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Stakeholder perspectives to inform the implementation of a community health worker-delivered home management of hypertension intervention in Zimbabwe

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ABSTRACT

Objective Implementing evidence-based innovations often fails to translate into meaningful outcomes in practice due to dynamic real-world contextual factors. Identifying these influencing factors is pivotal to implementation success. This study aimed to determine the barriers and facilitators of implementing a community health worker (CHW)-delivered home management of hypertension (HoMHyper) intervention from a stakeholder's perspective using the Consolidated Framework for Implementation Research (CFIR).

Design Exploratory qualitative study.

Setting Five primary healthcare facilities in Mutare City, Zimbabwe.

Participants 25 CHWs, 10 health facility nurses and 3 Mutare City health administrators.

Results Perceived barriers to implementation of the HoMHyper intervention were staff shortage, patient privacy and confidentiality, limited access to antihypertensive medication, CHW incentivisation and equipment shortage, as well as patient knowledge and beliefs about hypertension. The proposed intervention was superior to the current practice, easy to implement and adaptable in the local context. Perceived facilitating factors were commitment from health system leadership, CHW training and support, regular engagement between CHWs and health providers, community partnerships, and CHW self-efficacy and knowledge and skills.

Conclusion Integrating CHWs into chronic disease management can potentially improve health service access in low-resource settings. Well-coordinated planning guided by implementation evidence frameworks such as the CFIR significantly enhances the identification of important barriers and facilitators to inform implementation.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ The study included a diverse group of professional and non-professional stakeholders directly in hypertension patient care.
⇒ The interviews were conducted in an urban context where health services and resources are relatively better compared with periurban and rural contexts which limits the generalisability of the findings.
⇒ Although male participants were interviewed in the community health worker category, all nurses and health authorities interviewed were female, which may have introduced bias to the study findings.
⇒ Using Consolidated Framework for Implementation Research domains as preselected themes for the coding process may have resulted in missed barriers and facilitators that fall outside the domains of the framework.

INTRODUCTION

The General Assembly of the United Nations adopted a declaration to prevent and control non-communicable diseases (NCDs), such as hypertension, with a particular emphasis on developing national capacities in low-income and middle-income countries (LMICs).[1] This was proposed because of poor disease screening, control and management in LMICs. During the last three decades, the prevalence of hypertension in LMICs soared exponentially from 55 million in 1990 to 130 million in 2010.[2] The number of people living with hypertension is predicted to increase to 217 million by 2030.[2–4] An analysis of 1.1 million adults from LMICs showed that about 26% had never had their blood pressure (BP) measured, 39% had hypertension and 30% were on treatment; however, only 10% had controlled BP.[5] Among the countries from four LMIC regions (Southeast Asia and the western Pacific, Latin America and the Caribbean, Europe and the eastern Mediterranean and sub-Saharan Africa) included in the analysis, countries from sub-Saharan Africa showed the worst performance, with less than 5% of hypertension patients achieving BP control in 10 of 16 countries.[5] Most people living in LMICs have poor awareness of hypertension, and there is

a need to expand the implementation of BP management programmes in these regions.

One strategy that could reduce modifiable barriers to BP management and control in resource-limited settings is task shifting.[6] This involves using trained non-professional cadres such as community health workers (CHWs) to ensure access to essential health services in underserved communities.[7] By delegating essential yet straightforward activities to trained CHWs, the over-stretched professional health workers can concentrate on more complex tasks. Thus, CHWs can reduce the burden of NCDs, such as hypertension, within communities while enhancing the quality of service delivery at healthcare facilities.[8 9] Randomised controlled trials (RCTs) have shown the effectiveness of home-based management of hypertension.[10–13] However, in RCTs, the interventions are tested under strictly controlled contexts that are different from the dynamic real-life settings. Thus, further studies are needed to determine the feasibility and effectiveness of CHW-delivered home management of hypertension (HoMHyper) in a real-world setting. By scaling up primary healthcare (PHC) interventions in LMICs, reports predict that an estimated 60 million lives can be saved, and life expectancy will increase by 3.7 years by 2030.[14]

Despite the cost-effectiveness and ease of implementing hypertension control programmes compared with other diseases and health conditions, there are substantial gaps in evidence on the fundamental programme components for successful implementation.[15] The effectiveness of hypertension management, lifestyle counselling and BP monitoring under controlled conditions is well known; however, sustained monitoring within the community remains elusive.[16 17] Implementing evidence-based innovations often fails to translate into meaningful outcomes in practice due to dynamic real-world contextual factors such as resource constraints, competing demands and lack of support from stakeholders.[18] Because they influence the outcomes of implementation efforts, these contextual factors must be well aligned with the innovation and locally feasible to ensure a synergistic interaction between the context and the intervention.

Determinant frameworks such as the Consolidated Framework for Implementation Research (CFIR) can be used to predict the challenges and enablers of practical implementation.[19] The CFIR helps to identify implementation barriers and facilitators, produce actionable findings and address the practical needs of the intervention implementation.[20] CFIR comprises five domains that inform implementers about the contextual factors: intervention characteristics, inner setting, outer setting, individual characteristics and intervention process. According to the framework, intervention characteristics refer to the 'thing' being implemented, and the inner setting is the setting in which the intervention is implemented.[20] The inner setting exists in the outer setting; the individual domain entails the roles and characteristics of individuals involved in the implementation and the intervention process refers to the activities and strategies used to implement the intervention.[20] The observed contextual challenges and enablers can be used to generate hypotheses and inform implementation strategies prospectively.[21]

The most common barriers noted in integrating CHWs in NCD care were lack of support and resources, while the facilitators were the integrated health system, trust, quality of training and CHW capacity.[22] The CFIR is a well-operationalised pragmatic framework that guides the identification of significant implementation barriers and facilitators.[23] The identified factors can then be used to adapt the facilitators and overcome the implementation barriers. This study aimed to identify the barriers and facilitators of implementing CHW-delivered HoMHyper intervention from a stakeholder's perspective prior to intervention implementation.

METHODS

Proposed intervention

The HoMHyper programme is a CHW-delivered HoMHyper intervention among diagnosed patients in a low-resource urban setting in Zimbabwe. This will be a phased project that involves exploring intervention components, implementing well-planned intervention activities and evaluating the programme activities. This study was part of the preliminary exploration phase conducted before programme implementation. The proposed intervention involves the selection of CHWs with assistance from stakeholders such as clinic nurses, community health nurses and community leaders. Enrolled CHWs will be trained in patient care, correct BP measurement, psychosocial support, health education for hypertension patients and ethical issues in public health programmes. Each CHW will then be tasked to provide services such as routine BP measurement, health education and counselling, symptom monitoring and referring patients to at most eight clients through fortnightly focused home visits guided by the HoMHyper Curriculum. In addition, the CHWs will communicate outside the bimonthly home visits via phone. Standard Operating Procedure Manuals, checklists and registers will be used to guide and record the programme activities, and the CHWs will submit the statistical records and provide monthly feedback to the local clinic nurse.

Study design and setting

We conducted a prospective formative study using an exploratory qualitative design to ascertain the barriers and facilitators before implementing the CHW-delivered HoMHyper intervention. Face-to-face interviews were conducted among stakeholders (nurses, health authorities and CHWs). Health authorities included the Mutare City Health Director, City Health Nursing Manager and City Health Promotion Officer. The interviewed CHWs were individuals who actively participated in community mobilisation and community health programmes over the last 12 months and resided within the clinic's catchment

area. A multiple-stakeholder approach that covers relevant aspects relative to the implementers' perspective on the successful implementation of the intervention was employed. The CFIR was used to guide the development of interview questions, organise the coding process and summarise the findings.[24] The HoMHyper intervention is a multicentric project covering five urban PHC centres/clinics in Mutare, Zimbabwe's third most populous city, located on the country's eastern border with Mozambique. There are 8 public primary care clinics and an estimated 22 private medical facilities focused on outpatient health services for most of the city residents. The five clinics included in this study were all public health facilities. Three clinics (Chikanga, Dangamvura and Hobhouse) were primarily high-density residential suburbs with residential stands ranging from 70 to 200 m^2, while Florida and City clinics mainly covered low-density and middle-density suburbs with residential stands ranging from 300 to 2000 m^2.[25] Data were collected between June and July 2023.

Study participants

This article reports the qualitative findings from in-depth interviews among 10 PHC nurses, 3 health authorities and semistructured interviews among 25 CHWs. All participants were purposively selected, and clinic nurses were selected based on their involvement in chronic disease management. Health authorities were based at the city health department offices, and these were selected according to how active they were in community-based programmes. The nurse manager provided the names of potential CHW interviewees. Participants were called to ascertain their interest in the interviews, and the appointment date and time were set on their agreement to participate.

Patient and public involvement

Hypertension patients were not involved in this exploratory qualitative study; however, we conducted a patient survey prior to this study.[26] The patient inputs from that survey were instrumental in developing the research question and interview guides for the present study. Patients and their families were included in the community meetings conducted to disseminate the study findings. Since the intervention will be implemented within the community, we plan to involve the patients and encourage community member involvement during the iterative planning process of implementation activities and programme evaluation.

Procedures

A team of four researchers (primary investigators) comprising two public health officers (PTM and TH) and social scientists (PM-M and PZ) developed the interview guides based on barriers and facilitators to community interventions from the literature. Consensus on which components to include in the interview guides was reached based on individual clinical and epidemiological expertise, as well as evidence from the patient survey conducted prior to the in-depth interviews.[26] The in-depth interview guide (online supplemental file 1) and semistructured interview guide (online supplemental file 2) were pilot-tested using two non-participating nurses and three CHWs.

A 2-day training on qualitative data collection was conducted in May 2023. The interviews were conducted by LJM (Public Health Nurse) and PTM (PhD Student in Epidemiology). Two note-takers with undergraduate degrees in social work were also trained to transcribe interview questions to reduce interviewer bias. One interviewer and a note-taker interviewed each participant in a private room at the health facilities (for nurses and CHWs) and health department offices (for health administrators).

Before administering the interview guide, the interviewer described the proposed HoMHyper intervention to the participant. Audio-recorded interviews with CHWs were conducted in Shona and transcribed verbatim first in Shona, then translated to English by two linguistic experts from Africa University. Nurses and health administrators' interviews were conducted in English. Field notes were taken during the interview session. The qualitative interviews were recorded using the Sony ICD-PX370 mono digital voice recorder and transcribed verbatim to Word document transcripts that were then imported into the NVivo V.14 software.[27]

Data analysis

The analysis was based on transcribed files and field notes. We used the deductive approach to develop a coding frame based on contextually relevant CFIR domains. PTM, PM-M and PZ conducted the data coding process. The three coders reviewed the CFIR definitions before coding to standardise the process. The initial coding process was conducted independently using the NVivo V.14 software while considering the conceptual model. To incorporate the CFIR into data coding, we used the transformation technique, which involved developing codes based on the research question and then transforming the codes to reflect the components related to the CFIR. The findings of the individual coding were compared and reconciled through an iterative process until an agreement was reached on the identified set of codes. The codes were then categorised to develop themes and assign relevant quotes to each theme. In case of conflicting coding results between two coders, the third coder acted as the tiebreaker. In addition, the analysis team was collectively mindful of how reflexive they could be and avoided letting their personal experience and participation in the project influence the findings.[28] Although participants' quotes were used in reporting, we anonymised the participants to preserve confidentiality due to the small size of professional health workers who participated in the study.

Open codes were aggregated according to the CFIR domains, and each construct was rated as an implementation barrier or facilitator by PTM, PM-M, TH and PZ. The

Table 1 Sociodemographic characteristics of participants (n=38)

Variable	Characteristics	Community health Workers (n=25)	Nurses (n=10)	Health authorities (n=3)
Age (years)	Mean±SD	39.0±9.6	35.4±4.6	43±6.1
Work experience (years)	Mean±SD	5.6±3.1	6.0±3.3	6.2±4.9
Sex	Male	9	0	0
	Female	16	10	3
Highest level of education	Primary	2	0	0
	Ordinary level	23	0	0
	Diploma	0	8	0
	Undergraduate degree	0	2	2
	Master's degree	0	0	1
Religion	Christian	22	9	3
	None/other	3	1	0

SD, standard deviation.

ratings were adopted from recommendations by Gimbel *et al*,[29] who classify scores as +2 (strong positive influence on implementation), +1 (weak positive influence on implementation, −1 (weak positive influence on implementation) and −2 (strongly hindering implementation). The four raters individually reviewed the codebook, rated each CFIR construct and gave a valence score. The total valence score for each construct was the average individual score from the raters. We used the Consolidated Criteria for Reporting Qualitative Research guidelines to report the study findings.

RESULTS

All invited participants agreed to participate in the study. Semistructured interviews were conducted among 25 CHWs (5 per clinic). About 32% of the CHWs had a chronic condition, all possessed a mobile phone and were willing to dedicate an average of 20 hours per week to programme implementation. On average, each in-depth interview lasted about 50 min, and semistructured interviews were 35 min long. Participant quotes are italicised and minimally edited to improve conciseness and clarity. Table 1 displays the sociodemographic characteristics of participants and table 2 shows the CFIR constructs and their perceived impacts on the programme and the valence scores for stakeholder perceptions assigned to the constructs by the authors.

Domain 1. Intervention Characteristics

Theme 1: Intervention better than current practice

The participants perceived the proposed programme as an essential strategy to improve coverage, considering that currently, hypertension patients were receiving suboptimal services and the chronic disease surveillance system was virtually non-existent. This was an opportunity to follow-up and recover many participants who were no longer seeking services from the facilities. As some participants related:

> *All we can do for those (patients) who are unable to come to our clinics is simply to ask them to send a relative with their health cards to the clinic to get a resupply (medication), but we are not able to see the patient, we are not able to monitor them, and we are not sure whether this medication is working or not. This is a major (service) ga*p.
>
> *We have many people with missing checkup visits and defaulters in the register. There is nothing we can do about it. The urban population only has one HPO (Health Promotion Officer), and she needs help coordinating all the community health programs. This will be an excellent complementary program.*

Although some of the reasons why the hypertension patients had absconded were obvious, such reasons were mostly generalised assumptions, and the proposed intervention was an opportunity to offer individualised care and understand their unique explanations. In their perceptions, the HoMHyper intervention was superior to the current practice in hypertension management. One CHW shared:

> *I think the proposed approach will be very beneficial to the management of hypertension. The queues at the clinic are usually long, and they don't have the medication. The most common thing is that hypertension patients solicit health services when they are doomed and very sick. (By that time) the blood pressure is very high, and outcomes are often poor. Home BP measurements will help.*

Theme 2: Easy to implement

The intervention was perceived as simple, feasible and achievable. Most CHWs felt they were already involved with almost similar tasks in their current scope of work. Despite the lack of information about hypertension care

Table 2 CFIR constructs and their perceived impacts on the HoMHyper intervention and valence scores for stakeholder perceptions assigned to the constructs

Domain	Construct		Valence score*
	Perceived barriers (n=5)	Perceived facilitators (n=10)	
Intervention characteristics		Better than current practice	2.00
		Easy to implement	1.50
		Adaptable to the local setting	1.75
Inner setting	Staff shortages		−0.50
	CHW incentivisation		−2.00
		Organisational commitment	1.50
		CHW training and support	2.00
Outer setting	Patient privacy and confidentiality		−1.25
	Access to medication, stockouts and equipment shortage		−2.00
		Community partnership and connections	1.50
Individual domain	Patient knowledge and beliefs about hypertension		−1.00
		CHW self-efficacy	1.50
		CHW knowledge and skills	1.75
Process		Structured planning of activities	2.00
		Engagement and communication	1.75

*A positive score denotes a positive influence, while a negative score denotes a negative influence on intervention implementation.
CFIR, Consolidated Framework for Implementation Research; CHW, community health worker; HoMHyper, home management of hypertension.

in the community, the functions and limits of the CHW operations are clearly outlined in the CHW guidelines developed by the Ministry of Health and Child Care. There were long-standing relationships and communication between the CHWs and the community, as well as between the CHWs and the nurses at the clinic, as relayed by the study participants:

> *We (CHWs) used to do home follow-ups and counseling of stroke patients in the home-based care program and helped relieve the primary caregivers sometimes. We had to report to the clinic with information on the status of every patient under our care.*

> *With a few training sessions. I am confident CHWs can accurately measure patient BP; it's not like this is medical surgery.*

Theme 3: Adaptable to the local setting

This intervention was perceived to be feasible and a good fit for both the patients and the health system because a similar preexisting intervention had already proved successful in managing other conditions in this setting. An established model for CHW-delivered care for the HIV and antiretroviral therapy (ART) programme in which CHWs visit, organise community support groups, and counsel patients on nutrition and the importance of adherence to ART. Stable patients form Community ART Refill Groups (CARGs) to reduce the burden of frequent facility visits. This model could be adapted and modified to fit the needs of hypertension patients. In addition, CHWs in rural areas were responsible for malaria testing and dispensing antimalarial medication for uncomplicated malaria. By drawing existing evidence from the ART and Malaria programmes, planners can use this information as a template for implementer training, fidelity support and documentation and tailor it to meet the needs of the hypertension patients, as cited by some of the participants:

> *It's being practiced for ART CARGs to cut on travel costs and time spent at the clinic, and this can also apply to hypertension patients.*

> *Well, this could be similar to the ART program. We do home visits except for hypertension; the medications are not free like anti-tuberculosis drugs and ART, where the medication is free and readily available.*

Domain 2: Inner Setting

Theme 1: Staff shortages

The selected participating sites were experiencing chronic staffing shortages. Despite the consensus that the community nurse and the health promotions officer were integral to the project implementation, the study participants felt that these professionals may need help to participate in the project, given other competing responsibilities. Thus, a roving project coordinator was required to work closely with the two community health professionals.

The working conditions are stressful due to a shortage of clinicians; this initiative will reduce the workload at the clinic and the waiting period of patients visiting the facility.

The Community Nurses may help with monitoring the CHWs. However, they are just a few, and their schedules are swamped. I recommend you have your own coordinator to work with the Community Nurses.

Due to understaffing and high disease burden, health providers limited their consultation time to the minimum to serve as many patients as possible. As two nurses reflected on their daily frustration of a disproportionate work burden to health provider problems:

It's a timely and appropriate program because, honestly, the staff shortage is extreme. We can't afford to see people in the community as registered nurses. It's near impossible because most nurses have gone kuchando (greener pastures, mostly Western countries).

Theme 2: Organisational commitment

The interviewed health authorities welcomed the programme and perceived the programme as acceptable and feasible. They were committed to assisting as necessary and helping unveil available human and material resources. The study participants acknowledged that the programme would relieve the staff shortages at the public health clinics involved. In addition, they also alluded to the erratic antihypertensive medication supply from the central national pharmacy and recommended the inclusion of a medication component to the intervention.

It's an excellent program as it improves access to services and medication adherence and increases awareness of the condition in the community. We assure you of our support to the best extent possible.

This method is timely because most patients don't want to visit the clinic for monthly checkups when stable.

Theme 3: CHW training and support

One of the fundamental enablers of implementing the intervention is clarity of the expected goals and expectations by all the stakeholders involved. The study participants consistently raised the need for rigorous training for the CHWs. CHWs should be trained in hypertension management, including BP measurement, lifestyle modification, patient counselling, medication adherence and patient referral systems. The training will increase CHW's confidence and motivation through educational capacity. Participants suggested including pre and post tests, reflection sessions and role plays to measure the assimilation of the desired knowledge during CHW training. The community nurse would then be instrumental in following up CHWs and observing them during the early phases of patient engagement before providing feedback on the observed session.

Capacity building through training, teaching the CHWs about blood pressure, signs and symptoms, and differential diagnosis. Educate them on lifestyle changes, diet, drug compliance, exercising, and healthy living.

Regular surveillance audits will be necessary for ongoing programme activity monitoring and evaluation to ascertain fidelity. The activity guiding principles would be developed with representatives from all stakeholders.

To avoid confusion, proper record keeping will ensure accountability and simplify supervision channels, especially if you include an antihypertensive medication dispensing component.

Theme 4: CHW incentivisation

CHW allowances and incentives were perceived as essential to motivate them during implementation. Because CHWs may not have a different income source and are likely to face the same life stressors as other community members, incentives would help enhance their morale and sustain their dedication to project activities. Current programmes involving CHWs hosted by the Ministry of Health were poorly funded, and the CHW incentives needed to be revised. To encourage intervention-related services and regular attendance of training sessions, the CHWs require incentives in the form of transport, food and time reimbursements, and these were to be one of the priorities during budgeting. We also observed that most CHWs were highly dependent on these incentives for their day-to-day living since they did not have other sources of income.

It will be important to motivate the CHW through incentives; if there are no incentives for that cadre or incentives are too little for that cadre, one might not be motivated to work.

On the one hand, we noted how the provision of programme-branded regalia was perceived as a motivational factor, and this helped to identify them as appointed programme officials. On the other hand, branded uniforms aided in the ease of recognition, acceptability and programme visibility by hypertension patients.

Bringing this program, we need to make sure people are aware, people are well branded to know that these are CHWs, maybe if they wear some reflectors so that the community will quickly identify them. I suggest adding some IDs so that the patients are thoroughly convinced.

Domain 3: Outer Setting

Theme 1: Patient privacy and confidentiality

Patients' living conditions will significantly impact their participation in this intervention. Most female participants mentioned patient privacy and confidentiality, considering that the CHWs were supposed to visit clients' homes. Most clients, particularly those residing in high-density suburbs, were tenants renting a few rooms and may feel uncomfortable with the CHW intruding into their space. In addition, some landowners restrict visitors who are supposed to enter their premises, which was noted as a barrier to home visiting.

Some patients want to keep their health information confidential and may feel that the CHW may not be able to keep this information private since the CHW will be from the same community.

Urban residents are not as communal as rural residents; in the urban area, people need their privacy and may not welcome the CHWs because they don't want other neighbors to know what is happening in their lives.

Given the observed complexities in living arrangements, providing individualised BP monitoring would be imperative, considering the patient's preference and context.

Theme 2: Access to medications, stockouts and shortage of equipment

Most antihypertensive medications were not available at the primary care clinics, and many patients purchased medications out-of-pocket from private pharmacies. The medication and diagnostic test access gap caused many losses to follow-up and non-adherence to treatment by patients who could not afford the antihypertensive medications due to high levels of unemployment and poverty within this population. Purchasing antihypertensive medications competed with other basic daily needs. The unavailability of medications and affordable laboratory tests played a significant role in clinic attendance rates, thus contributing to high losses to follow-up.

Whenever I prescribe for a patient to go and buy at a private pharmacy, it is difficult to tell if they go to buy or not. The drugs at the pharmacies are expensive for most of our patients. I am hypertensive, and I can attest to their plights when they say the prices are beyond their reach.

The nurses from all five primary care clinics reported that they were experiencing chronic antihypertensive medication shortages, and the only consistently available medication was hydrochlorothiazide. Study participants emphasised that an intervention that provides BP measurement and health education without including a free or subsidised medication component was destined to fail.

Nifedipine is one of the important hypertensive medications that we use to stabilize our patients when they come with very high BP. The last time we had it (Nifedipine) was four months ago. Imagine having to prescribe for the relatives to go and buy in town while you look at the patient suffering! (As a nurse), you feel helpless.

The health facilities received medications from two suppliers, namely (1) NatPharm, a national pharmaceutical company under the Ministry of Health and (2) the City Health Department. Antihypertensive medications from NatPharm were given to patients for free, and patients had to pay for the rare supplies from the City Health Department.

Most facilities had one functional electronic sphygmomanometer; in cases of breakdown, they sometimes went for days without a replacement. Resource limitations consequently disrupted hypertension patient management, and many patients stopped visiting the clinic for their routine BP monitoring.

Despite having multiple clinic departments here, we only have a single functional BP machine. In cases when one staff member is using it, I and the client have to wait, and you know our clients can be in a hurry sometimes.

Theme 3: Community partnerships and connections

Stakeholder engagements were highly recommended to maintain a network with external entities, and community consultations were crucial to the programme planning, implementation and evaluation phases. Creating relationships with community leadership and other organisations working in this community would promote adoption, ownership, resource pooling and guidance on activity implementation. The health professionals mostly raised these sentiments:

We must break the 'we against them' boundary between the community and health system. Let's share the vision with the community organizations in our monthly meetings. They know their community better and can support with early identification of challenges.

The pre-existing relationships between the CHWs and the communities they worked for were perceived as a vital consideration for programme planning. Using the local CHWs was appropriate to introduce an emic perspective to the programme.

Patients are likely to buy the idea from someone they already know and are well acquainted with. They (CHWs and hypertension patients) are uniquely aware of what these patients experience, and they have a lot in common, like church or their children going to the same school.

I think dealing with local people from the same language, culture, and understanding will help enhance the transmission of health messages to the patients. I know this from working in the MHURI program.

Domain 4: Individual Characteristics

Theme 1: CHW self-efficacy

The delivery of the intervention by CHWs who resided in the same setting and shared almost the same social and economic conditions as the end-users was hailed to have an emic effect on the implementer–patient relationship. It was perceived that this would reduce communication barriers and enhance culturally sensitive counselling by the trained CHWs. Additionally, the CHWs acknowledged that their participation would be an opportunity to positively contribute to the community's health. Adequate training, resources and supervision were perceived as crucial self-efficacy enhancers, as expressed by both the CHWs and HCWs:

Dealing with our people of the same culture and the same understanding is more like a norm because we are helping

each other at the same level. Home visits will also allow extended discussions. We all live here.

Also, the CHWs should be motivated to do their work. It's how they will portray themselves in the patient's presence.

Theme 2: CHW knowledge and skills

On personal attributes of the CHW, the health providers highlighted the need to engage CHWs who are in good standing with their local community and had shown good initiative from their previous health-related assignments either with the public health system or private partners working within the community. Achieving a team of CHWs with these qualities would require the involvement of the nurses at the clinic and local community leaders. The preferred demographic characteristics were middle-aged women with at least some ordinary-level qualifications.

CHWs must be capable of dispelling misconceptions, addressing patient concerns, referring when in doubt, and providing feedback to the nurses.

They (CHWs) should be someone with a good reputation in their area, mature, and someone patients can trust with health information.

Many CHWs had formal training in general patient care but were mostly competent in infectious disease and maternal and child health services care. Thus, there was a need for intensive training on BP measurement, BP reading interpretation, lifestyle modifications and treatment adherence as a way of capacitating them. Clarity of the roles and responsibilities of CHWs and facility nurses for hypertension management was identified as a core component of the intervention.

I had an experience taking care of my mother, who had a stroke and high blood pressure, but I feel I only did what I had to do. The training on hypertension and support from nurses will help me understand more about hypertension patient care.

Theme 3: Patient knowledge and beliefs about hypertension

Hypertension patients' attitudes and current practices were reported to play a significant role in implementing the HoMHyper programme. The study setting generally constitutes a low-income population, and hypertension knowledge was perceived as poor. Some cultural and religious beliefs were barriers to hypertension management, with some opting for this route because it is cheap and convenient. CHWs had a significant role to play in addressing these beliefs, and the participants predicted the waning of these practices if the proposed programme were to provide affordable, subsidised or free medications.

Some patients take traditional concoctions or herbal preparations like avocado leaves and olives thinking they will help, while others say antihypertensive medication causes diabetes. Some treat antihypertensives like antibiotics courses and think they will get healed after finishing the month's supply. You can't blame them!

Because of the lack of health education on diagnosis, many hypertensive patients had limited knowledge of signs and symptoms, prevention, management and control of hypertension. Some may stop taking their chronic medication after consulting spiritual healers. Unregistered complementary medicine vendors were also exploiting desperate hypertension patients, promising them cheaper solutions for their disease management challenges.

Newly diagnosed patients are mostly given medication, but little or no education is unveiled. The nurses or pharmacists are overwhelmed. Some [patients] treat antihypertensives like antibiotics courses and think they will get healed after finishing the month's supply. They don't have all this information to know that they are on these drugs for life and are not aware of the lifestyle adjustment they have to make because of the diagnosis.

Domain 5: Process

Theme 1: Engagement and communication

Constant and clear communication and coordination between the community implementers and the health providers at the health facility were cited as essential aspects of the project to ensure that patient management data is consolidated into the formal records at the clinic. Formal and informal communication channels exist between the community and health system through the community nurses and CHWs. Regular supervision of CHWs can be conducted for quality control and documentation of activities such as BP measurements, medication dispensed, counselling sessions, follow-up calls and patient visit outcomes was also suggested.

As a clinic, the initiative helps us track patients and encourage them to follow recommended lifestyle behaviors and medication adherence. Tracking treatment defaulters and patients on home-based care will be possible because many don't come to the clinic.

We have social media WhatsApp groups, we can use phones, and CHWs can go and tell the patients what we want them to do. Recording activities, accountability, and supervision will be critical, particularly for the dispensing component of the program.

The nature of communication would vary depending on the services required. Regular supportive supervision of CHWs by the community nurse through observation sessions and phone calls was mentioned as an essential activity to ensure intervention fidelity. Furthermore, monthly CHW visits to the clinic would enable routine supervision and feedback from the facility nurse. Addressing challenges and brainstorming solutions during these visits would likely optimise project fidelity and accomplish the set goals.

Theme 2: Structured planning of activities

The assembling of the intervention was considered a primary attribute to the failure or success of the

intervention. To implement distinctive work, the programme planners ensure that all programme components are in place, accessible to the implementers, and, at the same time, acceptable and satisfactory to the patients. This was mirrored in the responses of most of the participants:

> *These CHWs must be trained and have resources like blood pressure machines, log forms, screening tools, registers, and proper training on hypertension, the signs and symptoms, where to refer, and when to refer. We need active CHWs who are dedicated and knowledgeable of their duties. Phones for the CHWs can also help for easy communication.*

> *If the community is not sensitized enough, patients will not be open to the CHWs because of the lack of information on the new initiative. The organization of activities must be of high quality. Also, the CHWs must be easily identifiable with branded uniforms. You know, many people are skeptical of bogus individuals.*

DISCUSSION

We used the CFIR to determine the barriers and facilitators to implementing the HoMHyper programme. Different constructs were identified as barriers or facilitators under the different CFIR domains. The perceived universal barriers were the shortage of staff, patient privacy and confidentiality, access to antihypertensive medication and shortage of equipment, CHW incentives as well as patient knowledge and beliefs about hypertension. The study participants cited that the proposed innovation was superior to the current practice, was easy to implement and adaptable in the local context. Commitment from health system leadership, CHW training and support, regular engagement between CHWs and health providers, community partnerships, CHW self-efficacy, and knowledge and skills were perceived as programme facilitators.

As innovation deliverers, CHWs were noted to be an integral part of the programme. CHWs increase access to health services in low-resource settings affected by challenges such as low health provider-to-population ratio, cultural and language differences, and poor geographical accessibility.[30] With adequate training on the expected tasks, CHWs can bridge the gap between providers and communities. Besides improving confidence in performing tasks, training ensures the standardisation of competencies and skills. Furthermore, the CHWs will have to be adequately incentivised to execute the implementation tasks with diligence. In a resource-constrained context such as Mutare, economic opportunities are limited, and most people live in poverty. Incentivising the programme activities can attract CHWs for recruitment, motivate them to perform well, and retain them in the programme. Other studies also emphasised the importance of motivating the CHWs.[31 32] Creating an environment where the CHWs feel valued will likely enhance the programme fidelity, ownership and continuity.[33] However, if substantial, CHW incentives may limit programme sustenance in resource-constrained contexts, given the bureaucratic barriers and competing priorities confronting traditional funding sources such as local government, volunteer-based or community budgets.[34] Underinvestment and limited political support in CHW programmes in Zimbabwe may negatively affect their future sustainability. These issues can be addressed through innovative financing strategies. Implementing a social health insurance scheme can help improve CHW service coverage.[34]

CHW-delivered hypertension management can offer a significant return on investment[35] primarily because their activities can be leveraged on preexisting resources to provide widespread benefits. For instance, they may not require complex equipment, protracted training or infrastructure such as offices and workstations. However, the study findings revealed the lack of basic supplies for hypertension management, for example, sphygmomanometers and point-of-care diagnostic equipment at the primary health facility level, which is the first point of patient contact with the formal health system. It will be imperative for the programme to consider additional supplies to capacitate the affected clinics and advocate for alternative funding to promote sustainability.

Task-shifting models that involve trained non-professionals can help to relieve staff shortages in the healthcare system. Burn-out due to staff shortages, high disease burden, lack of support and resource limitations is high among nurses in sub-Saharan Africa (prevalence: 33%–87%)[36] and this has a deleterious effect on achieving sustainable development goal number 3.[37] The interviewed study participants agreed that structural interventions such as adding CHWs and advocating for better resources for BP management would partly reduce staff workload and burnout at the clinics. Similarly, the supporting role of CHW was reported to ease work pressure, significantly reduce patient waiting times, expand service reach, improve patient retention and increase uptake of services in HIV programmes in sub-Saharan Africa.[38] This work supports the notion that task-shifting approaches can help enhance health service delivery in contexts of low staff coverage.

Leadership engagement and partnership emerged as strong facilitators for the intervention implementation in inner and outer settings. Sustained programme implementation depends on political and financial commitment, and these can only be guaranteed if health authorities and community leadership are consulted and integrated into the programme design and implementation processes.[39] Leadership can be a decisive pillar that defines the strength and quality of implementation because individuals in authority influence implementers' recruitment, motivation, performance and retention.[40] Thus, engagement with health authorities, nurses at the facilities and trusted community leaders will be vital for implementing this programme.

We noted that the individual characteristics of patients, particularly confidentiality, knowledge and practices of

hypertension management, could influence programme implementation. The use of complementary medicine and spiritual healing due to misinformation and the inability to afford medications was rife in this setting. This is consistent with other similar settings where hypertension patients preferred complementary medicine and feared adverse outcomes of treatment.[41] Despite the proven effectiveness of some complementary therapies in the management of hypertension,[42] most of the herbal preparations used locally have not been scientifically tested, and therefore, their efficacy and dosage are unknown. A study in Nigeria also reported that complementary medicine was perceived to reduce the burden of hypertension treatment, mostly among patients from poor households. Medical pluralism among patients is common in sub-Saharan Africa,[43] and this can reduce or modify the potency of the antihypertensive treatment and cause adverse outcomes. Further investigations will be needed to understand the preference and sentiments around the use of complementary to allopathic medicine, given that there is limited empirical evidence of the impact of alternative medication for hypertension management in Zimbabwe.

Limitations

Our study had the following limitations. We cannot generalise our findings to all clinicians, administrators and CHWs since the data analysed only presented their perceptions and experiences. By using the inductive approach in which CFIR domains were preselected for coding, we may have missed barriers and facilitators that fall outside the domains of the framework. Although we had male participants in the CHW category, all nurses and health authorities interviewed were female, and this may have introduced bias to the responses obtained. We only included the health facilities in the public health sector, and professionals from the private sector may have different perspectives considering the differences in job satisfaction, remuneration, resources and medication availability. However, selecting the public health clinics was a sensible sampling strategy since most underserved hypertension patients seek health services from these facilities.

CONCLUSIONS

Our qualitative analysis findings demonstrate that the integration of CHWs into chronic disease management into health service delivery can potentially improve health service access, particularly in low-resource settings. Using the CFIR can be instrumental in organising implementation evidence for planning the implementation of community-based interventions in low-income settings. In the face of chronic health staff and resource shortages, it will be crucial for health systems to be adaptable and proactive to reduce the NCD burden and optimise the available resources to meet and sustain health goals. The findings demonstrate the potential roadblocks and drivers for CHW-delivered interventions for managing hypertension and other chronic diseases within the community. The emphasis is on involving implementers, leadership and end-user perceptions in planning project activities and recruiting the implementation team. Improving coverage of chronic disease management requires strong support from health and community leadership, building community trust and coordinated communication. Training and supervising the CHWs will be essential to ensure programme fidelity, while programme branding and incentivising the CHWs can motivate participants and sustain the programme. However, programme planners must anticipate and prearrange to overcome mainstay challenges that may disrupt intervention delivery. In this study, a sustainable funding source to cover programme essentials such as medication availability and CHW incentives will play a significant role in ensuring intervention sustainability.

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