelezi et al., 2025a). Yet over-reliance on intrinsic motivation without structural support risks normalizing burnout and contributes to masking of systemic failures. For this reason, motivation must be understood not as a static individual trait, but as a dynamic mechanism that is continuously shaped and potentially eroded by policy design, institutional support (e.g. through supportive supervision, fair renumeration, recognition, legitimacy, and adequate resource allocation) and the relational dynamics that CHWs navigate within communities, the health system, and across other government sectors. In addition, our findings demonstrate that motivation functions as a meta-mechanism that cuts across all five IPCHS strategies. It acts as a connective force or 'glue' that enables the strategies to work synergistically by enhancing CHW performance and responsiveness in delivering people-centred care.

3.1.1.3. Meta-mechanism 3: professional legitimacy & institutional support. Professional legitimacy and institutional support functioned as a combination of mechanisms that reflect the extent to which CHWs are formally recognised, integrated, and supported through resources within the health system. Legitimacy was socially constructed through visible markers such as uniforms, ID badges (Department of Health logo, name, and designation) and official titles that signal authority and affiliation with the Ministry of Health (Malatji et al., 2024; van Vuuren et al., 2025). On the other hand, institutional support was demonstrated through formal employment, regular supervision, reliable access to supplies, and ongoing training. Together, these mechanisms shaped how both CHWs perceived their role and how others, such as community members, health professionals, and policymakers, engaged with them. Furthermore, institutional backing, coupled with legitimacy, emerged as reinforcing and cross-cutting mechanisms that influence CHWs' confidence, service user receptivity, and the quality of intersectoral collaboration (Buthelezi et al., 2025a).

These mechanisms were most visibly anchored in the governance and accountability IPCHS strategy; however, their outcomes influenced other strategies. For example, where CHWs were on unstable or temporal contracts, had no uniforms, or were excluded from policy discourse, and lacked resources – their professional status was undermined by the healthcare professionals and the community. This eroded community trust, also limiting CHWs' influence within coordination structures, household engagements, health facilities, and compromised the overall CHW programme (Buthelezi et al., 2025a, 2025b, Buthelezi et al., 2025a). To the opposite effect, we theorize that when CHWs receive institutional backing through fair employment practices, consistent supervision, resource provision, and integration into facility teams, this may lead to their work being seen as legitimate (by both the community and other actors of the health system), hence improving their impact. In addition, the legitimisation and institutional backing of CHWs can also help to clarify the often-blurred boundaries between CHWs' formal responsibilities and community expectations, particularly in contexts where CHWs are drawn into social service provision, such as the OSS War Room platforms (Buthelezi et al., forthcoming).

In reorienting the model of care, CHWs legitimacy allows them to be accepted as frontline providers in both health and social domains (Buthelezi et al., 2025b). While in cross-sector coordination, institutional backing paired with legitimacy and strong accountability mechanisms shows a potential to enable CHWs to participate meaningfully in inter-agency planning and provision of both health and social needs of the communities they serve (Afzal et al., 2021). Therefore, professional legitimacy and institutional support function as meta-mechanisms that both empower CHWs and signal to communities and stakeholders that CHWs are fundamental actors in delivering integrated, people-centred care.

To synthesize, trust, motivation, and professional legitimacy with institutional support operate as interdependent meta-mechanisms that shape CHW performance across all five IPCHS strategies. These mechanisms do not function in isolation; rather, they form a dynamic and reinforcing chain that determines whether CHW programmes succeed in

delivering integrated, people-centred care or not. For example, when viewed as relational mechanisms, trust facilitates engagement and social proximity; motivation, together with moral commitment drive perseverance and sustains service delivery in the presence of institutional failure; and legitimacy anchors CHWs within formal systems and the community by reinforcing trust and recognition (Buthelezi et al., 2025a, 2025b, Buthelezi et al., 2025a).

When these mechanisms are aligned and adequately supported by contextual conditions, such as good governance, structured supervision, resource availability, and intersectoral collaboration, CHWs become a powerful vehicle for advancing the delivery of integrated, people-centred care (Buthelezi et al., 2025b; Katzen et al., 2023; Schneider, 2018; Westgate et al., 2021). However, when any of these mechanisms are neglected or undermined, the entire health system becomes fragile, leading to disillusionment, reduced performance, and inequitable service delivery. Therefore, a mechanism-sensitive approach to health policy design and implementation is essential to optimize CHW programmes as part of a truly integrated people-centred health system.

3.1.2. Structural, institutional, and relational conditions that trigger meta-mechanisms

The three meta-mechanisms, trust, motivation, and professional legitimacy with institutional support, do not operate independently of context. Rather, they are triggered, sustained, or undermined by a constellation of structural, institutional, and relational conditions embedded in the design and implementation of CHW programmes. Drawing on the realist synthesis, realist evaluation and the WHO IPCHS framework, our findings show that these conditions are often interdependent, with changes in one domain reverberating across others, influencing the functioning of all five IPCHS strategies.

3.1.2.1. Structural conditions. Structural conditions refer to the material and systemic infrastructure that supports or impedes CHWs' ability to function effectively (Stansert Katzen et al., 2024). Both realist studies and realist synthesis highlight transport limitations, resource scarcity (e.g., supplies, printing, furniture), and contractual insecurity as prevalent structural constraints. Inconsistent availability of transportation not only restricts CHWs' mobility for home visits and follow-up but also hinders their participation in War Room intersectoral meetings, therefore undermining the IPCHS strategies of coordination across sectors, engagement, and care reorientation (Buthelezi et al., 2025b; Buthelezi et al., forthcoming). Similarly, unstable job conditions (e.g., non-permanent contracts) signal to both CHWs and communities that they are marginal to the health system, weakening trust and legitimacy. These constraints are heightened in rural and peri-urban contexts where there is limited physical infrastructure and fragmented service delivery, and where CHWs often bear the burden of navigating complex administrative systems without any formal institutional support (Buthelezi et al., forthcoming).

However, sometimes when structural conditions are intentionally designed to support CHW activities, they can act as enablers for the delivery of integrated, people-centred care. For example, the War Room platform, as a multisectoral coordination platform under the Office of the Premier of KwaZulu-Natal, offers structural legitimacy and convening authority. When adequately resourced and attended, this structure allows CHWs to connect households to services, enhancing intersectoral collaboration and reinforcing their credibility. The War Room thus represents a potential structural enabler of CHW legitimacy and trust, but only when participation is consistent and aligned with accountability systems. These findings underscore that without robust structural support, the potential of CHWs to operate across IPCHS strategies is severely limited.

3.1.2.2. Institutional conditions. For the purposes of this study, institutional conditions refer to the formal and informal rules, policies, norms, supervisory structures, and bureaucratic routines that shape, constrain, or enable the roles and practices of CHWs within the health system and in their engagement with communities. This definition draws on institutional theory, which conceptualises institutions as the "rules of the game" (North, 1990) - encompassing not only formal structures such as policies and regulations, but also embedded norms, governance processes, and patterns of accountability that influence actor behaviour. In the context of health systems, institutional conditions include the regulatory frameworks, role definitions, incentive structures, reporting hierarchies, and oversight mechanisms that mediate CHW performance, legitimacy, and coordination across sectors (Gilson, 2003; Sheikh et al., 2014b).

Across all three studies, key institutional factors such as supervision, accountability mechanisms, integration into facility teams, and data feedback loops between the community, CHWs, and their supervisors emerged as critical institutional factors. For instance, supportive supervision, particularly by an Outreach Team Leader (OTL) - a professional nurse-was found to boost CHWs' morale and reinforce their legitimacy in the eyes of the community. While the absence of an OTL led to feelings of isolation and frustration amongst CHWs, and a lack of trust and endorsement by the community. However, it is important to highlight that this did not occur in all CHW-Community interactions, but it was highly determined by the pre-existing trust between the CHWs and that household (Buthelezi et al., 2025a). In addition, accountability mechanisms such as War Room attendance registers and escalation protocols functioned inconsistently. While some stakeholders responded to their enforcement, others remained disengaged without consequence, therefore weakening trust in institutional processes and motivation for CHWs to report on this platform (Buthelezi et al., forthcoming).

Importantly, institutional invisibility of CHWs as not being part of the formal health care system, as portrayed by the absence of uniforms, ID badges, or recognition in cross-sectoral meetings, contributes to a lack of role clarity and reduces their authority. CHWs reported that visible affiliation with the health system enhanced household access, community cooperation, and credibility among NGOs and departments. However, persistent reliance on informal workarounds and NGO partnerships without formal support illustrates a systemic fragility where institutional backing is inconsistent or reactive. Therefore, institutional conditions are crucial in shaping professional legitimacy, motivation, and sustaining trust amongst CHWs, communities, and the broader health system. Furthermore, it is important to note that these institutional conditions cut across all IPCHS strategies, and therefore require aligned governance, engagement, care reorientation, enabling environments, and coordination strategies to support CHWs performance and people-centred care.

3.1.2.3. Relational conditions. Relational context refers to the social, interpersonal, and community-level dynamics that trigger mechanisms which shape how CHWs interact with households and other stakeholders (Assegaai and Schneider, 2022). For instance, community embeddedness often facilitates trust through shared language, cultural norms, and historical familiarity, thereby enhancing CHWs' access to households and their capacity to deliver services (Mohajer and Singh, 2018; Rafiq et al., 2019). However, this same proximity can give rise to relational tensions such as concerns about confidentiality, gossip, and boundary management, particularly when CHWs are expected to address sensitive issues (Geldsetzer et al., 2017) or intervene in service gaps that are beyond their health-related mandates, for example social determinants of health that are usually conveyed during War Room meetings (e.g., water, housing, etc.) (Buthelezi et al., forthcoming). These relational tensions reflect the complexity of engagement and empowerment strategies and highlight the need for relational support mechanisms that respect CHWs' dual identities as both community insiders and health professionals.

Furthermore, relational trust in War Rooms is dependent upon the

Table 2
Meta-mechanisms, triggering and disrupting conditions, and aligned IPCHS strategies.

Meta-Mechanism	Definition	Triggering Conditions (*Enablers*)	Disrupting Conditions (*Constraints*)	IPCHS Strategies Influenced	Expected Outcomes
Trust	A relational mechanism that enables disclosure, cooperation, and long-term engagement between CHWs, households, and other actors.	– Cultural embeddedness and language fluency **(R)** – Confidentiality and respectful engagement **(R)** – CHW consistency and follow-through **(R/I)** – Visible alignment with health system (e.g., uniforms, supervision) **(S/I)** – Responsiveness of referral systems **(S/I)**	– Fragmented referrals or institutional non-response **(S/I)** – Lack of supervision or role clarity **(I)** – CHW invisibility in formal structures **(S/I)** – Breach of confidentiality or gossip in communities **(R)**	**Strategy 1:** Community Engagement **Strategy 2:** Governance & Accountability **Strategy 3:** Reoriented Care **Strategy 4:** Coordination Across Sectors	– Increased community disclosure – Early care-seeking and treatment adherence – CHW access to sensitive cases – Greater household participation in care
Motivation	An emotional and moral driver that sustains CHW effort, compassion, and persistence under resource constraints.	– Intrinsic commitment (compassion, solidarity) **(R)** – Peer support and team morale **(R/I)** – Recognition by supervisors and departments **(I)** – Recognition the community **(R)** – Fair contracts, remuneration, and role clarity **(S/I)** – Inclusion in decision-making structures **(I)**	– Precarious employment **(S/I)** – Absence of feedback or recognition **(I)** – Institutional neglect or poor leadership **(I)** – High caseloads with low support **(S/I)**	**Strategy 2:** Governance **Strategy 3:** Reoriented Care **Strategy 5:** Enabling Environment	– Resilience in challenging contexts – Going beyond role expectations – Temporary reliance on personal resources – Risk of burnout without systemic support
Professional Legitimacy & Institutional Support	Composite mechanism reflecting CHWs' social and professional credibility, tied to formal system recognition and backing.	– Supervision and mentoring **(I)** – Formal ID, uniforms, data tools **(S/I)** – Integration into facility and OSS structures **(S/I)** – Clear roles and accountability structures **(I)** – Recognition in intersectoral planning **(I/R)**	– Lack of institutional visibility (no ID/uniform) **(S/I)** – Limited or absent supervision **(I)** – Non-responsiveness of other departments **(I)** – Role ambiguity and community confusion **(I/R)**	**Strategy 2:** Governance **Strategy 4:** Coordination **Strategy 5:** Enabling Environment	– Increased cooperation from households and departments – Greater CHW authority and confidence – Better referral follow-through – Improved intersectoral engagement

*Structural (S), Institutional (I), Relational (R) Context.

consistent participation and responsiveness of all involved multisectoral stakeholders, most importantly, government departments. When government departments fail to attend meetings or act upon agreed commitments, CHWs and community members often disengage from the formal processes and resort to informal relationships or NGO channels to resolve issues. While these workarounds may provide a temporary solution, they risk reinforcing inequities and fragmentation within the health system. Conversely, positive relational dynamics, such as support among CHWs or visible recognition from departments like the South African Social Security Agency (SASSA), can enhance motivation, reinforce coordination, and foster a sense of institutional credibility. These dynamics illustrate how relational conditions are both fragile and fluid, and how they critically mediate the effectiveness of trust, motivation, and legitimacy as mechanisms across IPCHS strategies.

To further consolidate these insights, Table 2 distils the three meta-mechanisms: trust, motivation, and professional legitimacy with structural, institutional, and relational contexts that trigger or disrupt them alongside the specific IPCHS strategies they influence, showing how contexts interact with meta-mechanisms to shape outcomes within the IPCHS framework.

3.2. Interdependence of meta-mechanisms and mechanism 'chaining' across IPCHS strategies

While trust, motivation, and professional legitimacy with institutional support function as distinct meta-mechanisms, they do not operate in isolation. Rather, these mechanisms are interdependent and often become activated or sustained through a process of chaining, whereby the triggering of one mechanism catalyses or reinforces another over time and across multiple IPCHS strategies. This mechanism chaining helps to explain why seemingly small improvements in one domain, such as strengthened supervision or consistent stakeholder participation, can have system-wide effects on CHW performance and people-centred care outcomes. Understanding these interdependencies is crucial to designing system-level interventions that address not just individual mechanisms but the feedback loops that sustain or suppress them across the IPCHS framework.

A common and recurring chain observed across studies was professional legitimacy → trust → recognition → motivation. For example, when CHWs are visibly embedded within health systems, through formal training, identifiable uniforms, structured supervision, and institutional endorsement, they are perceived as legitimate actors by both community members and institutional stakeholders. This professional legitimacy lays the groundwork for interpersonal trust, as community members begin to see CHWs not just as neighbours or volunteers, but as credible and accountable agents of care. Trust then builds through repeated interactions—home visits, confidentiality, and cultural fluency, which encourages communities to disclose sensitive information, accept referrals, and comply with treatment. As trust deepens, CHWs gain social recognition and relational authority, further reinforcing their sense of purpose, professional identity, and motivation. In this way, an institutional mechanism (legitimacy) enables a relational one (trust), which then activates emotional and cognitive mechanisms (motivation).

Another mechanism chain is evident in the inverse: disengagement → weakened legitimacy → eroded trust. For instance, in several War

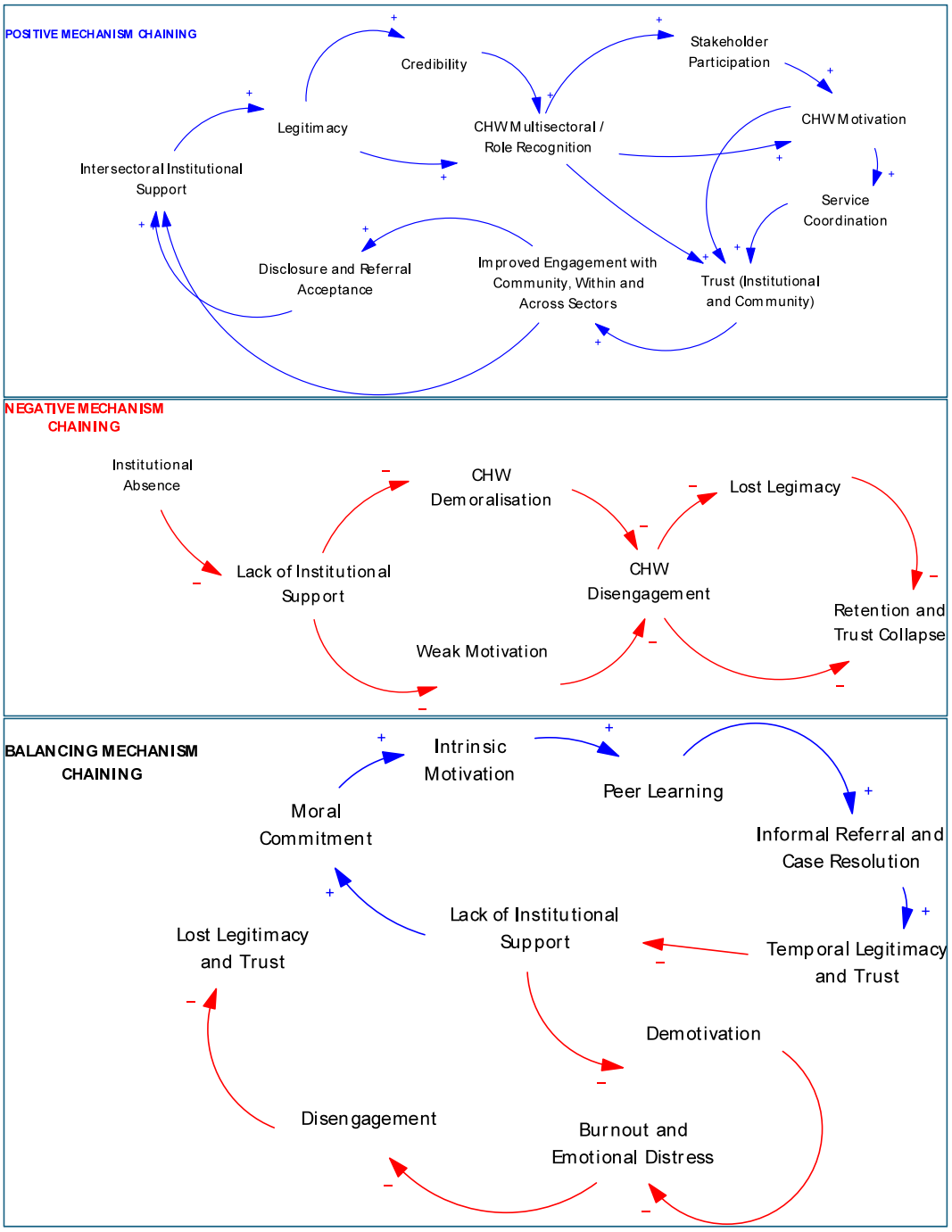

Fig. 2. Mechanism chaining across IPCHS strategies showing positive, negative, and balancing feedback loops.

Room observations, when government departments repeatedly failed to attend meetings or follow through on action items, CHWs reported feeling demotivated and questioned the value of their own roles. This demoralization reduced their engagement in case management and referral, which in turn led to delays or failures in service delivery. Community members, witnessing these systemic failures, began to lose trust not only in the War Room process but also in CHWs as the face of that process. As one CHW reflected, "We report, but nothing ever happens," underscoring how broken accountability mechanisms can fracture the trust-motivation chain and demolish the wider system of intersectoral collaboration. Here, weak governance did not merely affect motivation—it disrupted a complex mechanism loop involving community trust, institutional legitimacy, and CHW commitment.

Lastly, mechanism chaining is also visible in more adaptive responses. For instance, where CHWs lacked formal institutional support but retained high intrinsic motivation, they often drew on peer learning and informal networks to bypass systemic bottlenecks or failures. In one example, CHWs engaged an NGO partner to resolve a gender-based violence case in the absence of social worker follow-up. These actions, driven by moral commitment, temporarily restored trust within the community and enhanced CHWs' perceived legitimacy. However, while such workaround mechanisms can temporarily stabilize care delivery, they are often unsustainable, depending heavily on individual initiative and moral commitment. Over time, if structural and institutional reinforcements are not aligned, this form of moral commitment is likely to deteriorate, illustrating how chained mechanisms can also become

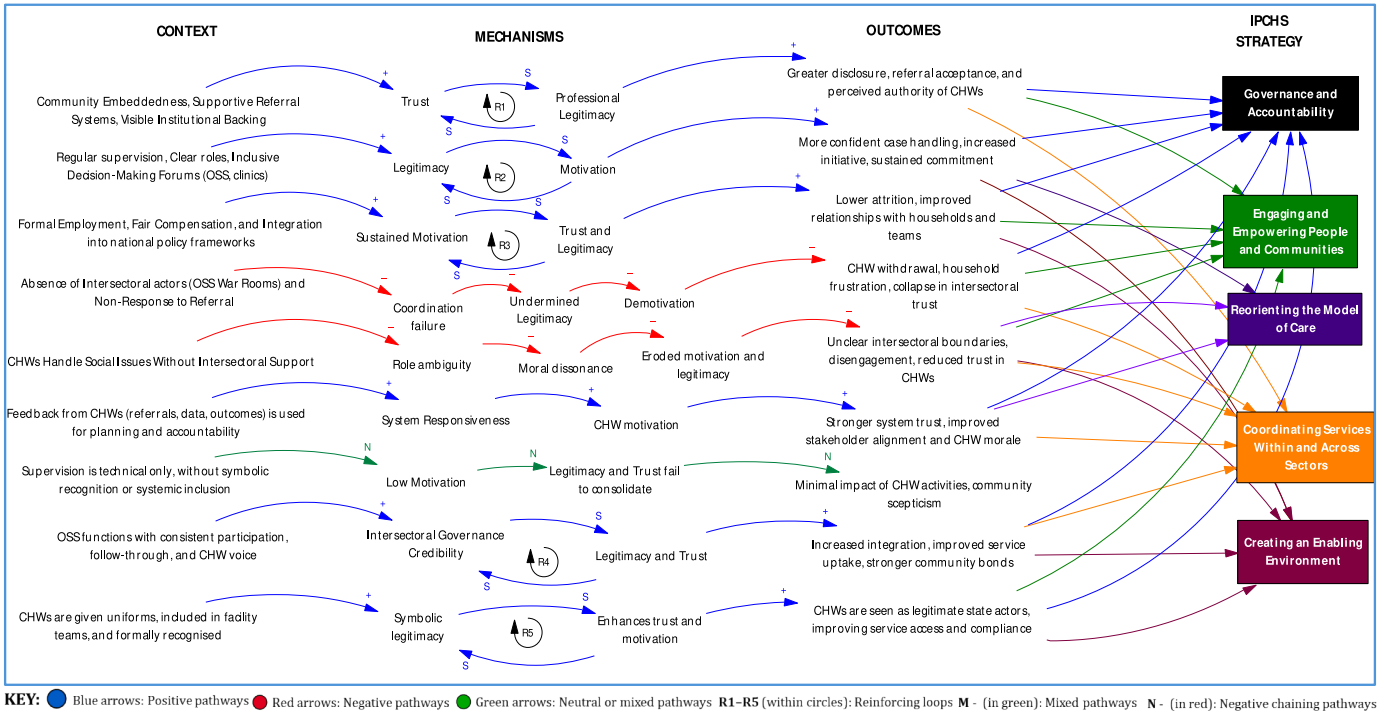

Fig. 3. Dynamic, Mechanism-sensitive IPCHS model for Optimizing the Roles and Functions of CHWs.

Table 3
Refined programme theory statements (if–then propositions).

CMOs	Context (If …)	Mechanism(s) (Then …)	Outcome(s) (Resulting in …)	IPCHS Strategies Involved
1	CHWs are embedded in communities and supported by functional referral systems and visible institutional backing	Trust is built → this enhances **professional legitimacy (reinforce)**	Greater disclosure, referral acceptance, and perceived authority of CHWs	Community Engagement, Governance, Coordination
2	CHWs receive regular supervision, have clear roles, and are included in decision-making forums (OSS, clinics)	Legitimacy is activated → this reinforces **motivation (reinforce)**	More confident case handling, increased initiative, sustained commitment	Governance, Enabling Environments, Reoriented Care
3	CHWs are formally employed, compensated fairly, and integrated into national policy frameworks	Motivation is sustained → reinforces **trust and legitimacy (reinforce)**	Lower attrition, improved relationships with households and teams	Enabling Environments, Community Engagement, Governance
4	Institutional actors are absent from OSS War Rooms and don't respond to referrals	Coordination failure → undermines **legitimacy**, triggering **demotivation (chaining)**	CHW withdrawal, household frustration, collapse in intersectoral trust	Coordination, Governance, Community Engagement
5	CHWs are expected to handle social issues without intersectoral support (e.g., housing, water)	Role ambiguity triggers **moral dissonance** → erodes **motivation and legitimacy (chaining)**	Boundary stress, disengagement, reduced trust in CHWs	Community Engagement, Coordination, Enabling Environments
6	Feedback from CHWs (referrals, data, outcomes) is used for planning and accountability	Institutional learning → improves **responsiveness**, triggering **motivation (chaining)**	Stronger system trust, improved stakeholder alignment and CHW morale	Governance, Coordination, Reoriented Care
7	Supervision is technical only [(CHWs receive functional oversight (e.g., task checklists, performance reviews)], without symbolic recognition or systemic inclusion	Motivation remains low → **legitimacy and trust fail to consolidate (neutral or balancing)**	Minimal impact of CHW activities, community scepticism	Governance, Community Engagement
8	OSS functions with consistent participation, follow-through, and CHW voice	Intersectoral governance becomes credible → activates **trust and legitimacy (reinforce)**	Increased integration, improved service uptake, stronger community bonds	Coordination, Governance, Community Engagement
9	CHWs are given uniforms, included in facility teams, and formally recognised	Symbolic legitimacy → enhances **trust and motivation (reinforce)**	CHWs are seen as legitimate state actors, improving service access and compliance	Enabling Environments, Governance, Engagement

fragile without systemic support.

Collectively, these examples of mechanism chaining demonstrate that the success or failure of any single IPCHS strategy depends not only on its own contextual enablers or constraints, but also on the effect and alignment that mechanisms triggered in other IPCHS strategies have. Furthermore, engagement strategies that foster trust are unlikely to be sustained without the institutional legitimacy and motivation that come from governance and accountability mechanisms. Similarly, coordination efforts across sectors falter if legitimacy and trust are undermined by poor participation or insufficient resource allocation.

Therefore, these findings highlight the importance of viewing mechanisms not as isolated "switches" but as interlinked processes that dynamically unfold across IPCHS strategies. Recognizing this chaining of mechanisms will enable policymakers and implementers to strategically intervene at points where small improvements trigger the most benefit across the health system. In addition, these findings call for the need to adopt mechanism-sensitive designs that account for the complex and dynamic interplay of mechanisms across IPCHS strategies. Such an

Table 4
Middle-Range Theories Linking Contexts, Mechanisms, and Outcomes in CHW-Driven IPCHS across different system levels.

Level	MRT	Context (If …)	Mechanism (Then …)	Intermediate Outcomes	Long-term Outcomes	IPCHS Strategies Activated
Micro	**MRT 1 – Trust as an Emergent Relational-Systemic Construct**	CHWs are culturally embedded (R), maintain confidentiality (R), and operate with visible institutional affiliation such as uniforms and supervision (I/S)	Trust emerges as a dual mechanism: relational familiarity → emotional safety (R); and systemic representation → institutional confidence (I)	Households disclose sensitive needs, co-produce and comply with care plans, and engage earlier with health services	- Increased early access and adherence leading to improved population health outcomes - Household self-efficacy and sustained health-seeking behaviours - Increased patient and community satisfaction	1. Community Engagement 2. Coordination 3. Reoriented Care 4. Enabling Environment 5. Governance
Meso	**MRT 2 – Professional Legitimacy through Visibility and Integration**	CHWs are visibly affiliated with formal structures (clinic teams, OSS) (I); supervised regularly (I); included in planning spaces (I); equipped with uniforms and ID (S)	Professional legitimacy is constructed via symbolic cues (S) and system inclusion (I)	CHWs experience greater cooperation from peers and households, and departmental referrals are respected	- Enhanced inter-professional collaboration and continuity of care - Institutionalisation of CHWs as trusted community-based care agents	ALL
Meso	**MRT 3 – Motivation Undermined by Intersectoral Failure**	War Rooms are inconsistently attended (I); departments fail to act on referrals (I); accountability systems are weak or absent (I/S)	Institutional non-response erodes CHW motivation (I/R), as relational burdens mount without reciprocal system support	CHWs disengage, household needs remain unmet, and trust in the system declines	- Reduced care uptake and widening service equity gaps	1. Community Engagement 2.Coordination 5. Governance
Macro	**MRT 4 – Policy-Backed Employment as Motivation-Stabiliser**	CHWs are formally employed (S), fairly compensated (S), and recognised in national policies (I)	Motivation stabilises through material security (S) and perceived professional worth (I/R)	CHW retention improves; stakeholder relationships strengthen	- Sustained CHW workforce capacity and long-term programme continuity	4. Enabling Environment 5. Governance
Macro	**MRT 5 – Data Feedback as a System Responsiveness Mechanism**	CHW data is documented in functional reporting systems (S); used in OSS or facility planning (I); actioned with feedback to CHWs (R/I)	Feedback loops activate institutional learning (I) and reinforce CHWs' perceived value and motivation (R/I)	Stakeholder alignment improves; CHW morale increases; community trust grows	- Greater trust and satisfaction driven by responsive, feedback-informed services - Strengthened data-informed decision-making and resource allocation	1. Community Engagement 2.Coordination 5. Governance
Cross-level	**MRT 6 – Moral Burden from unclear multisectoral roles and Weak Multisectoral Governance**	CHWs are expected to address social needs (e.g., housing, GBV) without sectoral presence (I/S); role boundaries are unclear (I/R); Community-CHW social services expectations (R)	Lack of role clarity generates moral dissonance and boundary fatigue (R/I), as CHWs internalise unresolved needs without support	Emotional burnout, disengagement, erosion of professional legitimacy	- Decreased CHW War Room attendance - Unmet community social needs	1. Engagement 2. Coordination 5. Governance

*Structural (S), Institutional (I), Relational (R).

approach will be essential for understanding and strengthening CHW performance and their capacity to deliver integrated, people-centred care within real-world settings. The dynamic process of mechanism chaining, where the activation of one mechanism triggers or inhibits others across IPCHS strategies, is visually represented in Fig. 2.

3.3. Refined programme theory

After unpacking the interactions and the concept of meta-mechanism and mechanism chaining (sections 3.2 and 3.1), the findings from these sections informed a fundamental reconfiguration of the Initial Programme Theory (IPT) to a Refined Programme Theory (RPT). The refined theory embraces a systems-informed logic, showing how a dynamic mechanism-sensitive model was co-produced using Context-Mechanism-Outcome Configurations (CMOC) across all five IPCHS strategies (Fig. 3). Followed by a narrative generation of these CMOs using the "If Then" statements (Table 3).

3.3.1. Evolution from the initial to refined programme theory

The programme theory was progressively refined to reflect the recursive, cross-level interactions identified through empirical data. Rather than treating trust, motivation, and legitimacy with institutional support as standalone mechanisms, the refined theory reconceptualises them as dynamically reinforcing or chaining mechanisms that shape CHW effectiveness across the IPCHS framework.

First, the refined theory departed from strategy-specific mechanisms and instead identified cross-cutting meta-mechanisms, including trust, motivation, and professional legitimacy with institutional support that operated across all five IPCHS strategies. Second, the IPT's underlying assumption of linear, static CMO pathways was challenged by the empirical findings that mechanisms interact in dynamic feedback loops, where a concept of mechanism chaining also emerged. These recursive effects necessitated a shift from fixed logic models to a systems-thinking approach.

Third, the IPT overemphasized individual-level attributes such as empathy, sense of duty or moral commitment, assuming that these acted as stable enablers for improved CHW performance. In contrast, the RPT demonstrated that these mechanisms are highly dependent on structural and institutional conditions such as fair contracts, access to supervision, data feedback loops, and logistical support. Therefore, where these conditions were weak or absent, even the most intrinsically motivated CHWs experienced disillusionment, withdrawal, or burnout.

Fourth, the studies uncovered a significant role-strain due to a gradual expansion of CHWs roles beyond their original scope that often occurred without any corresponding increases in authority, resources, or support. This mandate creep showed that CHWs were routinely called upon to address issues that were well beyond their health sector-assigned roles (e.g., water, electricity, housing). This happened due to the absence of relevant municipal or departmental actors in OSS War Rooms. This blurred intersectoral role of CHWs placed additional moral and emotional burdens on them and caused a major reconfiguration of the initial programme theory, as this was overlooked in literature and by the field experts (researchers).

Fifth, the function of supervision was redefined. Initially framed as an administrative tool for governance and support, it was reconceptualized to be a critical part of building professional legitimacy, especially when paired with visibility cues such as supervisors' presence in the community, CHWs uniforms, ID badges, and involvement in OSS planning processes and feedback. Therefore, the RPT proposes that supervision alone, without legitimate status and recognition within and across sectors, is insufficient to trigger outcomes for integrated people-centred care.

Sixth, the role of OSS itself underwent a conceptual shift. Initially theorized as a coordination mechanism to enhance service integration, OSS was found to be an institutional test of collaborative governance. Its effectiveness hinged not just on its structure but on consistent stakeholder participation, accountability enforcement, and meaningful CHW inclusion. In cases where key actors failed to attend or act on decisions, War Rooms lost their convening power, eroding community trust and CHW morale.

Seventh, the IPT treated motivation as a largely intrinsic trait, presuming it to be stable among CHWs due to their connection to their communities. In contrast, the refined theory shows that motivation is fragile, shaped continuously by working conditions, public recognition, and institutional responsiveness. Where CHWs were unsupported or invisible to the system, motivation faltered, despite CHWs' best intentions.

Finally, trust was reconceptualized from a purely interpersonal mechanism to a systemic one. While trust was built through community familiarity and confidentiality, it was also deeply influenced by the visibility and perceived legitimacy of CHWs as representatives of the government - previously mentioned as visibility of known government officials in the community to build trust through legitimacy. In addition, when institutions failed to act on referrals or provide material support, trust in both CHWs and the broader health system deteriorated, even when CHWs maintained strong relational practices.

Taken together, these shifts represent a movement away from a linear, segmented IPT toward a mechanism-sensitive, relationally integrated, and contextually dependent programme theory. The refined model emphasises that people-centred care does not emerge solely from programme design or technical components; rather, it is co-produced through the interaction of meta-mechanisms that are only activated when the broader structural, institutional, and relational conditions are aligned. This insight underscores the importance of designing CHW policies that go beyond task definition and supervision, to include symbolic recognition, formal employment, intersectoral legitimacy, and active inclusion of CHWs in decision-making processes.

In essence, the evolution of the programme theory reflects a shift in epistemological posture, from viewing CHWs as implementers of fixed programme inputs to seeing them as dynamic agents whose effectiveness depends on multiple components, which is not limited to but include institutional credibility, governance accountability, social and system trust. For policymakers and health planners, this refined theory offers not only a more accurate explanatory model in terms of how the IPCHS strategies reinforce one another in practice with regard to the delivery of people-centred care by CHWs but also offers a clearer pathway for intervention design. It further highlights the value of CHWs not only as health care workers confined by their duties within the Ministry of Health, but as system integrators within a broader system of health and social care.

3.4. Middle-range theories across system levels

This section presents a synthesis of middle-range theories (MRTs) developed through this realist-informed analysis across the micro (individual, household and CHW interactions), meso (collaborative governance through OSS, and clinics via OMs and OTLs), and macro (policy). These MRTs (summarised in Table 4) offer a multi-level perspective on how to optimize the delivery of integrated, people-centred care by CHWs. Furthermore, this multi-level view of CHW roles and functions demonstrate that people-centred care is not an output of one strategy but the emergent property of strategic alignment that occurs across different IPCHS strategies and that the IPCHS strategies also fall within different levels of the broader health system.

3.5. Overarching middle-range theory

3.5.1. Proposition

The optimal functioning of CHWs in delivering integrated, people-centred care is not the result of any single intervention or strategy but emerges from the recursive activation and chaining of interdependent mechanisms, particularly trust, motivation, and professional legitimacy

with institutional backing within structural, institutional, and relational contexts. These mechanisms are sustained when multiple IPCHS strategies are aligned and mutually reinforcing. Where this alignment is fragmented or absent, these mechanisms may fail to activate or may unravel through negative chains, leading to diminished CHW performance and fragmented care.

3.5.2. C (context)

CHWs are most effective in delivering integrated, people-centred care when they are supported by a convergence of structural, institutional, and relational conditions, coherently aligned through the operationalisation of the five IPCHS strategies. Structurally, this includes access to reliable transport, essential supplies, digital tools for referrals, and formalised employment arrangements that signal organisational commitment and role clarity. Institutionally, CHWs require regular, supportive supervision; functioning data and feedback systems; and formal inclusion in clinic-based teams and intersectoral coordination mechanisms such as War Rooms. Relationally, their work is embedded in and strengthened by community trust, peer solidarity, and the credibility afforded through consistent collaboration with actors across health and non-health sectors. These contextual elements must not operate in isolation, but must be aligned and mutually reinforcing, activating supportive functions across community engagement, governance and accountability, reoriented care, intersectoral coordination, and enabling environments.

3.5.3. M (mechanisms)

In such contexts, a set of interdependent and dynamically reinforcing mechanisms are activated. CHWs develop and sustain trust with households and stakeholders, which is contingent not only on interpersonal conduct but also on the perceived responsiveness and credibility of the broader system they represent. They experience motivation, rooted in moral commitment but sustained through institutional recognition, fair working conditions, and role clarity. They also gain a sense of professional legitimacy, derived from symbolic and material cues (e.g., uniforms, supervision, inclusion in forums), as well as from meaningful participation in service delivery and planning processes. These mechanisms do not operate discretely; rather, they interact through mechanism chaining, whereby the activation of one mechanism (e.g., professional legitimacy, institutional support) catalyses others (e.g., trust, motivation), creating reinforcing feedback loops across system levels and IPCHS domains.

3.5.4. O (outcomes)

When these mechanisms are successfully triggered and maintained, they produce a constellation of outcomes consistent with the aims of integrated, people-centred health systems. These include more responsive and coordinated service delivery, improved community uptake of care, increased patient and community satisfaction, and the provision of holistic care that addresses both medical and social needs. They also lead to enhanced intersectoral collaboration, greater retention and morale among CHWs, and the institutionalisation of CHWs as credible, legitimate actors within the health system. These outcomes are not merely the product of frontline effort, but the systemic effect of aligned strategies, supportive conditions, and sustained mechanism activation, demonstrating that integrated care is an emergent property of a system designed to support those delivering it.

4. Discussion

This study reconceptualises the WHO's Integrated People-Centred Health Services (IPCHS) framework through the lens of CHW practice in South Africa, offering insights into how people-centred care is enacted on the ground. It shows that people-centred care is not a result of discrete strategies but emerges through interacting mechanisms operating across contexts, strategies and system levels. Rather than treating trust, motivation, institutional support, and professional legitimacy as isolated enablers, our findings reveal them as meta-mechanisms that interdependently and dynamically reinforce elements that traverse all five IPCHS strategies. The study introduces the concept of mechanism chaining to explain how changes in one domain or strategy can trigger cascading effects across. It also highlights the fragility of these interdependencies, showing that where alignment falters, the mechanism chains collapse, resulting in reduced CHW performance and poor integrated people-centred care outcomes. Ultimately, the study produces a refined, dynamic and mechanism-sensitive programme theory and further generates multi-level middle-range theories (MRTs) that explain the contextual conditions under which integrated, people-centred care becomes feasible, using CHWs as an example.

The findings underscore that people-centred care is co-produced and not merely delivered. Mechanisms such as trust and motivation are not simply intrinsic traits of CHWs, but are conditional responses shaped by the governance environment, professional legitimacy, symbolic recognition, and availability of resources. For example, CHWs' trustworthiness was not solely a result of community embeddedness or historical familiarity, but also hinged on visible affiliation (e.g., uniforms, ID badges) tied to other aspects of the health care system (e.g., supervision, feedback from referrals, coordination, etc.). The findings build on earlier work that motivation is influenced by community embeddedness and altruism (Akintola and Chikoko, 2016; Mpembeni et al., 2015), but is also shaped by structural factors such as supervision, remuneration, and recognition, and broader systemic and institutional conditions. These insights align with realist ontologies, where causality is dependent, generative, and context sensitive (Mukumbang et al., 2021; Pawson and Tilley, 1997).

Moreover, this study confirms and extends the literature on CHWs as boundary spanners and trust brokers (Schaaf et al., 2020), adding a further step to theorize how and why CHW roles succeed or fail across different IPCHS strategies and system levels. While other studies have shown that CHWs also play a critical role in community engagement and linking communities to formal health care (Kok et al., 2017; Lehmann and Sanders, 2007), this study demonstrates that for these roles to be realised, underlying mechanisms must be triggered by specific contextual conditions. These context-mechanism configurations must then interact dynamically and align across different system levels and IPCHS strategies to enable people-centred care outcomes. Furthermore, such outcomes depend on the sustained activation of key mechanisms rather than isolated programme inputs.

4.1. Theoretical and conceptual contributions

This study makes four key theoretical contributions to the understanding and operationalisation of integrated, people-centred health systems. First, it reframes the WHO's IPCHS framework as a mechanism-sensitive model, in which strategies are not independent but are interdependent and recursively linked through mechanism chains that span multiple levels of the health system across different contexts. Second, it introduces the concept of meta-mechanisms, which include trust, motivation, and professional legitimacy with institutional support as higher-order mechanisms. These mechanisms operate across multiple strategies and system levels, shaping the enactment of people-centred care. Third, the study advances mechanism chaining as a conceptual innovation that captures how outcomes emerge through dynamic feedback loops and interactions, rather than through linear or siloed implementation logic of the IPCHS strategies. Lastly, it offers empirically grounded middle-range theories that articulate causal pathways at the micro, meso, and macro levels - bridging realist evaluation, systems thinking, and the practical implementation of integrated care. While the study draws on the case of CHWs in South Africa, its insights contribute more broadly to the conceptual and practical refinement of people-centred health system frameworks in complex, resource-constrained settings.

4.2. Policy and practice implications

The refined programme theory and MRTs highlight several policy-relevant priorities for strengthening CHW programmes within integrated, people-centred health systems. First, institutional recognition and professional legitimacy emerged as foundational to sustaining CHW motivation, accountability, and service integration, suggesting the importance of clearer governance arrangements, formalised role definitions, stable employment conditions, and visible affiliation with health system structures. Second, findings underscore the importance of supportive supervision models that extend beyond administrative oversight to include mentorship, feedback, and relational support, as these appear to reinforce professional confidence and coordination across system levels. Third, the results highlight the importance of responsive referral and feedback loops linking households, CHWs, and facility-based services, which may strengthen continuity of care and maintain system credibility. Finally, the study emphasises the need for governance and accountability mechanisms that support effective intersectoral collaboration and clarify CHWs' coordination roles, particularly where they operate across health and social service interfaces, while ensuring that expanded responsibilities are matched with appropriate authority and institutional support. While these implications are grounded in the South African primary health care context, they may be transferable to other settings where CHWs operate within similarly decentralised and resource-constrained health systems. However, the specific configuration of mechanisms and outcomes is likely to remain context-dependent, reinforcing the need for locally adaptive implementation strategies.

4.3. Strengths and limitations

A key strength of this study lies in its multi-phase, realist methodology, which integrated literature synthesis, empirical evaluation, and collaborative governance analysis to construct and refine a programme theory. The use of causal loop diagrams and cross-validation enhanced both the explanatory depth and the strategic utility of the findings for health system planning and CHW programme design. However, the study has several limitations. First, its single-country focus may constrain the transferability of the middle-range theories, particularly in relation to governance dynamics such as those associated with OSS War Room meetings, which may differ across provinces in South Africa or in other LMICs. Second, while the study seeks to make a broader conceptual contribution to the operationalisation of the IPCHS framework, its empirical focus on CHWs as the primary entry point may limit the generalisability of its insights across other cadres and sectors involved in people-centred health systems. Further research is needed to test and refine the proposed mechanisms and programme theory in relation to other frontline actors, service delivery platforms, and institutional contexts.

4.4. Conclusion

This study advances a systems-informed, mechanism-sensitive understanding of integrated, people-centred care, grounded in literature and the real-world experiences of CHWs. It also proposes a conceptual shift in how the IPCHS framework is interpreted and operationalised. Rather than viewing the five strategies in isolation, it introduced a dynamic mechanism-sensitive model that foregrounds the interactions across strategies and highlights the underlying causal processes that shape their implementation in practice using CHWs as an example. This reconceptualization calls for an approach that is capable of unpacking complexity, uncovering generative mechanisms, and tracing how outcomes emerge from context-mechanism interactions that cut across multiple IPCHS strategies. The refined programme theory and MRTs developed in this study provide actionable insights for policymakers seeking to strengthen primary care systems towards people-centredness. More broadly, these findings reinforce that integrated people-centred care is less about structure and more about synergy, and that it is an emergent property of systems where values, institutions, and people align.

Future research should explore the political and relational dimensions of intersectoral collaboration, including how contested accountability, power dynamics, and informal negotiation shape mechanism activation in CHW programmes. These dynamics are currently under-theorized within the integrated people-centred care framework and need closer attention, particularly in contexts where CHWs operate in the absence of consistent institutional support, unclear CHWs' intersectoral roles, and poor collaborative governance structures. In addition, research is needed to test and refine the proposed mechanisms and programme theory across different frontline actors, service delivery platforms, and other institutional contexts in order to assess the broader applicability of a mechanism-sensitive approach to implementing the IPCHS framework.

Ethics approval

Ethical approval for all components of the study was obtained from the Biomedical Research Ethics Committee (BREC) at the University of KwaZulu-Natal (Ref: BREC/00002768/2021). Informed consent was secured from all participants prior to data collection. All procedures were conducted with strict adherence to confidentiality and cultural sensitivity.

Statement on the use of artificial intelligence (AI) tools

In the preparation of this manuscript, AI-assisted tools were utilized for specific technical purposes, including assistance with grammar support to refine clarity and flow of sentences, but all conceptual development, analysis, writing and interpretation are entirely by the authors. The AI tool used was DeepSeek AI Version: DeepSeek-R1. All AI-generated outputs were critically reviewed and verified by the authors to maintain accuracy, coherence, and adherence to ethical research and publishing standards. The authors take the final responsibility for the content in this research article.

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CRediT authorship contribution statement

Usangiphile E. Buthelezi: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Visualization, Writing – original draft, Writing – review & editing. **Arvin Bhana:** Conceptualization, Methodology, Supervision, Validation, Writing – review & editing. **Zamasomi Luvuno:** Supervision, Writing – review & editing. **Tasneem Kathree:** Project administration, Resources, Supervision, Writing – review & editing. **Sanah Bucibo:** Data curation, Writing – review & editing. **Noxolisa Radebe:** Data curation, Resources. **Mosa Moshabela:** Conceptualization, Methodology, Supervision. **Inge Petersen:** Conceptualization, Funding acquisition, Supervision, Validation, Writing – review & editing. **André J. van Rensburg:** Conceptualization, Funding acquisition, Methodology, Supervision, Validation, Writing – review & editing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix 1

Table 1
Definitions of Key Theoretical Constructs in Realist Evaluation

Concept	Definition	Key References
Context	A relational, dynamic, and layered set of conditions that interact with mechanisms to produce outcomes.	Greenhalgh and Manzano (2022) (1), Pawson and Tilley (1997) (2)
Mechanism	The underlying reasoning, responses, or processes triggered in specific contexts by an intervention, which lead to observed outcomes.	Pawson and Tilley (1997) (2); Dalkin et al. (2015) (3)
Context-Mechanism-Outcome Configuration	Refers to how particular outcomes (O) are generated through mechanisms (M) that are triggered by the introduction of an intervention within specific contexts (C).	Wong et al. (2016) (4), Pawson and Tilley (1997) (2)
Meta-Mechanism	refers to higher-order, and cross-cutting mechanisms that operate across multiple levels and contexts.	Westhorp, 2012 (5), 2014 (5), Buthelezi et al., (2025a) (6)
Initial Programme Theory (IPT)	A provisional, theory-informed explanation of how an intervention is expected to work, for whom, and under what conditions. It guides the early stages of realist evaluation.	Pawson and Tilley (1997) (2); Wong et al. (2016) (4)
Refined Programme Theory (RPT)	A revised and empirically grounded version of the IPT. Developed through data collection and analysis, it reflects a more accurate account of the intervention's functioning.	Wong et al. (2016) (4); Pawson and Tilley (1997)(2)
Middle-Range Theory (MRT)	Theoretical propositions that explain recurring context-mechanism-outcome patterns across multiple settings. MRTs link empirical findings to broader theoretical frameworks and are transferable.	Merton (1967) (7); Wong et al. (2013) (8)
Mechanism Chaining	Refers to the sequential or recursive linking of mechanisms, where the outcome or activation of one mechanism becomes the context or trigger for another.	Dalkin et al. (2015) (3); Greenhalgh and Manzano, 2022 (9); Jagosh et al., 2020(10)
Retroduction	Inferential leap from observable patterns to theorizing about the necessary causal structures/ mechanisms underlying them.	Mukumbang et al., 2021. (11,12)

Appendix 2

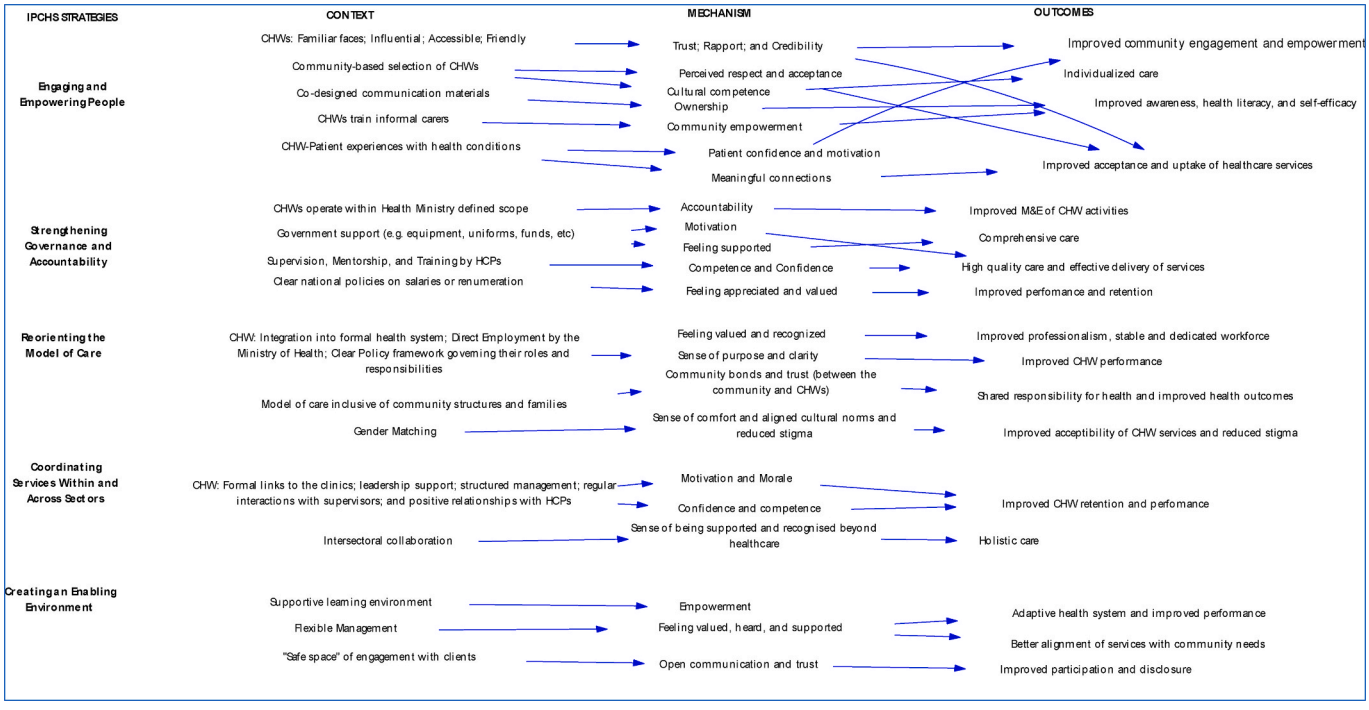

Fig. 1. Schematic representation of the initial programme theory for enhancing CHW roles and responsibilities in service of IPCHS (Buthelezi et al., 2025c).

Data availability

All published data referenced in this study is openly available online. Unpublished dataset extracted and used in this article from the realist studies under review is available in NVivo format at the following link: https://figshare.com/articles/dataset/A_Realist_Perspective_on_Optimizing_Community_Health_Workers_roles_and_functions_to_deliver_Integrated_people-centred_care/29424230. The availability of the data share is in line with FAIRSharing principles (https://fairsharing.org/) and Wellcome Open Research Data Guidelines (https://wellcomeopenresearch.org/for-authors/data-guidelines). For more information on the data set contact crh@ukzn.ac.za.

References

Afzal, M.M., Pariyo, G.W., Lassi, Z.S., Perry, H.B., 2021. Community health workers at the dawn of a new era: 2. Planning, coordination, and partnerships. Health Res. Pol. Syst. 19 (3), 103. https://doi.org/10.1186/s12961-021-00753-7.

Akintola, O., Chikoko, G., 2016. Factors influencing motivation and job satisfaction among supervisors of community health workers in marginalized communities in South Africa. Hum. Resour. Health 14 (1), 54. https://doi.org/10.1186/s12960-016-0151-6.

Assegaai, T., Schneider, H., 2022. Factors associated with workplace and interpersonal trust in the supervisory system of a community health worker programme in a rural South African district. Int. J. Health Pol. Manag. 11 (1), 31–38. https://doi.org/10.34172/ijhpm.2021.03.

Barbrook-Johnson, P., Penn, A.S., 2022. Systems Mapping: How to Build and Use Causal Models of Systems. Springer International Publishing. https://doi.org/10.1007/978-3-031-01919-7.

Buthelezi UE, van Rensburg AJ, Moshabela M, Bucibo S, Radebe N, Luvuno Z, et al. A Realist Exploration of Operation Sukuma Sakhe to Optimize the Roles and Functions of CHWs in Delivering Integrated, people-centred Care in KwaZulu-Natal, South Africa. (Forthcoming, under review.) .

Buthelezi, Usangiphile E., Rensburg, A. J. van, Moshabela, M., Bucibo, S., Radebe, N., Luvuno, Z., Kathree, T., Bhana, A., Petersen, I., 2025a. A realist perspective on optimizing community health workers' roles and functions to deliver integrated people-centred care. PLOS Glob. Publ. Health 5 (9), e0004926. https://doi.org/10.1371/journal.pgph.0004926.

Buthelezi, Usangiphile E., Van Rensburg, A.J., Moshabela, M., Luvuno, Z., Kathree, T., Bhana, A., Petersen, I., 2025b. Optimizing the role and functions of CHWs in service of a people-centred community health system in Sub-Saharan Africa. A realist synthesis. SSM - Health Systems, 100089. https://doi.org/10.1016/j.ssmhs.2025.100089.

Draper, C.E., Soepnel, L., Mabetha, K., Motlhatlhedi, M., Nkosi, N., Lye, S.J., Norris, S.A., 2024. "You go an extra mile": a qualitative study of community health worker perspectives in a health promotion intervention in urban South Africa. BMC Health Serv. Res. 24 (1), 1641. https://doi.org/10.1186/s12913-024-12127-0.

Geldsetzer, P., Vaikath, M., De Neve, J.-W., Bossert, T.J., Sibandze, S., Mkhwanazi, M., Bärnighausen, T., 2017. Distrusting community health workers with confidential health information: a convergent mixed-methods study in Swaziland. Health Pol. Plann. 32 (6), 882–889. https://doi.org/10.1093/heapol/czx036.

Gilson, L., 2003. Trust and the development of health care as a social institution. Soc. Sci. Med. 56 (7), 1453–1468. https://doi.org/10.1016/s0277-9536(02)00142-9, 1982.

Glenton, C., Colvin, C.J., Carlsen, B., Swartz, A., Lewin, S., Noyes, J., Rashidian, A., 2013. Barriers and facilitators to the implementation of lay health worker programmes to improve access to maternal and child health: qualitative evidence synthesis. Cochrane Database Syst. Rev. 2013 (10). https://doi.org/10.1002/14651858.CD010414.pub2.

Grant, M., Wilford, A., Haskins, L., Phakathi, S., Mntambo, N., Horwood, C.M., 2017. Trust of community health workers influences the acceptance of community-based maternal and child health services. Afr. J. Primary Health Care Family Med. 9 (1), 1281. https://doi.org/10.4102/phcfm.v9i1.1281.

Greenhalgh, T., Wong, G., Westhorp, G., Pawson, R., 2011. Protocol - realist and meta-narrative evidence synthesis: evolving standards (RAMESES). BMC Med. Res. Methodol. 11 (1), 115. https://doi.org/10.1186/1471-2288-11-115.

Greenspan, J.A., McMahon, S.A., Chebet, J.J., Mpunga, M., Urassa, D.P., Winch, P.J., 2013. Sources of community health worker motivation: a qualitative study in Morogoro Region, Tanzania. Hum. Resour. Health 11 (1), 52. https://doi.org/10.1186/1478-4491-11-52.

Hafiz, O., Yin, X., Sun, S., Yang, J., Liu, H., 2024. Examining the use and application of the WHO integrated people-centred health services framework in research globally—A systematic scoping review. Int. J. Integrated Care 24 (2), 9. https://doi.org/10.5334/ijic.7754.

Jagosh, J., 2020. Retroductive theorizing in Pawson and Tilley's applied scientific realism. J. Crit. Realism 19 (2), 121–130. https://doi.org/10.1080/14767430.2020.1723301.

Katzen, L.S., Skeen, S., Dippenaar, E., Laurenzi, C., Notholi, V., le Roux, K., le Roux, I., WaluWalu, N., Mbewu, N., Borus, M.J.R., Tomlinson, M., 2023. Community health workers' experiences of a package providing increased support and supervision—A qualitative study of a home visiting model in rural South Africa. Res. Square. https://doi.org/10.21203/rs.3.rs-3333610/v1.

Khatri, R.B., Wolka, E., Nigatu, F., Zewdie, A., Erku, D., Endalamaw, A., Assefa, Y., 2023. People-centred primary health care: a scoping review. BMC Prim. Care 24 (1), 236. https://doi.org/10.1186/s12875-023-02194-3.

Kigozi, G., Heunis, C., Engelbrecht, M., 2020. Community health worker motivation to perform systematic household contact tuberculosis investigation in a high burden metropolitan district in South Africa. BMC Health Serv. Res. 20 (1), 882. https://doi.org/10.1186/s12913-020-05612-9.

Kok, M.C., Broerse, J.E.W., Theobald, S., Ormel, H., Dieleman, M., Taegtmeyer, M., 2017. Performance of community health workers: situating their intermediary position within complex adaptive health systems. Hum. Resour. Health 15 (1), 59. https://doi.org/10.1186/s12960-017-0234-z.

Kok, M.C., Kane, S.S., Tulloch, O., Ormel, H., Theobald, S., Dieleman, M., Taegtmeyer, M., Broerse, J.E., de Koning, K.A., 2015. How does context influence performance of community health workers in low- and middle-income countries? Evidence from the literature. Health Res. Pol. Syst. 13 (1), 13. https://doi.org/10.1186/s12961-015-0001-3.

Lehmann, U., Sanders, D., 2007. Community Health Workers: what do we Know About them. the State of the Evidence on Programmes, Activities, Costs and Impact on Health Outcomes of Using Community Health Workers (P. 42. World Health Organization.

Madzivhandila, R.K., Ngcobo, S., 2024. Community members' perceptions of community health workers in Melusi, Tshwane, South Africa. Afr. J. Primary Health Care Family Med. 16 (1), 4573. https://doi.org/10.4102/phcfm.v16i1.4573.

Malatji, H., Griffiths, F., Goudge, J., 2024. Mobilisation towards formal employment in the healthcare system: a qualitative study of community health workers in South Africa. PLOS Glob. Publ. Health 4 (3), e0002226. https://doi.org/10.1371/journal.pgph.0002226.

Mohajer, N., Singh, D., 2018. Factors enabling community health workers and volunteers to overcome socio-cultural barriers to behaviour change: meta-synthesis using the concept of social capital. Hum. Resour. Health 16 (1), 63. https://doi.org/10.1186/s12960-018-0331-7.

Mpembeni, R.N.M., Bhatnagar, A., LeFevre, A., Chitama, D., Urassa, D.P., Kilewo, C., Mdee, R.M., Semu, H., Winch, P.J., Killewo, J., Baqui, A.H., George, A., 2015. Motivation and satisfaction among community health workers in Morogoro Region, Tanzania: nuanced needs and varied ambitions. Hum. Resour. Health 13 (1), 44. https://doi.org/10.1186/s12960-015-0035-1.

Mukumbang, F.C., Kabongo, E.M., Eastwood, J.G., 2021. Examining the application of retroductive theorizing in realist-informed studies. Int. J. Qual. Methods 20, 16094069211053516. https://doi.org/10.1177/16094069211053516.

Murphy, J.P., Moolla, A., Kgowedi, S., Mongwenyana, C., Mngadi, S., Ngcobo, N., Miot, J., Evans, D., Pascoe, S., 2021. Community health worker models in South Africa: a qualitative study on policy implementation of the 2018/19 revised framework. Health Pol. Plann. 36 (4), 384–396. https://doi.org/10.1093/heapol/czaa172.

North, D.C., 1990. Institutions, Institutional Change and Economic Performance. Cambridge University Press. https://doi.org/10.1017/CBO9780511808678.

Olaniran, A., Madaj, B., Bar-Zeev, S., Banke-Thomas, A., van den Broek, N., 2022. Factors influencing motivation and job satisfaction of community health workers in Africa and Asia-A multi-country study. Int. J. Health Plann. Manag. 37 (1), 112–132. https://doi.org/10.1002/hpm.3319.

Ormel, H., Kok, M., Kane, S., Ahmed, R., Chikaphupha, K., Rashid, S.F., Gemechu, D., Otiso, L., Sidat, M., Theobald, S., Taegtmeyer, M., de Koning, K., 2019. Salaried and voluntary community health workers: exploring how incentives and expectation gaps influence motivation. Hum. Resour. Health 17 (1), 59. https://doi.org/10.1186/s12960-019-0387-z.

Pawson, R., Tilley, N., 1997. Realistic Evaluation. Sage Publications, Inc, p. 235 pp. xvii.

Perry, H.B., Zulliger, R., Rogers, M.M., 2014. Community health workers in low-, middle-, and high-income countries: an overview of their history, recent evolution, and current effectiveness. Annu. Rev. Publ. Health 35, 399–421. https://doi.org/10.1146/annurev-publhealth-032013-182354.

Province of KwaZulu-Natal, 2011. Operation Sukuma sakhe: Implementation model—guidelines for coordination. https://www.kznonline.gov.za/images/Downloads/OSS/E%20Implementation%20Model_distribution.pdf.

Rafiq, M.Y., Wheatley, H., Mushi, H.P., Baynes, C., 2019. Who are CHWs? An ethnographic study of the multiple identities of community health workers in three rural districts in Tanzania. BMC Health Serv. Res. 19 (1), 712. https://doi.org/10.1186/s12913-019-4563-6.

Schaaf, M., Warthin, C., Freedman, L., Topp, S.M., 2020. The community health worker as service extender, cultural broker and social change agent: a critical interpretive synthesis of roles, intent and accountability. BMJ Glob. Health 5 (6), e002296. https://doi.org/10.1136/bmjgh-2020-002296.

Schneider, H., 2018. The governance of national community health worker programmes in Low- and middle-income countries: an empirically based framework of governance principles, purposes and tasks. Int. J. Health Pol. Manag. 8 (1), 18–27. https://doi.org/10.15171/ijhpm.2018.92.

Schneider, H., Besada, D., Sanders, D., Daviaud, E., Rohde, S., 2018. Ward-based primary health care outreach teams in South Africa: developments, challenges and future directions. http://hdl.handle.net/10566/5060.

Schneider, H., Lehmann, U., 2016. From community health workers to community health systems: time to widen the horizon? Health Syst. Reform 2 (2), 112–118. https://doi.org/10.1080/23288604.2016.1166307.

Scott, K., Beckham, S.W., Gross, M., Pariyo, G., Rao, K.D., Cometto, G., Perry, H.B., 2018. What do we know about community-based health worker programs? A systematic review of existing reviews on community health workers. Hum. Resour. Health 16, 39. https://doi.org/10.1186/s12960-018-0304-x.

Sheikh, K., George, A., Gilson, L., 2014a. People-centred science: strengthening the practice of health policy and systems research. Health Res. Pol. Syst. 12 (1), 19. https://doi.org/10.1186/1478-4505-12-19.

Sheikh, K., Ranson, M.K., Gilson, L., 2014b. Explorations on people centredness in health systems. Health Pol. Plann. 29 (Suppl. 2), ii1–ii5. https://doi.org/10.1093/heapol/czu082.

Stansert Katzen, L., Reid, S., Laurenzi, C., Tomlinson, M., 2024. From the periphery to inclusion within the health system: promoting community health worker empowerment as a way forward. BMC Prim. Care 25 (1), 272. https://doi.org/10.1186/s12875-024-02523-0.

Stansert Katzen, L., Skeen, S., Dippenaar, E., Laurenzi, C., Notholi, V., le Roux, K., Rotheram-Borus, M.J., le Roux, I., Mbewu, N., Tomlinson, M., 2022. Are we listening to community health workers? Experiences of the community health worker journey in rural South Africa. Res. Nurs. Health 45 (3), 380–389. https://doi.org/10.1002/nur.22220.

van Vuuren, C.J., Lowe, Z., Bodenstein, K., 2025. Moving towards a South African NHI system of excellence: recommendations based on the insider perspectives of CHWs as key role-players. Int. J. Environ. Res. Publ. Health 22 (5), 807. https://doi.org/10.3390/ijerph22050807.

Westgate, C., Musoke, D., Crigler, L., Perry, H.B., 2021. Community health workers at the dawn of a new era: 7. Recent advances in supervision. Health Res. Pol. Syst. 19 (3), 114. https://doi.org/10.1186/s12961-021-00754-6.

Westhorp, G., 2012. Using complexity-consistent theory for evaluating complex systems. Evaluation 18 (4), 405–420. https://doi.org/10.1177/1356389012460963.

Westhorp, G., 2014. Realist impact evaluation: an introduction. Methods Lab 12. https://docs.adaptdev.info/lib/CC9T3RLJ.

Wong, G., Westhorp, G., Manzano, A., Greenhalgh, J., Jagosh, J., Greenhalgh, T., 2016. RAMESES II reporting standards for realist evaluations. BMC Med. 14 (1), 96. https://doi.org/10.1186/s12916-016-0643-1.

World Health Organisation, 2016. Framework on integrated, people-centred health services: report by the secritariet. https://apps.who.int/gb/ebwha/pdf_files/wha69/a69_39-en.pdf.

References

Greenhalgh, J., Manzano, A., 2022. Understanding 'context' in realist evaluation and synthesis. Int. J. Soc. Res. Methodol. 25 (5), 583–595.

Pawson, R., Tilley, N., 1997a. Realistic Evaluation. Sage Publications, Inc, Thousand Oaks, CA, US xvii, 235 pp. (Realistic evaluation).

Dalkin, S.M., Greenhalgh, J., Jones, D., Cunningham, B., Lhussier, M., 2015. What's in a mechanism? Development of a key concept in realist evaluation. Implement. Sci. 10 (1), 49.

Buthelezi, U.E., Van Rensburg, A.J., Moshabela, M., Luvuno, Z., Kathree, T., Bhana, A., et al., 2025c. Optimizing the role and functions of CHWs in service of a people-centred community health system in Sub-Saharan Africa. A realist synthesis. SSM - Health Syst., 100089

Kutner, N.G., 1968. In: Merton, Robert K. (Ed.), On Theoretical Sociology: Five Essays, Old and New, vol. 47. The Free Press, New York, p. 91, 1.

Wong, G., Greenhalgh, T., Westhorp, G., Buckingham, J., Pawson, R., 2013. RAMESES publication standards: realist syntheses. J. Adv. Nurs. 69 (5), 1005–1022.

Greenhalgh, J., Manzano, A., 2022. Understanding 'context' in realist evaluation and synthesis. Int. J. Soc. Res. Methodol. 25 (5), 583–595.