Original Research Article

Using nominal group technique to develop a training model for community health workers in physical rehabilitation services: insights and perspectives from stakeholders

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ABSTRACT

Background: Although some community health workers are already involved in the delivery of physical rehabilitation services, including physiotherapy, occupational therapy, communication support, and assistive device provision, there is currently no standardized training program to prepare them for these roles. In response to this gap, the present study sought to identify the training needs of community health workers in physical rehabilitation and to propose an appropriate training model to guide capacity development in this area.

Methods: A cross-sectional study employing the nominal group technique to collect data from purposively selected key stakeholders in community physical rehabilitation was conducted. The study consisted of phase 1, which focused on identifying training needs for community health workers delivering physical rehabilitation services, and phase 2, which aimed to determine the appropriate training model for these workers. Stakeholders used a 1–4 ranking for the training needs and the training model, and an overall ranking was calculated for each. Stakeholders were provided with the ranking results for their feedback. The qualitative data were analysed thematically.

Results: The stakeholders identified training needs in client assessment, basic case management, and health education encompassing disability awareness and client support at the community level for community health workers providing physical rehabilitation services. In addition, the stakeholders suggested adopting a decentralised training approach, with the ability to read and write as the entry requirement. The proposed training program could be delivered over three months using a blended approach that combines in-person and online instruction. In addition, stakeholders suggested the inclusion of both theoretical and practical summative assessments, with certification awarded upon successful completion of the training.

Conclusion: Leveraging the identified training needs and the proposed model to develop a standardised training programme for community health workers in the delivery of physical rehabilitation services in Zambia has the potential to improve both access to and the quality of physical rehabilitation services at the community level.

Implications: Standardised training for community health workers in physical rehabilitation could enhance service access, quality, and referral pathways, while addressing

workforce gaps. Competency-based, blended learning with certification may strengthen community health worker capacity and inform policy, supporting Zambia's obligations under the United Nations Convention on the Rights of Persons with Disabilities.

Keywords: Community health workers, training needs, training model, human resources for health in physical rehabilitation, physical rehabilitation services

INTRODUCTION

The World Health Organisation's "Rehabilitation 2030: A Call to Action" urges member states to strengthen rehabilitation services, focusing on expanding human resources for health in this field (World Health Organisation, 2017). However, despite the increasing demand for rehabilitation services driven by the shift from communicable to non-communicable diseases, implementing these recommendations has been challenging in resource-constrained settings like Zambia (Kamenov et al., 2019). This situation has been due to the chronic shortage of human resources for health in rehabilitation, particularly in physical rehabilitation, resulting in low service coverage (Jesus et al., 2017).

The Zambia 2022-2026 National Health Strategic Plan identifies physical rehabilitation services to include physiotherapy, occupational therapy, speech therapy, and prosthetics/orthotics (Ministry of Health, 2023a). While Zambia has made some improvements in the delivery of physical rehabilitation services, significant challenges persist, particularly at sub-national levels. Challenges stemming from a shortage of human resources for health in physical rehabilitation, with a ratio of 0.26 health workers to 10,000 population, have been compounded by a lack of multidisciplinary skills (Ministry of Health, 2023a). This crisis has led to inequities in physical rehabilitation service delivery, with most services concentrated in urban and hospital settings.

Community health workers are widely recognised as an effective solution to the human resources for health crises by enhancing health service coverage in underserved areas (Schneider & Lehmann, 2016). Their cultural competence and understanding of local social and cultural barriers make them natural links between health systems and communities (Sharma et al., 2019). In Zambia, Community health workers provide a broad range of services, including health education, health promotion, disease prevention, primary health care, and specialised services such as maternal and child health, tuberculosis, and malaria care (Ngoma-Hazemba & Ncama, 2018; Schuttner et al., 2014; Kapata et al., 2014; Ashton et al., 2023).

In Zambia, community health workers have contributed to a range of health interventions and have provided physical rehabilitation services for children with disabilities, in line with the objectives of non-governmental organisations that employ them (Mapulanga & Dlungwane, 2024). Evidence from some sub-Saharan African countries showed that community health workers can support physical rehabilitation services, with their roles and modes of operation varying across settings (Mapulanga et al., 2024). Their successful involvement has followed training or orientation in rehabilitation service delivery typically (Nesbit & Clark, 2019; Scheffler & Mash, 2020; Vancampfort et al., 2021). Still, the duration and focus of training has varied based on specific health interventions and funding objectives, leading to variations in community health workers' scopes of practice in physical rehabilitation.

While the Zambian National Community Health Worker Strategy 2022-2026 estimated that Zambia has about 90,016 community-based volunteers, the community health worker program in Zambia is fragmented, with various community health workers working under different implementing partners in vertical programmes (Ministry of

Health, 2023b; Tulenko et al., 2013). Therefore, training of community health workers in Zambia differs in content, length, and intensity depending on the programme goals of the implementing partners, with no standardised selection criteria, motivation guidelines, or working hours (Ministry of Health, 2021). This variation has led to the creation of various community health worker groups addressing different health needs, such as growth monitoring, HIV adherence support, and safe motherhood.

In Zambia, a few trained community health workers have been providing physical rehabilitation services, but their training is not standardised (Mapulanga & Dlungwane, 2024). Nonetheless, many community health workers not trained in physical rehabilitation still provide physical rehabilitation services at the community level without formal training (Mapulanga & Dlungwane, 2025a). While both service users and caregivers have valued services provided by these untrained community health workers, feedback indicates a need for formal training in the delivery of physical rehabilitation services. This need is further scored by the limited accessibility of physical rehabilitation in Zambia, particularly at community levels, as the majority of Zambia's human resources for health are concentrated in urban areas, are inequitably distributed, and often lack the appropriate skill mix to meet population needs (Ferrinho et al, 2011; Vledder & Campbell, 2022).

Standardising community health worker training in physical rehabilitation could help address the human resources for health gap and improve service coverage (Mapulanga & Dlungwane, 2025b; Kumurenzi et al., 2022). This study aimed to identify the training needs of community health workers in physical rehabilitation and propose a suitable training model.

METHOD

Study Setting

This study was conducted in landlocked Zambia, a sub-Saharan country, which shares borders with the Democratic Republic of Congo in the north, the Republic of Tanzania in the northeast, Malawi in the east, Mozambique in the southeast, Zimbabwe and Botswana in the south, Namibia in the southwest, and Angola in the west (Republic of Zambia, 2024). Zambia, with a population of about 19 million, has an estimated disability prevalence of 11%, while access to rehabilitation services remains limited to only 17% of those affected. (Republic of Zambia, 2024; Central Statistical Office / Ministry of Community Development & Social Services, 2018).

Study methodology

This study employed a cross-sectional design using the nominal group technique to generate community health workers ' training needs for physical rehabilitation service delivery and to propose a training model. On 24th April 2024, we held a three-hour in-person workshop with key stakeholders in the lecturer theatre at the University of Zambia in Lusaka, Zambia.

Stakeholders

We purposely selected our stakeholders based on their relevant expertise in physical rehabilitation and availability at the time of data collection, while ensuring representation of key functional roles within the rehabilitation and community health system in Zambia. We included two community physiotherapists, an occupational therapist and an occupational therapy technologist, a speech therapist and a communication supporter, two prosthetists and orthotist technologists, a community health manager, a community health worker trainer, and a community health worker who had a disability and was a user of rehabilitation. We used phone calls to invite eleven stakeholders to attend a physical workshop.

Eligibility criteria

Individuals who met the following criteria were included in the study
Health professionals in physical rehabilitation, namely physiotherapy, occupational therapy, speech therapy, prostheses, and orthoses.
Personnel involved in the management of community health.
Personnel involved in the training of community health workers.
Individuals who work as community health workers.
Persons with disabilities who are users of physical rehabilitation services.
Individuals who were able to communicate in the English language.

Exclusion Criteria

Personnel who lacked the mental capacity to consent to participate in the study.
Personnel who were not available at the time of data collection.

Data management and analysis

The principal investigator was responsible for data management. Collected data, facilitator session notes, and post-it note pads were stored in a lockable cabinet. The total importance score for each training need idea was calculated by summing the individual stakeholder's scores from the quantitative data gathered during the ranking step of phase 1 of the workshop, with ranking scores ranging from 1 to 4. Similarly, for phase 2, the total importance score for each training model idea was calculated by adding the stakeholders' individual scores, and the ranking scores ranged from 1 to 4. Qualitative data from the workshop discussion were analysed using thematic content analysis to identify emerging themes. Qualitative data from the recorded data, facilitator session notes, and post-it note pads were used to explain the scores. A draft report prepared by the principal investigator was circulated to the stakeholders within one week for review, comments, and verification. Stakeholders' feedback was incorporated into the final report.

Workshop programme

The data was gathered during the nominal group technique workshop on 24th April, 2024. The workshop was conducted in two phases. Phase 1 focused on identifying the training needs of community health workers in physical rehabilitation, while Phase 2 centred on developing a training model for community health workers in physical rehabilitation services. The workshop was facilitated by the principal investigator with the research assistant. The procedure for each phase is outlined as follows:

Phase 1

Objective- To determine the community health workers ' training needs in physical rehabilitation services.

Question: What should community health workers be trained in as regards to physical rehabilitation services?

Procedure—The stakeholders were asked to share the community health workers ' training needs based on their knowledge and expertise. The following pre-determined themes were used to reflect existing evidence, national policy priorities, and known gaps in community health worker training in Zambia (Mapulanga & Dlungwane, 2024; Mapulanga et al, 2024; Mapulanga & Dlungwane, 2025a).

Assessment
Case management
Health education
Community liaison with support services
Health system linkage
Administration

Ideas in the individual themes were voted on and ranked, with the most important idea receiving a score of 4 and the least important receiving a score of 1. Therefore, the idea with a score of 4 is ranked high, and the idea with a score of 1 is ranked lowest. With 11 stakeholders, the highest total score would be 44 (100%), and the lowest would be 11 (25%).

Phase 2

Objective- To develop a community health workers' training model in physical rehabilitation.

Question: What training model should be used for community health workers in physical rehabilitation?

Procedure: Stakeholders were asked to suggest a training model for community health workers in physical rehabilitation. The model responses were required for the following predetermined themes, as identified in the literature review (Scheffler & Mash, 2023; Komi et al., 2022).

Entry qualification
Duration of training
Mode of training
Training approach
Evaluation
Regulation
Certification

Again, the ideas in the individual themes were voted on and ranked, with the most significant idea receiving a score of 4 and the least a score of 1. Therefore, the idea with a score of 4 is ranked highest, and the idea with a score of 1 is ranked lowest. With 11 stakeholders, the highest total score would be 44 (100%), and the lowest would be 11 (25%).

Ethical clearance

This study was part of a larger study cleared by the University of KwaZulu-Natal Biomedical Research Ethics Committee (BREC 00000569/2019). The Zambia National Health Research Authority granted permission to conduct the study. Stakeholders gave consent to participate in the workshop.

RESULTS

Quantitative Findings

Demographic profile of the stakeholders

Eleven key stakeholders aged 30 to 65 participated in the workshop. The inclusion of stakeholders was guided by their direct involvement in community-based rehabilitation, training, and service delivery. In Zambia, the number of professionals working in rehabilitation services is limited; therefore, the selection of stakeholders was pragmatic. The characteristics of the stakeholders are presented in Table 1 below.

Table 1- Demographic profile of the stakeholders

Stakeholders	Age group	Gender	Occupation	Years in service
P1	30-35	Female	Community physiotherapist	14
P2	30-35	Male	Community physiotherapist	11
P3	60-65	Male	Occupational therapy technologist	Retired
P4	40-45	Male	Occupational therapist	17
P5	60-65	Female	Speech therapist	Retired

P6	30-35	Female	Communication supporter	5
P7	40-45	Female	Prosthetics and orthotics technologist	15
P8	35-40	Male	Prosthetics and orthotics technologist	12
P9	45-50	Female	Community health worker trainer	7
P10	45-50	Female	Community health worker with a disability	6
P11	45-50	Female	Community health worker manager	7

Training needs

Eleven stakeholders ranked the training needs of community health workers in physical rehabilitation across predefined themes (Table 2). In client assessment, assistive device needs and functional and physical abilities were ranked highest (44 scores, 100%), while biomechanics, gait, posture, balance, and proprioception were lowest (24 scores, 55%). In case management, assistive device provision and fitting, communication support, and functional activities and exercises ranked highest (44 scores, 100%), whereas prosthetic material selection ranked lowest (16 scores, 36%). For health and disability education, disability awareness ranked highest (44 scores, 100%), while disease-specific information ranked lowest (24 scores, 55%). In community liaison, inclusion, and support services, community liaison ranked highest (41 scores, 93%) and economic empowerment lowest (26 scores, 59%). For health system linkage, client identification ranked highest (41 scores, 93%) and community health sourcing lowest (24 scores, 55%). In *administration,* documentation ranked highest (40 scores, 91%) and filing lowest (29 scores, 66%).

Table 2- Community health workers' training need

Theme	Training needs	Summing by votes				Total score	Rank in percentage
		1	2	3	4	44	
CONCLUSION	Biomechanics, gait analysis, posture, balance, and proprioception	4	1	6		24	55
	Review of hearing, sight, movement, and mental status	4	1	6		24	55
	Cognitive abilities and inabilities	2	3	6		26	59
	Emotional abilities and inabilities	3	2	2	4	29	66
	Movement abilities and inabilities	2	2	2	5	32	73
	Activities of daily living and environmental barriers	1		4	6	37	84
	Case history taking		1	1	9	41	93
	Physical Observation			2	9	42	94
	Speech and language abilities and inabilities			1	10	43	98
	Identifying conditions requiring physical rehabilitation			1	10	43	98
	Physical abilities and inabilities				11	44	100
	Functional abilities and inabilities				11	44	100
Assessment	Orthotic and prosthetic requirements				11	44	100
	Prosthetic material selection	5	5		1	16	36
	Articulation	6	4		1	18	41
	Social skills	4	6		1	22	50
	Patient care		1	4	6	38	86
	Exercise provision				11	44	100
	Functional exercises				11	44	100
	Functional activities				11	44	100
	Communication support				11	44	100
Case management	Essential assistive device provision and fitting				11	44	100
	Provision of information about diseases	4	1	6		24	55
	Demystifying physical illness and disability		2	4	5	36	82
	Provision of information about physical disabilities			5	6	39	89
Health education	Disability awareness				11	44	100
	Economic empowerment	3	1	7		26	59
	Clients' support and empowerment		3	3	5	31	71
	Support clients in community participation.		2	3	6	37	84
	Community client integration	1		1	9	40	91
Community liaison with support services	Community liaison		1	1	9	41	93
	Community health sourcing	4	1	6		24	55
	Linking clients to health facilities	1	2		8	37	84
	Making referrals		2		9	40	91
Health system linkage	Clients identification		1	1	9	41	93
	Filling	3	3		5	29	66
	Record keeping		1	2	8	39	89
Administration	Documentation			3	8	41	91

Training model

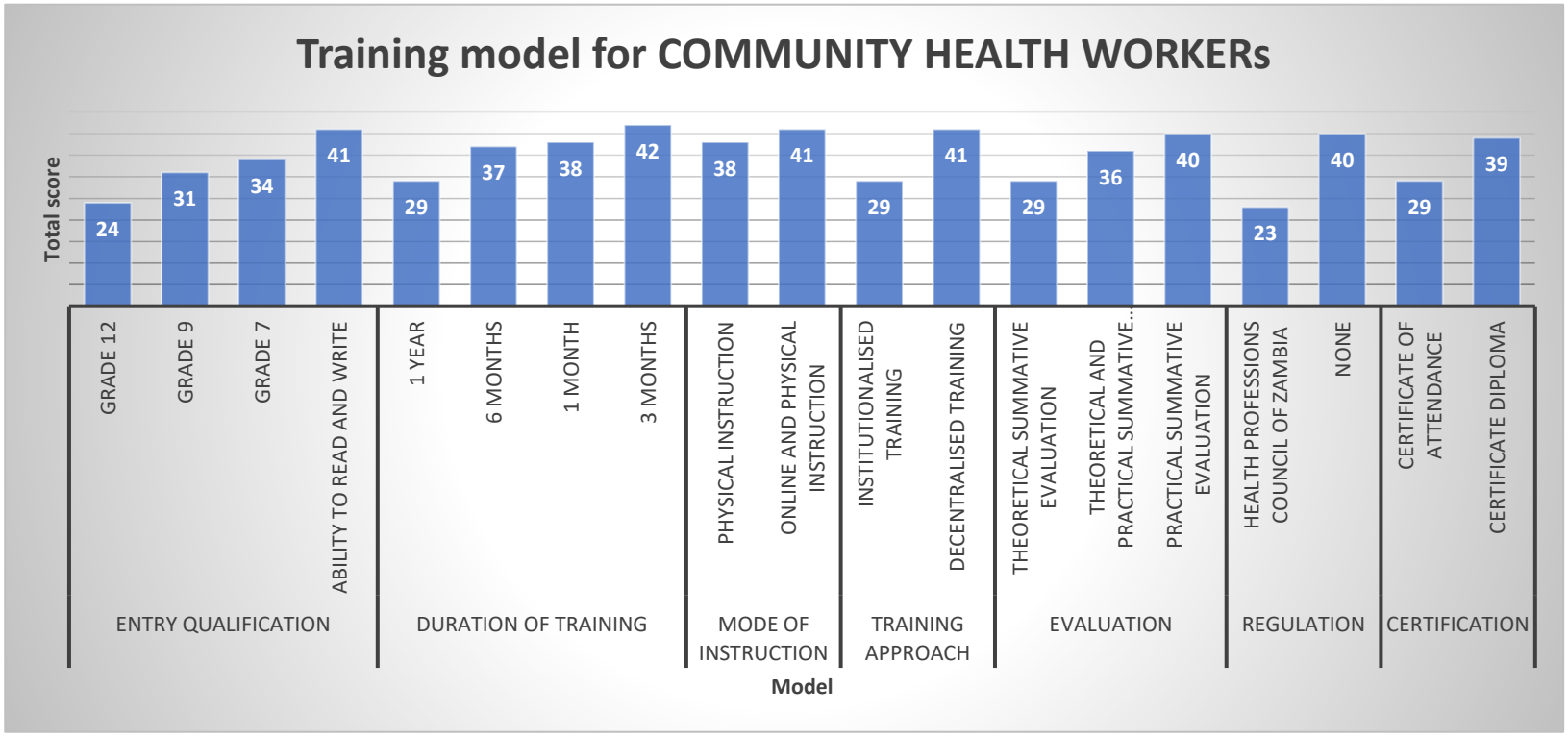

Figure 1- Proposed training model for community health workers in physical rehabilitation

Stakeholders also scored their preferred training model for community health workers in physical rehabilitation across predefined themes (Figure 1). For *entry qualifications*, basic literacy (93%) was rated the highest, while Grade 12 was rated the lowest (55%). Regarding *duration*, three months of training was preferred (96%), while one year was the least preferred option. As regards to the *mode of training*, blended mode of instruction (a combination of face-to-face and online) was rated higher (93%) than face-to-face instruction only (86%). A decentralised training *approach* was preferred (93%) over a centralised model. For *evaluation*, the practical summative assessment ranked highest (91%), followed by a combined theoretical and practical assessment, while the theoretical-only assessment

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ranked lowest. Most stakeholders indicated that *regulation* was not necessary (91%) and that *certification* should be awarded upon completion (87%).

Qualitative Findings

Training needs

Client assessment

The stakeholders pointed out that assessing physical abilities would help the community health worker identify clients' physical capacity to perform activities, such as elbow flexion. Assessing functional abilities helps them identify shortcomings in the capacity to perform meaningful functions.

"Being equipped with the skill set to assess functional and physical inabilities will help them plan strategy to help the clients." (P4)

According to the stakeholders, assessing the clients' assistive device requirements equips community health workers to understand community needs.

"It is very important that they know how to assess assistive devices requirements in the community. This will help them know who needs what assistive device." (P7)

Learning to identify conditions requiring physical rehabilitation, including speech impairments, would help them understand which conditions require intervention by community health workers. The statement below from the stakeholder underscored the need to train community health workers in physical observation.

"It will be prudent for them to understand conditions which require physical modalities because this is what they will be offering. "(P10)

"Knowing the clients' speech abilities and inabilities will help them plan support or refer the clients. "(P5)

"They need to differentiate the abnormal from normal by looking at clients which will lead to physical examination." (P9)

The stakeholder explained that community health workers needed to understand history taking in their training as well.

"The skillset to relate a condition to past incidence is needed in their practice." (P8)

The stakeholders reasoned that training the community health workers in the assessment of activities of daily living and environmental barriers would enhance their service delivery. The epitome of health services delivered by community health workers in the community or to clients is the enhanced activities of daily living and overcoming environmental barriers.

"Observing how the clients goes about daily activities is needed so that they understand what barriers are common in their environment and provide help. This will help them provide appropriate devices which are functional in the clients' space." (P11)

The stakeholders thought that since physical rehabilitation is centred on propulsion, the community health workers needed to learn movement abilities and inabilities in their client assessment.

"Movement is the core business of physical rehabilitation. Improving movement abilities is an important outcome for many clients." (P2)

Case management

Regarding the provision and fitting of assistive devices, stakeholders suggest training community health workers in basic assistive device provision and fitting so clients can be assisted at the community level.

"These community health workers will need to know basic assistive devices provision and fitting. The devices need to be basic like supportive seating or wheelchairs. They will also need to know how to just fit some devices like artificial limb. If there is a client having a problem in the

community with some devices, the community health workers should be able to help or make a referral." (P8)

In the absence of speech therapy, the stakeholders suggested simple communication support for clients who cannot access services.

"A lot of cases are left unattended to, but the community health workers should be able to offer communication support so that the clients can express themselves through other activities like eye contact." (P5)

It was also suggested that the community health workers be able to teach functional activities and, hence, be trained in this area.

"They will need to know how to teach functional activities to help improve the function of their clients. The goal is to improve the client's independence in daily living." (P3)

Improving functional performance was identified as the ultimate aim of community health workers, hence the stakeholders suggested training them in functional exercises.

"For functional performance to improve, they need to know how to conduct the very functional exercises for the clients." (P1)

Unique to physical rehabilitation, the stakeholders suggested that community health workers be trained in general exercise provision, including the type, timing, and client needs.

"In physical rehabilitation, exercise provision is key. They need to understand this…what type of exercises, when to exercises and who to give exercises." (P1)

The stakeholders suggested that patient care be included as a training needs of community health workers in case management, as they would be working independently at the community level.

"Because they will be operating at community level, they need to be equipped with skills in patient care like blood pressure monitoring." (P9)

Health and disability education

The stakeholders reasoned that one of the community health workers' duties should be providing disability awareness.

"One of their important roles should be to increase disability awareness to communities. Disability awareness is still low and these should be agents to increase the awareness to communities." (P2)

Due to a lack of information regarding disabilities, the stakeholders suggested that community health workers should be able to provide this information to the communities. The stakeholders suggested that, in health and disability education, community health workers should also be trained to demystify physical illness and disability.

"Many people do not have information regarding physical debilities as in what they are and the possible causes. The community health workers need to know how to provide the information regarding physical debilities." (P4)

"There are of myths concerning physical illness. The community health workers should be trained in demystifying physical illness and disability myths through health education." (P11)

Community liaison, inclusion, and support services

The stakeholders reasoned that training community health workers in community liaison would be highly beneficial for service delivery, as they are well-positioned in the communities and are rich in cultural competence.

"The community health workers need to be trained in community liaison because they understand the communities better and have a bigger voice as compared to ordinary community members." (P10)

Since they are to operate at the community level, the stakeholders suggested that community health workers be trained in client integration because they are better placed among human resources for health to integrate clients in the community.

"Community health workers are members of the community and work in the community, therefore training them to integrate clients in the community will be necessary. "(P11)

Given their proximity to clients and the community, client support in community participation was suggested as part of the training for community health workers in physical rehabilitation.

"Community participation by clients is vital to achieve good community health outcomes and for this to be possible, community health workers will need to support clients in community participation." (P4)

The stakeholders also suggested client support and empowerment through community-level activities or education as part of the training needs for community health workers.

"Clients need to be supported and empowered in terms of rehabilitation. This can be in form in activities or education at community level and this will be done by the community health workers. They need to be trained in this regard." (P5)

Health system linkage

Training in client identification at the community level.was suggested as a training need as community health workers are the first-line workers in health systems.

"Clients' identification is a very important training need for community health workers. They are the first front-liners in health care. They need to be equipped with skills to identify those in need of services at community level." (P11)

In the health system linkage, it was also suggested that they need to be trained to make referrals to other levels of care.

"Their training should equip them with tools to make referrals to other providers or higher level." (P10)

Aside from making referrals, the stakeholders also suggested that community health workers be trained to link the identified clients to health facilities.

"The essence of community health workers is linking clients to health facilities. They need these skills." (P9)

Administration

As part of the service administration, the stakeholders suggested that the community health workers be trained to document and manage data.

"Data management is a skill they should learn like any other worker. Documenting their activities will help in making progress reports." (P11)

Equally, the need to keep records at the community level was emphasized as a training need in administration.

"Record keeping is very important for all health workers especially these will be at community level. Records will be required for evaluating services and make improvement where necessary." (P8)

Training model

Entry qualification

The stakeholders suggested that interest in community health work be a prerequisite for entry. They also considered reading and writing very important, as instruction comprehension is required during the training.

"A qualification need not be attached, as long as one can read and write, they can be taken up. If a person is able to read and write then, they can well comprehend the instruction in the training. What matters is one has a heart for the work." (P9)

Regarding academic qualifications, settling for as low as the seventh grade was thought of as ideal, as long as the candidate could understand instruction.

"Just grade seven is necessary. Nothing much. They just need to understand what is being taught. What is important is the passion for the work." (P2)

Meanwhile, a twelfth grade was not considered as a good requirement, as it was thought to lead to a high attrition rate, because then candidates also qualified for other programmes.

"Taking those with grade 12 qualification is not the best idea. They may not really be interested in the work. But just because there is a programme, they will enrol and later migrate to work of their interest." (P4)

Duration

Three months of training for community health workers in physical rehabilitation was highly favoured to cover both theory and practice while accounting for other personal activities in candidates' lives.

"Three months is good period to cover basic training needs both the theoretical and practical aspect. These are people who have other activities going on in their lives." (P9)

Although one month also scored high, the stakeholders reasoned that a one-month period could be too short to instill the practical aspect.

"One month may not be long enough to coverthe practical aspect" (P5)

The longest, which was suggested and scored higher, was 6 months, including both theory and practical.

"Physical rehabilitation has four components which they can cover in six months including both theory and practical." (P7)

Mode of instruction

The hybrid mode, a combination of physical and online instruction, was highly favoured.

"Health service delivery is physical. But the combination of both physical and online instruction would be ideal. While physical instruction is best, follow up can be done online especially where distance is an issue. The world is moving in this direction." (P5)

The suggestion for physical instruction was also favoured because physical rehabilitation is hands-on, and this would yield better results.

"Physical rehabilitation is hands on. Even the training need to be tailored in this way. Hence physical instruction would bring out the best results. "(P9)

Training approach

The stakeholders suggested a decentralised approach to training as they felt community health workers should be trained in their natural environment.

"Community health workers need to be trained in the environment where they will operate from which is the community. So the training need to take a decentralised approach." (P9)

Evaluation

Physical rehabilitation, being practical, a practical, summative evaluation to bring out practical skills was suggested.

"Practical summative evaluation will bring out the skills achieved by the community health workers. Community health is practical and the objective should be to bring it out." (P9)

However, a theoretical and practical summative evaluation scored higher, to bring out both the theory and the practical know-how was highly favoured.

"It will necessary to bring out what the theory as well practical knowledge. They will not only be delivering practical services. They will also have engaged in health education. How do we know what they know about conditions?" (P11)

Regulation

The stakeholders suggested that the regulation of community health workers be left out. They reasoned that all community health workers are non-regulated and that, after training, they will be supervised by qualified health workers.

"All community health workers are unregulated in Zambia. It should be the same for these ones." (P11)

"There is no need of regulating these community health workers because they will be supervised by a qualified health provider." (P9)

Equally, the Health Professions Council of Zambia requires a full grade 12 certificate for professional registration, which, in this case, is not a mandatory qualification for entry into the community health worker programme.

"Health Professions Council of Zambia requires regulating professions with a full grade 12 certificate, which these one may not have." (P1)

Certification

The stakeholders highly favoured issuing a qualification certificate to community health workers upon completion of training.

"It is only fair to give a certificate to one who has been trained longer than a month." (P11)

"A certificate can be used to get employment because the time is longer. It is a way of motivating them"(P9.

DISCUSSION

This study, conducted through collaboration with key stakeholders, identifies the training needs and training model for consideration when training community health workers to render physical rehabilitation services. The stakeholders emphasised the importance of detailed client assessment and case management for community health workers rendering rehabilitation services. In addition, the stakeholders suggested adopting a decentralised approach to training, with the ability to read and write as the entry requirement, and a duration of three months, with a combination of physical and online modes of instruction. Furthermore, a theoretical and practical summative evaluation was emphasised, and a certificate was to be issued upon completion of the training. These study findings echo the World Health Organisation guideline on health policy and system support to optimise community health workers' programmes (World Health Organization, 2018).

Patient assessment and case management are integral to delivering quality physical rehabilitation services. Community health workers are important health front-liners. Therefore, adequate assessment skills and case management empower them to operate independently at the community level (Glenton et al, 2012). While the current study suggested a detailed physical rehabilitation patient assessment and case management, the included components are actually basic components of physical rehabilitation practice at the lowest level. This leaves individual trained human resources for health in physical rehabilitation to provide the detailed, specific service.

Meanwhile, other community health workers ' training programmes in physical rehabilitation services vary in how they incorporate patient assessment and case management (Nesbit & Clark, 2019). In health education, community health workers serve as the primary source of health information at the community level; therefore, equipping them with appropriate health education tools has the potential to enhance disability awareness (Jansen-van Vuuren & Aldersey, 2018). Community health workers should also be empowered to strengthen, liaise with, and integrate clients. They should support clients in community participation as they are considered health pillars of the community (Hartzler et al, 2018). The current study also highlighted this.

Training community health workers in general skills such as health education, health system linkages, community liaison, disability awareness, and administration has potential to strengthen currently fragile community health systems in Zambia. Such capacity building may facilitate the development of effective rehabilitation referral and care pathways, thereby improving access to and delivery of physical rehabilitation services (LeBan et al., 2021). Furthermore, strengthening community health systems and expanding access to physical rehabilitation services constitute a disability right to which persons with disabilities are entitled to, particularly in light of Zambia's ratification of the United Nations Convention on the Rights of Persons with Disabilities (United Nations High Commissioner for Human Rights, 2025). The provision of appropriate physical rehabilitation services is therefore integral to advancing health equity, social justice, and the realisation of human rights (Guide, 2014).

While community health workers are recruited from local communities, their training varies across settings (Lehman & Sanders, 2007). In the current study, stakeholders argued that, in addition to being from local communities, entry requirements should be based on the candidate's ability to read and write. Evidence shows that the experience and practical training of community health workers outperform their literacy and formal education and predict increased knowledge and performance (Rogers et al., 2023). In contrast, in South Africa, the community health workers should at least have completed high school with some basic literacy and numeracy (Scheffler & Mash 2023). Regarding training duration, the existing literature indicates that community health worker training programmes in physical rehabilitation may range from 21 hours to 3 days (Scheffler & Mash, 2023; Nesbit & Clark, 2019). However, the stakeholders in the present study perceived a three-month training period to be sufficient for community health workers to acquire the knowledge and skills in physical rehabilitation. While the training duration depends on the content and depth of what has been considered essential, the stakeholders in this current study felt that three month's duration would be sufficient for community health workers to gain both theoretical and practical skills across all four components of physical rehabilitation. Without national standards for training community health workers in Zambia, exploring the entry requirements underscores the need to understand whether they can be trained effectively.

A decentralised training approach was recommended as suitable for community health worker training to ensure that practical and theoretical training are adequately integrated (Scheffler & Mash, 2023; Nesbit & Clark, 2019; De Villiers et al., 2017). Additionally, the current study suggested a hybrid approach as a teaching and learning strategy. While online instruction would make training more accessible in other settings, it might pose challenges in some regions of Zambia with inadequate technological infrastructure (Zambia Information and Communications Technology Authority, 2022). With appropriate logistics in place, in-person instruction yields positive results in community health worker training (Shireman et al., 2020). However, securing time for in-person instruction for community health workers may be challenging, as adult students may have other responsibilities. A theoretical and practical summative evaluation is widely used in most community health worker training programs (Galvez et al., 2021; Scheffler & Mash, 2023). The same was also suggested in the current study. Given the independent operation of community health workers, a theoretical and practical summative evaluation would ensure that knowledge and skills are properly assessed. Community health workers face various challenges in their service delivery, including unrealistic expectations and limited resources. With a standardised training model and certification, a path could be paved for integration into the national health system, thereby minimising challenges.

This proposed training model for community health workers, therefore, offers a valuable solution to improve rehabilitation service delivery in Zambia and similar low-resource settings. To further increase community health workers' effectiveness after training, their role should focus on specific, well-defined tasks under a task-sharing approach, as they will not be able to manage all conditions independently (Yankam et al, 2023). It is therefore recommended that community health workers be competency-based trained, delivered by specific human resources for health in physical rehabilitation, with ongoing supervision and mentorship. For further effective implementation, the model must be supported by national health policies, integrated into existing health systems, and supported by academic and professional institutions.

Strengths and limitations of the study

The study used a mixed-methods approach, specifically the nominal group technique, to gather input from various stakeholders in physical rehabilitation, including professionals in physiotherapy, occupational therapy, and speech therapy with expertise in prosthetics and orthotics. This approach generated ideas for the training needs and a model for community health workers in physical rehabilitation. However, a fundamental limitation was the difficulty in assembling stakeholders due to Zambia's shortage of physical rehabilitation professionals. To address this, the study included a retired speech therapist and occupational therapy technologists.

CONCLUSION

Community health workers offer a solution to the ongoing human resources crisis in health within resource-constrained settings. Their roles vary, but they can support physical rehabilitation services. Training community health workers in this area could help fill the human resources for health gap and improve service distribution, especially in resource-constrained settings. The results emphasised the importance of standardised training programmes to enhance competencies and ensure equitable service distribution.

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Authors contribution

MM conceptualised the study, conducted data collection and initial analysis, and wrote the first draft of the manuscript. TD[3] assisted in conceptualising the study and data collection and reviewed the manuscript. TD[1] guided the study's conceptualisation and data analysis, reviewed the manuscript, and provided intellectual insight. All the authors approved the manuscript for publication.

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