Research

Community Health Workers' experiences of an intervention to provide them with increased support and supervision: a qualitative study of a home visiting model in rural South Africa

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Abstract

Deploying Community Health Workers (CHWs) is a crucial strategy to improve health at a community level in low- and middle-income countries. While there is substantial evidence for CHW effectiveness, there is a need for more research on the mechanisms through which these programs work. Understanding CHWs experiences of how programmes function is important. This article examines CHW's experiences of three key programmatic domains; training, logistical support and supervision. Data were gathered using through qualitative descriptive study drawing from semi-structured interviews. The study was embedded within a cluster randomized controlled trial, testing the effectiveness of an enhanced supervision package delivered to government-employed CHWs in the rural Eastern Cape, South Africa, on maternal and child health outcomes We conducted individual semi structured interviews with CHWs (n = 16) and two supervisors. Data were coded deductively and overall, three overarching areas and five sub-themes emerged from our interviews, the overarching teams were; 1) CHW knowledge and confidence increased through additional training, 2) CHW motivation and community acceptance improved because of added logistical support, and 3) CHW supervision led to improved sense of accountability, feelings of respect, and sense of being supported. Our findings highlight the importance of a functional support system within which CHWs can operate, in a context where most CHWs operate in isolation and without support. CHWs receiving supportive supervision reported positive impacts on their motivation and ability to carry out their work effectively. Clinicaltrials.gov, NCT02957799, 2016-11-08.

Keywords Community Health Workers · Supervision · Home visiting · Training · Resources

1 Introduction

Deploying Community Health Workers (CHWs) is an important strategy to improve access to health care and to improve population health in low- and middle-income countries (LMICs) [1, 2]. While there is substantial evidence that CHW programs improve a range of health outcomes [1, 3–5], these benefits tend to reduce or disappear when

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CHW programs are scaled up [2]. In addition, there is limited research that has successfully identified the mechanisms through which these programs work and how workplace-related factors, such as supportive work environments for CHWs, impact outcomes [2, 6]. Three programmatic domains; training, logistical support and supervision have been identified by CHWs in this study and others [3] as key for supportive work environments. This article describes how CHWs experience these three programmatic domains in a rurally-based CHW programme in South Africa.

The quality and quantity of training of CHWs varies significantly across programs, but is often reported as insufficient or of low quality [3, 7]. There is evidence that higher quality training and follow up training improves CHW knowledge substantially [8]. The training however needs to be up to date and be responsive to current health needs [9]. Improving access to equipment and provision of logistical support such as transport has been shown to improve CHW motivation and performance [10, 11]. CHWs often report shortfalls in equipment and logistical support provided, which poses significant challenges to successful implementation of programs [3]. CHWs often work in rural and remote areas and access to transport and basic equipment is key to effective delivery [3]. Supervision is often described as the "missing element" that ensures the efficiency of CHW programs – particularly when programs are scaled up [3, 12, 13]. Despite extensive evidence about the importance of supervision for CHW program success [2, 14, 15], supervision processes are often reported as absent, or of poor quality [16, 17].

Similar to in many other countries, South Africa has a national, government-funded CHW program [18]. In South Africa, CHWs are part of Ward Based Outreach Teams [WBOTs] [19]. These teams work at a ward level (the political sub-division of a municipality), where a group of six to ten CHWs conduct home visits and provide basic information and advice about maternal and child health, non-communicable diseases, HIV/TB treatment and general health, and aim to improve access to health care. CHWs in the WBOT system are supervised by primary health care clinic managers and operational team leaders who are enrolled or registered nurses (different levels of education and experience) [18–20]. Although CHWs have described feeling positive about their jobs [21], and the WBOT strategy is promising in its design [22]—challenges have been reported relating to the programmatic domains described above; training, logistical support and supervision. In a recent study by Goudge et. al. [23] it was reported that CHWs were more motivated when a professional nurse was performing the supervision and this also led to improved integration in the health care system, which has been established as important for CHW programming. It is clear that the South African CHW expansion is only likely to be successful if investments are made in these areas [2, 24–26]. Considering the domains of the supportive system outlined above, and the common programmatic shortfalls identified in each of them—an intervention package which include; in–field training, logistical support and supervision—based on the Philani Mentor Mother model (described below) was developed. This intervention was implemented through a cluster Randomized Controlled Trial (cRCT - a type of randomized controlled trial in which groups of subjects are randomized) to see whether CHW program outcomes improve when these domains are provided. Understanding CHWs own experiences of the programs in which they work is critical in identifying mechanisms through which these programs work. This paper reports on a descriptive qualitative sub-study of the cRCT, adopting a narrative methodological orientation, where ee hypothesize that additional training, logistical support and supervision, will influence how CHWs experience their work situation and motivation. Exploring CHWs experiences may provide important insights as to how CHW programming can be improved.

2 Methodology

2.1 Study design

This study is a qualitative descriptive study drawing from semi-structured interviews with CHWs enrolled in the intervention and control arms of a cRCT called the Eastern Cape Supervision Study (ECSS). We adopted a narrative methodological orientation where interviews focused on participants experiences of supervision through providing examples and experiences of their work life. The objective of the ECSS was to investigate whether good quality supervision and support provided to South African government CHWs (intervention) improved maternal and child

outcomes when compared to routine supervision (control) as delivered within the primary health care system. The cRCT has recently been completed and the results are being analysed. The study protocol details all processes [27].

The study reported on in this paper is a qualitative sub-study of the cRCT, where CHWs from both arms of the trial were interviewed to explore their experiences of supervision in general and of the added supervision package in particular.

2.2 Setting

The study was conducted in the rural Eastern Cape province of South Africa. The study district is one of the most under-developed and impoverished municipalities in the country. Access to healthcare is a challenge in this area, and employment levels are low [28, 29]. Previous research in the area reported that 5% of mothers have never attended school, only 6.6% had a high school diploma and 92.5% of households received some kind of government grant. Fewer than 50% of children had up-to-date immunisations by three months, and at 12 months, 73.1% had their immunisations up to date [30]. Health care is mainly provided by a government district hospital and surrounding primary care clinics, though there are a few private health care practitioners in the area.

2.3 Ethics

This research was performed in line with the principles of the Declaration of Helsinki. Approval was granted by the Ethics Committee of Stellenbosch University Health Research Ethics Board (N16/05/064), by the UCLA Institutional Review Board (IRB#16–001362) and by the Eastern Cape Department of Health. The cRCT is registered: Clinicaltrials.gov, NCT02957799. Informed consent was obtained from all individual participants included in the study.

2.4 Domains of the intervention

CHWs in both control and intervention conditions were provided with additional general CHW training. Training included four weeks of group-based training session followed by two weeks of mentoring by experienced CHWs in the field as part of the training. The training included modules such as: counseling and communication skills, negotiating entry, HIV, TB, peri-natal health, infant feeding and nutrition, and self-care [31, 32]. Once training was completed, CHWs in the intervention condition took part in an enhanced supervision intervention.. CHWs in the intervention condition received support and supervision from Philani supervisors. Two Philani supervisors were recruited to provide supportive supervision to 10 CHWs each in the intervention condition. Previous evaluations of this approach have shown a positive impact on maternal and child health [4, 32]. CHWs in the control condition continued to work in the standard DoH system, supervised by existing Operational Managers and Team Leaders based at the clinics.

Intervention CHWs had access to transport at least twice a month when seen by a supervisor in the field. CHWs in the control arm did at the time of the study not have access to any mode of transport. Intervention CHWs also received additional equipment and medication such as folders, scales, thermometers, de-worming medication and vitamin A. This added support and equipment were not available for CHWs in the control condition.

2.5 Sample

We interviewed eight CHWs from each of the two arms of the cRCT, and two supervisors from the intervention arm individually (total n = 18). CHWs were partly purposefully sampled as we wanted representation from each of the study clinics. Within the pools of CHWs at each clinic, random sampling was however used and CHWs from each of the study clinics were randomly drawn from a hat and approached for interviews. CHWs had all been working as CHWs for varying periods of time prior to the implementation of this study. The CHWs had all been part of the initial training and were thus familiar with the project, they were approached through a phone call by a data collector. Once the 18 interviews were conducted, no new themes were identified. We fully acknowledge that it could be that if we added more interviews, it is possible that new information could occur. We however in this case could not practically do more interviews and based

on this, and the indication that no new themes were identified in the last interviews, we concluded data collection at 18 interviews.

Data collection We conducted interviews three months' post-last follow up in the trial, in June and July 2021. The interviews focused on how the CHWs experienced supervision and general program implementation and how supervisors experienced their provision of supervision. Examples of questions included in the interview guide are: (1) What is the most important part of being a CHW? (2) What are the main challenges you meet in your job as a CHW? (3) How did you experience the added training and supervision? (4) Tell me about the supervisors—how do they work with you? The interview guide was developed by the first author in collaboration with other authors and data collectors. For CHWs in the intervention arm of the study, these interviews were the second round of interviews. For CHWs in the control arm we unfortunately did not have the capacity to conduct repeat interviews. That being said, we assessed the data after each interview and ensured that any adaptations needed were done.

Interviews were conducted in a private space at a local training and research centre. Informed, voluntary consent was obtained before any data were collected. It was made clear to all participants that they were not required to participate in the study. Given the small pool of participants, and that all CHWs were employed by the Eastern Cape Department of Health, extra consideration was given to issues of confidentiality. During the informed consent process, CHWs were assured that their interviews would be de-identified and anonymized, and that information given would in no way affect their work as CHWs. Interviews were, as is common in this context, conducted in isiXhosa by trained data collectors (VN, NW), with extensive training and many years of experience of conducting in-depth qualitative interviews in this study and others. They worked closely with the first author in assuring quality and relevance of data collected. Interviews were discussed between the first author and data collectors immediately after being conducted. Data collectors were not known to the participants. Interviews were translated to English and transcribed by a separate team at Stellenbosch University. The research team has extensive experience in transcribing and translating qualitative data, and there is a rigorous quality control system in place. We did not have capacity to return transcripts to participants.

Participant identification numbers (PIDs) were used to de-identify participants. In addition, names of clinics and references to geographical information (including distance) or other identifying information was removed from transcripts to further anonymise the data. Anonymity was more difficult to enforce with supervisor participants, given that there were only two participating. We addressed this through removing identifying information from any data files. As the supervisors were not employed by the DoH, we assessed the risk of identification as less serious than for the DoH employed CHWs. Furthermore, we shared the quotes and draft article with the supervisors and they agreed to have it published.

2.6 Data analysis

Thematic analysis was used to analyse these data, structured by the six steps described by Braun and Clarke [33]: familiarization, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report [33]. Transcribed interviews were reviewed line by line, and a preliminary coding scheme was developed. This coding scheme was then presented to members of the team to validate and discuss the identified themes [34]. ATLAS.ti software was used for coding, naming, and organizing data. Once theme saturation had occurred, data extracts from each transcript were grouped together [35]. In order to ensure objectivity and validate the analysis of the data, a second researcher (CL) analyzed randomly-selected sections of data, and discrepancies were resolved through discussion [36]. To further ensure rigour in the data analysis process, data and the analysis thereof was done in collaboration between the authors, and the data collectors. Codes were collapsed into code groups and themes were derived.

3 Findings

Of the 16 CHWs interviewed in this study, 15 were female and one was male. They had all been working as CHWs for varying periods of time prior to the implementation of this study, ranging from 13 months to 24 years. Ages ranged between 39 and 59 years. Supervisors (n = 2) were both female and had been working as supervisors for five years prior to the cRCT starting.

Three overarching areas and five sub-themes emerged from our interviews; (1) CHW knowledge and confidence (additional training leads to increased CHW knowledge and confidence), (2) CHW motivation and community acceptance (improved community acceptance and program credibility with logistical support), and (3) CHWs experiences

of supervision (Supportive supervision leads to an increased sense of accountability through supportive supervision, Respect and positive supportive relationships critical for supervision, Higher intensity of supervision increases sense of support.

4 CHW knowledge and confidence

4.1 Additional training leads to increased CHW knowledge and confidence

The additional training provided through the intervention was described as important for CHWs. Respondents described the importance of the increased knowledge they received through the training, and how the knowledge improved the confidence of CHWs, as illustrated in the quote below.

> *"It [the training] had an influence in the way I worked. When I came back from [the initial CHW training] I did not know certain things. But when I came back from [the Philani] training I knew a lot of things"* (Control CHW, PID C7)

> *"I speak about things with power now. I don't just say anything I'm not sure of. I now know that if I'm headed to a specific household, these are things I'm going to say"* (Intervention CHW, PID 5).

The improved knowledge also appears to have improved the CHWs credibility in the community, while the improved service delivery also created increased expectations from community members, which in turn appeared to motivate CHWs.

> *"There's a huge difference sis, because that time we were not trained by (NGO name) we were getting trainings but not with (NGO name); the training made a huge difference in my work experience because it had materials; we were trained and received the materials, you get trained then you also do what you were trained for, and clients notice that there's a huge difference. This and that wasn't happening before and when it's a visit time you see that everyone is excited; that's what gave us higher level. They see that the nurses have arrived, you will see other people arriving from other houses, the neighbours will come because they see we are working here"* (Intervention CHW, PID 8)

Both groups of CHWs received the same training and there were thus no major differences in CHWs experiences of the training. However, as discussed below, CHWs in the intervention group received equipment, supportive supervision and logistical support to complement the training, enabling them to further their work. CHWs in the control arm did not have the same resources and their ability to make use of their new skills were thus limited.

5 CHW motivation and community acceptance

5.1 Improved community acceptance and program credibility with logistical support

The equipment and logistical support in terms of transportation was described as having had an impact on program credibility. CHWs in the intervention arm described a sense of that they were able to deliver improved services as a result. Intervention CHWs indicated that resources—especially equipment such as scales, backpacks, folders, medication and phones, substantially improved their ability to do their work. Having access to equipment was reported to be strongly linked to acceptance of the intervention by households in the community, and the credibility of the program. CHWs reported that they felt like they had something "real" to contribute with, as they could bring this equipment and new knowledge into the community and assist community members. The scales in particular appeared to have improved household acceptance and served as an entry point when visiting households.

> *"We were given scales ...and that made us feel important because for people in rural areas to have that is a big deal for them"* (Intervention CHW, PID 14)

> *"Having transport and all the necessary machines like BP [blood pressure] machines and scales because it gives us dignity and respect from the community. They know that we are working. Other patients would invite us to monitor*

them even if it's not their appointment date just because they know we have the right and helpful equipment. This equipment is important in the rural areas because they are not always available." (Intervention CHW, PID 3).

"At least now you can get on a scale because before we were just carrying our book into a plastic, take a pen and that was all, but now you know that you are going to work, you take your backpack put in your cotton wool, jars, forms, folder and cell phone and when you arrive to a house for … It made us people that means wow." (Intervention CHW, PID 2)

The fact that the intervention group had access to a car when being visited by a supervisor in the field made a substantial difference and helped CHW get to difficult-to-reach households. Prior to the implementation, there was no available transport at all, making visits in these remote areas challenging, sometimes impossible. More regular access to a car, however, remained a challenge and was repeatedly mentioned by CHWs as a need for program improvement.

"Before we were working and walking distances alone with no one, now the work is easier due to their presence and support. Secondly you would find out that now we even visit far places because at least now there is a car". (Intervention CHW, PID 6)

On the other hand, control CHWs reported a dire need of tangible resources to enable them to conduct their work. This indicates a programmatic shortfall where basic resources are not in place.

"This programme, right. Firstly, I was going to start providing equipment for them where they will be able to, where they will work, be sure to work efficiently because they have everything. So that you don't get people not doing what they're supposed to just because she does not have the essentials to do the job." (Control CHW, PID C5)

6 CHWs experiences of supervision

6.1 Supportive supervision leads to an increased sense of accountability

The supportive supervision provided through the intervention was described as having influenced CHWs sense of accountability. Intervention CHWs clearly described initial challenges when the study was introduced, where CHWs were apprehensive about the training and the program as a whole. Supervisors reported that initially it was very challenging to supervise CHWs who were not actually employed by the organization supervising them. In addition, they reported challenges in supervising CHWs whose experiences of supervision was very different to the approach in the intervention. They stated that these concerns dissipated over time.

"In the beginning they had a bad attitude, they did not want to listen even in meetings, telling us that they do not want this, do not want the bags that you give us to carry to the community. There was these phone that they said: it's "police" (explanation of the phones monitoring the CHWs work) that you may see who is at work and who is not. In the beginning they had just a book, but now they have all the material" (Intervention supervisor, PID S-1)

The increased sense of accountability that CHWs experiences through the intervention became evident. As the quote below illustrate, supervisors were now monitoring their work, which appear to have motivated the CHWs.

"I think supervision is the person who comes to check my work, on how I do it and show me where I'm wrong and teach me where I need to be taught. I mean that person improves my work because he/she gives me the power to do better at work. If I had made a mistake I would then pull up my socks and do my job the right way" (Intervention CHW, PID 2)

6.2 Respect and positive supportive relationships critical for effective supervision

Relationship building between supervisors and CHW emerged as a critical facilitator for enabling supportive supervision. Supervisors described how, as they got to know their group of CHWs over time, their relationships with CHW allowed successful supervision to became possible. CHWs described the importance of supervisors being respectful and supportive in their approach. Supervisors also described the importance of finding a balance between being "a friend" to CHWs and at times, being firm about job responsibilities. Supervision strategies mentioned by supervisors included being respectful and supporting, and that communication is key.

"It is fun because even them they don't take themselves as supervisors they just take themselves as CHWs just like us. … if you are talking she would support what you just said and it would be great even in that house, even when you walk with them on the road it is great, you don't even feel like you are with your supervisor, you are walking with another CHW just like me" (Intervention CHW, PID 4)

These quotes illustrate that CHWs in the intervention group experienced the added supervision as positive and supportive.

6.3 Higher intensity of supervision increases sense of support

Supervision frequency was described as important to CHWs. While HWs in the intervention arm reported having, with time, built close relationships with the Philani supervisors, CHWs in the control condition described limited supervision. Although all clinics in the study had team leaders based at each clinic at the beginning of the study, several had since left their positions and been replaced by Operational Team Leaders based in a town approximately two hours from the clinic, with little to no access to transport. Supervision therefore mostly consisted of a phone call once a week to collect statistics. Some CHWs reported that they received support from Operational Managers [OMs] at those clinics. The OMs however had limited time for supervision as they were nurses, whose main responsibility was clinic-based clinical care.

"I think that it's nice to have a supervisor even though we needed to adjust to it since we were working on our own before and there were no targets or paperwork. It's also beneficial to us because I gained a lot of knowledge and understood my work more and it becomes easier as you have a supervisor checking up on you. The organisation also gives us courage to do more for our communities, cover more areas. Overall my experience was good and beneficial to me and to clients after supervision" (Intervention CHW, PID 3)

"No, we do not get enough support through the phone because there are a lot of things that we do not know since she is not in our midst. Working over the phone in comparison to working face to face, those are two different things. I have never gone for fieldwork with my supervisor" (Control CHW, PID C3)

"We used to have a team leader and that was nice because she used to equip us when we needed that, but now we have a nurse that we talk to when we need help. But the nurse cannot go for the home visits with us because there is a shortage of nurses already in the clinics" (Control CHW, PID C6)

As these quotes highlight, supervision appear to be absent in the standard CHW program. In the intervention group of the cRCT, CHWs describe the added supervision as influencing their work situation positively.

7 Discussion

This paper describes CHW experiences of training, resource provision and supervision in two arms of a cRCT. Participants described several shortfalls in the government-implemented CHW programme in the study area in these domains. These findings are concerning considering the recommendation of a supportive system that is required for successful implementation [2, 36]. This has been the case in many national CHW programs [37, 38]. Our findings show that the intervention package provided through this study temporarily (during the intervention) mitigated some of these shortfalls and CHWs reported higher job satisfaction and motivation as a result of the added training, support and supervision. These findings are important for understanding the building blocks of a functional supervision system and how these building blocks can be improved to create a more effective CHW program.

It is clear that training plays a major role in CHW program success. The additional training provided in this study improved CHWs knowledge and confidence and there appears to be scope for more research on both the quality of CHW training and on the need for ongoing in–field and other trainings [7]. Furthermore, our findings suggest that training needs to be paired with access to equipment, transport and supervision to be fully effective. CHWs in both arms of the cRCT report how the added training made a major difference in their knowledge and motivation. But knowledge without accountability and essential equipment limited the ability of CHWs in the control arm to fully make use of their skills. The added resources (equipment and transport) provided to the intervention CHWs substantially improved their ability to perform their job, which in turn improved their motivation. It is concerning

that such an important building block of the CHW program is so neglected in the current system [39]. Good quality training needs to be a focus when designing CHW programs.

CHWs in this study report major differences in the way supervision was conducted in the two arms of the trial. Findings suggest that the frequency and approach of the supervision for control CHWs was poor, echoing current evidence [14]. Intervention CHWs report an earlier lack of supervision, whereas during the study they felt more supported. The supervision approach that the CHWs did experience previously appeared to have been more fault-finding/punitive than supportive, which is reported both by CHWs in this study and others [40–44] as being demotivating. There should be a stronger focus on supervisor training [43] and on supervision strategies in designing and implementing CHW programs [13]. Given that both CHWs and supervisors in the intervention arm experience the relationship between them as a main contributing to factor to successful supervision, it is deeply concerning that supervisor posts in the control arm are either not filled, or filled by a supervisor not based in the intervention area and that none of the control CHWs were ever accompanied in the field by their supervisors. This raises the question of whether health facility supervisors [professional nurses] actually are best suited for providing supervision to CHWs. They often work in overburden health facilities with little or no time for additional activities and are usually bound to their facilities [13, 45].An attempt to address this was made through the development of the WBOTs, where an operational team leader (a professional or an enrolled nurse) was responsible solely for the supervision of CHWs. As described above, due to challenges with the retention of these team leaders, this did not materialise in practice. This is an issue that needs to be resolved in order to improve the government-implemented CHW programme. Drawing on the model of the intervention in this study, promoting more senior CHWs as supervisors may be an option to explore to address this issue.

CHW confidence and motivation increased through improved knowledge, skills and support [46, 47] leading to better service delivery and through that, increased program credibility and community uptake. Supervision in the intervention arm of this study and others, appears to enhance program credibility in the community, which facilitates program acceptance. Further, the knowledge gained through the additional training emerged as a facilitator for community acceptance. Prior to the implementation of the intervention in the cRCT, CHWs only worked with notebooks, and they describe that as they now have scales, some medication and folders – they are taken more seriously by the community and thus find it easier to gain acceptance, resonating with current literature describing how equipment enhances program credibility [41].

When planning new CHW programs, it is important to keep in mind that these building blocks work together to create a functional system in which the CHW can work effectively. Unless sufficient resources for training, supervision, equipment, and logistic support such as transport, are available – a CHW program may be inefficient. Intervention CHWs report feeling that they have more to offer the community now as they are better trained, have got access to equipment, and are being supported by supervisors. Given the importance of supervisor skills and the relationship-building required for successful supervision, more attention should be given to supervisor training. Involving all stakeholders, including CHWs and supervisors should be considered when designing CHW programs [44], and supervision strategies. Equally important to note is that it took more than 18 months of implementing the intervention through the cRCT before the intervention settled and changes started, an important finding especially in light of many CHW research programs that are limited in timescale. Interviews in this study were conducted post-trial.

Our findings highlight which CHW program domains that are important for CHWs themselves and indicate that adequate resources be allocated to training, supervision, equipment and logistical support such as transport when designing a CHW program. In a low resource setting like the rural Eastern Cape, CHWs deliver a valuable service to their communities and need to be supported through a functional supervision system, especially in the light of an emerging focus on CHW rights and needs [47]. Our findings show that the package delivered through the cRCT can improve CHW motivation and work performance, which in turn improves community uptake and health outcomes.

8 Limitations

It is important to note the limitations of this study. Firstly, the CHWs interviewed in this sub-study were from a relatively small pool of DoH -employed CHWs taking part in a larger cRCT. This may have caused concerns about confidentially and furthermore it may have had an impact on the level of honesty in the interviews, particularly with critical feedback.

We do not believe this was the case in this study, as various measures were put in place to ensure confidentiality, as described, and the feedback of DoH support in fact was quite critical. Furthermore, the data collectorswas not previously known to the CHWs and was completely independent of the EC DoH, which we believe was an advantage and allowed for an open discussion.

Secondly, we did not have the capacity to conduct individual interviews with the full sample of CHWs in the cRCT, and chose to randomly select CHWs (representing each of the clinics in the cRCT) for individual interviews. CHWs had all been working as CHWs for varying periods of time prior to the implementation of this study,which may have affected their experiences.

Thirdly, the first author has been involved in the Philani program, with both intervention and evaluation, which may have influenced how the data was viewed. This potential risk was mitigated by having an external interviewer conduct the interviews and having a second researcher analyse sections of the data.

Fourth, our findings may not be directly generalizable to other CHW programs as these findings are from a specific context and intervention, however findings regarding which programmatic domains are important for CHWs may be generalizable to other contexts and the programmatic strategies used in the intervention and CHWs experiences thereof may be transferrable to other contexts.

9 Conclusion

For CHW to be able to work effectively, the integration of a functional and supportive supervisory system is critical. The integration a supervisory model consisting of additional training, logistical support, and supportive in-field supervision, appears to have improved CHW motivation and performance in this study. findings highlight the importance of allocating sufficient resources for, equipment, transport, training and in–field supervision when designing and implementing CHW programs. Drawing on our findings, we recommend a stronger focus on these building blocks, and particularly on supportive supervision, when designing and implementing CHW programs. CHWs have an important role in providing primary health care—particularly in rural areas—and more emphasis needs to be put on key programmatic building blocks such as training, equipment and transport and, effective and supportive supervision.

Data availability The data that support the findings of this study are available from the corresponding author upon reasonable request.

Code availability Not applicable.

Declarations

Competing interests The authors have no relevant financial or non-financial interests to disclose.

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