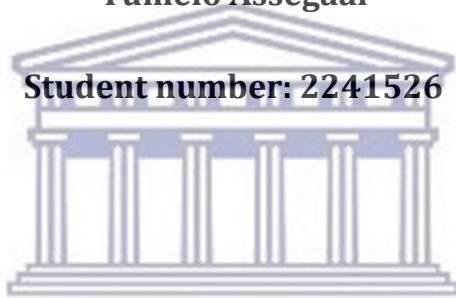


Supervision and trust in community health worker programmes at scale: developing a district level supportive supervision framework for ward-based outreach teams in North West Province, South Africa

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Thesis submitted in fulfilment of the requirements for the degree of Doctor of Philosophy (Public Health) in the School of Public Health, Faculty of Community and Health Sciences, University of the Western Cape

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DECLARATION

I, Tumelo Assegaai, hereby declare that the work contained in this thesis titled “***Supervision and trust in community health worker programmes at scale: developing a district level supportive supervision framework for ward-based outreach teams in North West Province, South Africa***” is my original work, that neither this work nor any part of it has been, is being, or is to be submitted for another degree in this or any other university. I further declare that all sources that I have cited or quoted have been indicated and acknowledged by complete references.

Tumelo Assegaai

Signature: 



DEDICATION

A special dedication to my children, Sejo (*who was a year old when I registered*) and Seno (*who was born during my second year*), who just wanted play time with mommy, but often had to take a back seat. This is for you.

To my late brother, Boi, who passed away five months into my doctoral study. You were always proud of my academic achievements; in my heart you will always be. This is also for you.



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I wish to express my deepest gratitude to the following people who have walked this journey with me, without whom this doctoral study would not have been completed:

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My supervisor, Vera Scott, who also provided me with support and guidance and encouraged me on my journey as a mother and wife.

The administrative officials in the School of Public Health at the University of the Western Cape, to whom I extend my sincere gratitude for their support and patience.

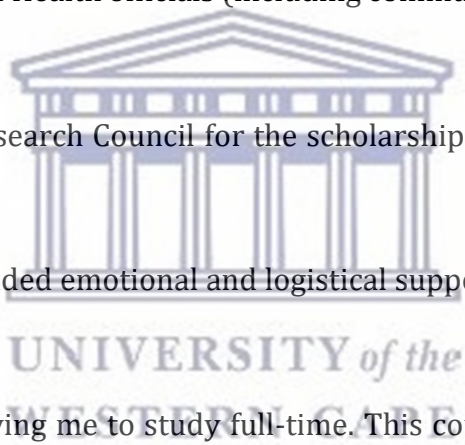
The North West Department of Health officials (including community health workers) for giving their time for my research.

The South African Medical Research Council for the scholarship they awarded, enabling me to complete my doctoral study.

My mom and sister, who provided emotional and logistical support. Thank you for the love and support.

My husband, Kabelo, for allowing me to study full-time. This could not have been easy. Thank you for the love and support.

Finally, my thanks to the Father, the Son and the Holy Spirit, Amen.



ACRONYMS/ABBREVIATIONS

CHW	Community health worker
FGD	Focus group discussion
HIV	Human Immunodeficiency Virus
MDGs	Millennium Development Goals
M&E	Monitoring and evaluation
NDoH	National Department of Health
NMM	Ngaka Modiri Molema
NWDoH	North West Department of Health
NWP	North West Province
OTL	Outreach team leader
PHC	Primary health care
RPHC	Re-engineering of Primary Health Care
SNA	Social network analysis
TB	Tuberculosis
WBOT	Ward-based outreach team
WHO	World Health Organization



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ABSTRACT

Introduction: National community health worker (CHW) programmes are to an increasing extent being implemented in health systems globally, mirrored in South Africa in the ward-based outreach team (WBOT) strategy. In many countries, including South Africa, a major challenge impacting the performance and sustainability of scaled-up CHW programmes is ensuring adequate support from and supervision by the local health system. Supervisory systems, where they exist, are usually corrective and hierarchical in nature, and implementation remains poor. In the South African context, the absence of any guidance on CHW supportive supervision has led to varied practices across the country. Improved approaches to supportive supervision are considered critical for CHW programme performance. However, there is relatively little understanding of how this can be done sustainably at scale, and effective CHW supervisory models remain elusive. Research to date has mostly positioned supervision as a technical process rather than a set of relationships, with the former testing specific interventions rather than developing holistic approaches attuned to local contexts. This doctoral study was exploratory in nature, seeking to generate an in-depth and contextualised understanding of the supervision phenomenon in one specific district in the North West Province (NWP) in South Africa. Using co-production methodology in an iterative approach, the study culminated in the formulation of a supportive supervision framework with CHWs and other frontline actors.

Methods: The study was based on a holistic conceptual framework of supportive supervision, which was viewed as comprising three core functions – accountability, development and support – embedded in a complex and multi-level system of resources, people and relationships. To address the study objectives, the research used a mix of qualitative and quantitative methods. Three studies were conducted in a phased process: study 1 comprised a qualitative description of policy and practices in two districts related to the supervision of WBOTs; study 2 identified the main actors and mapped the supervisory system of WBOTs in the district, using social network analysis (SNA); and study 3 involved a qualitative exploration of workplace and interpersonal trust factors in the district and the supervisory system of WBOTs in the district. These three studies provided inputs for a workshop aimed at developing recommendations for a district-level, WBOT supportive supervisory framework. Four published papers reporting on the research conducted are presented in this thesis. It should be noted that the research was conducted during a turbulent political and administrative period in the NWP, when the WBOT

programme changed from being a flagship programme for the country to one in crisis. This shifting context needs to be borne in mind when the findings are viewed and interpreted.

Results: The study identified weaknesses in both the design and implementation of the supervisory system of WBOTs, with the absence of clear guidance resulting in WBOTs and PHC facilities performing their roles in an ad hoc manner, defined within local contexts. The study documented evidence of high internal cohesion within WBOTs and (where present) with their immediate outreach team leaders (OTLs). However, the relationships between WBOTs and the rest of the primary health care (PHC) and district health system were characterised by considerable mistrust – both towards other workers and the system as a whole. This occurred against a backdrop of increasing OTL vacancies, and the perceived abandonment of WBOT training and development systems and career opportunities. These findings are not dissimilar to those reported previously on the WBOT programme in South Africa and in programmes in other low-resource settings. Nevertheless, through its in-depth, exploratory and participatory approaches, this study provides additional insights into the phenomenon of supportive supervision. Firstly, in conceptualising supportive supervision as a set of ‘bundled’ practices within complex local health systems, the findings reflected the complexity of everyday realities and lived experiences. Secondly, through the embedded nature of the research and the phased data-collection process, the study was able to observe the impact of wider health system contexts and crises on the coalface functioning of the WBOT programme. Thirdly, the study emphasised how supportive supervision depends on healthy relational dynamics and trust relationships, and, finally, how a co-production approach can translate broad guidance, experience and theoretical understanding into meaningful, local practice owned by all the actors involved. Ultimately, the process of engagement, building relationships and forging consensus proved to be more significant than the supportive supervision framework itself.

Conclusion: The lack of explicit, coherent and holistic guidance in developing CHW supportive supervision guidance and the failure to address supervision constraints at a local level undermine the performance and sustainability of CHW programmes. Effective supportive supervisory systems require bottom-up collaborative platforms characterised by active participation, sharing of local tacit knowledge and mutual learning. Supervisory systems also need to be designed in ways that promote relationships and generate trust between CHW programmes, other actors and the health system.

CHAPTER 1: INTRODUCTION

This introductory chapter situates the research in the context of community health worker (CHW) programmes and their associated challenges, both globally and in South Africa. This is followed by various conceptualisations of supervision, including understanding supervision as a set of relationships embedded in systems. The evidence on CHW supervision and methodologies for studying supervision are then reviewed. The chapter concludes with a description of the study setting, and presents the problem statement, aim and objectives, and an overview of the structure of the thesis.

Global and national context

The 1978 Alma Ata Declaration on Primary Health Care (PHC) laid the foundation for the development of CHW programmes and community-based services around the world (World Health Organization, 1978a). In the immediate aftermath of the Declaration, national CHW programmes were seen as a vital element of the strategy to achieve 'Health for All by the year 2000' (Van Ginneken *et al.*, 2010). According to the Alma Ata Declaration, community health workers "should be members of the communities where they work, should be selected by the communities, should be answerable to the communities for their activities, should be supported by the health system but not necessarily a part of its organisation and have shorter training than professional workers" (World Health Organization, 1978b:62). The 2008 Ouagadougou Declaration, on its 30th anniversary, reaffirmed the Alma Ata Declaration for the African continent. The framework for the Ougadougou Declaration recommended that, in order to improve community ownership and participation, countries would need to empower community health care providers through on-the-job training, mentoring and supportive supervision, and provide appropriate resources for them to fulfil their roles (Regional Committee for Africa, 2008).

Community health workers have been shown to play a vital role in improving health outcomes by providing basic services and health education on HIV, maternal health and oral immunisations, and by distributing chronic treatment and malaria nets (Christopher *et al.*, 2011; Hill *et al.*, 2014; World Health Organization, 2010). They have also been central to the idea of task shifting as a response to human resource for health constraints (Agyapong *et al.*, 2016; Dynes *et al.*, 2015; Limbani *et al.*, 2019; Ochieng *et al.*, 2014; Smith *et al.*, 2014). Finally, CHWs are also seen as agents of the community – not only living in, but embedded in, communities,

able to negotiate on behalf of and represent communities based on a tacit understanding of community needs (Haines *et al.*, 2007; Mlotshwa *et al.*, 2015; Phiri *et al.*, 2017; Ramukumba and Hägglund, 2019; Schaaf *et al.*, 2020; Schneider *et al.*, 2016).

The global resurgence in the use and increasing recognition of CHWs in PHC are reflected in the growing literature on their effectiveness, motivation, performance and sustainability, particularly in low- and middle-income countries (Schneider *et al.*, 2016; Scott *et al.*, 2018; Tulenko *et al.*, 2013; World Health Organization, 2018; Zulu *et al.*, 2014). Most importantly, the systematic review by the World Health Organization (WHO) provides evidence-based guidance on health policy and system support to improve the design, implementation, performance and evaluation of CHW programmes for the purpose of realising the vision of universal health coverage (World Health Organization, 2018).

This literature has documented how national CHW programmes are not without their difficulties and challenges – even programmes that are well established and recognised globally. The barriers to effective CHW programme implementation and sustainability include inadequate resourcing, low remuneration, poor role clarification, lack of on-the-job training and ineffective supervisory mechanisms (Gilson *et al.*, 1989; Bhattacharyya *et al.*, 2001; Zulu *et al.*, 2014; Phiri *et al.*, 2017; O'Donovan *et al.*, 2018; Scott *et al.*, 2018; Ormel *et al.*, 2019; Schaaf *et al.*, 2020). These barriers generally stem from poor programme design and integration into health systems, and ultimately impact the morale, motivation and performance of CHWs and the quality of care (Zulu *et al.*, 2014; Kok *et al.*, 2015; Loeliger *et al.*, 2016; Najafizada *et al.*, 2017; Mundeve *et al.*, 2018).

Community health workers work in communities and households, often located in remote, isolated rural areas, and are rarely accompanied by more skilled health workers, such as nurses or the equivalent, to assist them in these challenging settings (Marcus *et al.*, 2017; Mundeve *et al.*, 2018; Tseng *et al.*, 2019). These contextual factors, coupled with challenges in the implementation of CHW programmes, accentuate the need for supervisory systems that monitor the performance of and engender support for CHWs and ensure their motivation (Ballard and Montgomery, 2017; Das *et al.*, 2014; Marquez and Kean, 2002; Musoke *et al.*, 2019; Naimoli *et al.*, 2015; Phiri *et al.*, 2017; Tseng *et al.*, 2019; World Health Organization, 2018). Effective supervision of and support for CHWs also contribute to ensuring their credibility in communities, effective interactions with health workers and, ultimately, improved trust

relationships in the health system (Mishra, 2014; Dynes *et al.*, 2015; Nxumalo *et al.*, 2016; Grant *et al.*, 2017; Ludwick *et al.*, 2018; Van de Ruit, 2019; Tseng *et al.*, 2019).

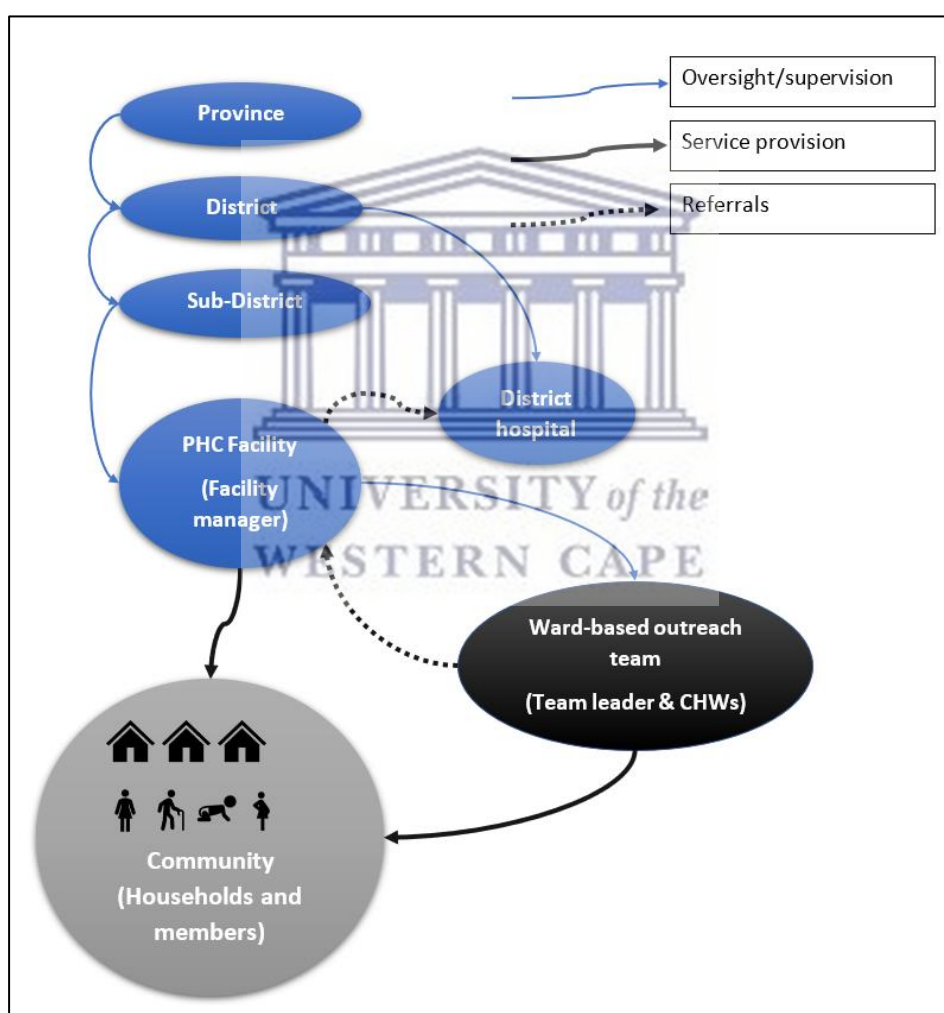
Ward-based primary health care outreach teams

Relative to its wealth, South Africa has poor health outcomes and has only partially achieved the Millennium Development Goals (MDGs) related to maternal, child and infant mortality, HIV and TB (Republic of South Africa, 2015). In 2011, The National Department of Health (NDoH) in South Africa introduced the Re-engineering of Primary Health Care (RPHC) strategy as one of a set of health system reforms to address these weaknesses (National Department of Health, 2011). This emanated from various engagements led by the office of the Minister of Health, which recommended a series of reforms to overhaul the health system.

There are four streams (Appendix 1) in the RPHC strategy: (i) Ward-based PHC outreach teams (WBOTs) tasked with strengthening health prevention and promotion, identifying high-risk individuals and families and referring clients needing further care to health care facilities; (ii) School health services tasked with strengthening the provision of school health services in poorer districts by engaging in health promotion, screening for minor ailments and making referrals for further care; (iii) District clinical specialist teams tasked with focusing on clinical governance at the facility level; and (iv) Contracting of private general practitioners to improve clinical capacity in the public sector at the PHC level. The ward-based outreach teams, the focus of this research, constitute South Africa's national CHW programme and feature in key national policy documents, including the National Development Plan 2030 (Republic of South Africa, 2011) and the National Health Insurance White Paper (National Department of Health, 2015). Guidelines, training manuals and a policy document for WBOTs were developed for the CHW programme, specifying roles and functions for both CHWs and outreach team leaders (OTLs) (National Department of Health, 2011, 2018).

A ward-based PHC outreach team (Appendix 2) comprises an enrolled nurse as the OTL and six to 10 CHWs, depending on the geography of the ward (National Department of Health, 2018). Prior to the release of the WBOT strategy document, the initial draft guidelines specified that the OTL needed to be a professional nurse (National Department of Health, 2011). In most areas, OTLs have indeed been professional nurses. The team is attached to an assigned facility, and the team leader reports to the facility manager (figure 1). The CHWs refer clients requiring further

clinical care to the facility and the facility refers back to the team for further household monitoring.



Training for CHWs is standardised and provided in three phases. The first and second phases focus on community engagement, community profiling, and health promotion and prevention, while the third and final phase leads to the nationally accredited qualification as a CHW. The

guideline stipulates that the OTL reports to the facility manager and the facility manager supervises the WBOT. It also stipulates that the OTL supervises and oversees the work of the CHWs. However, it does not describe how the OTL and CHWs are to be supervised and how other levels of the health system and communities are involved in supporting the teams. Where this has been studied in South Africa, supervision of CHWs by health workers, especially nurses, has historically been shown to be weak due to a lack of formal instruction, training and related resources needed to carry out the responsibility (Lehmann and Matwa, 2008).

Community health workers are not a new phenomenon in South Africa. Over the years, CHWs have played a significant role in the health sector in a wide range of areas, such as maternal and child health, HIV, TB and other chronic conditions (Department of Social Development, 2006; Friedman *et al.*, 2010; Schneider *et al.*, 2008). The WBOT strategy represents the latest and most significant in a collection of policy initiatives introduced over the past decade to shape the community-based sector.

The current model of the CHW programme in South Africa, the WBOT, faces several challenges. A rapid appraisal conducted in seven districts across seven (of nine) provinces that implement the WBOT programme documented these challenges – highlighting in particular team composition and functionality (Jinabhai and Marcus, 2015). Challenges in team composition relate principally to a shortage of OTLs, a consequence of a shortage of professional nurses in the health system (Austin-Evelyn *et al.*, 2017; Jinabhai and Marcus, 2015; Jobson *et al.*, 2020; Marcus *et al.*, 2017; Schneider *et al.*, 2018). Outreach team leaders, where they are appointed or delegated from facilities, often have to work with more than one WBOT, thus leaving the OTLs with limited time to properly supervise CHWs (Austin-Evelyn *et al.*, 2017; Marcus *et al.*, 2017). In addition to an OTL, WBOTs are supposed to have a health promoter and an environmental officer. However, as there is a dire shortage of these cadres across the country, this requirement has not been met (Jinabhai and Marcus, 2015).

One of the key supervisory challenges associated with the functioning of WBOTs is the dual role that most OTLs have to play – that is, in the facility and in the team. Outreach team leaders are inevitably drawn in to assist the facilities, with the latter being regarded as a higher priority than community-based activities. Limited time is devoted to WBOTs, and CHWs receive minimal supervision at the household level or in their administrative work (Austin-Evelyn *et al.*, 2017; Jinabhai and Marcus, 2015; T. S. Marcus *et al.*, 2017; Schneider *et al.*, 2018).

Another challenge associated with the WBOTs' functionality is the limited clarity and poor understanding of their roles and functions at different managerial levels in PHC facilities at both district and provincial levels (Marcus *et al.*, 2017; Schneider, 2018; Tseng *et al.*, 2019). There is no clear guidance on the chain of support and supervision, and national and provincial policies lack detail and specificity on the management and implementation of the programme. Financing and material resourcing (e.g., transport, medical and administrative supplies, remuneration and physical space) is insufficient and uncoordinated at the different levels of management, while programme coordinators (who are responsible for specific programmes, such as environmental health, HIV, TB, maternal health and mental health, that affect the work of the WBOTs directly) provide little to no support to CHWs. Moreover, there is limited post-basic training for CHWs and poor capacity development of OTLs in the area of supervision. In addition, there is inadequate facility support and often strained relationships with facility workers (George *et al.*, 2020; Jinabhai and Marcus, 2015; Jobson *et al.*, 2020; Marcus *et al.*, 2017; Schneider, 2018; Schneider *et al.*, 2018; Tseng *et al.*, 2019; Wilford *et al.*, 2018).

The concept of supervision

The concept of supervision has been researched for decades and cuts across a range of disciplines, such as social work, psychology, public administration, and business and industrial sciences (Avortri *et al.*, 2019). As noted by Avortri *et al.* (2019), approaches to and methods of implementing supervision vary across disciplines, leading to different interpretations and practices (Avortri *et al.*, 2019; Kok *et al.*, 2018). Kadushin's (Kadushin, 1992) work, written from a social work perspective, has been identified as key to the development of a theoretical framework for social work supervision. Peach and Horner (2007), among other researchers, have also examined supervision as a core feature of professional practice.

In general, the literature distinguishes between clinical or professional supervision and management supervision. Clinical supervision is a mechanism for in-depth monitoring of practice with a special focus on professional development and career progression, such as in social work and nursing (Abbidin, 2008; Avortri *et al.*, 2019; Milne, 2007). Management supervision is carried out by a line supervisor for the purpose of exercising authority and ensuring accountability (Avortri *et al.*, 2019) – traditionally to drive adherence to organisational standards and procedures. Health systems are concerned with both clinical and managerial supervision.

Where they are documented, supervisory approaches in health systems tend to focus more on 'hardware' issues, or quantity, such as frequency of supervisory visits, availability of resources and training. Little attention is given to the 'software' issues, or quality of relationships, such as values, beliefs and relationships of the actors involved (Blaauw *et al.*, 2003; Sheikh *et al.*, 2014; Kok *et al.*, 2016b). In the former approach, with the emphasis on hardware, supervision involves adopting a traditional, administrative approach that is typically hierarchical and corrective. Such an approach is reflected in definitions that describe supervision as "a management activity singularly concerned with overseeing the productivity and progress of staff" (Peach and Horner, 2007) and "the process of directing and supporting staff so that they may effectively perform duties" (Marquez and Kean, 2002).

The traditional approach to supervision is increasingly regarded as ineffective because of its focus on surveillance and control of workers, which assumes that they lack the skills, knowledge and ability to render quality care. It thus fails to empower workers, making them highly dependent on supervisors (Avortri *et al.*, 2019; Marquez and Kean, 2002; Peach and Horner, 2007). In contrast, the relational or 'software' approach to supervision, with the emphasis on the quality of relationships, is referred to as 'supportive supervision', and seeks to empower supervisees with problem-solving skills to enable them to act autonomously in order to improve performance and the quality of care (Benavides, 1998; Frimpong *et al.*, 2011; Peach and Horner, 2007). Supportive supervision is defined as "a process that promotes quality at all levels of the health system by strengthening relationships within the system, focusing on the identification and resolution of problems, and helping to optimize the allocation of resources" (Marquez and Kean, 2002:12).

With reference mainly to Kadushin's work, supportive supervision is thought to encompass three overlapping domains: administrative, educational and supportive (Abbidin, 2008; Avortri *et al.*, 2019; Kadushin, 1992; Kilminster and Jolly, 2000; Milne, 2007; Peach and Horner, 2007). Administrative supervision is the promotion and adherence to organisational procedures and the assurance of an efficient and smooth-running programme. Educational supervision promotes development through the upgrading of skills to enable the supervisee to fully realise their potential. Supportive supervision is the maintenance of harmonious working relationships, morale and job satisfaction (Kadushin, 1992; Peach and Horner, 2007). These supervisory functions seek to even out power relations and rely on relationships based on trust,

responsiveness and team spirit (Bailey *et al.*, 2015; Kilminster and Jolly, 2000; Marquez and Kean, 2002; Peach and Horner, 2007).

Studies have found that supervisees who felt supported during supervision showed improved performance and productivity and felt connected to the health system (Benavides, 1998; Frimpong *et al.*, 2011). For example, in Ghana, Frimpong *et al.* (2011) found that supportive supervision contributed to increased productivity among PHC workers. In their systematic review of supportive supervision in primary health care, Bailey *et al.* (2015) suggested that relationships based on trust and communication lead to supportive supervision and that this contributes to greater productivity among frontline workers.

The notion of supportive supervision involves a paradigm shift away from the traditional elements of supervision, such as checklists, report checking and frequency of visits, to a stronger focus on the human aspect, such as patient and supervisee safety and needs (Bello *et al.*, 2013; Kilminster and Jolly, 2000; Marquez and Kean, 2002; Robertson *et al.*, 2015). This approach puts the emphasis on a combination of feedback, use of data for decision-making and problem-solving, skills development, building of trust and the quality of relationships (Duthie *et al.*, 2012; Hill *et al.*, 2014; Kilminster and Jolly, 2000; Kok *et al.*, 2016a; Kok *et al.*, 2016b; Marquez and Kean, 2002; Ndimba *et al.*, 2015; Robertson *et al.*, 2015). Emphasis is also placed on the quality, as opposed to the quantity, of supervision in shaping practice (Hill *et al.*, 2014; Peach and Horner, 2007; World Health Organization, 2018).

Supervision can take different forms, depending on who carries out the supervision. Beyond the traditional supervisor–supervisee relationship, supervision can also involve: self-assessments of strengths and weaknesses; group supervision involving multidisciplinary teams; peer supervision where supervisees are encouraged to monitor and support one another; and, in the case of CHWs, community support (Hill *et al.*, 2014; Marquez and Kean, 2002; Robertson *et al.*, 2015). Community mechanisms of supervision and oversight, though usually informal, can play a supportive role vis-à-vis CHWs and facilitate confidence, trust and uptake in their purpose, roles and functions (Mishra, 2014; Mkumbo *et al.*, 2014; Grant *et al.*, 2017; Jobson *et al.*, 2020). However, they may also be a source of demotivation if expectations and intended roles are not fulfilled (Kok *et al.*, 2016a; Grant *et al.*, 2017). Supportive supervision ideally goes beyond one-on-one interactions between supervisor and supervisee. It engages a variety of approaches (primary, self, group, peer, community supervisors) and is conducted both formally and

informally as well as internally and externally (Hill *et al.*, 2014; Kok *et al.*, 2018; Marquez and Kean, 2002; Robertson *et al.*, 2015; Wilford *et al.*, 2018).

Implementing a system of supportive supervision is not necessarily straightforward and requires both careful thought and resources. In particular, it calls for: skilled and motivated supervisors, and management commitment; sufficient allocations of people, effort and time in recognition of the challenges associated with bringing about sustainable change in any organisation; various implementation mechanisms, with the specific context taken into account; and integration into human resource development processes (Avortri *et al.*, 2019; Daniels *et al.*, 2010; Hernández *et al.*, 2014; Marcus *et al.*, 2020; Marquez and Kean, 2002).

Relationships and supervision

The health workforce constitutes one of the six building blocks of the WHO's Health System Framework (World Health Organization, 2007). As with supervisory approaches, the functions of this building block have focused mainly on hardware components, such as the number of workers, how they are selected and their training, and less on the social and professional interactions and networks associated with the social-cultural character of people in health systems (Blaauw *et al.*, 2003; Gilson, 2003; Kok *et al.*, 2015). Yet the performance of health systems is heavily influenced by the nature of the relationships among its actors (Blaauw *et al.*, 2003; Kok *et al.*, 2015; Schneider *et al.*, 2018).

Therefore, supervision can be considered to be a system that involves not just the two-way relationship between a supervisor and a supervisee, but also a range of actors and forms of interaction at different levels in the system (Henry *et al.*, 2017; Jigssa *et al.*, 2018; Worges *et al.*, 2018). As indicated in the previous section, supportive supervision addresses different functions and can encompass a variety of modes simultaneously, such as one-on-one, group and peer supervision (Hill *et al.*, 2014; M. Kok *et al.*, 2018). Effective supportive supervision in CHW programmes requires a relational perspective of the system as a whole (Blaauw *et al.*, 2003) and recognition that these relationships exist in the wider social and professional networks and contexts of organisations and systems (Blaauw *et al.*, 2003).

The central character and defining feature of supportive supervision is the trust relationship. As pointed out, "health systems comprise a complex web of relationships whose overall functioning and performance [are] influenced by the institutions, particularly trust, that govern human

behaviour” (Gilson, 2003:1463). Trust has been defined as “a psychological condition of willingness to be vulnerable based on confidence of positive expectations under conditions of risk and interdependence” (Rousseau *et al.*, 1998:394).

Predictors of trust are generally thought to include organisational and co-worker support, participation in decision-making, fairness, feedback loops and empowerment (Albrecht and Travaglione, 2003; Nyhan, 2000; Okello and Gilson, 2015). A narrative review of trust relations in sub-Saharan African health systems identified the following factors that could lead to open communication and trust: appropriate use of discretionary power, understanding of cultural and social sensitivities, and mutual respect and loyalty among co-workers (Østergaard, 2015). In contrast, punitive supervisory systems lead to poor workplace trust relationships (Okello and Gilson, 2015). Health workers who experience enhanced workplace trust relationships could experience increased organisational commitment and be more motivated to improve their performance, resulting in better staff retention (Albrecht and Travaglione, 2003; Nyhan, 2000; Okello and Gilson, 2015).

Community health workers are responsive beings who are involved in interactions within their teams, with their supervisors, and with the health workers in the PHC facilities that they are attached to or refer clients to. The performance of CHWs is largely determined by the quality of their relationships with the workers in the health system and the communities that they serve (Kok *et al.*, 2015). These relationships are dependent on reciprocal respect, trust, communication and expectations, as well as on CHW training and the extent of involvement of all relevant stakeholders in the programme (Blaauw *et al.*, 2003; Kok *et al.*, 2015; Ludwick *et al.*, 2018). Supervision of CHWs, in turn, is influenced by the status and strength of relationships within the health system. Supportive supervision is intended to strengthen relationships through frequent and quality contact, constructive feedback, training and mentorship aimed at developing skills, capacity and confidence, improving dialogue and building trust among all relevant stakeholders (Blaauw *et al.*, 2003; Duthie *et al.*, 2012; Kok *et al.*, 2015; Ludwick *et al.*, 2018; Tseng *et al.*, 2019). Community health workers who feel supported and adequately supervised are more motivated and productive. They also feel trusted, respected and empowered and have credibility in the community and the health system (Duthie *et al.*, 2012; Pallas *et al.*, 2013; Tseng *et al.*, 2019).

In sum, the goal of supportive supervision is, firstly, not only to improve the performance and quality of service delivery but also to encourage human resource development and support those

delivering the service. Secondly, supportive supervision is an approach that goes beyond a single relationship – it is a system involving a multidisciplinary team with different types of interactions and approaches. Thirdly, it sets out to improve trust and even out power relations in the work environment, with the intention of empowering workers and improving performance.

Supervision in CHW programmes

The WHO guideline on health policy and system support for CHW programmes identifies regular and systematic supervision as one of 15 recommendations for achieving improved CHW performance. According to the WHO, “supervision should be supportive, striking the right balance between its function to ensure monitoring and accountability and the aim of accompanying the CHW on a path of progressive professional growth and development through a mentorship approach” (World Health Organization, 2018:46).

Despite evidence that supervision of CHWs is one of the key success factors driving the scaling up and performance of CHW programmes, its implementation remains poor. Supervisors are often not sufficiently competent to provide efficient and supportive supervision. Yet research on the most appropriate techniques and mechanisms to draw on in this regard is limited (Bhattacharyya *et al.*, 2001; Hill *et al.*, 2014; Lehmann and Sanders, 2007; Marquez and Kean, 2002; Singh *et al.*, 2016; World Health Organization, 2018). A study conducted in Brazil found that supervision was used to control and monitor CHWs through checklists and meetings, and lacked the support dimension (Da Silva *et al.*, 2014). In Guinea-Bissau, it was found that irregular supervision affected the impact of training and may have compromised CHWs’ performance over time (Lopes *et al.*, 2014). In Mozambique, incompetent supervisors and irregular and fault-finding supervision were described as demotivating for CHWs (Ndima *et al.*, 2015). Likewise, a study conducted in Malawi found that irregular supervision, poor management support and a lack of feedback were among the factors that demotivated CHWs, leading to increased absenteeism, low trust and poor working relationships between CHWs and other health workers (Kok *et al.*, 2016a).

The above studies, along with others, represent a body of evidence showing that CHW supervisory models and interventions are a challenge across countries. As Singh *et al.* (2016) pointed out in their study in Uganda, “the search for effective supervisory models for CHWs remains elusive”. Similarly, the WHO guideline aimed at optimising CHW programmes concluded

that there was “limited evidence on which supervisory approaches work best” (World Health Organization, 2018).

System-level factors underlying poor supervision of CHWs include the following: strained relationships with other workers in the PHC system, especially where CHWs are not employees of the formal health care system and their need for supervision is not recognised; a lack of resources; ambiguity in supervision techniques; role confusion among supervisors who are poorly trained; a lack of understanding of CHW roles and functions; and the failure to consider the value and capacity of CHWs (Abrahams-Gesse *et al.*, 2015; Doherty and Coetzee, 2005; Duthie *et al.*, 2012; Ndimba *et al.*, 2015; Robertson *et al.*, 2015; Schneider *et al.*, 2018; Tulenko *et al.*, 2013). In studies conducted in Mexico and South Africa, a lack of clear definition of roles and functions of CHWs and supervisors as well as disagreement over who was the best supervisor candidate negatively affected CHW supervision (Duthie *et al.*, 2012; Abrahams-Gesse *et al.*, 2015; Marcus *et al.*, 2017). These problems are compounded by inadequate supplies of resources, such as transport, and essential medical and administrative supplies (Robertson *et al.*, 2015). Moreover, poor or non-existent integration of CHW programmes into health systems creates a context that is unfavourable to effective supervision and support (Cesar, 2005; Tulenko *et al.*, 2013).

Study designs assessing supervision and interventions to strengthen supportive supervision

There is a well-established body of research on supervision and support in PHC systems more generally. A number of studies have evaluated the effectiveness and quality of a range of interventions, such as mobile technologies and training, using a variety of study designs across different settings (Henry *et al.*, 2017; Jaskiewicz and Tulenko, 2012; Madede *et al.*, 2017; Tiruneh *et al.*, 2017). In a cluster-controlled trial in Mozambique, health workers reported that an intervention to strengthen supportive supervision had improved their performance and participation in decision-making (Madede *et al.*, 2017). In Zambia, a longitudinal study documented the positive effects of training and supportive supervision on diagnostic skills as well as laboratory and case management practices in a malaria programme (Worges *et al.*, 2018). Using a structured observation tool, a study in Uganda found that the competence of medicines management supervisors in supportive supervision was correlated with facility improvement (Henry *et al.*, 2017).

A cluster-randomised, controlled trial among senior community health workers in Pakistan found that supportive supervision was among the factors that improved their performance (Aftab *et al.*, 2018). In a pair-matched, cluster-randomised trial in Uganda, the presence of supportive supervision of volunteer CHWs led to improved reproductive health indicators (Singh *et al.*, 2016). A study conducted in Ethiopia, Kenya, Malawi and Mozambique, using a mixed-methods implementation study design to assess how a supervision intervention impacted CHWs' motivation and perceptions of supervision, found that the qualitative and quantitative components produced different findings and conclusions (Kok *et al.*, 2018). However, despite the emerging body of evidence, a systematic review conducted for the WHO guide on CHW programmes reported “very low certainty” regarding interventions for supportive supervision of CHWs (World Health Organization, 2018).

Intervention studies on supervision of CHWs and PHC workers have tended to adopt study designs from the mainstream of ‘implementation science’. An example of a study that did adopt a different approach to intervention design was conducted in Botswana by Nkomazana *et al.* (2016), where a participatory research study facilitated a ‘co-operative inquiry group’ to develop a more supportive supervisory system for primary health care providers (Nkomazana *et al.*, 2016). This doctoral research locates itself within this embedded and participatory tradition, and is framed as ‘co-production’. Co-production is a process that ensures impact of research findings by providing a platform for collaborative research with research users, through active participation and mutual learning. (Beckett *et al.*, 2018; Boaz *et al.*, 2018; Flinders *et al.*, 2016; Langley *et al.*, 2018; Markkanen & Burgess, 2016; Rycroft-Malone *et al.*, 2016) Principles for effectively conducting co-production studies are described as “using a systems perspective that acknowledges non-linearity and encourages local adaptation; positioning research as a creative enterprise that has human experience at its core; and emphasis on the process, the quality of relationships and applying facilitation techniques that consider power-sharing and utilise conflict as a positive force”. (Greenhalgh *et al.*, 2016)

Study setting

The North West Province (NWP) is one of nine South African provinces, situated inland and bordering Botswana in the north and four other provinces in the north, east and south (Figure 1). The province is predominantly rural, with a surface area of 104 882 km² and a population 3.9 million (6.8% share of South Africa's total area) (North West Development Corporation,

2018). In 2018, the unemployment rate in the province was 27.1% and the gross domestic product stood at approximately R290 million (6% share of South Africa's gross domestic product) (North West Development Corporation, 2018). The two main economic sectors in the province are mining (32.5%) and community services (21.6%) (North West Development Corporation, 2018). The main languages spoken are Setswana, English and Afrikaans (North West Provincial Government, 2017).

The province is divided into four districts and 19 sub-districts. There are 297 clinics, 18 hospitals in the public sector and 18 hospitals in the private sectors (Massyn *et al.*, 2020).

The North West Department of Health (NWDoH) was an early adopter of the WBOT strategy, commencing implementation soon after it was announced in 2011 (Padayachee *et al.*, 2014). The province started with 24 pilot sites/teams, with at least one site in each sub-district, and then steadily expanded its coverage to reach a total of 281 teams and 72% coverage of wards by the end of 2015 (Mampe *et al.*, 2016).

An evaluation (conducted by this PhD candidate) of the WBOT strategy in the NWP documented a number of successes but also constraints to implementation (Mampe *et al.*, 2016). The most significant weakness in the provincial programme was a general distrust between WBOTs and facility staff, characterised by poor communication, a lack of support, competing priorities and poor understanding of the strategy by facility staff. Although an information system was in place, formal monitoring of the performance of teams at district and facility level was seldom done (Ramphoma and Smit, 2013).

North West Province, sub-districts and districts

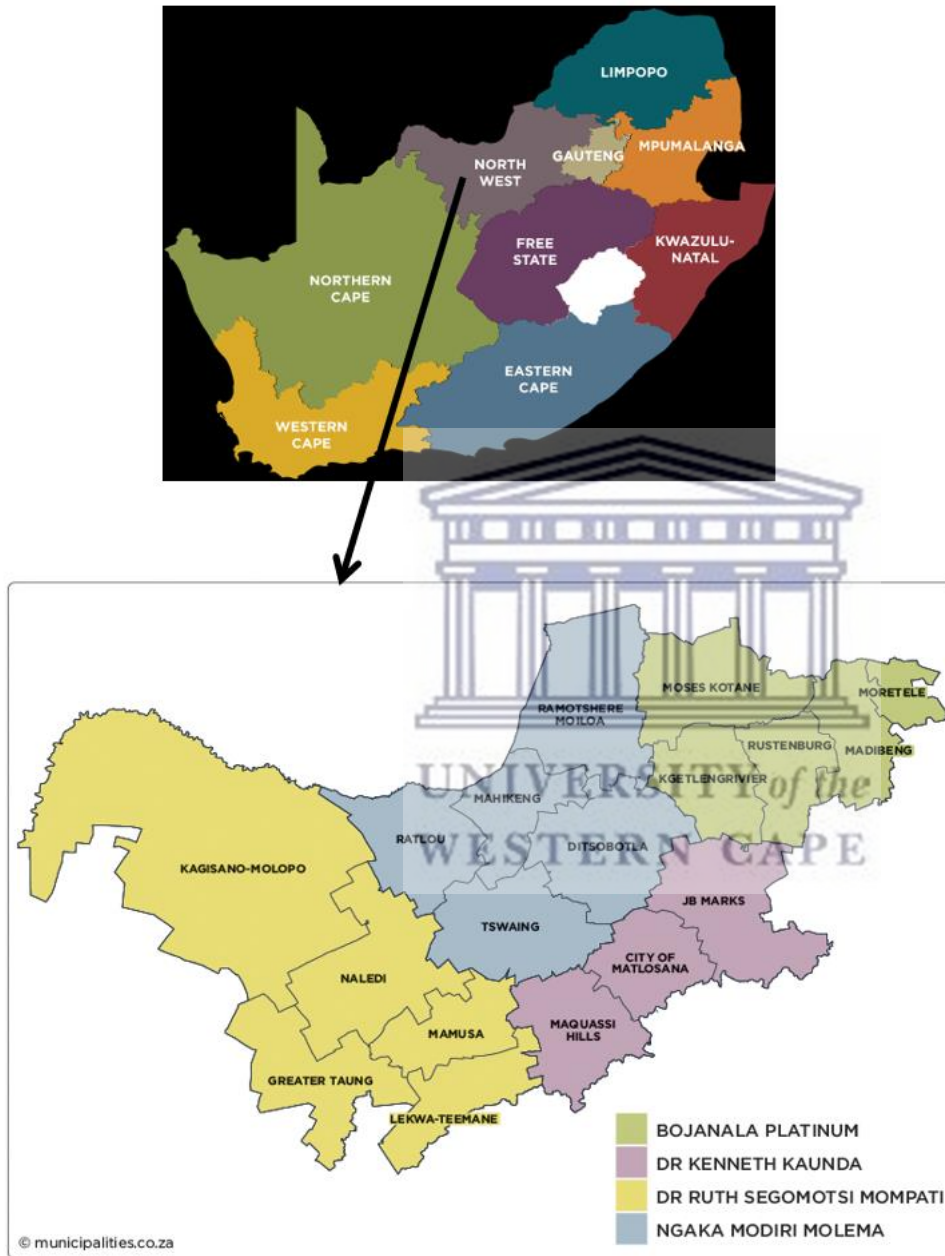


Figure 2: Maps of South Africa and the North West Province (<https://municipalities.co.za/>)

The research was conducted in the Ngaka Modiri Molema (NMM) District, one of four districts in the North West Province, bordering Botswana to the north. The district has five sub-districts, six hospitals and 76 clinics (Massyn *et al.*, 2020). The district has the second highest population in the province at 957 449 with a density of 34.5 people per km² (Massyn *et al.*, 2020). The district has one of the highest levels of WBOT coverage, with 129 teams, and is considered a good performer in this regard.

Problem statement

The absence of any framework or guidelines spelling out the system or model of supportive supervision for WBOTs has led to varied practices across the country. Primary health care facility managers are responsible for oversight and support of teams, but the current system is considered weak and relationships are uneven, compounded by the fact that WBOTs work in communities but are expected to report to facilities. It is thus important to understand how supervisory systems can be designed and facilitated to generate trust between WBOTs and the health system, thereby improving performance. Formal support from and integration into the local PHC system is a critical challenge facing national CHW programmes across the globe (Hill *et al.*, 2014).

Research on supervision of and support for CHWs has until now focused primarily on the outcomes of researcher-defined interventions and less on development processes. There is a gap in the literature on CHW supportive supervision interventions that are participatory, involve mobilisation of tacit knowledge, and complement guidance and frameworks from research and policies, and also on how local stakeholders can be brought into research processes to develop and improve CHW programmes.

Aim

The aim of this doctoral study was to explore supportive supervision mechanisms for community health workers that generate trust and enhance performance, and, on the basis thereof, to develop a supportive supervision framework for ward-based outreach teams (WBOTs) in the NMM District in South Africa's North West Province.

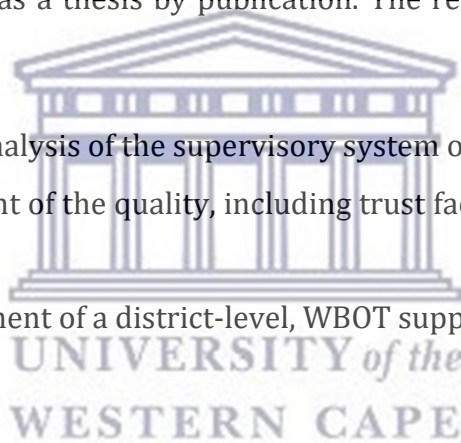
Objectives

1. To map and describe the role players and their interrelationships and contextual conditions in the current supervisory system of WBOTs;
2. To evaluate the quality, including trust relationships, and factors facilitating and constraining the current supervisory system from different perspectives;
3. To explore the perceptions of relevant stakeholders of the supportive supervision mechanisms used by WBOTs, which could lead to improved trust between WBOTs and the local health system; and
4. To develop and recommend a supportive supervision framework for WBOTs.

Overview of the thesis

This PhD thesis is presented as a thesis by publication. The research was conducted in three phases (Figure 3):

- Phase 1 – a situation analysis of the supervisory system of WBOTs;
- Phase 2 – an assessment of the quality, including trust factors, of the WBOT supervisory system; and
- Phase 3 – the development of a district-level, WBOT supportive supervisory system.



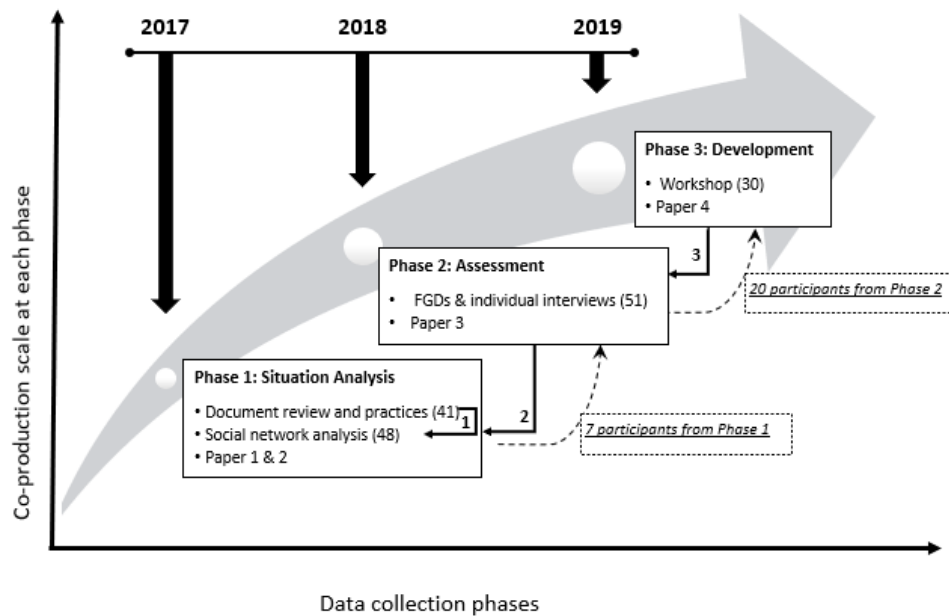


Figure 3: Research phases and data collection flow (Source: Researcher's own composition)

Figure 3 illustrates the timeline, data collection methods, participants and papers per phase. Three empirical studies were conducted using a mix of document review and quantitative and qualitative methodologies. The first study (paper 1, Chapter 3) described the current arrangement in the WBOT supervisory environment by reviewing NDoH policy and training documents and comparing these with implementation practices through qualitative focus group discussions (FGDs). The second study (paper 2, Chapter 3) quantified the social and professional interactions in the WBOT supervisory system, using the social network analysis (SNA) approach. These two studies constituted phase 1 (situation analysis).

In phase 2, study 3 (paper 3, Chapter 3), examined factors associated with workplace and interpersonal trust, the relationship between the two sets of trust factors and how this shaped the perceived performance of CHWs in WBOTs.

These three studies informed phase 3, which culminated in a workshop to develop recommendations for a district-level, WBOT supportive supervisory framework. Phase 3 is documented as part of paper 4 in Chapter 3, which is a synthesis of the process undertaken throughout the research.

The different studies and phases are presented in the following peer reviewed, published journal papers:

- Assegaai, T. and Schneider, H. (2019a). National guidance and district-level practices in the supervision of community health workers in South Africa: A qualitative study. *Human Resources for Health*, 17(1). doi: 10.1186/s12960-019-0360-x
- Assegaai, T. and Schneider, H. (2019b). The supervisory relationships of community health workers in primary health care: Social network analysis of ward-based outreach teams in Ngaka Modiri Molema District, South Africa. *BMJ Global Health*, 4(6). doi: 10.1136/bmjgh-2019-001839
- Assegaai, T. and Schneider, H. (2021) 'Factors associated with workplace and interpersonal trust in the supervisory system of a community health worker programme in a rural South African district'. *International Journal of Health Policy Management*, x(x), pp, 1–8. doi: 10.34172/ijhpm.2021.03
- Assegaai, T., Schneider, H. and Scott, V. (2021). Developing a district level supportive supervision framework for community health workers through co-production in South Africa. *BMC Health Services Research*, 21(1):337. doi: 10.1186/s12913-021-06350-2

The PhD candidate collected data and drafted all papers under the guidance of both supervisors, who contributed in writing as detailed in the introductory notes per paper in Chapter 3.



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CHAPTER 2: METHODS

This chapter presents an overview of the methods employed in this doctoral study. To put the research conducted into context, the chapter begins by presenting the conceptual framework used to investigate the CHW supervisory system, using a systems thinking approach. The chapter goes on to summarise the study designs, study populations and sampling techniques, as well as the data-collection procedures and data analysis approach, which are described in more detail in the four papers. The chapter then discusses the steps involved in ensuring rigour in the research and concludes with some comments on ethical considerations.

Evolving conceptual framing of this doctoral study

Starting from the premise that supportive supervision is a system of building trusting relationships for the purpose of optimising organisational performance, the study employed a systems thinking approach which views the system as holistic, complex and adaptive (Plsek and Wilson, 2001). Systems thinking is “an approach to problem-solving that appreciates the very nature of complex systems as dynamic, constantly changing, governed by history and by feedback, where the role and influence of stakeholders and context is critical, and where new policies and actions (of different stakeholders) often generate counterintuitive and unpredictable effects, sometimes long after policies have been implemented” (Adam and De Savigny, 2012:iv1). Applying a systems thinking lens allowed the researcher (the PhD candidate) to reflect on the behaviour and interactions between actors and resources in context-specific ways, thus ensuring that interventions are appropriate for a particular district health system and thus sustainable.

A supervisory system can be viewed as a complex system because it involves people, resources and relationships. The interconnectedness of these components creates feedback loops that allow the system to adapt and readjust in positive and negative ways (Marquez and Kean, 2002).

The findings were summarised and reworked into a conceptual framework (appearing in figure 4 below), adapted from the change model of Van Belle *et al.* (2010) and systems thinking theory (De Savigny and Adam, 2009), which formed the initial framing for investigating supportive supervision in this study.

The key propositions underpinning this conceptual framing at the outset were that:

- a functional district health system creates the inputs and processes required for the supervision of WBOTs;
- these inputs include management commitment, resources, a supervision framework, defined relationships, community involvement, supervisor training and motivation;
- the supervision processes include supervisory tools and problem-solving, communication and empowerment, among others things;
- inputs and processes together form the basis of supportive supervision;
- supportive supervision generates trust, which further strengthens the conditions for supportive supervision;
- trust includes interpersonal and workplace dimensions; and
- supportive supervision that generates trust improves WBOT performance, which in turn improves health system performance.

As the research unfolded and the individual papers were developed, the conceptual framing of CHW supportive supervision evolved. Greater awareness of the role of contextual factors made it important that the conceptual framing be further developed to take into account and incorporate the wider changing provincial context, (see figure 1 in paper 2 and paper 3) and also more properly recognise the role of the national context (paper 1).

Study design

To address the objectives of the study, research was conducted using a mix of quantitative and qualitative methods in an iterative approach best described as co-production.

Co-production is described as working together and building relationships between different groups of people to generate knowledge that coherently incorporates all the different viewpoints, as well as a “collaborative model of research that includes stakeholders in the research process” (Markkanen and Burgess, 2016; Oliver *et al.*, 2019; Pohl *et al.*, 2010). In this study, participants from one district (NMM) were repeatedly engaged over time and in different ways.

Co-production is beneficial not only for research impact but also for social interactions, as it brings together practitioners at different hierarchical and functional levels, from which relationships are developed, equalised and sustained (Beckett *et al.*, 2018; Flinders *et al.*, 2016; Greenhalgh *et al.*, 2016; Hickey, 2018; Langley *et al.*, 2018). Among other benefits, co-production

can facilitate conflict resolution among diverse research users with different cultures, understanding and expectations (Greenhalgh *et al.*, 2016; Langley *et al.*, 2018; Markkanen and Burgess, 2016).

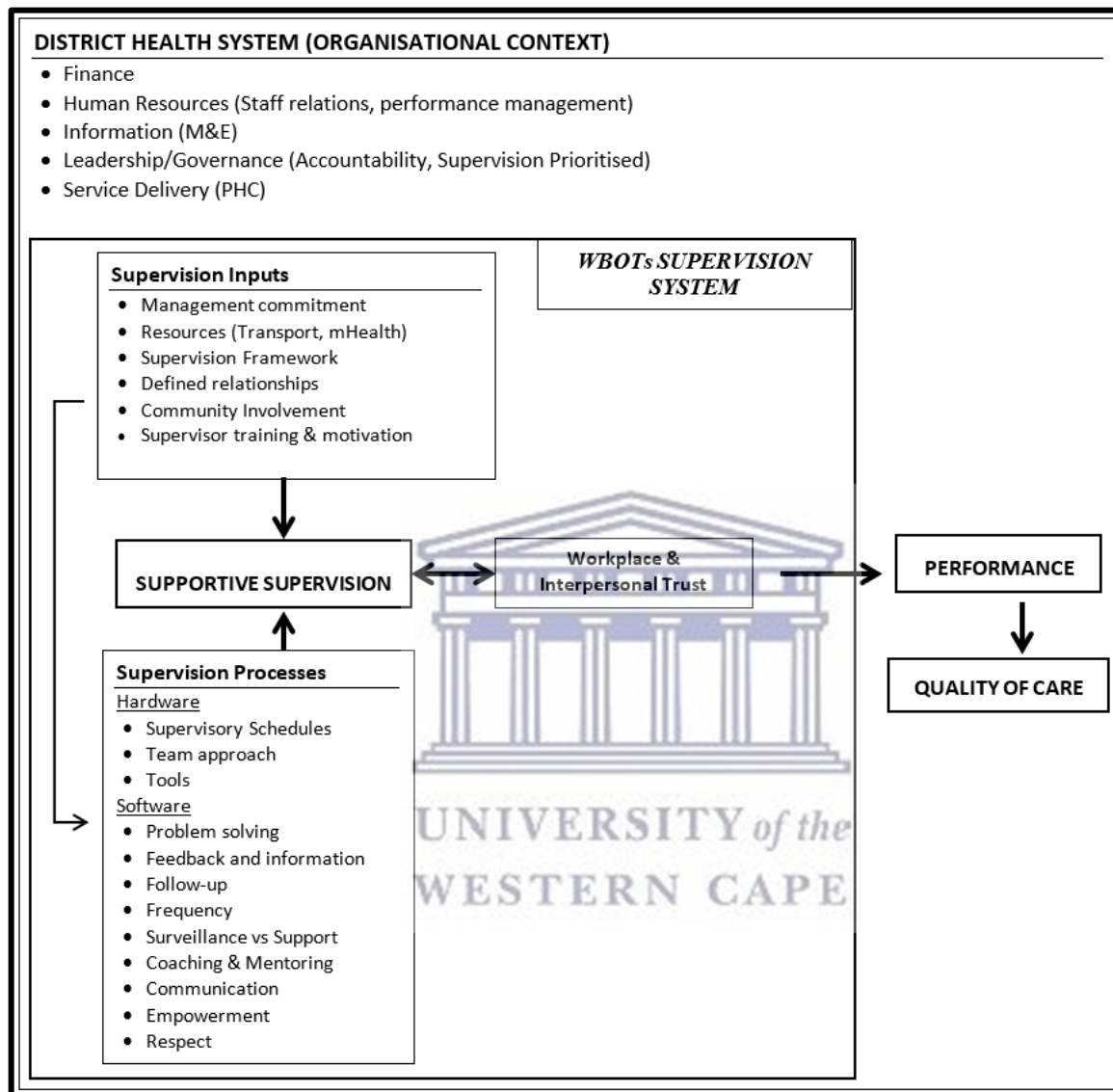


Figure 4: WBOT supportive supervision conceptual framework (adapted from Gilson, 2012; De Savigny *et al.*, 2009; Van Belle *et al.*, 2010)

The co-production process further provides the opportunity for research users to contribute tacit information and, through greater equality and power, to share their knowledge on the subject matter (Beckett *et al.*, 2018; Langley *et al.*, 2018; Lazo-Porras *et al.*, 2020; Markkanen and Burgess, 2016). In this respect, ownership and adoption of the knowledge generated through co-production are more likely (Flinders *et al.*, 2016; Markkanen and Burgess, 2016), as are context-relevant solutions (Beckett *et al.*, 2018; Boaz *et al.*, 2018; Flinders *et al.*, 2016).

It is important to recognise, however, that co-production is not the ultimate panacea for the mobilisation and adoption of research findings (Beckett *et al.*, 2018; Oliver *et al.*, 2019; Rycroft-Malone *et al.*, 2016). The reality is that power relationships, and the priorities and expectations of researchers and policy makers may hinder or “shape and direct these processes” (Flinders *et al.*, 2016; Oliver *et al.*, 2019). Relevant participants may not be readily available to participate and may also hesitate to engage openly on sensitive subjects (Boaz *et al.*, 2018; Markkanen and Burgess, 2016; Oliver *et al.*, 2019; Rycroft-Malone *et al.*, 2016). Adopting the co-production approach is also labour-intensive and time-consuming and the process may not be suitable for all types of research (Beckett *et al.*, 2018; Boaz *et al.*, 2018; Greenhalgh *et al.*, 2016; Markkanen and Burgess, 2016; Rycroft-Malone *et al.*, 2016).

As indicated in figure 3, Chapter 1, the research for this doctoral study was conducted in three phases (Figure 2): phase 1 – a situation analysis, phase 2 – an assessment of the current supervisory system, and phase 3 – the framework development. Three papers were published in phase 1 and 2, and one paper reflecting on phase 3 and a synthesis of the research process.

An overview of the work carried out for the purpose of the doctoral study is presented in Table 1, followed by summaries of the individual studies. Study 1, the first part of phase 1, comprised a qualitative description of policy and practices in two districts related to the supervision of WBOTs (paper 1 in Chapter 3). The second part of phase 1, paper 2 in Chapter 2, sought to quantify the main actors and map social networks in the supervisory system of WBOTs in the district, using social network analysis (SNA). Study 3, in phase 2, involved a qualitative exploration of workplace and interpersonal trust factors in the district and the supervisory system of WBOTs in the district (paper 3 in Chapter 3). Phase 3 culminated in a workshop aimed at developing recommendations for a district-level WBOT supportive supervisory framework, along with the co-production process undertaken for the research process as a whole. These phases and the linkages between them are described in more detail in paper 4, Chapter 3.

As illustrated in figure 3, Chapter 1, a sequential and iterative approach to participant groupings was adopted. In phase 1 and phase 2, FGDs were mostly conducted in separate categories: six with CHWs, four with OTLs and four with facility managers. Middle managers were interviewed individually in phase 2 to avoid frontline health workers feeling intimidated by their supervisors. One FGD in phase 2 was deliberately set up with a mixed group of participants (7) across disciplines and facilities from the sub-district where the SNA was conducted. Based on the validated findings from phase 1 and phase 2, phase 3 involved a workshop convened with a mix

of practitioners (30) to agree on the elements of the WBOT supervisory framework. Participants included CHWs, OTLs, facility managers, and district and provincial managers, with the researcher acting as the facilitator of the workshop. Twenty of the participants, who had been involved in previous phases of the study and had stood out because of their insights, knowledge and disciplines, were selected to participate in the workshop. At each stage of the data-collection process, participants were given feedback on the findings from the preceding data-collection stage so that they could validate them and provide any additional comments. This approach allowed participants to reflect honestly on their own local experiences and shared tacit understanding and knowledge that were contextually relevant.



Table 1: Overview of the doctoral studies

	Phase 1		Phase 2	Phase 3
	Study 1	Study 2	Study 3	Synthesis of phase 1 and 2 findings that culminated in a workshop to develop a supportive supervision framework
Design	A qualitative, descriptive study that combined a document review of national policy documents and guidelines with key informant interviews	A cross-sectional, quantitative study of WBOT members' social and professional relationship networks with other PHC workers, using social network analysis	A qualitative, descriptive study of factors associated with workplace and interpersonal trust, the relationship between the two sets of trust factors and how this shaped the perceived performance of CHWs	
Population/Sample	Policy and training documents, CHWs, OTLs, PHC facility managers	CHWs, OTLs, PHC facility managers, local area managers	Provincial managers, district managers, sub-district middle managers, focal persons, PHC facility managers, OTLs and CHWs	
Data Collection	Document review, focus group discussions	Survey	Focus group discussions and individual interviews	
Analysis	Thematic analysis	Social network analysis	Thematic analysis	

The next section provides a summary of the methodologies and aims of each of the three studies.

Study 1: National guidance and district-level practices in the supervision of community health workers in South Africa

Aim: To describe the WBOT policy and training documents guidance on supervision processes, and how this guidance compared with the perceptions of frontline workers (OTLs, CHWs, facility managers) regarding the implementation of the WBOT programme.

Study design: A qualitative, descriptive study that combined a document review of national policy documents and guidelines with key informant interviews.

Population/sample: For the document review, five policy and training documents were sourced from the national and provincial offices. The documents included a guideline issued at the inception of the programme, a training guide for CHWs, a training guide for OTLs, a training guide for middle to top managers, and a policy framework and strategy for WBOTs. Focus group discussions were held in one sub-district in each district. In each sub-district, two WBOTs were purposefully sampled together with PHC facilities to which each team was attached. The sampled WBOTs in each sub-district – chosen (in consultation with their respective sub-district managers) for their knowledge and experience as potentially rich sources of information – included one established in the earlier and another in the later phases of the programme.

Data collection: Participants in the FGDs (CHWs, OTLs, PHC facility managers) were provided with information sheets on which they gave their written consent to participate in the study. A semi-structured interview guide with open-ended question was used to conduct the FGDs and all interviews were audio recorded.

Analysis: The text related to supervision and support for CHWs and WBOTs was extracted and entered onto an Excel spreadsheet. The data was organised into the three domains of supportive supervision from the literature: management, development and support. Under each domain, themes and sub-themes were inductively coded for each document. The recordings from the FGDs were then thematically analysed. Themes and sub-themes that emerged from the text were organised under the three domains of supportive supervision. Finally, alignment across documents and practices in terms of strengths, weakness and gaps was probed.

Study 2: The supervisory relationships of community health workers in primary health care: Social network analysis of ward-based outreach teams in Ngaka Modiri Molema District, South Africa

Aim: To identify and map role players and the pattern of relationships between role players in the WBOT supervisory system from the point of view of CHWs, OTLs, PHC facility managers and local area managers.

Study design: A cross-sectional, quantitative study of WBOT members' social and professional relationship networks with other PHC workers, using social network analysis.

Population/sample: The population comprised CHWs, OTLs, PHC facility managers and local area managers involved in the immediate supervisory system of WBOTs. Two of the three local areas in the sub-district with participants who had been in their positions and working with WBOTs since the early phases of the programme were purposefully selected.

Data collection: Participants in the survey were provided with information sheets on which they gave their written consent to participate in the study. Participants were given feedback on the findings from study 1 so that they could validate them and comment further on the policies and practices of the WBOT supervisory system. Structured questionnaires with a list of names individualised per facility, directly or indirectly linked to the WBOT supervisory system in the local area, were given to participants to complete. The questionnaire sought to capture participants' characteristics and perceptions, and to survey the social and professional networks related to the WBOT programme using five questions that were representative of the three domains of supportive supervision.

Analysis: The social network data was entered onto an Excel spreadsheet and Gephi V.0.9.2 was used to generate directed and undirected sociographs of the WBOT supervisory system.

Study 3: Factors associated with workplace and interpersonal trust in the supervisory system of a community health worker programme in a rural South African district

Aim: To describe the factors associated with workplace and interpersonal trust, the relationship between the two sets of trust factors and how this shaped the perceived performance of CHWs.

Conceptual framework: Drawing on the workplace and interpersonal trust factors outlined in the literature, this study conceptualised workplace trust factors as factors associated with health worker trust in the wider health system, and interpersonal trust factors as factors associated with interactions among health workers. Factors influencing workplace trust that were identified in the literature included organisational support, communication and capacity-

building, while the domains of interpersonal trust included communication, fairness and honesty. These relationships are embedded within political and social contexts, shaping workplace factors of trust and in turn influencing health workers' morale, responsiveness and performance.

Study design: A qualitative, descriptive study of trust factors in relationships among actors in the WBOT programme.

Population/sample: Provincial managers, district managers, sub-district middle managers, focal persons, PHC facility managers, OTLs and CHWs in the WBOT supervisory system formed the study population. Participants were selected from three (out of five) sub-districts where there was more than one OTL in place at the time of the study. In one of the sub-districts where an earlier social network analysis study has been conducted, participants were brought in to participate.

Data collection: Participants were provided with information sheets on which they gave their written consent to participate in the study. Participants validated the findings from study 1 and study 2, and commented on the status and nature of relationships in the WBOT supervisory system. Focus group discussions and individual interviews were conducted with CHWs, OTLs, facility managers and middle managers, using a semi-structured interview guide and open-ended questions. The interviews were audio recorded.

Analysis: The analysis of the data was done deductively using thematic analysis. The identified codes were categorised into themes to provide a holistic picture of factors associated with trust and possible implications for the performance of WBOTs.

Study 4: Developing a district-level supportive supervision framework for community health workers through co-production in South Africa

This was a synthesis of the study process through the lens of co-production that resulted in the development of a local supportive supervision framework for WBOTs. The research aimed to generate collective knowledge and local, context relevant recommendations owned by all stakeholders. This study was a reflective analysis that described the process in which the various phases in this doctoral study culminated in the development of the framework.

Drawing on theoretical understandings of domains of influence of co-production based on knowledge mobilisation as an approach, this component examined the role of co-production for participants, generation of research knowledge and recommendations for practice. It reflected on how the research process sought to bring together different categories of participants and give them voice to share knowledge and experiences, in an enabling and non-hierarchical environment. The approach recognised the value of shared understanding of experiences.

Rigour

In this study, a combination of quality and integrity, or rigour, was achieved by establishing the trustworthiness of data collection, description and interpretation, drawing on the following principles:

- **Triangulation** – Phase 1 used a number of data-collection techniques: document review, one-on-one in-depth interviews, FGDs and workshopping. These were triangulated for patterns of convergence in order to arrive at a comprehensive interpretation of the findings (Creswell, 2013; Gilson *et al.*, 2011; Mays and Pope, 2013). Findings from the document review and the interviews both identified weaknesses in the design and implementation of the supervisory system of WBOTs. Findings from phase 1 and phase 2 were consistent with previous research conducted on CHWs in South Africa and other low-middle income countries.
- **Respondent validation** – At the beginning of every phase of the study, participants were given feedback on the preceding data-collection exercise and an opportunity to review and corroborate the researcher's account in order to ensure an accurate and comprehensive view, and ownership, of the findings (Creswell, 2013; Gilson *et al.*, 2011; Mays and Pope, 2013).
- **Rich, thick description** – All interviews were audio recorded and safely stored. Data was transcribed and coded using Atlas.ti. The researcher kept a transparent and systematic record of how data was collected and analysed (Creswell, 2013; Gilson *et al.*, 2011; Malterud, 2001; Mays and Pope, 2013) and this was described in detail in all the studies.

- **Reflexivity** – The PhD candidate was an embedded researcher, who is from the study area. She provided technical assistance in respect of WBOTs to the North West Province prior to the commencement of her doctoral study, is knowledgeable about the local social context and able to communicate in seTswana (her mother tongue) As a relative insider, she had an advantage in knowing how the WBOT programme was set up and was able to ask relevant questions. However, there was a risk that her known previous status and position were a distraction during the engagements, and she may have been viewed by some actors, such as CHWs, as part of the management structure. She therefore endeavoured not to be treated in any special way and sought to build trust through her various engagements with participants by assuring them that their responses would be kept confidential and recorded anonymously.

The researcher kept a diary documenting all the relevant details of the facilities and participants, as well as the feelings evoked during the study and how these may have influenced the interpretation of the findings (Creswell, 2013; Gilson *et al.*, 2011; Malterud, 2001; Mays and Pope, 2013). She also kept notes of her observations of how the programme implementation had deteriorated over the years and how this was a demotivating factor, not only for her but also for health officials involved in the programme. The decline of the programme was difficult to observe, but with time the research became an opportunity for reflection and speaking out, with the possibility that the research findings would clarify things for health officials and even improve the level of support for, and help motivate, the WBOTs.

- **Negative information analysis** – Participants offered different perspectives during the research. The researcher documented ‘deviant’ perspectives from the emerging explanations, and where it was deemed relevant, the findings were reported realistically and accurately (Creswell, 2013; John and Miller, 2000; Gilson *et al.*, 2011; Mays and Pope, 2013). For example, during study 3, it became clear that facility attitudes towards WBOTs varied quite significantly. It was therefore important to explain expressions of trust in a context of overall mistrust in order to acquire a holistic understanding of the implementation of the programme

- **Prolonged engagement** – The study engaged in repeated interviews, feedback sessions and brainstorming sessions with most of the participants, which gave the researcher an opportunity to gain rich insights on the participants' views and their particular contexts (Creswell, 2013; Gilson *et al.*, 2011).

Ethical considerations

Ethical considerations in research are not only mandatory but also important for the protection of human subjects, participating in research studies (Orb *et al.*, 2000). This study mostly collected qualitative data from human subjects. Therefore, to maintain ethical conduct throughout, participants' identities and all data collected were stored safely and reported anonymously. Furthermore, each participant was provided with information sheets (Appendix 3) and briefed verbally at the start of interviews (where necessary, in the participant's mother tongue). These information sheets detailed the purpose of the study, participants' rights and responsibility in volunteering to take part, the confidentiality surrounding participants' identity and data collected, any potential risks, the benefits of the study, and relevant contact details in case participants had any questions about the study.

All participants were selected on the basis that they were legally and mentally competent to participate in the study. The process of recruitment ensured fair and equitable representation of all levels to be investigated (Aluwihare-Samaranayake, 2012). Participants were requested to sign written informed consent forms (Appendix 3) to confirm that they understood that their participation was voluntary, that their responses would be audiotaped, and that their identity and responses would be reported anonymously in the study reports.

Participants were required to provide information on their lived experiences of interactions in the current supervisory system of WBOTs. This required them, particularly OTLs and CHWs, to cast their minds back and reflect on any emotional content that could have aroused feelings of stress and tension (Aluwihare-Samaranayake, 2012). Although this did not occur during the study, the researcher was conscious of this possibility, as well as the responsibility and obligation to deal with such a reality (Aluwihare-Samaranayake, 2012).

As described in paper 4, the researcher sought to model supportive supervisory relationships through the course of the research. She was conscious of the power relations that exist in hierarchical line structures and the perceived social status of participants that would be

recruited to participate in the study (Orb *et al.*, 2000). In this context, it is not surprising that there was some degree of resistance observed among those at the lowest rung of the status and power structure – that is, the CHWs. Navigating this resistance required patience and negotiation skills on the part the researcher. As the process unfolded, initially hostile team members were observed describing their challenges in a non-confrontational manner, and they generally had good engagements with officials and managers from the district and the province.

The researcher was conscious of the value of flattening power relations and ensuring respectful and emancipatory interactions when engaging with participants (Aluwihare-Samaranayake, 2012). It was the intention at the outset that the findings from the study would represent information that had been obtained from participants in a respectful, accurate and comprehensive manner, which in turn would assist in the development of a supervision framework for WBOTs (Aluwihare-Samaranayake, 2012).

The study received ethical clearance from the University of the Western Cape's Senate Research Committee and Ethics Committee (Appendix 4) and the NWDoH Research Committee (Appendix 5).



CHAPTER 3: FINDINGS

Paper 1: National guidance and district-level practices in the supervision of community health workers in South Africa

Introduction: This study was part of the situation analysis (phase 1) and the first study in this thesis to be published. It comprised a qualitative description of WBOT policies, based on a document review and practices in the WBOT supervisory system as revealed in qualitative research conducted in two districts in the North West Province. The study described the WBOT policy documents and training guides on supervision processes, how these documents (5) conceptualised supervision of WBOTs and how this guidance compared to the perceptions of frontline workers (OTLs, CHWs, facility managers) involved in the delivery of the WBOT programme.

Conclusion: The study identified weaknesses in both the design and the implementation of the supervisory system of WBOTs. Supervision was mentioned in all the policy and guidance documents. There was, however, misalignment of content across the documents, and there was no standalone and overarching supervision framework, guideline or document for WBOTs. Although these documents were widely available and used, only two had acquired official status. The absence of clear guidance on WBOT supervision meant that WBOTs and facilities functioned in an ad hoc manner, based on their particular context. There were varying reporting lines, and development and support processes were unclear or even missing at times. There was cohesion among the WBOT team members, but their interactions with facility workers were strained. The study highlighted the need for a holistic conceptualisation of the supportive supervision function in policies on CHW programmes.

Contribution of candidate: TA and HS conceptualised the study. TA collected the data and performed the analysis under the supervision of HS. TA drafted the manuscript. HS substantially reviewed drafts of the manuscript and provided intellectual content. Both authors read and approved the final manuscript.

(Review comments from the peer review process are available in Appendix 7.)

RESEARCH

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National guidance and district-level practices in the supervision of community health workers in South Africa: a qualitative study

Tumelo Assegaai^{1*}  and Helen Schneider^{1,2}

Abstract

Background: Supportive supervision is considered critical to community health worker programme performance, but there is relatively little understanding of how it can be sustainably done at scale. Supportive supervision is a holistic concept that encompasses three key functions: management (ensuring performance), education (promoting development) and support (responding to needs and problems). Drawing on the experiences of the ward-based outreach team (WBOT) strategy, South Africa's national community health worker (CHW) programme, this paper explores and describes approaches to supportive supervision in policy and programme guidelines and how these are implemented in supervision practices in the North West Province, an early adopter of the WBOT strategy. Outreach teams typically consist of six CHWs plus a nurse outreach team leader (OTL).

Methods: A qualitative, descriptive study that combined a document review of national policy and guidelines with key informant interviews in two districts of the North West Province was conducted. An overall WBOT policy statement and four guidelines on aspects of the strategy, spanning the period 2011–2017, were reviewed for statements on the three core facets of supervision outlined above. Eight focus group discussions, involving facility managers, team leaders and community health workers (total 40 respondents), purposively selected from four sub-districts in two districts, assessed local-level supervision practices. Alignment across policy and guidance documents and between policy/guidance and practice was examined.

Findings: While all the official policy documents and guidelines reviewed acknowledged the need for supervision and support, these elements were inadequately developed and poorly aligned, both in terms of scope and in providing firm guidance on the supervision of WBOTs. The practices of supervision entailed a variety of reporting lines, while development and support processes were informal and often lacking, and teams poorly resourced. There was internal cohesion and support within teams amongst CHWs and between CHWs and OTLs. However, primary health care clinic managers, who were supposed to supervise the WBOTs, struggled to fulfil this role amidst the high workloads in facilities, and relationships between WBOTs and facility staff often remained strained.

Conclusion: This study identified weaknesses in both the design and implementation of the supervision system of WBOTs. The lack of explicit, coherent and holistic guidance in policy and the failure to address constraints to supervision at local level undermine the performance and sustainability of the WBOT strategy in South Africa.

Keywords: Community health workers, Ward-based outreach team, Support, Supervision, Document review

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Background

Evidence from countries around the world has shown that community health workers (CHWs) can contribute significantly to the efforts of improving the health status of populations, especially in countries with human resource for health crises [1, 2]. The benefits of CHW programmes in these countries include improved health outcomes and an expanded workforce.

However, there are still many challenges associated with CHW programmes, related particularly to their integration (or not) into health systems. Problems with CHW remuneration, training, role clarification, referral systems, information management and provision of supplies abound [1–3]. These challenges, combined with the fact that CHWs are equipped with limited skills and often work in remote and isolated areas, point to the need for supervision systems that not only monitor performance but also provide moral and other forms of support [4–6]. Reviews examining effective designs for CHW programmes have consistently found that the quality of supervision of CHWs affects the performance of programmes [7–13]. It also affects CHWs' sense of belonging, morale, productivity, retention, respect and credibility with other stakeholders [7, 14–19]. Good supervision of CHWs, amongst other benefits, has the potential to improve and strengthen the relationships or interactions of CHWs with other health workers in the health system, resulting in improved trust and performance [20, 21]. Despite its importance, the literature provides little evidence of what a good supervision system for CHWs entails [1, 22, 23].

Supervision is a key component of human resource management and amongst a number of important strategies to improve health worker performance and health outcomes [6, 24]. Various definitions of health worker supervision are offered in the literature. Sennun et al. define it as “a process that involves monitoring work processes, understanding the causes of problems and providing possible solutions, as well as general management to improve operations, clinical direction, review guidelines, and providing approaches to effective service delivery, including patient safety, treatment and health promotion” [25]. This definition views supervision principally as a monitoring process that ensures compliance with standards and quality of care. It differs from definitions that explicitly consider supervision as not only a performance management and administrative tool, but also as a mechanism of personal and developmental support to health workers. One of the broader definitions to supervision would be “process that promotes quality at all levels of the health system by strengthening relationships within the system, focusing on the identification and resolution of problems, and helping to optimize the allocation of resources” [6]. Another is “the provision of

monitoring, guidance and feedback on matters of personal, professional and educational development in the context of the doctor's care of patients” [26]. In the South African context, the need for a supportive environment is echoed in the country's Human Resource for Health Strategy. The strategy states that “the key role of the leadership of the health sector at all levels is to ensure a healthcare environment in which the health workforce is valued and supported and has the opportunity to develop while providing high quality care” [27].

Holistic definitions outline three basic functions served by supervision: management/administrative, educational/developmental and support [26, 28]. The management function is concerned with ensuring compliance with organisational standards and policies, the developmental function seeks to improve knowledge and skills to perform, and the support function addresses morale, motivation and job satisfaction. Peach and Horner [28] separate these functions into the “production” and “people” aspects of supervision; production is centred on management functions and “people” on education and support functions. They argue that improving health outcomes (production) and resource development (people) cannot be addressed independently, but are rather complementary and equally important.

Community health workers are not a new phenomenon in South Africa. Over the years, CHWs have played a significant role in the health sector in a wide variety of areas such as maternal and child health, HIV, TB and other chronic conditions [29–32]. In 2011, The National Department of Health (NDoH) in South Africa introduced the Re-engineering of Primary Health Care (RPHC) strategy as one of a set of health system reforms to address system weaknesses that resulted in the country only partially achieving the Millennium Development Goals (MDG) related to maternal, child and infant mortality; HIV; and TB [33, 34]. The RPHC strategy recommended, amongst a number of reforms, the Ward-based PHC outreach team strategy to strengthen health prevention and promotion, identify individuals and families at high risk and build links between households and health care facilities. The ward-based outreach teams (WBOT) constitute South Africa's national CHW programme and feature in key national policy platforms including the National Development Plan 2030 [35] and the National Health Insurance White Paper [36]. The WBOT strategy represents the latest and most significant in a line of policy initiatives over the last decade to shape the community-based sector.

A ward-based PHC outreach team (WBOT) is comprised of a nurse as the outreach team leader (OTL) and an average of six CHWs. The team is attached to a facility, operates within a municipal ward and provides promotive and preventive services to individuals at

household level. Training for CHWs is standardised with official tools outlining the functions of the team leaders, CHWs, facility managers and other managers at the district, province and national levels. National guidelines, policy and training documents were developed for the WBOT strategy, specifying roles and functions for both CHWs and OTLs [37, 38], which were to be implemented at provincial and district level.

This article describes the extent to which the national policy and training documents related to WBOTs in South Africa provide guidance on supervision processes; how these documents conceptualise supervision; and how they balance the production and people components of supervision. The article then explores how those involved in implementing the WBOT strategy perceive the current supervision practice versus prescribed policy and training documents. This study aims to contribute towards understanding of the design of supervision strategies, and their alignment with the implementation of support and supervision processes in CHW programmes. The study was based in two districts of the North West Province, an early adopter of the programme. The province started implementation immediately after the NDoH announced the programme in 2011, with pilot teams in all 19 sub-districts across the province by 2012. By December 2015, 72.6% of the 382 wards in the province reported functional teams, compared to an average of 36.4% for the country as a whole [39].

Methods

A descriptive qualitative study of policy and practices related to supervision of WBOTs in two districts of the North West Province was conducted.

To describe the policy on WBOT supervision, all NDoH guidelines, policy and training documents related to the WBOTs and available in the public domain since the inception of the WBOT programme were sourced. To explore practices, focus group discussions were held with facility managers, team leaders and community health workers involved in the immediate supervision system of WBOTs in two districts of the North West Province.

Focus group discussions were conducted in one sub-district in each district. From each sub-district, one older and one recently established outreach team and their associated PHC facility managers were purposefully sampled. The four ward-based outreach teams were purposefully sampled, in consultation with sub-district managers, as being typical examples of functioning WBOTs established in the earlier and later phases of the programme, and for their knowledge and experience, and therefore, potential as information rich cases.

Document review

The document review was conducted on all NDOH policy and training documents, which contained any text relating to supervision or support of the WBOT programme. The policy framework and strategy for WBOT document was sourced from NDoH soon after its distribution. The remaining documents were obtained from the provincial office responsible for overseeing the programme. The district confirmed that they used most of them as reference documents. The documents include a set of guidelines issued in the inception stages of the programme (2011), three guides for CHWs (2014), team leaders (2012), and middle to top managers (2012), respectively, and a recent policy framework (2017). The documents are listed in Table 1 in chronological order of publication.

All the text related to supervision and support for CHWs and the WBOTs was extracted from the documents and entered into an excel spreadsheet. The text was organised along the three domains of supportive supervision (management, development, support) that emerged from the literature. Within each of the three domains, themes and sub-themes and the specific elements were inductively coded based on the material in the documents.

Both authors agreed on the framework for the analysis and read the documents. The first author (TA) did the coding, which was then discussed and validated with the second author (HS).

Table 1 Documents reviewed

Title of document (short title)	Purpose	Year of publication
Provincial guidelines for the implementation of the three streams of PHC Re-engineering (Toolkit)	Provincial guidelines and toolkit for implementation of the WBOT programme	2011
CHW participant guide—phase 1 (CHW manual)	Accredited training guide for CHWs	(First version 2011) 2014
Ward-based PHC outreach team leader orientation programme learner guide (Team Leader Guide)	Orientation guide for team leader on their roles	2012
Ward-based PHC outreach teams management information (Management Guide)	Middle and top management overview of WBOTs' value, purpose, roles and responsibilities.	2012
Policy framework and strategy for ward based primary healthcare outreach teams (Policy)	A framework to improve WBOTs' working conditions and standardise their scope of work and application across the provinces.	2017

Focus group discussions

A semi-structured interview guide with open-ended questions on the supervision of WBOTs was used to conduct focus group discussions (FGDs) with a total of 40 respondents (Table 2).

Respondents were provided with information sheets to familiarise themselves with the research topic and given an opportunity to ask questions. They gave written consent to participate in the study and were made aware of their right to withdraw from the study at any time. FGDs were conducted with the three categories—facility managers, team leaders and CHWs—as separate groups to avoid power relations arising from professional status and hierarchies inhibiting participation. A semi-structured FGD guide loosely structured the discussion, allowing for probing for more information and seeking clarification where necessary. The FGDs were conducted by the first author (TA) and took place at respondents' place of work as chosen by the sub-districts. All the interviews were conducted in English, including the CHWs, all of whom have at least secondary level schooling and attend training programmes in English. The interviews were audio recorded, transcribed and coded using the ATLAS.ti 8 (ATLAS.ti Scientific Software Development GmbH, Berlin).

Analysis of FGDs was done using the thematic content analysis approach [40]. The researchers read all the transcripts to familiarise themselves with the text, then identified codes, categorised the codes and developed themes and sub-themes that emerged from the text based on the three basic functions of supervision (management, development and support). The researchers then analysed the strengths, weaknesses, gaps and alignment between the official positions on supervision (from the document review) with practices (from the interviews).

The FGDs were conducted as part of a longer association of the authors with the WBOTs in the North West Province, in both support/technical (TA) and research (TA and HS) capacities. The trustworthiness of the study was thus enhanced by these well-established local relationships, shaping the depth and quality of FGDs, and the ability to draw on wider contextual and tacit knowledge in the analysis.

Findings

Policy and guidelines

The Toolkit is the first document that was distributed at the beginning of the programme and is widely used as a

reference guide for implementation. However, this document remains in draft format and is yet to be revised or issued as a final document. The Policy document is the most recent and most significant of the documents, but lists supervision functions in very summary terms.

Table 3 summarises the official guidance on supervision by document source and theme—management, development and support. Management was further categorised into sub-themes of line authority, performance management and provision of resources. The plus sign (+) denotes the degree of emphasis placed on the particular function in each document. These summary judgements were based on the full text extracted from the documents that talks to supervision (provided in Additional file 1).

The line authority sub-theme includes the following functions as captured from the documents: the recruitment of team leaders, ideal candidates for team leader positions, CHWs supervisor and team leader supervisor. Only two of the guides—the CHW Manual and Team Leader Guide—cover all these functions comprehensively. According to the documents, districts and sub-districts appoint team leaders and facility managers supervise and participate in the recruitment of team leaders. The team leader's scope of work requires a professional nurse (4-year qualification), but with a shortage of this cadre, the new Policy document encourages provinces to "Identify mechanisms for each facility to assess current staff vis-a-vis new PHC structure – particularly with respect to who will supervise the outreach team" [39]. There is consensus across documents that team leaders are to supervise CHWs and oversee activities of the team and that CHWs report to the facility manager through their team leaders.

The performance evaluation sub-theme functions include how to monitor, record and report on performance, and the designation of responsibility for these functions to facility managers and team leaders. As with the line responsibilities, these functions are addressed in all the documents, bar the CHW Manual, which only mentions that the team leaders manage the performance of team members with no further details. The Team Leader Guide goes further to include performance evaluations forms for CHWs, developed by supporting partners as part of the monitoring and evaluation (M&E) system tools at the inception of the WBOT programme. However, when NDoH adopted the M&E system for WBOTs, the performance evaluation forms were not officially endorsed for use by teams, and none of the other documents reviewed refer to these forms.

The resources sub-theme includes the provision and management of basic resources and availability of physical space for storage of records and team meetings. Basic resources for service delivery include transport,

Table 2 Focus groups participants

Level	Number of people	Groups
Facility managers	10	2
Team leaders	12	2
CHWs	18	4

Table 3 Coverage of functions (+) per theme across the documents

Document	Management			Development	Support
	Line authority	Performance evaluation	Resources		
Toolkit	+++	+++			++
CHW manual	++++	+	+	+	+
Team Leader Guide	++++	++	+	+	+++
Management Guide	++	+++	+	+	++
Policy	+++	+++	++	+	+

stipends, basic clinical supplies and stationery for recording keeping and reporting. The Policy document states that the provincial Department of Health will fund the programme and make available resources for the teams and that it is the responsibility of the facility and sub-district managers to supply and manage these resources. It further mentions that the department will ensure availability of space for WBOTs through the Ideal Clinic programme, a national clinic accreditation programme. The remaining documents refer to resources in either passing or not at all. In none of the documents is there a specific list of items to be supplied.

The development theme relates to the level of guidance provided in the documents on capacity building for WBOTs members and their supervisors. There is formal training for CHWs and orientation for team leaders, facility managers and middle managers to support the programme. The CHW manual is the South African Qualifications Authority (SAQA's) accredited curriculum for the first phase of the formal training. The documents mention that, beyond the formal CHW training, supervision of WBOTs includes training, mentoring and coaching of CHWs. This capacity building is to be achieved through induction, skills development, clinical guidance and technical support in the form of in-service trainings and workshops. According to the CHW Manual, Team Leader Guide and the Management Guide, the team leader is responsible for CHWs' capacity development. However, this is not categorised by format, frequency and content. The CHW Manual identifies the health promoter as a source of technical support on health promotion but also provides no further details. The Policy document simply mentions that the department will confirm the training content and method to build the required capacity for CHWs and the development and maintenance of a capacity building system at district level. In general, basic training is well established, but further development post in-service is only superficially acknowledged.

Except for the Team Leader Guide, the documents provide some guidance on how supervisors need to support WBOT members, but do so in very limited terms. The Team Leader Guide provides more details around mentoring and coaching of the WBOT members.

In sum, the documents reviewed provide considerable detail on the management functions of supervision, but much less on development and support, the two other crucial pillars of supportive supervision. All the documents acknowledge the need for supervision and outline basic reporting lines. One of the objectives in the Policy document seeks to "ensure adequate supervision and support for CHWs as well as for team leaders" but provides no elaboration. Neither the Toolkit nor the Policy spells out a comprehensive approach to supervision, support and line authority functions. Rather, decision-making is delegated to sub-national levels. For example, the Toolkit refers to "Setting up supervision, reporting and monitoring systems for outreach teams through consultations with heads of facilities (through sub-district/ district-level meetings)". The Policy document refers to, as one of the key responsibilities for the province, "approving the implementation plan in the districts...", and for the district to "develop an implementation plan...".

The training documents, on the other hand, provide considerably more detail on the procedures and style of supervisory relationships. Both the Team Leader Guide and the Management Guide were piloted in the North West Province and distributed through workshops at the beginning of the programme, and the team leaders who were in pilot WBOTs at the time were oriented on the contents. However, the induction workshops were subsequently discontinued and the Team Leader Guide document was then distributed as part of the team leader package, where its status remains semi-official. The CHW manual remains in use as part of the first part of the formal training for CHWs.

While the documents reviewed refer to supervision in various places, currently, there is no standalone, overarching and coherent framework or document for the supervision of CHWs and WBOTs. Moreover, most of the documentation, which exists, although widely available and referenced, has uncertain status.

Supervision practices

Management

In establishing the line authority function of WBOTs, the North West, as other provinces, struggled to attract

professional nurses as team leaders to rural areas where most of the WBOTs are based. As a result, the province sought to recruit professional nurses from facilities and retired nurses to work as team leaders. Team leaders were recruited in a variety of ways, most commonly volunteering to take on the role.

... I depend on walk-ins (manager).

... so we volunteered (professional nurse, district 1).

So I was just requested [to be a team leader]
(professional nurse, district 1).

I heard over the radio that there was an advertisement... So I went to the district office to find out about that ... it was confirmed and then we had to do some applications and ... we were called for an interview. (retired nurse, district 2).

In most areas, facility managers were tasked with supervising the outreach teams. It would appear that the department did not explain the WBOTs' scope of work to facility managers "we didn't know what was expected of us" (facility manager, district 2). The facility managers were also not involved in the recruitment of team leaders. As one facility manager responded, "I was just told... [I was] not part of the selection" (facility manager, district 1). Facility managers mentioned things such as "supervise, discipline, in-service training, provide resources" (facility manager, district 2), to highlight what they thought their role was towards outreach teams. However, as one facility manager expressed, there was uncertainty on what this role really entailed in practice "... we are not told how far you should go with the management of the team leader" (facility manager, district 1). In some areas, districts delegated professional nurses as "focal persons" at sub-district and district levels to coordinate and oversee the WBOTs programme, who sometimes also directly supervised the team leaders.

As indicated, performance evaluation forms to enable team leader to monitor and review the performance of CHWs were developed and distributed during the inception phases of the programme in the North-West. Although the FGDs suggested that there was some form of unofficial evaluation occurring between team leaders and CHWs, as one CHW explained, "...[the team leader] checks that I present myself well and that I fill the forms correctly" (old CHW, district 1), the performance evaluation forms were never made official and most team leaders were not oriented on them. There was no formal performance review system for team leaders and WBOTs as a whole. This was compounded by the fact that CHWs and retired nurses (as team leaders) were

contracted on a short-term basis with no performance agreement. As a result, facilities felt they had no control over the functions of team leaders and WBOTs, even if informal monitoring took place. As one operation manager indicated "[there is] no measuring system where we measure their progress and performance." (facility manager, district 2). Some facilities also reported holding meetings with the WBOTs to update each other on achievements and challenges within the communities.

At the beginning of the programme, the department provided the majority of the CHWs with kit bags as part of their phase 1 training. These bags had basic supplies such as bandages, gloves, and condoms. The districts instructed facilities to replenish the supplies of WBOTs reporting to them on an ongoing basis. However, CHWs indicated that the supplies were limited and not provided regularly. Some facility managers made mention that they provided resources such as gloves and nappies to outreach teams. However, not all CHWs concurred, as one CHW stated, "the facility will say it's not their job to give us [supplies]" (old CHW, district 1). All teams indicated that they did not have space to work and had to improvise with solutions to do their work and keep records safe. As explained by one team leader "I don't have any space for my records. I keep them in my car..." (team leader, district1).

There is shortage of transport in the province, and in instances where wards are vast, households are hard to reach on foot. As a result, the province decided to allow team leaders who had vehicles to use them for WBOTs support and claim for up to 500 km travelled per month. However, team leaders indicated that there were problems with this arrangement as they would sometimes also be expected to transport supplies for the facilities such as medicines and administration materials, "... we are a shuttle service" (team leader, district2).

Development

The basic training of CHWs is provided through accredited Regional Training Centres located at district level. Trainers include maternal and child programme coordinators, team leaders and professional nurses, who are not necessarily team leaders. Team leaders are encouraged to attend CHWs trainings to familiarise themselves with the curriculum and observe how CHWs perform in the training. In some instances, team leaders are also trainers. As indicated earlier, in the inception phases of the programme, the department provided a non-compulsory 5-day orientation workshop for team leaders in the province. However, team leaders recruited beyond the pilot phase were not offered these workshops.

Team leaders regarded it as their responsibility to provide CHWs with in-service training to improve clinical and technical skills and appeared motivated to improve

the capacity of CHWs. As one team leader explained, “it is our responsibility to give CHWs in-service training, guide them how to deal with communities and whenever they encounter challenges they are encouraged to consult us” (team leader, district 2).

Support

Team leaders were also reported to have good relations with CHWs. As explained by one CHW, “Our relationship with our team leader is excellent ... [when] we want the team leader to go with us to make a follow up... she comes. The presence of team leaders at household level allows the clients to be more receptive to the service and makes the work easier” (new CHW, district 1).

Outreach teams interacted with facility staff, but WBOT members generally felt that facility managers did not understand the role of the teams. Facility managers were described as putting pressure on teams to assist in the facilities. As one team leader narrated, “the facility manager usually says, we have a shortage ... go to another [consulting room] and assist” (team leader, district 1). As a result, team leaders felt constrained in supporting CHWs in the communities. However, not all facility managers were described in negative terms. Some understood their role as supportive, as expressed by one facility manager, “the role of the facility manager is to empower them... check their challenges and then address them” (facility manager, district 2).

Relationships between WBOTs and other facility staff varied. There were teams where relations had evolved positively, as one CHW recalled, “Firstly, the nurses from the facility were treating us badly. Now they are much better, they know our role” (new CHW, district 1).

Others felt they were poorly treated:

If you tell them that I have to go out and assess the CHWs, they will say we are just gallivanting in the location, you are not doing anything. (team leader, district 2).

Our relationship is very, very poor in the clinic, very poor (old CHW, district 1).

Most sub-districts in the province have programme coordinators that are responsible for different programmes such as maternal and child health and chronic disease care. However, there was no indication that there was any interaction between programme coordinators and outreach teams.

In sum, in the absence of a clear supervision framework, teams and facilities functioned in an ad hoc manner that best suited them in the delivery of services. In practice, there was a variety of reporting lines, development and support processes were informal and often

lacking, and teams poorly resourced. There was internal cohesion and support within teams. However, facility managers struggled to supervise the teams amidst high workloads in facilities, and relationships between WBOTs and facilities often remained strained.

Discussion

The WBOT programme plays a critical role in extending PHC services to community and household level and making health accessible in terms of distance and information [41]. Community health workers render services at household level, with limited training, resources and support. It is therefore important that CHWs are well trained, adequately supervised and supported to withstand challenges and deliver quality services [42, 43]. Although studies argue that adequate support and supervision are essential for the success and performance of CHW programmes at scale, the development of supervision systems for CHWs in policy and practice remains a challenge globally [18, 44–46].

While all the official policy documents and guidelines reviewed acknowledge the need for supervision and support, they are inadequately developed both in terms of scope and in providing firm guidance on supervision of WBOTs. Moreover, texts on supervision are not standardised, neither do they cross-reference each other, with some aspects present in some documents, but absent in others. In relation to the basic functions of supervision, the documents generally had more details around management and less so on development, and to some degree, also on support. The absence of a coherent framework for supervision of CHWs/WBOTs, and the misalignment and lack of details on supervision observed in these documents are likely to impact on the effectiveness of WBOTs [47].

In the absence of aligned and mutually reinforcing policy documents and a holistic supervision framework, supervision and support of WBOTs is poorly done. Policy and training documents outline a line of authority between CHWs, team leaders and facility managers. However, the dearth of professional nurses affects the recruitment of team leaders, and as a result, the WBOT programme is seen as an added responsibility and burden [32, 48].

Team leaders in their role as supervisors of CHWs are generally regarded as good supporters [49]. Facility managers typically supervise team leaders, but their support is often perceived to be lacking. A study in Uganda found that supportive supervision and relationships between CHWs and facilities affected performance of the programme [44]. Problematic relationships between facilities and CHWs are well described in literature [50, 51]. The root of the problem may be inadequate integration of CHW programmes into the health system;

overburdened and poorly resourced facilities; conflicting interests between facilities and CHWs; weaknesses in the support and supervision of facilities themselves; and limited participation by stakeholders in the design and decision-making of the CHW programme [7, 52–55]. There is a need for further research to understand factors associated with strained relationships between facilities and CHWs.

Performance management has been defined as a process that is used to measure and improve the performance of workers in order to improve the performance of the organisation [56–58]. Despite efforts to improve performance of the programme through building capacity of CHWs [15], performance management for both CHWs and team leaders is unofficial, and the process is often unrecorded.

The list or package of basic resources WBOT members need to perform their functions is not explicit in the policy documents and WBOTs had limited basic resources and physical space [48]. A South African study looking at factors affecting access to care found that a lack of resource acted as a barrier in providing services for CHWs [59]. Supervision can mitigate the supply of resources for CHWs [5].

There is formal basic training for CHWs in the WBOT programme, but the induction and in-service training for CHWs is not formalised and organised [60]. Supervision thus affects the likely impact of CHW training on performance [46].

The national frameworks reviewed substantively shaped how the North West Province approached the supervision of WBOTs and the findings in this province are likely to be mirrored in other provinces. Although provinces are required to develop implementations plans where adaptations may be introduced within the broad framework, in practice, at the time of this research, the national policy documents were being implemented without much provincial and local adaptations. Nonetheless, the day-to-day experiences of supervision largely depend on the nature of local leadership and context from districts to facilities, and in turn, this is likely to result in variations across provinces and districts.

Conclusion

This study identified weaknesses in both the design and implementation of the supervision system of WBOTs. The lack of explicit and coherent guidance in policy, and the failure to address constraints to supervision at local level, undermines the performance and sustainability of the WBOT strategy in South Africa. The study highlights the need for holistic conceptualisations of the supportive supervision function in policies on CHW programmes, and the importance of recognising the key facilitators and barriers to local implementation. In particular,

CHW programme designs based on teams (peer support) and dedicated professionals to support them (such as outreach team leaders) enable supportive supervision. Conversely, PHC facility managers cannot be assumed to be willing and capable supervisors of CHWs and need to be adequately prepared and supported to fulfil this role.

Additional file

Additional file 1: A full text extracted from the documents that talks to supervision. (XLSX 14 kb)

Abbreviations

CHW manual: CHW participant guide—phase 1; CHW: Community health worker; FGDs: Focus group discussions; M&E: Monitoring and evaluation; Management Guide: Ward-based PHC outreach teams management information; MDG: Millennium Development Goals; NDoH: National Department of Health; Policy: Policy framework and strategy for ward-based primary healthcare outreach teams; RPHC: Re-engineering of Primary Health Care; Team Leader Guide: Ward-based PHC outreach team leader orientation programme learner guide; Toolkit: Provincial guidelines for the Implementation of the Three streams of PHC Re-engineering; WBOT: Ward-based PHC outreach teams

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Availability of data and materials

The datasets generated and analysed during the current study are not publicly available due to the qualitative nature of the research as this can potentially compromise participants' identities, but codes are available from the corresponding author on reasonable request.

Authors' contributions

Both authors conceptualised the study. TA wrote the first draft of the manuscript, and HS provided substantial revisions. Both authors read and approved the final manuscript.

Ethics approval and consent to participate

Ethical approval for the study was obtained from University of the Western Cape Research Ethics Committee (Registration No: BM/17/3/3) and the North West Provincial Research Ethics Committee. All interview and focus group participants provided written informed consent prior to participation.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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Paper 2: The supervisory relationships of community health workers in primary health care: Social network analysis of ward-based outreach teams in Ngaka Modiri Molema District, South Africa

Introduction: The study was also part of the situation analysis phase and the second study in the thesis to be published. Following a key finding in the literature and in the prior qualitative study of strained relationships between CHW and PHC workers, this study sought to explore these relationships further through a social network analysis of the WBOT supervisory system. More specifically, it was a quantitative study that explored the relationships between WBOT members and PHC workers in the supervision of WBOTs in a sub-district. The study generated sociographs at WBOT, facility and local area levels, illustrating the different interactions within the WBOT supervisory system.

Conclusion: The study found that a supportive supervisory system pivoted around OTLs who ensured internal cohesion and were the main source of support among WBOT members. There were dense networks of communication and peer support among CHWs. Although there were notable exceptions, PHC workers and middle managers in the sub-district were not actively engaged in supporting and overseeing the work of the WBOTs and the OTLs. Many of the actors in the PHC system could thus be better mobilised to directly and indirectly play a supportive role to the WBOTs. Identifying the main actors and understanding the relationships are key to incorporating supportive supervision in CHW programmes. A broader conceptualisation of supportive supervision in CHW programmes through the PHC system is required, with supervision understood to be a set of horizontal and vertical relationships spanning system levels that go beyond just one supervisor–supervisee interaction.

Contribution of candidate: The study design was developed by TA and HS. TA collected the data and performed the analysis under the supervision of HS. TA drafted the article. HS substantially reviewed drafts of the manuscript and provided intellectual content. Both authors read and approved the final manuscript.

(Review comments from the peer review process are available in Appendix 7.)

The supervisory relationships of community health workers in primary health care: social network analysis of ward-based outreach teams in Ngaka Modiri Molema District, South Africa

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ABSTRACT

Introduction Supportive supervision remains a key challenge to the sustainability of community health worker (CHW) programmes globally. The aim of the study was to identify critical actors and patterns of relationships in the supervision of ward-based outreach teams (WBOT) in a rural South African district.

Methods A cross-sectional study of social and professional relationships of WBOTs with other primary health care (PHC) system actors was conducted using a social network analysis (SNA) approach. A structured questionnaire was distributed to CHWs (37), WBOT team leaders (3), PHC facility managers (5) and PHC local area managers (2) (total n=47) assessing interaction patterns of supportive supervision, namely management, development and support.

Results The supportive supervision system pivoted around team leaders, who were nurse cadres and who ensured internal cohesion and support among WBOT members. The network patterns also showed the extent of peer support between CHWs in WBOTs. PHC facility staff and middle managers in the subdistrict did not appear to play active roles in the supervision of CHWs and their team leaders. However, there were exceptions, with WBOTs drawing on sympathetic cadres identified among the PHC facility staff for support.

Conclusion Supportive supervision of CHWs can be thought of as a system of horizontal and vertical relationships that go beyond just one supervisor–supervisee interaction. In this study, supervisory relationships within teams functioned better than those between teams and the rest of the PHC system. Understanding these relationships is key to designing effective supportive supervision in CHW programmes. SNA can be a valuable approach in identifying the relationships to be strengthened.

INTRODUCTION

In its recent guidelines on system support for community health workers (CHW) programmes, the WHO¹ identified supportive supervision as one of 15 key priorities. It

Key questions

What is already known?

- Supportive supervision is critical for the performance and sustainability of community health worker (CHW) programmes.
- The performance of CHWs is affected by the quality of their relationships with formal health system actors.

What are the new findings?

- Team leaders were critical actors and the main source of supportive supervision for CHWs.
- There was dense communication and cohesion among CHWs themselves.
- Although there were notable exceptions, most other actors in the primary health care (PHC) system were not actively engaged in the supervision of CHWs and their team leaders.

What do the new findings imply?

- Actors in the formal PHC and district health system could be better mobilised to play a supportive role to CHWs and their supervisors, especially in orienting front-line PHC facilities to support ward-based outreach teams and creating enabling environments for community-based services.
- A wider conception of supportive supervision of CHW programmes through the PHC system is required, with supervision understood as a set of horizontal and vertical relationships spanning system levels that goes beyond just one supervisor–supervisee interaction.
- Social network analysis is a valuable tool to identify meaningful relationships and strengths and weaknesses in CHW programmes.

further highlighted the ‘low certainty of evidence’ and the ‘need to adapt supervisory strategies to the requirements of different contexts’.¹

Supervision is a process that ensures support, guidance and feedback within the

work environment.^{2,3} The traditional approach (often the dominant form) to supervision is typically characterised as a hierarchical relationship of control, involving discipline and surveillance between supervisor and supervisee.⁴⁻⁷ Supportive supervision is achieved in processes that strengthen relationships, and which promote among others: teamwork, joint problem solving, two-way communication, mentoring, feedback and participatory decision-making alongside formal performance monitoring.^{3,8} A holistic approach to supportive supervision would thus include managerial, development and support elements (figure 1). The management element involves the compliance to organisational standards, monitoring of work processes and allocation of resources; development refers to technical support to improve skills and knowledge through formal and informal training; and the support element addresses morale and motivation, which includes strengthening relationships and attending to supervisee needs, both instrumental and emotional.^{4,9}

Such a holistic conception requires viewing supervision not just as a dyadic relationship between a supervisee and their immediate line supervisor,¹⁰⁻¹⁴ but rather as a system operating at several levels with a range of functions involving different actors and relationships and forms of interaction, for example, one-on-one, group and peer supervision, and so on, simultaneously.^{7,9} In this sense, supervision can be thought of as a set of relationships embedded in the wider context of social and professional relationships and hierarchies within the health system. Specifically, with respect to CHWs, their performance is determined by the quality of relationships with the formal health system on the one side and communities on the other side.¹⁵ This paper builds on a prior study evaluating South Africa's policy and practice with respect to supervision of CHWs in the ward-based outreach team (WBOT) strategy.¹⁶ As with other studies, one of the key gaps identified was the often dysfunctional and strained relationships between CHWs and the local primary health care (PHC) facilities, staff and line managers.¹⁶⁻¹⁸ This study explores these relationships quantitatively using social network analysis (SNA) of WBOT members and PHC health workers in a North-West (NW) Province district. The Province was chosen as it was an early adopter of the programme. Ngaka Modiri Molema (NMM) district was selected because at study inception it had the highest WBOT coverage in the province. The aim of the study was to identify the critical actors and the patterns of relationships within the supportive supervision system of WBOTs. These teams provide preventive and promotive services at community and household levels within a municipal ward. Each team is attached to and refers clients to a PHC facility. In terms of the policy, all PHC facilities should be associated with at least one WBOT and some facilities have more than one WBOT linked to them. A WBOT consists of an average of six CHWs, led by a professional nurse called a team leader (TL). At the time of the study, the CHWs in the NW Province were employed in contracts renewed every 3 months

and received a stipend of R3500 (±US\$236). There is a formalised accredited training divided in three phases, addressing HIV/tuberculosis (TB), maternal and child health and chronic disease care.

SNA is 'a research methodology and theoretical paradigm concerned with explaining social phenomena using the structural and relational features of the network of actors involved'.¹⁹ Using mathematical software, SNA analyses and map entities, people or events (nodes) and their relationships (edges), in this instance the social and professional interactions of actors in a supervisory system. The method involves asking respondents (egos) to identify key members (alters) in their network in relation to a question of interest, where responses to the questions may be binary, indicating the presence of a relationship, or on a continuum, reflecting the strength of the relationship.²⁰

METHODS

A cross-sectional study of social and professional networks and interactions constituting the supervisory system of WBOTs in NMM District, NW Province, was conducted.

Study setting

NMM (population 0.86 million) is one of four districts in the NW Province and the subdistrict where the study was conducted had 23 PHC facilities, 20 WBOTs and 7 TLs at the time of the study. TLs are required to report to PHC facility managers. PHC facilities, depending on size and location, have a staff complement of professional nurses, assistant nurses, facility information officers, administrative clerks, lay councillors and cleaners. Professional nurses at facilities attend to clients referred by CHWs, and referrals from either side are supposed to be recorded in the relevant referral forms. A cluster of PHC facilities form a local area, headed by the local area manager (LAM) to whom the PHC facility managers report. School health nurses, who are responsible for screening reproductive and child health services at schools, also report to LAMs and refer clients to the PHC facility within their catchment area. Three local areas together with a district hospital form the subdistrict headed by the subdistrict manager who in turn reports to a district manager. Prior to the WBOT programme, CHWs were attached to non-profit organisations (NPO) providing HIV-related home-based care and support services in communities. CHWs are still paid from a special grant through the NPOs, and the CHWs report to an NPO coordinator located at the subdistrict office, to facilitate the payment process. WBOTs also interact with disease programme managers at the subdistrict level responsible for mental health, HIV and TB, maternal and child health and environmental health, to name a few. These managers are required to provide support to PHC in their specific areas of expertise and usually report to one of the LAMs who is also responsible for community health services (assistant director community health services (CHS)). Finally,

Table 1 Inventory of people in the WBOT programme supervision system

Position	Acronym
Community health worker	CHW
Community health worker in another team	CHWT
Team leader (professional nurse)	TL
PHC facility manager	OM
Professional nurse	PN
Enrolled nurse assistant	ENA
NPO coordinator	PO
Administrative clerk	AC
Facility information officer (data capturer)	DC
Councillor	CC
Cleaner	CL
Subdistrict WBOT focal person	FP
Local area manager	LAM
Subdistrict manager	SDM
District WBOT focal person	DFP

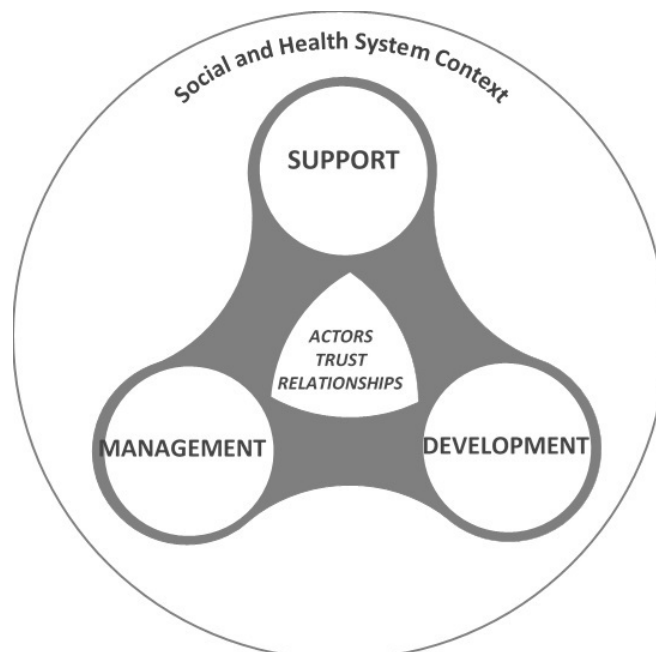
NPO, non-profit organisation; PHC, primary health care; WBOT, ward-based outreach team.

most subdistricts have delegated a professional nurse as a WBOT 'Focal Person', also reporting to the assistant director-CHS. Due to the dearth of professional nurses, most focal persons also act as TLs. In some districts, as in the NMM district, there is a district focal person delegated to support subdistrict focal persons (see online supplementary file 1 for a diagrammatic representation of these relationships). The key actors directly and indirectly involved in the supportive supervisory system of WBOTs and their acronyms are listed in table 1.

The NMM district has had the highest WBOT coverage of wards (84%) in the Province with 129 teams, but at the time of the study there were far fewer TLs²¹ than required and most TLs thus supervised more than one WBOT. The district hired seven TLs specifically for the position, while the rest had more than one mandate (eg, facility based, managerial or other roles).

Study population and sampling

The subdistrict that, overall, had TLs and PHC facility managers who had been in their position and working with WBOTs since the start of the programme or shortly after, was purposefully selected for the study. This allowed the researcher to elucidate meaningful information based on the respondents' extensive knowledge and experience (ie, information rich). The study population included the CHWs, TLs, PHC facility managers and LAMs who form the 'core unit' involved in the immediate supervision system of WBOT in the district. Two of the three local areas in the selected subdistrict with the longest serving TLs were further selected. The WBOTs and managers of five (of 17) facilities in the two local areas consented and were available to participate on the

**Figure 1** Elements of supportive supervision.

day of the study, resulting in a sample of 37 CHWs (clustered into five WBOTs), 3 TLs, 5 PHC facility managers and 2 LAMs (total 47 respondents). (See online supplementary file 1 for the reporting lines, sampled facilities and officials.)

Data collection and analysis

A structured questionnaire was distributed to the 47 respondents (online supplementary file 2). The first part of the tool included questions on respondents' characteristics and perceptions related to the WBOT programme. CHWs often have challenging relationships in PHC facilities, therefore this background context sought to establish their perceptions about the PHC facilities as well as the rest of the health system. The second part of the questionnaire surveyed social and professional networks within the WBOT/CHW supervision system using five questions representing the elements of supervision (management, development and support) outlined in figure 1. The questions posed were on general communication (*I communicate about WBOT work with each of these people*), line authority (*The person who checks that I do my work as expected is...*), feedback (*The person who gives me useful feedback on WBOT work is...*), workplace challenges (*The person who helps me resolve challenges in my work (eg, staff relations, difficult community, stipend payments)*) and personal matters (*I speak about sensitive personal issues with...*) within the work environment. The 'communication' variable sought to establish the frequency of interaction on issues related to the WBOT programme among actors within the WBOT supervisory system. 'Line authority' represented the management element of the supervision system from CHWs up to middle management within the subdistrict. 'Feedback' was used as an indicator of the development element of supervision with examples of

feedback relating to quality of referrals, household visits and data collection. 'Resolving challenges' was related to the support element and examples given to respondents included staff relations, difficult community interactions and inadequate supply of resources. Finally, 'personal matters' represented the interpersonal or emotional element of support. Examples of this were problems with drug abuse affecting their children, or in their marriages/relationships. The examples were applied consistently to all respondents.

As there were no pre-existing, validated tools to draw on, the indicators/questions and accompanying examples posed for each element of the framework were generated by the first author, based on the typical challenges and difficulties identified in a first phase of qualitative research,¹⁶ her knowledge of the cultural context, an assessment of face validity with her supervisors and discussions with an expert in organisational SNA. Given the rigours of completing the SNA, we were advised to limit the number of questions and to phrase them specifically. Various iterations of questions were pilot tested.

Questionnaires were individualised for each facility. Prior to data collection, WBOT TLs, who were considered the pivotal and information-rich actors, were consulted to provide a list of names of people in the WBOTs, local facility and local area making up their support/supervisory system and any other relevant officials directly or indirectly linked to the system. CHWs, TLs and PHC facility managers in one facility were given the same list. LAMs were given a list of names in all facilities in their respective local areas from PHC facility managers down to TLs. The questionnaire made provision for space (other) where respondents could add additional names not on the list that were considered to have relationships with the WBOT programme. The 'other' category was completed three times and health workers named were CHWs and a cleaner. The survey was conducted at the respondents' workplace. Respondents familiarised themselves with the study by reading the information sheet and provided signed consent for their involvement in the study. All consenting respondents completed the questionnaire individually, seated away from the researcher and other respondents. The first author (TA) was present in the room to take respondents through the questionnaire and on how to complete it but did not influence responses in any way.

Each respondent (ego) was requested to identify relevant persons (alters) for each question, drawing from the list of names on the tool. For communication, egos had to indicate with a corresponding number, how often (*daily=5, once a week=4, once a month=3, once a quarter=2, never=0*) they communicated with each person listed. For the other four questions, egos only indicated with a tick the most relevant person/s for each question. Data were captured into Excel 2019 (Microsoft, USA) matrix, with communication data as is from the questionnaires, while the data for the four binary questions were captured with a '1' representing a link and '0' representing no

link. The data were checked for errors and inconsistencies were corrected. The aim of the study was to map the social networks from the point of view of CHWs, TLs, PHC facility managers, and LAMs, and alters named by these respondents were not contacted for confirmation. The Excel spreadsheets were formatted to comma delimited (.csv) sheets and imported into the Gephi V.0.9.2,²¹ which was used to generate directed and undirected sociographs of social and professional networks among WBOT members and PHC facility staff. The graphs were generated at team, facility and local area levels. The actors in the network are represented by the coded circles (nodes). The higher the number of respondents who identified the node, the bigger the node and the darker the shading. The lower the number of respondents who identified the node, the smaller the node and the lighter the shade. All the sociographs except for communication are directed ties indicated with a single headed arrow. The direction of the arrow (edges) between the nodes moves from the ego (tail of arrow) pointing to the alter (head of arrow). The communication sociographs are undirected ties. The direction of the edge is represented by the colour of the ego, moving from the ego to the alter.

Patient and public involvement

As this study was focused principally on relationships within the PHC system, it was done without patient involvement.

RESULTS

Characteristics and perceptions of respondents

The majority of the 47 respondents were aged 40–60 years ($n=38$) and female ($n=41$). Just over half ($n=25$) had been attached to the WBOT programme since its inception in 2012, with an average of 6 years in the programme. All three TLs and 37 CHWs indicated that they performed the work of the WBOTs daily, while the five PHC facility managers did WBOT related work at least once a week, and the two LAMs at least once a month. All but two respondents (PHC facility manager and CHW) believed that the WBOT programme 'is important for communities', although only two-thirds believed the health department viewed WBOTs as important or felt respected as part of health system (table 2). All 14 respondents who indicated they did not feel respected were CHWs.

Socionetwork graphs

The findings which follow report on the structure of social networks in the WBOT supervision system. The figures are of individual separate facilities (see online supplementary file 3 for all facility diagrams). The acronyms of nodes in the figures represent actors as listed in table 1.

General networks of communication

The communication network diagram (figure 2) shows the frequency of communication between actors associated with the local WBOT programme in one health

Table 2 Characteristics of respondents (n=47)

Characteristics	Variable	n (%)
Sex (n=47)	Female	41 (87)
	Male	6 (16)
Age (years) (n=47)	21–30	2 (4)
	31–40	7 (15)
	41–50	25 (53)
	51–60	13 (28)
	61–70	0 (0)
Position (n=47)	CHW	37 (79)
	Team leader	3 (6)
	PHC facility manager	5 (11)
	Local area manager	2 (4)
Time spent working with this WBOT (n=45)	3 years	1 (2)
	4 years	1 (2)
	5 years	18 (40)
	6 years	9 (20)
	7 years	16 (36)
Time spent on WBOT work (n=47)	Daily	39 (83)
	Once a week	5 (11)
	Once a month	3 (6)
Feel respected as part of the health care system (n=47)	Yes	33 (70)
	No	14 (30)
Believe the WBOT programme is important for the communities (n=47)	Yes	45 (96)
	No	2 (4)
Believe the health department at all levels views the WBOT programme as important (n=46)	Yes	29 (63)
	No	17 (37)

CHW, community health worker; PHC, primary health care; WBOT, ward-based outreach team.

facility. The lines between the nodes indicate presence of interaction, with more frequent interaction indicated by thicker lines. The lines move from the egos to alters, with the ego node matching the colour of the line. The size of the node indicates the number of interactions the person had with others—the bigger the node the larger the number of interactions the person had.

This figure shows a typical dense local communication network in the PHC system regarding the work of WBOTs. Across all facilities, the PHC facility manager and TL were at the centre of the communication network, indicated with their relatively larger nodes. Frequent (daily to weekly) communication between CHWs and others (represented by the thickness of lines) was mainly with other CHWs (76%) and TLs (75%), followed by PHC facility managers (53%). Although present, communication networks between WBOTs and other PHC staff were less dense, while in some instances the communication networks extended to actors beyond the local facility (represented by community health worker in another team in figure 2).

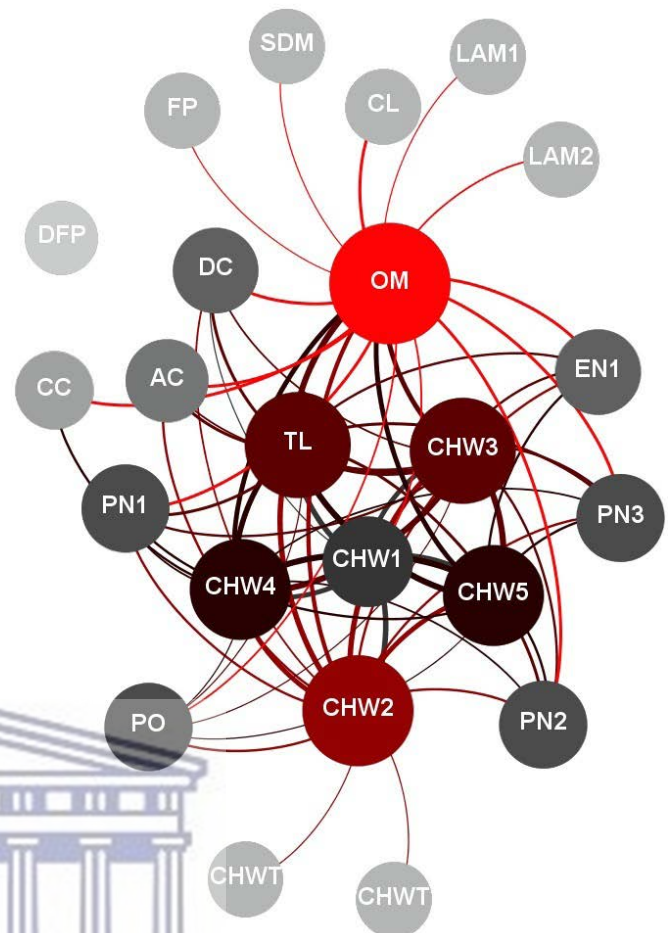


Figure 2 Communication network diagram in facility 4. AC, administrative clerk; CC, councillor; CHW, community health worker; CHWT, community health worker in another team; CL, cleaner; DC, data capturer; DFP, district WBOT focal person; EN, enrolled nurse; FP, subdistrict WBOT focal person; LAM, local area manager; OM, PHC facility manager; PN, professional nurse; PO, NPO coordinator; SDM, subdistrict manager; TL, team leader.

Supervisory relationships

The summary findings on the interactions relating specifically to supervision (line authority, feedback, workplace challenges and personal matters) are presented in figure 3. The number (n) in brackets on the legends indicates the total number of actors (alters) identified by CHWs (egos) as fulfilling that function (ie, per question). Over 60% of CHWs identified the TLs as actors who checked their work and who they relied on for capacity building, and less so other CHWs, facility staff and staff outside the facility. With regard to workplace and interpersonal support, CHWs turned mainly to other CHWs or TLs.

Management: line authority

While for the most part, CHWs identified the TL as the person who checked their work (figure 4). TLs themselves reported a more diverse set of actors they were accountable to, which included the PHC facility manager, LAM and the NPO coordinator. On the other hand, all PHC

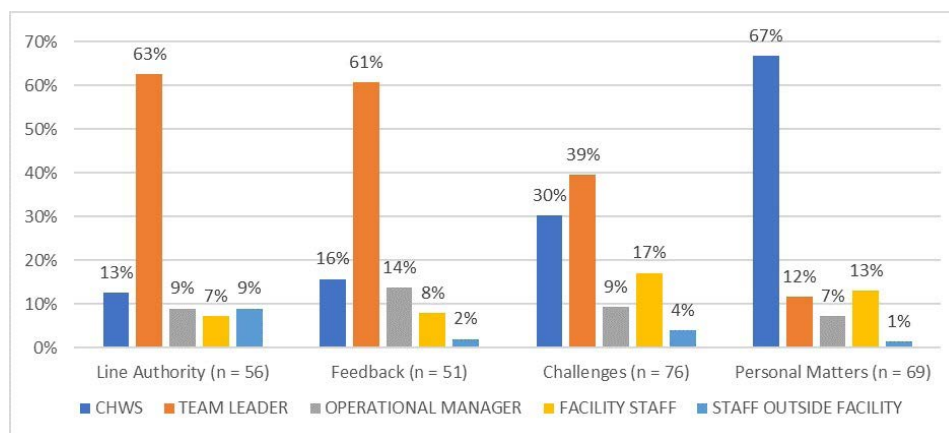


Figure 3 Professional and social interactions related to supervision of community health workers (CHW) in all facilities (n=37 CHW respondents).

facility managers reported that mainly LAMs checked their work. In general, facility staff did not play much of an oversight role in the WBOT programme.

Figure 4 illustrates the line authority relationships in facility 3, which had two WBOTs linked to it. In this instance, besides for the TLs, some of the reported actors who reportedly checked the work of the CHWs were an enrolled nurse, facility information officer (data capturer, DC) and other CHWs. In this facility, the PHC facility manager (OM) checked the work of the TL and vice versa.

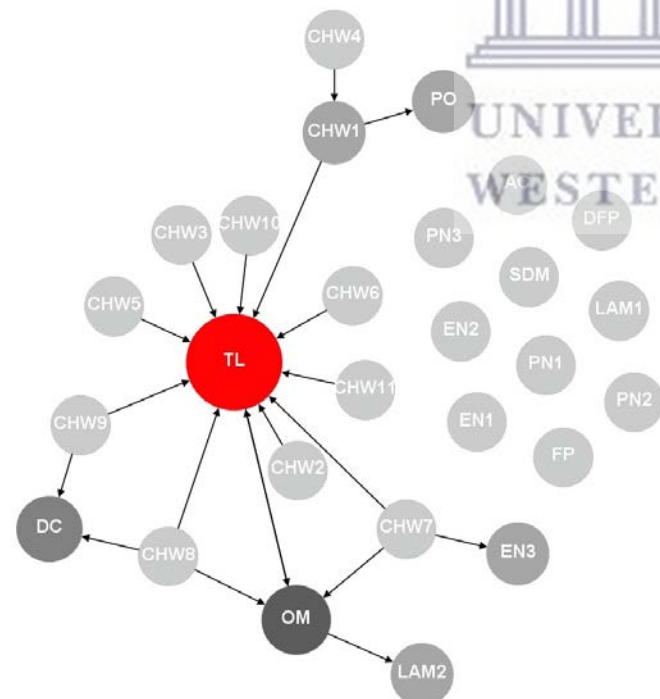


Figure 4 Management (line authority) network diagram (facility 3). AC, administrative clerk; CHW, community health worker; DC, data capturer; DFP, district WBOT focal person; EN, enrolled nurse; FP, subdistrict WBOT focal person; LAM, local area manager; OM, PHC facility manager; PN, professional nurse; PO, NPO coordinator; SDM, subdistrict manager; TL, team leader.

Development: feedback

As with the line authority, TLs were the central actors in providing feedback to CHWs and fulfilling the developmental role, while TLs drew from a variety of actors—the LAM (2), NPO coordinator (1), PHC facility manager (OM) (1) and facility information officer (DC) (1).

Apart from one facility, TLs and PHC facility managers did not seek feedback from each other. PHC facility managers mainly sought feedback from CHWs (16) and identified other actors like the district focal person (1), TL (1), facility information officer (1) and the NPO coordinator (1). Some CHWs were key actors within their teams. However, interaction between WBOTs across teams was minimal, even when they reported to the same TL and facility. Very few actors from WBOTs received feedback from facility staff. An illustration of this can

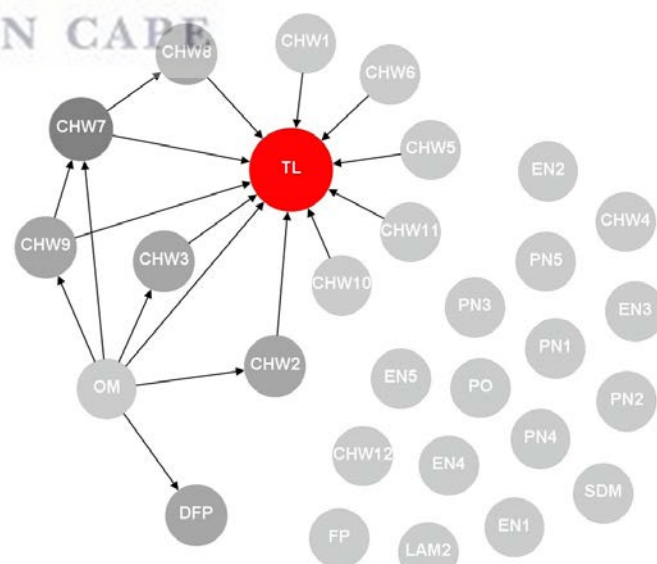


Figure 5 Development (feedback) network diagram (facility 1). CHW, community health worker; DFP, district WBOT focal person; EN, enrolled nurse; FP, subdistrict WBOT focal person; LAM, local area manager; OM, PHC facility manager; PN, professional nurse; PO, NPO coordinator; SDM, subdistrict manager; TL, team leader.

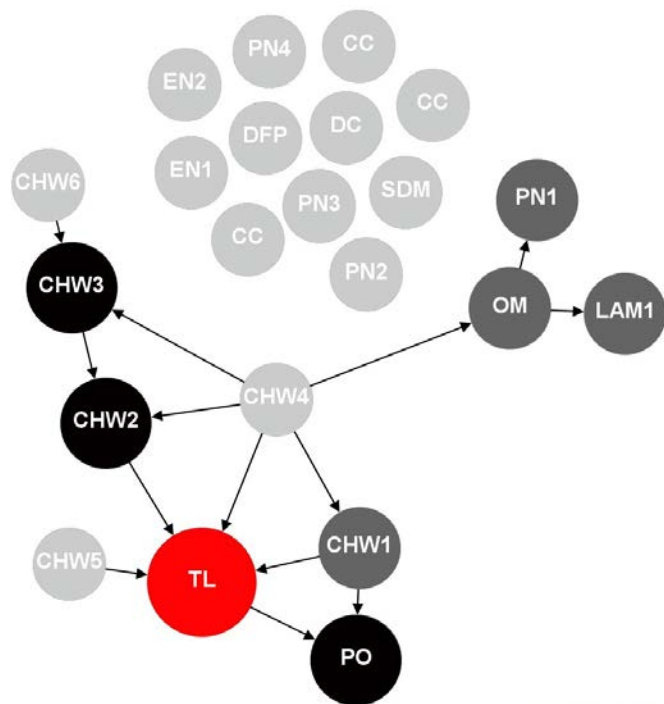


Figure 6 Support (challenges) network diagram (facility 2). CC, councillor; CHW, community health worker; DC, data capturer; DFP, district WBOT focal person; EN, enrolled nurse; LAM, local area manager; OM, PHC facility manager; PN, professional nurse; PO, NPO coordinator; SDM, subdistrict manager; TL, team leader.

be seen in the network diagram (figure 5) of a facility with two WBOTs (WBOT1: CHW 1–6 and WBOT2: CHW 7–12) under the same TL.

Support: challenges

With respect to workplace challenges, the TL was once again the main actor and most CHWs (30 out of 37) reported that the TL helped resolve their challenges. In all five of the WBOTs, there was also a degree of reliance among CHWs to resolve challenges. TLs identified the LAM (2), PHC facility manager (1) and NPO coordinator (1), with one indicating that they could rely on no one to resolve workplace challenges. PHC facility managers generally relied on their facility staff although they also identified the LAM (2), TL (1), subdistrict manager (1) and the NPO coordinator (1). The link between facility staff and WBOT members was weak, illustrated in figure 6, which shows the facility staff and WBOT represented by two separate clusters.

Support: sensitive

CHWs mostly discussed personal matters with other CHWs (46) with limited reliance on TLs (8), PHC facility managers (5), facility staff (9) and staff outside the facility (1). In figure 7, the TL was a marginal player, not identified by any actor. Similarly, the TLs relied on a few people (focal person (1), facility staff (1), CHWs (3)) to discuss personal matters, with one TL indicating that they did not rely on any of the actors to discuss personal matters. PHC

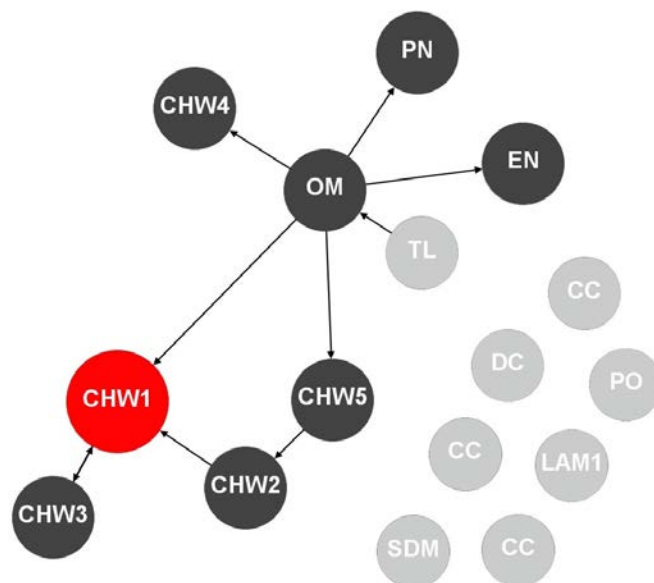


Figure 7 Support (personal matter) network diagram (facility 5). CC, councillor; CHW, community health worker; DC, data capturer; EN, enrolled nurse; LAM, local area manager; OM, PHC facility manager; PN, professional nurse; PO, NPO coordinator; SDM, subdistrict manager; TL, team leader.

facility managers identified CHWs (4), facility staff (2), LAM (1) and the subdistrict focal person (1) as people with whom they could discuss a personal matter. In the facility represented in figure 7, one CHW was identified more than the TL or PHC facility manager.

In sum, network patterns suggest that TLs are critical actors, who ensure internal cohesion and the most important sources of support to WBOT members, except for personal matters. The patterns also show that there is cohesion and support among WBOT members. Facility staff such as PHC facility managers, other professional nurses and middle managers in the subdistrict do not appear to be active actors, with a low degree of involvement in the WBOT supervisory system. However, there are certain cadres among the PHC facility staff from whom CHWs can draw support.

DISCUSSION

Supervision is often thought of as a dyadic relationship between the supervisor and the supervisee, leaving out other actors within the system. Yet the evidence from this study shows that approached holistically, supportive supervision involves a wide range of actors and relationships within a system.⁹ There is considerable evidence, from both the NW and elsewhere, that CHWs/WBOTs are often treated as outsiders by actors in the PHC system and perceive themselves as exploited and unacknowledged by the broader system.^{16 22–25} On the other hand, respondents were almost unanimous on the importance of the WBOT programme for communities.

In describing the relationship patterns of WBOTs in a local district, the study found that there were dense

networks of communication within WBOTs, among team members, with their TLs and PHC facility managers and to some extent with PHC staff. There was also communication, though less frequent, with subdistrict and even district actors like NPO coordinators and the district focal person. The density of the networks indicates that there are opportunities for actors to engage with each other. However, the study findings suggest this interaction was not structured towards providing supportive supervision.

The majority of CHWs indicated that the TLs 'checked their work', corresponding with policy documents stipulating that TLs oversee activities of CHWs.^{16 26} According to policy, TLs, in turn, are to be supervised by PHC facility managers: 'the quality of the work delivered by the WBOT will be monitored by the PHC facility manager', and 'CHWs must become part of the multi-disciplinary primary health care team within the district health system'.²⁶ In practice, TLs reported to a number of actors, especially where a shortage of professional nurses required them to oversee several teams across PHC facilities. This created confusion on supervisory lines into the PHC system, a situation which can impact on the functioning of WBOTs.^{23 27}

TLs had a central role in providing feedback to CHWs, but WBOTs also drew on other actors for this role. In the absence of formally designed frameworks of support supervision, WBOTs and district actors engaged and sought feedback from each other in largely informal processes.¹⁶

Most CHWs also identified the TL as the main actor to resolve their workplace challenges, with limited reliance on PHC facility staff. Only one of the three TLs identified other actors in response to this domain, indicating that TLs are limited in their choices on who they can rely on to resolve their workplace challenges. Similarly, PHC facility managers mostly turned to other PHC facility staff rather than actors at other levels in the subdistrict to resolve WBOT-related problems. On personal matters, CHWs relied largely on each other, and the TLs, in this instance, were marginal actors. The TL had a few CHWs and PHC facility staff she could share her challenges with, while the PHC facility staff, including the PHC facility manager, generally shared among themselves.

On the whole, PHC facility staff and middle managers at subdistrict and district levels did not have much of a role in supporting and overseeing the work of the WBOTs. This resonates with previously documented problematic relationships between CHWs and the PHC system, poor organisational support in PHC facilities and a prevalent perception of not being respected.^{1 16 22 23 27} While the immediate supervisor of the CHWs is the TL, the PHC facility managers and staff have a pivotal role in supporting, overseeing and integrating the work of the WBOTs. Local area and other middle managers have supervisory responsibilities over facilities and are thus key to orienting and enabling PHC facility staff to fulfil their roles towards the WBOTs. In light of this, many of the actors in the PHC system could be better mobilised to directly and indirectly, play a supportive role to the WBOTs. This support would ensure that WBOTs' resourcing, monitoring and support

are integrated into processes at all levels of the district health system, thus improving their integration into the formal health system and performance outcomes.^{16 22 27} The study findings suggest key gaps in this wider supervisory cascade.

The goal of supportive supervision is to improve the performance and quality of service delivery and human resource development and supporting those delivering the service.

With respect to the WBOTs in South Africa, this analysis suggests several recommendations. First, while the TL function is key, critical gaps in the middle management layers of the PHC system, supposed to provide supervision of and support to the supervisors, also need to be addressed. The roles and responsibilities of all actors in the wider WBOT supervisory system need to be clarified and formalised, including facility staff other than managers, LAMs, health programmes and subdistrict managers. These roles would encompass clear lines of communication in resolving challenges, reviewing and giving feedback on performance, and in-service training.

Second, the centrality of TLs needs to be recognised, and their numbers and mandates protected to ensure they focus on the WBOT programme. TLs are critical actors and provide regular support to CHWs, and as found in other studies, support and supervision from professional staff motivates CHWs.^{22 28} Given their centrality as actors, the dire shortage of TLs (ratio of 1 TL to 6 teams in the district), increasingly with dual community and other roles, poses a major threat to the WBOT programme. As recommended in the WHO guidelines, committing to clear ratios of supervisors is clearly key to an effective supervision system.¹

Third, the district needs to recognise and capitalise on the coherence, cohesion, natural leadership and peer support among CHWs, with careful consideration on developing their career paths into supervisory levels.

Finally, SNA provides a valuable tool to analyse relationships and identify key actors who may be influencers and bridges. The SNA validated and served to quantify previous qualitative observations on the limits of the supervisory system. A follow-up qualitative phase is being conducted, in which the findings of the SNA are presented to the participants in phase 1 and findings probed in more depth.

This study had several limitations. Given that the survey required that all the CHWs, their TLs and the facility manager complete the survey, only a limited number could be sampled. This limits the generalisability of findings. However, since programme implementation has been steered by provincial processes, it is possible that the results observed in this study would be similar in other districts. Although the primary focus of the study was supportive supervision within the formal PHC and district health system, including community members in the study population would have added valuable perspectives. Finally, the conclusions that we draw accord with prior work¹⁶ and observations elsewhere in South Africa.^{22 24 29-31}

CONCLUSION

Supportive supervision of CHWs can be thought of as a system of horizontal and vertical relationships that go beyond just one supervisor-supervisee interaction. In this study, supervisory relationships within teams functioned better than those between teams and the rest of the PHC system. Understanding these relationships is key to designing effective supportive supervision in CHW programmes. SNA can be a valuable approach in identifying the relationships to be strengthened.

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Patient consent for publication Not required.

Ethics approval Ethical approval for the study was obtained from the University of the Western Cape Research Ethics Committee (registration number BM/17/3/3) and the North-West Provincial Department of Health Research Ethics Committee.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data are available in a public, open access repository. Data are available upon reasonable request.

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Paper 3: Factors associated with workplace and interpersonal trust in the supervisory system of a community health worker programme in a rural South African district

Introduction: This paper reported on a qualitative study that explored factors associated with trust in the supervision of WBOTs in a particular district, engaging the same group of participants and using the findings from the first phase as the springboard. The study specifically explored factors associated with workplace and interpersonal trust, the relationship between the two sets of trust factors and how this shaped the perceived performance of CHWs.

Conclusion: Consistent with the previous phases, the findings revealed a climate of considerable mistrust in the workplace due to growing management failures in the province and perceived abandonment of the WBOT programme by managers at all levels. This affected the day-to-day support for and supervision of WBOTs. However, there was a degree of variability and discretion in expressions of interpersonal trust at the coalface, leading to different perceptions of the competence and functionality of the WBOTs. Mistrust in the workplace and poor interpersonal relationships translated into low confidence in the abilities of CHWs, which in turn compromised the performance of these teams. The study provided empirical evidence of how workplace trust factors impact interpersonal trust factors, and the possible implications of both sets of trust factors for the perceived performance of CHWs. Wider trust in the health system would have a significant bearing on interpersonal trust between CHWs and other players in the PHC system.

Contribution of candidate: The study design was developed by TA and HS. TA collected the data and performed the analysis under the supervision of HS. TA drafted the article. HS substantially reviewed drafts of the manuscript and provided intellectual content. Both authors read and approved the final manuscript.

(Review comments from the peer review process are available in Appendix 7.)



Factors Associated With Workplace and Interpersonal Trust in the Supervisory System of a Community Health Worker Programme in a Rural South African District

Tumelo Assegaai^{1*}, Helen Schneider^{1,2}

Abstract

Background: Key to effective supportive supervision, and ultimately performance of community health workers (CHWs), is the nature of relationships in the formal health system at the coal face of programmes. The central character and defining feature of effective relationships, in turn, is the ability to engender trust. This study describes factors associated with workplace and interpersonal trust, the relationship between the two sets of trust factors and how this shaped perceived performance of CHWs in ward-based outreach teams (WBOTs) in a rural South African district.

Methods: In the context of a wider study of supportive supervision of CHWs, factors recognised to be associated with trust in the literature were studied qualitatively in Ngaka Modiri Molema district, North West Province. Focus group discussions (FGDs) and individual interviews were conducted by the first author with CHWs (23), team leaders (12), facility managers (10) and middle managers (5). Interviews were recorded, translated and transcribed. Perceptions of trust factors associated with workplace and interpersonal trust were analysed thematically.

Results: The interviews revealed a climate of considerable workplace mistrust due to the perceived abandonment of the WBOTs programme by managers at all levels, and this affected support and supervision of WBOTs. However, there was a degree of variability and discretion in expressions of interpersonal trust at the coal face, leading to different perceptions of the competence and functionality of the WBOTs. Mistrust in the workplace and poor interpersonal relationships translated into low confidence in the ability of CHWs, which in turn compromised the performance of these teams.

Conclusion: The study contributes empirical evidence on how workplace trust factors impact on interpersonal trust factors and the possible implications of both sets of trust factors on perceived performance of CHWs. Wider trust in the health system have a significant bearing on interpersonal trust between CHWs and other players in the primary healthcare (PHC) system.

Keywords: Workplace Trust, Interpersonal Trust, Community Health Workers, WBOT, Support, Supervision

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Key Messages

Implications for policy makers

- Supervision systems for community health worker (CHW) programmes should be judged by their ability to promote trust relationships between CHWs and other players.
- Workplace and interpersonal trust result from action at multiple levels of the health system.
- Manager support and resourcing of a programme are key factors in generating workplace trust, and impact on interpersonal trust relationships between CHWs and other players in the primary healthcare (PHC) system.
- Factors of trust and mistrust shape the perceived performance, confidence and motivation of CHWs.
- Supervision systems and trust relationships are key to strengthening and sustaining CHW programmes at scale.

Implications for the public

Community health workers (CHWs) act as a bridge between communities they serve and primary healthcare (PHC). In the South African setting, they typically provide health education, screening and follow-up support for health conditions such as tuberculosis and antenatal care. They are non-professional health workers with limited training and thus require effective support and supervision from the health system. Supportive supervision and performance of CHWs are linked to trust relationships with the health system and communities. This study seeks to supplement knowledge on ways to improve trust in the workplace and among front-line workers in order to strengthen the CHW programmes so that they can make a real impact on communities they serve.

Background

Community health worker (CHW) programmes require effective support and supervision systems.^{1,2} Supervision of CHWs impacts on the performance of programmes as well as the ability of community-based services to coordinate with other players in the primary healthcare (PHC) system.^{3,4} Key to supportive supervision, and ultimately performance of CHWs, is the nature of relationships with both the formal health system and communities at the coal face of programmes.^{2,5} Health systems, more generally, can be viewed as fundamentally social systems of relationships which in part determine the performance of these health systems.⁵⁻⁷ The central character and defining feature of effective relationships, in turn, is the ability to engender trust.^{6,8-11} As pointed out: “health systems comprise a complex web of relationships whose overall functioning and performance is influenced by the institutions, particularly trust, that govern human behaviour.”⁶

Trust has been defined as “the optimistic acceptance of a vulnerable situation in which the trustor believes the trustee will care for the trustor’s interest.”¹² Trust is relational and intangible and the basis of mutual dependability, confidence and management of risk in an organisation.^{6,8} In research on trust in healthcare settings, workplace trust generally refers to trust in the ‘system’ as well as interactions among health workers within the formal health system, while interpersonal trust tends to look at the interactions between health workers and users.¹³⁻¹⁵ Health workers who experience increased workplace trust have increased organisational commitment, healthy interactions and are more motivated to improve their performance and likely to be retained.^{8,16,17} Factors associated with trust in organisations are generally thought to include organisational and co-worker support, communication, respectful interactions, fairness, and competence.^{7,8,10,13,15,17-19} There has been limited consideration in the literature of the role of interpersonal trust *among* health workers in the health system nor of how workplace trust factors influence interpersonal trust factors in relationships at the coal face of the system.

In order to perform and deliver quality services, CHWs must be trusted and have trust in others.^{7,14} As intermediaries between communities and the health system, they are required to manage relationships in both directions.^{11,19} Navigating these relationships competently, with the limited training CHWs typically receive, requires effective systems of support and supervision.^{7,18} These systems constitute a range of direct and indirect relationships that ultimately impact on whether CHWs trust and are trusted. Yet, lack of trust in relationships between CHWs and health workers is frequently described, affecting the ability of CHWs to engage with communities.^{7,11,18-21} CHW programmes thus need to consider their social contexts and the mechanisms whereby trusting relationships could be ‘triggered’ to increase ‘social value’ and through this, performance.^{7,9}

The current CHW programme in South Africa was formalised in 2011 as part of a broader initiative to revitalise PHC. The programme is made up of ‘ward-based outreach teams’ (WBOTs) with 6 to 10 CHWs, led by a professional

nurse called a ‘team leader.’ CHWs in WBOTs receive formal basic training and receive a monthly stipend. Team leaders are professional nurses mostly delegated from PHC facilities to supervise the team, and they report to the PHC facility manager. Each team is attached to a facility, operates within a municipality ward, and provides promotive and preventive services to individuals at household level. PHC facility managers have responsibility for oversight and support of teams.

Formal support from and integration into the local PHC system is a critical challenge facing national CHW programmes across the globe.^{2,3,22-25} In the South African context, the evidence shows that WBOTs are often placed at the bottom of a hierarchy where relationships with other PHC health workers are largely strained.^{18,23,24,26,27} In addition, findings from previous studies in the district found that PHC workers generally had a low degree of involvement in the WBOT supervisory and support system.^{22,23}

This study forms part of doctoral research assessing the supervision system of WBOTs conducted between 2017 and 2019 in Ngaka Modiri district, North West Province in South Africa. The study describes supervisory relationships from the perspective of the factors associated with trust and the implications of these trust factors for perceived performance.

Methods

Design

A qualitative study of trust factors in relationships in the WBOTs programme was conducted as part of a 4-year engagement in the district by the first author as a doctoral candidate. This research has involved several phases of research informing this phase, including a prior quantitative social network analysis of relationships in the supervisory system.^{22,23}

Conceptual framework

Figure 1 outlines the study conceptual framework, drawing on the workplace and interpersonal trust factors outlined by Gilson et al.¹⁵ We conceptualised workplace trust factors as referring to factors associated with health worker trust in the wider health system, and interpersonal trust factors as those associated with interactions amongst health workers. Factors influencing workplace trust identified from the literature included organisational support, communication and capacity building, while domains for interpersonal trust included communication, fairness and honesty.^{7,8,10,13,17-19} These relationships are embedded within political and social contexts, that shape workplace factors of trust, in turn influencing health worker morale, responsiveness and performance.

Study Setting

The study was conducted in 3 of 5 sub-districts of the Ngaka Modiri Molema district, one of 4 districts in the North West province. The district has one of the highest WBOTs coverage with 129 teams and has been considered a good performer in this regard, reflecting the rapid and effective early adoption of the WBOT programme in the Province as a

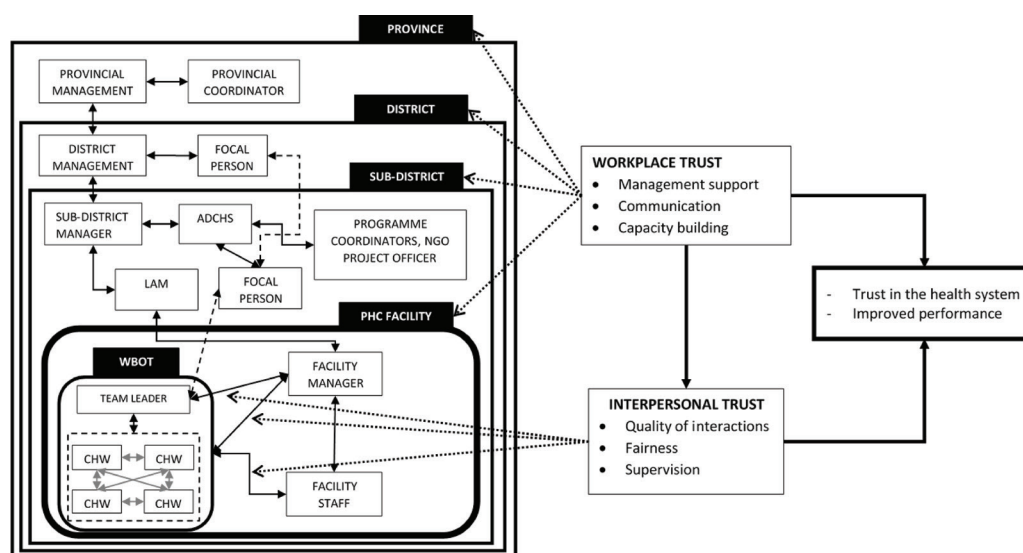


Figure 1. Conceptual Framework. Abbreviations: CHW, Community health worker; LAM, local area manager; WBOT, ward-based outreach team; ADCHS, assistant director - community health services; PHC, primary healthcare.

whole. Initial stages of implementation of the WBOTs in the North West province included the setting up of a provincial Task Team; training of CHWs; establishment of pilot sites in all sub-districts; involvement of development partners to support implementation; extensive community engagement; the alignment with the district health information system; and an mHealth pilot (Figure 2 (a)).^{28,29} Around 2012/2013 (Figure 2 (b)), as more WBOTs were established, retired nurses were contracted, and nurses delegated from facilities to work as team leaders. An evaluation on the programme at the time described implementation as effective.³⁰

However, these early successes were not sustained (Figure 2 (c)). From 2014/2015 onwards there were both changes in provincial and programme leadership and a growing political and fiscal crisis in the province. Contracts of retired nurses were not renewed, and facilities stopped delegating staff as team leaders, leading to a gross shortage of

this immediate supervisory layer in established WBOTs. By 2019, 21 team leaders were serving the 129 WBOTs (personal communication district focal point). The provincial Task Team was disbanded, and training of team leaders and other relevant players linked to the WBOTs was halted. WBOT district level forums and meetings were absorbed into routine management processes.

At the time of the study the provincial health department was 'under administration' of the national government stemming from a period of political instability and allegations of maladministration in the province.

These contextual factors formed an important backdrop to the investigation of trust relationships.

As illustrated in Figure 1, a group of CHWs (usually 6) report to one team leader, although, as indicated, a dearth of professional nurses has meant that current team leaders supervise multiple WBOTs across different facilities. Team

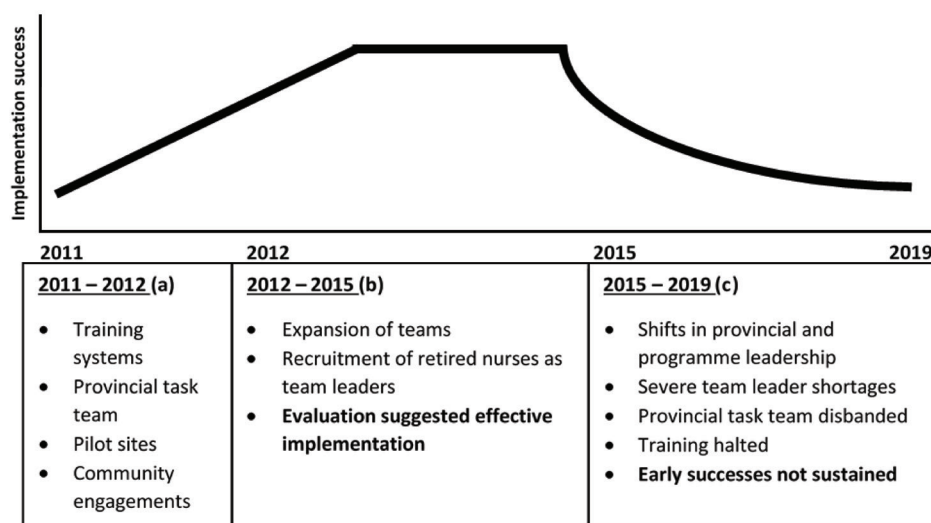


Figure 2. Functioning and Status of the WBOTs. Abbreviations: WBOT, ward-based outreach team.

leaders are supervised by PHC facility managers where WBOTs are attached, supported by sub-district focal persons. Focal persons are professional nurses delegated to coordinate the WBOT programme at sub-district level, most of whom double up as team leaders to multiple WBOTs and report to the assistant director - community health services (ADCHS). Focal persons give team leaders and WBOTs feedback and updates and are supervised by the sub-district manager. PHC facility managers are supervised by local area managers (LAMs), responsible for a cluster of facilities. LAMs are supervised by a sub-district manager who reports to the district manager. Districts also have focal persons, and they report to the district manager for administrative matters and provincial specialists for clinical matters.³¹ A Healthcare Service Development Unit at provincial level, which reports to the provincial Deputy Director General provides support to WBOTs programme. Among other delegations, their role includes coordinating training for WBOT members with the districts and training centres, disseminating relevant information and updates to the district managers, and identifying and escalating district challenges to a WBOTs Provincial Steering Committee.

Participants and Sampling

The main actors in the WBOT supervisory system, outlined above, formed the study population to describe trust factors, and included provincial managers, district managers, sub-district middle managers, focal persons, PHC facility managers, team leaders and CHWs. Participants were purposefully sampled from 3 (of 5) sub-districts where there was more than one team leader in place at the time of the study. In one of the sub-districts where an earlier study of social networks was conducted,²³ participants were brought into the next phase. Participants sampled (50) for the study are as outlined in Table.

Data Collection and Analysis

A semi-structured interview guide with open-ended questions was used for in-depth interviews with selected key informants through either focus group discussions (FGDs) or one-on-one interviews. The guide was piloted tested with one FGD interview, where it was found to be appropriate and the results included in the analysis. There were 7 FGDs (2 CHWs, 2 team leaders, 2 facility managers, 1 mixed group) and 3 individual interviews. The guide had 4 parts as prompts for the interviews. Participants were firstly given a diagramme outlining the web of actors and interactions involved in the functioning of WBOTs in the health system, and asked to give their views on the diagramme, including its accuracy (Supplementary file 1). The second part of the guide summarised results of the prior studies conducted by the researcher on the policy and practices of supervision and the social network analysis of supervisory relationships, respectively.^{22,23} This part of the guide was used to reflect on the nature of relationships in the supervision system. The third part of the guide asked respondents to reflect on the factors influencing the current supervision system of WBOTs, followed by specific probes for factors of trust.

Table. Study Participants

Level	Number of People
LAM	3
PHC facility manager	10
Team leaders	12
CHWs	23
District middle manager	1
Provincial middle manager	1

Abbreviations: CHW, Community health worker; PHC, primary healthcare, LAM, local area manager.

To avoid the risk of social desirability bias, the guide did not directly ask about 'trust' but rather explored the factors of trust.^{14,32} Questions on workplace trust factors included how participants perceived the role of support and commitment of management towards WBOTs, processes of capacity building of CHWs and the nature of communication from higher levels of the system. For interpersonal trust, the factors explored were expressed confidence in the capacity of CHWs on the part of other actors, and the reported interactions among and between WBOTs members and PHC staff.

The interviews were conducted between January and August 2019, in private and by the first author (TA) at participants' place of work. All FGDs and 2 of the individual interviews were conducted in Setswana (local vernacular), while the rest were in English. The interviews were audio recorded, translated into English and transcribed. All the data was entered and coded through the ATLAS.ti 8 (ATLAS.ti Scientific Software Development GmbH, Berlin).

The analysis of the data was done deductively, based on the conceptual framework, using thematic analysis.³³ The first author read through all the data transcripts to familiarise herself with the text, then identified codes, categorised these codes and developed themes that emerged from the text. The responses from the different sections of the guide were collated to provide a holistic picture of factors associated with trust and possible implications for the performance of WBOTs.

Results

Stemming from the growing management failures in the province, interviewee narratives expressed considerable lack of organisational trust and very variable relationships of trust and mistrust in interpersonal interactions at the frontline. We unpack each of these dimensions and the consequences for overall expressions of trust and confidence in the programme.

Factors Influencing Workplace Trust

Workplace trust factors explored were management support, capacity building and communication. With respect to management support, respondents described an environment of minimal support and apparent wholesale disengagement on issues relating to WBOTs from all layers of management in the health system.

In the first instance, this was manifest in the absence of

guidelines providing role clarification and expectations of various PHC players, with unclear lines of responsibility and a disconnect between players within sub-districts:

"We have guidelines for each programme, and we are following those guidelines so that we can see if we are achieving targets or not. But with them [WBOTs] we don't know if we are achieving or not" (PHC facility manager).

"There is confusion over roles. The PHC facility manager is given a role to manage the team leader, while there is also a focal person. There is also NGO [non-governmental organisation] project officer. [...] in this situation supervision is weakened" (PHC facility manager).

"There is no communication between the LAM and the ADCHS [with respect to the WBOTs]. When you report challenges to the LAM it is as if it is not their baby" (PHC facility manager).

"There is no collaboration between the different programmes especially when they do outreach services. Facilities won't even know there is outreach service in their back yards except when they [the programmes] need the CHWs, or equipment" (LAM).

Though the provincial structures continued to meet, there were no dedicated processes at district and sub-districts levels focusing on the WBOT programme. Communication within and across levels was poor, with relevant decisions taken at the provincial level not communicated to the sub-districts.

"The district doesn't take responsibility in making sure things like [feedback on meetings] reach the sub-districts" (Manager).

Sub-district line and programme managers were described as 'uninterested', as failing to take the programme seriously, and in some instances as actively hostile:

"They do not take the programme seriously. They do not want to know what is happening. There was one time when we were here to get uniforms and [sub-district manager] asked us who we were [...] They don't have interest in the programme" (CHW).

"...you mean the sub-district manager? We only see her when there are complaints. We can go a whole year without seeing her" (CHW).

"I still maintain it is lack of interest... That trophy [awarded to the WBOTs] sits in her office, we only see it passing by her office. We were never called to have it presented to us and to appreciate us. She has never said thank you to us for good work but she took credit for good work when we won" (CHW).

"[The sub-district manager] is ignorant and doesn't like the programme" (Focal Person).

"Basically, they only come when the district says something is wrong go and check" (PHC facility manager).

There was a general expression of frustration in the lack of responsiveness by management to act on challenges related to the WBOTs.

"... you can't address the problem, you can only go and write a report, and that is if the person will read it. So going around [...] and asking why, why, why, they lose trust in you" (Manager).

"Even if I raise issues, [management] keeps quiet. So I feel

the only thing that is there for me is just to advise" (Manager).

"The LAM just walks in and out to another area" (CHW).

"Before, the LAM would come to the facility. Call all of us and we discuss our challenges. Nowadays it is not really happening" (PHC facility manager).

With respect to trust factor of capacity building, as alluded to, CHWs in the WBOT programme receive formal basic training. Although team leaders and facility staff occasionally provided on the spot guidance and training, continuing, in-service education of CHWs, considered key to performance and quality, was ad hoc and not systematically planned for, nor prioritised.

"Those trainings do not exist at all" (CHW).

Factors That Influence Interpersonal Trust

Factors of interpersonal trust examined were interactions of WBOTs with staff in PHC facilities, and experiences of fairness and support. While there was general consensus on (the problematic) factors of workplace trust, experiences of interpersonal trust factors at the coal face were more varied, leading to different perceptions of the competence and functionality of the WBOTs.

Some facilities which had a better understanding of the WBOTs' purpose and value, invested in the CHWs by developing their skills and inviting them to participate in facility activities. In these spaces, the WBOTs were considered to be effective and valued members of the PHC team.

"My experience in general, they are like nursing assistants, they know their work" (Team leader).

"The facility manager can't check each and everything like the baby books, so now we have a lot of hands to do that for you. The team I have is very dedicated, they will come and say here is a gap. Not reporting the person but thinking about the client and wanting to do what is right" (PHC facility manager).

"When you have problems in the households, and the team leader is absent, you can tell the facility to help you solve them" (CHW).

More often than not, however, facility workers did not understand the purpose and role of CHWs, and did not recognise them as part of the PHC system. In some facilities, CHWs were not well received, and facility workers described as harsh and dismissive. CHWs were actively excluded from facility processes, seen as pretending to be nurses and not allowed to use facility resources.

"Some of the facility personnel feel the CHWs are not part of them. Because even with meetings, whether the CHWs attend or not the facility personnel do not care. Even if CHWs are absent, when the meeting starts, they call people individually to attend but not the CHWs" (Team Leader).

"Sometimes the facility manager asks you to assist in the facility [...], you walk in innocently. The person will just say, these ones think they are better, they are taking our duties, they think they are nurses" (CHW).

"Even if they ask a clerk to make a copy for them, they shout at them "these things are not yours." [...] When I am in the facility it is better but when I am not there, they are ill-treated" (PHC facility manager).

With respect to supervision, team leaders, where they were available, provided the main support and supervision to CHWs. As noted by one CHW, *“she assists us, we sit with her every month and we discuss our challenges.”*

With limited support and guidance from higher levels, facility staff were both unclear on roles and unable to adequately support WBOTs. As one facility manager put it *“if you are not supported then your supervision becomes poor.”* Despite confusion on their roles, certain facilities were able to support CHWs in instances where no team leader was delegated, or if the team leader supervised multiple teams.

“If they have problems, they are able to consult anyone in the facility. They ask, am I correct to do so and so on. So they get clarity from the facility manager” (Team Leader).

Implications for Performance of the WBOT Programme

In the facilities where there was inter-personal trust between players, the performance and ability of WBOTs was viewed positively. For example, in one such facility, staff members mentioned the following:

“Just to add, I remember we had a high rate of malnutrition in the facilities. I think almost every week we would refer plus-minus three. It’s almost gone, it’s been a long time” (acting LAM).

“The other thing, if they do well, or the team performs very well, the facility tends to shine also” (PHC facility manager).

However, where interactions between CHWs and facility workers were described as poor, expressions of mistrust in the competence and integrity of CHWs were more common:

“Sometimes they request us to assist with patient files, when the files get mixed up or someone can’t find a file, they say we have messed them up” (CHW).

“One old lady takes chronic medication, [...] she has 2 mental health patients. There is a child on ARV [antiretroviral treatment], but this household is not registered, and we have CHWs in the community. It’s the third year. They are not working” (PHC facility manager).

“... sometimes I can tell the report was thumb sucked, so they don’t take the work seriously” (PHC facility manager).

“We are always told we are not working” (CHWs).

CHWs felt unrecognised and undervalued and expressed little belief in the future of the programme:

“The truth is that our morale is low and one of the reasons is that we feel like we are not recognized” (CHW).

“It makes them feel small and doubt themselves in their work” (Team leader).

“One thing that bothers me is that this programme, I don’t see where it is going. Ever since joining I don’t see any future” (CHW).

Some managers described a programme in decline:

“Some of them are even leaving the programme” (Manager).

“I am sad that the programme is dying on our watch” (Manager).

CHWs and programme managers alike thus recognised that declining material and moral support for the WBOTs programme from the provincial level were at the heart of poor trust relationships at district and facility levels.

Discussion

This study examined factors of trust and mistrust in a CHW programme at sub-national level. It supplements existing work on trust relationships of CHWs in health systems,^{7,11,18,19} by describing how factors associated with workplace trust impact on interpersonal trust factors and how these shape the perceived performance of WBOTs.

The findings complement existing evidence that support and supervision roles at multiple levels need to be addressed for sustained implementation of CHW programmes at scale.^{23,34} Although the North-West Province was an early adopter of the WBOTs, an unfavourable political and economic context in the subsequent years of implementation led to the loss of management commitment displayed at the onset across all levels.²⁸ There was limited accountability and responsibility from senior management towards the programme, and therefore poor coordination of the programme in a manner that instilled confidence and trust in front-line workers and WBOT members. Participants overall did not believe the supervisors acted in their interest, and there was significant mistrust in management and among actors in the district.

The vulnerability of trust relationships in CHW programmes to wider system failings has been documented elsewhere. A study in Malawi found that limited management support and engagement resulted in low trust in CHWs in rural areas,¹⁹ echoed in other African countries⁷ and in Guatemala.³⁵

In this study, general organisational mistrust set the conditions for interpersonal mistrust and perceptions of low competency and functionality of the programme. Despite this, some frontline players were able to swim against the tide, expressing their agency by building interpersonal trust and confidence in the WBOTs. This observation provides valuable lessons on how to nurture resilience in the health system through positive relationships, as opposed to a more common focus of health system strengthening on compliance with standards and targets.^{7,13,36} As found in other studies, relationships and trust are linked to performance and motivation of CHWs.^{6,7,10,11,13,15}

In this study, experiences of interpersonal trust varied and so were perceptions about the CHWs. In facilities where it was thought the roles and functions of CHWs were not clear, PHC workers were perceived to have no confidence in the competencies of CHWs, treated CHWs unfairly and the quality of their interactions was poor. In facilities where CHWs roles and functions were understood and appreciated, CHWs had better interactions with health workers, they were capacitated, supported and supervised. Interpersonal trust relationships depend on how health workers perceive CHWs’ ability to render appropriate services,¹⁸ and affect interdisciplinary team work and collaboration.^{10,11}

In order to build trust, it is also important to resource CHW programmes with sufficient funding, human resources and supplies.³⁷ It is also necessary to strengthen programme governance systems and processes from province to the coal face of delivery.³⁸ In doing so, there is the opportunity to learn from the people in the front line who managed to keep the CHW programme going, despite the existing challenges. Sharing such experiences through the system would

complement top-down with bottom up processes of learning on enablers of trusting relationships.

Although context and issue specific, the study contributes insights into health systems supervisory relationships and their implications for performance.^{6,7} The relational lens of trust provides a useful framing for looking at functionalities and dysfunctions of broader support systems, including supportive supervision, for front line workers.^{6,18,19} It speaks to the 'people' aspects of health systems, how their relationships are shaped, and how they experience the system, as opposed to objective criteria, like the ratio of supervisors to CHWs, the presence of a manual, or checklists of resources.^{7,13}

A limitation to the study is that the first author has a prolonged engagement in the study site, and this may have posed a potential bias in understanding and analysing findings. The involvement of the second author as an external player and critical mirror helped to minimise this. On the other hand, the author's long association with the programme enabled her to contextualise findings in trends over time. Another limitation was that the study was confined to one district. The specific experiences of this district should not be read as representative of the whole province or country.

Conclusion

The study contributes to an important body of work by providing empirical evidence on how factors of workplace trust impact on those of interpersonal trust and possible implications of both forms of trust factors on perceived performance of CHWs. Wider trust/mistrust in the health system has a significant bearing on factors associated with interpersonal trust between CHWs and other players in the PHC system. Relationships of trust are a key outcome of effective supervision and performance in CHW programmes. It is important to design and facilitate supervision systems in ways that promote relationships and generate trust between CHW programmes and the health system to strengthen performance and sustain the programme at scale.

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Ethical issues

Ethical approval for the study was obtained from the University of the Western Cape Research Ethics Committee (registration number BM/17/3/3) and the North-West Provincial Department of Health Research Ethics Committee. All participants were provided with an information sheet and participants were given time to familiarise themselves with the topic and purpose of the study and then given time to ask questions. Participants provided signed written informed consent to be interviewed and audio recorded.

Competing interests

Authors declare that they have no competing interests.

Authors' contributions

The study design was developed by TA and HS. TA collected the data and

performed the analysis under the supervision of HS. TA drafted this article and both authors revised the manuscript.

Disclaimer

The views expressed in the submitted article are those of the authors and not their funders.

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Supplementary files

Supplementary file 1 contains the role players and relationships in the supervision of WBOTs.

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Paper 4: Developing a district-level supportive supervision framework for community health workers through co-production in South Africa

Introduction: This paper was methodological in orientation and, looking through the lens of the co-production approach, described the process in which the various phases in this doctoral study culminated in the development of a framework for supportive supervision of WBOTs at a district level in the North West Province. Studies on supervision of CHWs have traditionally focused on systematic reviews and trials and been conducted by researchers – occasionally in consultation with policy makers but often excluding beneficiaries at the coalface of the supervisory interventions. This paper documented four years of engagement by the first author (and PhD candidate), using a deliberately participatory approach and iteratively developing and testing the approach over time, and working carefully with relevant stakeholders at the strategic and functional levels.

Conclusion: The co-production approach impacted the research findings by providing a platform for collaborative research users, across different hierarchies, to engage in active participation and mutual learning. The study highlighted the importance of integrating and translating generic knowledge and recommendations on supervision within specific sets of relationships and contexts. Co-production can translate broad guidance, experience and theoretical understanding into meaningful local practice, which is owned by all the actors involved. Ultimately, the process of engagement, building relationships and forging consensus proved to be more significant than the supportive supervision framework itself.

Contribution of candidate: The study design was developed by TA, VS and HS. TA collected the data and performed the analysis under the supervision of VS and HS. TA drafted the article. VS and HS substantially reviewed drafts of the manuscript and provided intellectual content. All authors read and approved the final manuscript.

(Review comments from the peer review process are available in Appendix 7.)

RESEARCH ARTICLE

Open Access



Developing a district level supportive supervision framework for community health workers through co-production in South Africa

Tumelo Assegaai^{1*}, Helen Schneider^{1,2} and Vera Scott¹

Abstract

Background: One of the key challenges of community health worker (CHW) programmes across the globe is inadequate supervision. Evidence on effective approaches to CHW supervision is limited and intervention research has up to now focused primarily on outcomes and less on intervention development processes. This paper reports on participatory and iterative research on the supervision of CHWs, conducted in several phases and culminating in a co-produced district level supportive supervision framework for Ward Based Outreach Teams in a South African district.

Methods: Drawing on a conceptual framework of domains of co-production, the paper reflects on the implications of the research process adopted for participants, generation of research knowledge and recommendations for practice, as well as lessons for research on the supervision of CHWs.

Results: Through the research process, participants reflected and engaged meaningfully, honestly and productively across hierarchies, and were able to forge new, dialogic relationships. The iterative, back forth feedback, involving a core group of participants across phases, enabled additions and validations, and informed further data collection. The culmination of the process was consensus on the key issues facing the programme and the generation of a set of recommendations for a local, context-specific framework of supportive supervision. The process of engagement, relationships built and consensus forged proved to be more significant than the framework itself.

Conclusion: The co-production approach can enable local impact of research findings by providing a bottom-up collaborative platform of active participation, iterative feedback, knowledge generation and mutual learning that can complement guidance and frameworks from above. Although time consuming and not without its limitations, this approach to research has much to offer in advancing understanding of CHW supervision.

Keywords: Community health workers, WBOT, Support, Supervision, Co-production, Participatory research

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Introduction

South Africa, like many other low and middle income countries, has adopted community health worker (CHW) programmes in the face of high chronic communicable and non-communicable disease burdens and human resources for health shortages [1, 2]. The country is also in the process of institutionalising universal health coverage, with the inclusion of CHWs as a component of Primary Health Care (PHC) [3, 4].

Despite their promise, community health worker programmes across the globe have experienced challenges that include limited training and resources, low trust with other primary health care workers and inadequate supervision [5–8]. Supportive supervision is considered among the key priorities for CHW programmes, and is required to nurture the skills, knowledge, confidence, and motivation of community cadres [9–12]. Supportive supervision is a process that promotes quality by strengthening relationships within the system, focusing on the identification and resolution of problems, and helping to optimize the allocation of resources for CHWs [13]. A systematic review conducted to inform the recent World Health Organization (WHO) guidelines on CHW programmes reported “very low certainty” regarding the evidence on supportive supervision [14].

Research on interventions to strengthen the supervision of CHWs has traditionally favoured experimental methodologies and systematic reviews of trials [14–18]. Supervision interventions, such as the use of mobile health technology and quality improvement strategies, are typically designed by researchers, sometimes in consultation with policy makers or programme managers. However, beneficiaries of these interventions, particularly at the coal face, are seldom directly involved in their design [19]. These studies fall under the umbrella of implementation science or knowledge translation research, which assumes that research findings deliberately packaged to ‘transfer knowledge’ are indeed accessed, understood and utilised by practitioners [20, 21]. However, Greenhalgh et al., as with others who have critiqued this notion, posit that knowledge “rarely conforms to this linear sequence”, and that the impact of research findings is limited to those who produce it [20–25].

Furthermore, intervention research on CHW supervision has up till now focused primarily on the outcomes of the interventions and less on their development processes. The literature is silent on how to develop CHW supportive supervision interventions that are participatory, and involve mobilisation of local tacit knowledge that can complement guidance and frameworks from research and policies; or how local stakeholders can be brought into research processes to develop and improve supervision interventions for CHWs.

This paper reports on 4 years of research engagement by the first author (as part of her PhD) in a South

African district, culminating in a co-produced district level supportive supervision framework for Ward Based Outreach Teams (WBOTs - South Africa’s CHW Programme). Based on a deliberate research design, this process involved working in a participatory and iterative manner over time with relevant stakeholders at strategic and functional levels that can best be described as a co-production approach.

Co-production is a process of working together and building relationships between different groups of people to generate knowledge that coherently incorporates different viewpoints, as well as a ‘collaborative model of research that includes stakeholders in the research process’. [26, 27] Referred to as co-creation in some literature, co-production allows researchers to draw on the expertise of the practitioners to achieve a joint understanding, local innovation and context relevance [20, 28]. The co-production approach ensures impact of research findings by providing a platform for collaborative research with research users, through active participation and mutual learning [21–25]. This process also engenders a sense of value and importance by enabling research to be conducted with research users and not for them, by giving voice and by empowering otherwise silent frontline workers [20, 23, 24, 28, 29]. Key elements of co-production, as identified by Hickey et al., are sharing of power, including all perspectives and skills, respecting and valuing the knowledge of all those working together on the research, reciprocity and building and maintaining relationships [30].

Langley et al. [26] propose a framework of co-production that includes a set of principles and domains of influence of co-production. The principles draw on Greenhalgh et al.’s work and include “using a systems perspective that acknowledges non-linearity and encourages local adaptation; positioning research as a creative enterprise that has human experience at its core; and emphasis on the process, the quality of relationships and applying facilitation techniques that consider power-sharing and utilise conflict as a positive force” [20]. Domains of influence (Table 1) operate at participant, knowledge and implementation levels [25].

Supervision is a deeply relational process, embedded in social and professional contexts in the health system, that involves supervisors and supervisees at different

Table 1 Domains of influence of co-production based on knowledge mobilisation

1. Influence on participants – creating the conditions for co-production
2. Influence on knowledge – identifying and sharing knowledge for participants to learn practical implications of use
3. Influence on implementation – combination of the influence on participants and knowledge allows for practical uptake and use of knowledge

levels of hierarchies across a range of functions and interactions [31]. A co-production approach to research is thus in keeping with a relational understanding of supportive supervision, where researchers do not formulate interventions in a top down manner, based on research findings, but rather seek to collectively generate knowledge [28].

The paper begins by describing the setting of the research, then lays out the conceptual framework of co-production as domains of influence adopted for the analysis and how the research unfolded in phases. This is followed by an exploration of the co-production process through the lens of domains of influence, and a discussion of the lessons for research on supportive supervision in CHW programmes.

Methodology

Setting

The study was conducted in Ngaka Modiri Molema (NMM) district, North West Province. The South African ward-based PHC outreach team (WBOT) functions at a ward level, where a group of six to ten CHWs provide basic preventive and promotive services on non-communicable diseases, HIV/TB and mother and child health at household and community level, supported and supervised by a professional nurse, called a team leader, and reporting to a PHC facility [32].

The North West Province was an early adopter of the WBOT programme after its launch in 2011, and recognised for its many achievements [33, 34]. However, from around 2014 onwards the programme started to experience difficulties, in the context of a wider fiscal and governance crisis in the provincial health system. During the course of the research (2016–20), the programme faced an increasing number of challenges related to sustained implementation of the programme. These challenges included a severe and growing shortage of

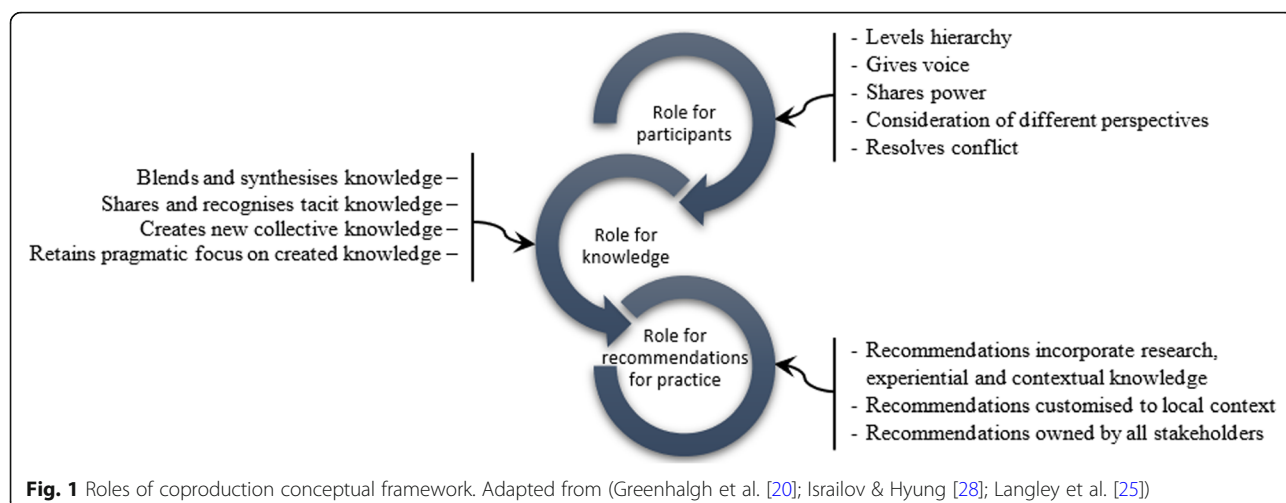
team leaders, a halting of team leader induction training, inadequate support and supervision of team leaders, strained relations between WBOT members and PHC facility workers, and managers at district and provincial levels providing limited oversight and support to the programme [3, 10, 35]. Compounding these challenges, there were no official guidelines for supervision and support of WBOTs, in the province and country wide.

Conceptual framework

Drawing on theoretical understandings in the literature (summarised in Table 1), Fig. 1 outlines the approach to co-production in this paper, examining the role of co-production for participants, generation of research knowledge and recommendations for practice. The research design sought to bring together different categories of participants and give them voice to share knowledge and experiences, in an enabling and non-hierarchical environment. The approach recognised the value of shared understanding of experiences, while recognising that *“it is key in the early stages of building trust between diverse stakeholders and helps banish myths that constrain contextually sensitive solutions being developed”* [26]. The research aimed to generate collective knowledge and local, context-relevant recommendations owned by all stakeholders. This co-production process was made possible by the embedded nature of the researcher (TA), who is from the study area. She had previously worked in a non-governmental organisation supporting the health system, is knowledgeable about the local social context and able to communicate in seTswana (her mother tongue). TA developed the study design, collected the data and conducted the analysis of the research under the guidance of VS and HS.

Co-production activities

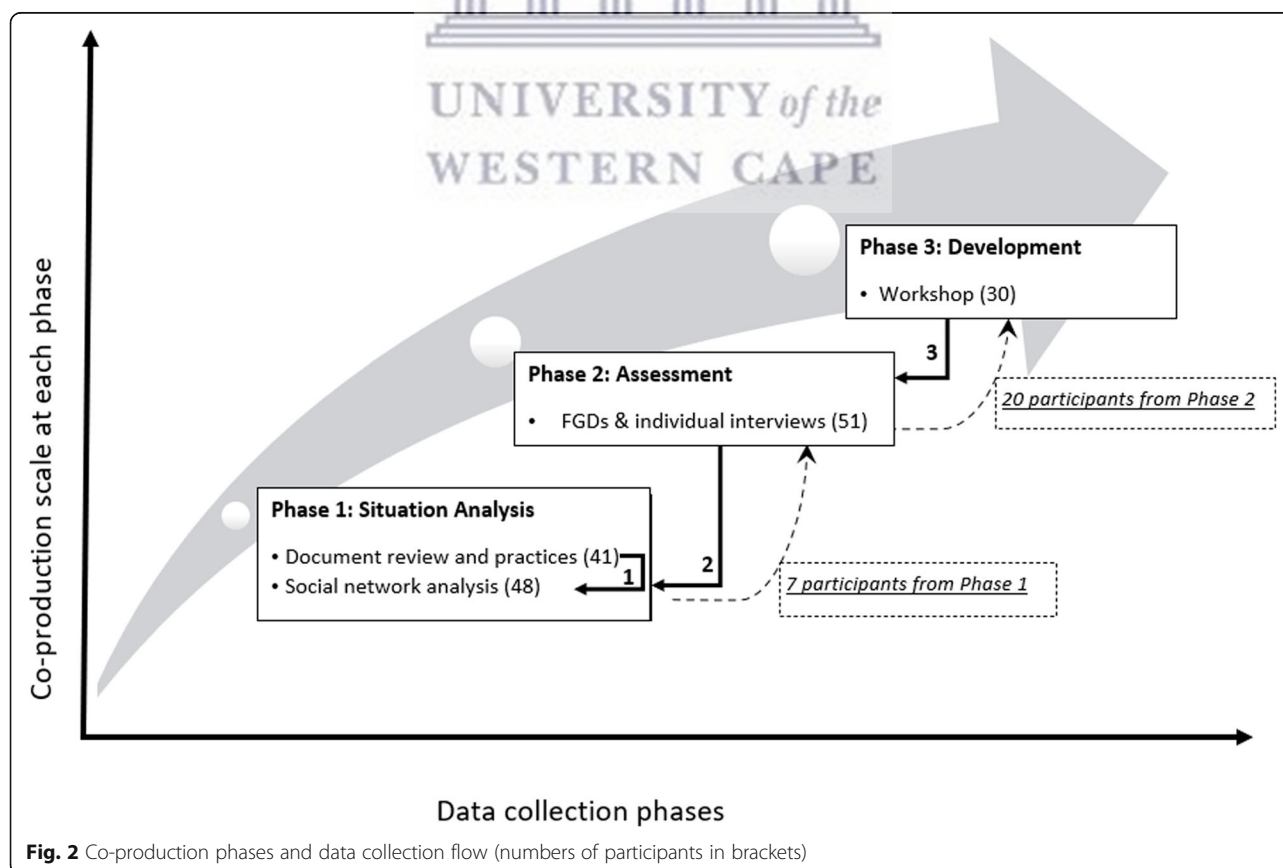
This research involved a mix of quantitative and qualitative methods, undertaken in an iterative process in three



phases, illustrated in Fig. 2 below. This included a situation analysis of policies, practices and relationships (Phase 1); an exploration of factors associated with trust in the supervisory relationships (Phase 2) and the development of a district level supervisory framework (Phase 3). The three phases aligned with the doctoral research objectives which sought to explore the mechanisms (inputs and processes) that could form the basis of supportive supervision of WBOTs, recognising that trust relationships were at the centre of a supportive supervision system.

In phase 1 (situation analysis), a qualitative, descriptive study that combined a document review of five available policy and guideline documents (nationally and provincially), and focus group discussions (FGDs) was conducted in NMM and a neighbouring district. A total of 41 PHC facility managers, team leaders and CHWs, purposefully sampled, participated in the FGDs. Themes and sub-themes that emerged from coded text in both the document review and the FGDs were thematically analysed, alignment across documents and practices analysed and strengths, weaknesses and gaps identified. The second part of phase 1 was a cross-sectional, quantitative study using social network analysis (SNA) in one sub-district of NMM district with the longest experience of WBOTs. Two of the three local areas in the sub-district

with participants who had been associated with WBOTs since the early phases of the programme, were purposefully selected. The 48 participants in this phase were provided with feedback of the findings from the document review and preceding FGDs to validate and comment on the policies and practices of the WBOT supervision system (solid arrow 1, Fig. 2). Structured questionnaires surveyed the social and professional networks related to the WBOT programme using five questions that were representative of the three domains of supportive supervision. Sociographs of the WBOT supervisory system were generated. The data collection, analysis and findings of phase 1 are described elsewhere [31, 36]. Phase 2 was a qualitative, descriptive study involving specifically exploring trust relationships - workplace and interpersonal - in the district and primary health care supervisory system for WBOTs. Phase 2 was conducted in three of five sub-districts in NMM, among 51 participants (provincial managers, district managers, sub-district middle managers, focal persons, PHC facility managers, OTLs and CHWs) purposefully selected, with their respective facilities and WBOTs. In the sub-district where the prior social network analysis was conducted, seven participants were invited to participate in Phase 2 (bottom dashed arrow, Fig. 2). In this phase participants validated feedback of findings from phase 1 and further commented on the status and nature



of relationships in the WBOT supervision system (solid arrow 2, Fig. 2). Audio recorded FDGs and individual interviews were conducted using a semi-structured interview guide and open-ended questions. The codes were identified and categorised deductively using thematic analysis. The data collection, analysis and findings of phase 2 are described elsewhere [37].

Based on the validated findings from Phase 1 and 2, phase 3 involved a workshop convened with a mix of practitioners [30] to agree on the elements of the WBOT supervisory framework. Participants, drawn from all sub-districts, the district office and provincial office, were selected by both the first author (TA) and the district. They included CHWs, team leaders, facility managers, district and provincial managers, with the researchers as the facilitators of the workshop. Twenty of the participants who had been part of previous phases of the study, identified for their insights, knowledge and different categories, formed part of the workshop (top dashed arrow, Fig. 2). The number of participants [30] was thought to be a reasonable balance between engagement and participation and meaningful generation of information. The venue for the workshop was jointly identified by the researchers and provincial managers.

The purpose of the workshop in phase 3 was to stimulate dialogue across disciplines, hierarchies and perspectives and was designed as a space which ensured maximum participation and dialogue of equals. Summaries of findings from the first two phases were prepared and sent to the participants (solid arrow 3, Fig. 2), with a workshop programme through email which was also distributed to the participants at the workshop.

An opening round at the workshop drew out the hopes and challenges of participants, and was followed by a brief presentation on the purpose and background of the workshop, supportive supervision concepts and summaries from the two earlier phases. Participants were then divided into four small working groups to discuss four broad themes identified from phase 1 and 2. All categories of practitioners were represented in each group, to draw out the different perspectives across levels. Participants deliberated on constraints and opportunities in each key area, presenting feedback and summative reflections from their group work to the plenary, followed by dialogue across groups through questions, answers, and comments. After these engagements, each group then developed three actionable strategies on their key area that would strengthen and form part of the WBOT supportive supervision framework in the district. The proceedings of the workshop were recorded, the 'sticky' notes contributed by participants were gathered, observations of the workshop dynamics were noted, and reflective notes by the two researchers (TA and VS) after the workshop were also recorded.

In sum, the co-production process framed questions in a manner that got participants to think in a certain way about the supervision of WBOTs and encouraged reflection at every stage, where researchers and participants learnt from each other in a dialogic process in iterative, back and forth engagements.

Research ethics

Participants gave written consent to participate in all the studies, with attention paid to privacy and confidentiality. Information was also provided about the possibility of withdrawing from the study if they wished before the data were analysed. The study was approved by the University of the Western Cape's Senate Research Committee and Ethics Committee, reference number BM17/3/3.

Reflections on the co-production process

Influence of co-production on participants

In this research, a sequential approach to participant groupings was adopted. In the first and second phases, FDGs were mostly conducted in separate categories: six with CHWs, four with team leaders and four with facility managers. Middle managers were interviewed individually in the second phase to avoid frontline health workers feeling intimidated by their supervisors.

However, one FGD in the second phase was deliberately set up as a mixed group of participants [7] across disciplines and facilities from the sub-district where the SNA was conducted. These individuals had participated in the preceding phase and were aware of the research topic and its importance. The idea here was to model engagements and dialogue across a hierarchy within a safe space. House rules were set at the beginning of the session to allow participants to listen and participate actively without any fear of intimidation. The researcher was constantly mindful of the power dynamics that could potentially play out, given the different levels in the hierarchy represented on the day. She frequently encouraged all participants to give their own unique reflections, and reassured them that the interactions and discussions were confidential. One participant reflected on the mixed group session by stating "*The idea of connecting personally, this is something we take for granted and never thought about. It is an opportunity to dig deep*". Participants who appeared sceptical were specifically encouraged to express contrary views based on their experiences and observations. As one team leader commented, "*It has helped me grow emotionally and be sensitive to others*".

In the final phase, an introductory session invited participants to reflect on their attitudes, hopes and challenges in the workplace, by responding anonymously to six questions on sticky notes. In this way participants were encouraged to provide open responses and voice

opinions they would otherwise hold back if said verbally. For example, one participant in the workshop, sitting next to their supervisor, wrote *"I do not trust my workplace. I am not supported, not developed, intimidated, bullied"*. Such honest opinions were enabled by the iterative processes of presenting feedback on findings of previous phases to the same participants over time, and facilitating repeated reflections of their own local experiences. These sessions were a platform of learning and critical questioning of local practices on supervision and the WBOT programme. As one team leader reflected *"It just opened our eyes about things we were not taking seriously. It helped us a lot. We can see our gaps and what we are going to do to improve."*

The researcher (TA) observed and kept notes of people's reactions and participation through-out the research process. In the early stages of phase 1, CHWs were hostile and appeared angry with the process, the team leaders and the researcher. One team that had experienced difficulties with their payments, and had been without a team leader for some time, asked the researcher *"how does this (research) benefit us in the challenges we have?"*. Another group of CHWs, which had been a pilot team for the sub-district since the beginning of the programme expressed frustration at the lack of movement on career pathing or absorption into the health system. As the process unfolded, the CHWs from the two teams who participated in all the three phases were observed to express their challenges in a non-confrontational manner, and generally had good engagements with officials and managers from the district and the province. The 'safe spaces' of the research enabled useful and meaningful dialogue, with maximum participation by all players across hierarchies. By removing 'social desirability' constraints, more honest and productive reflections from a variety of perspectives were made possible. The participants were observed to mix comfortably in the breakaway groups, where everyone was given a chance to comment. CHWs led the feedback to the plenary workshop on behalf of some of the groups.

Influence of co-production on knowledge generation

Inputs and comments that participants provided in the feedback sessions were treated as additions and validations of the findings. Moreover, they were used to inform data collection in the phases that followed, ensuring participants' reflections were correctly captured while demonstrating that the knowledge generated was important and recognised. One manager, commenting on the SNA findings of limited communication between key individuals, acknowledged that *"You cannot nurture a relationship if you are not constantly in contact with one another. The PHC facility managers do not support team leaders"*. This

serves as an example of how main points of discussion were carried through all the phases.

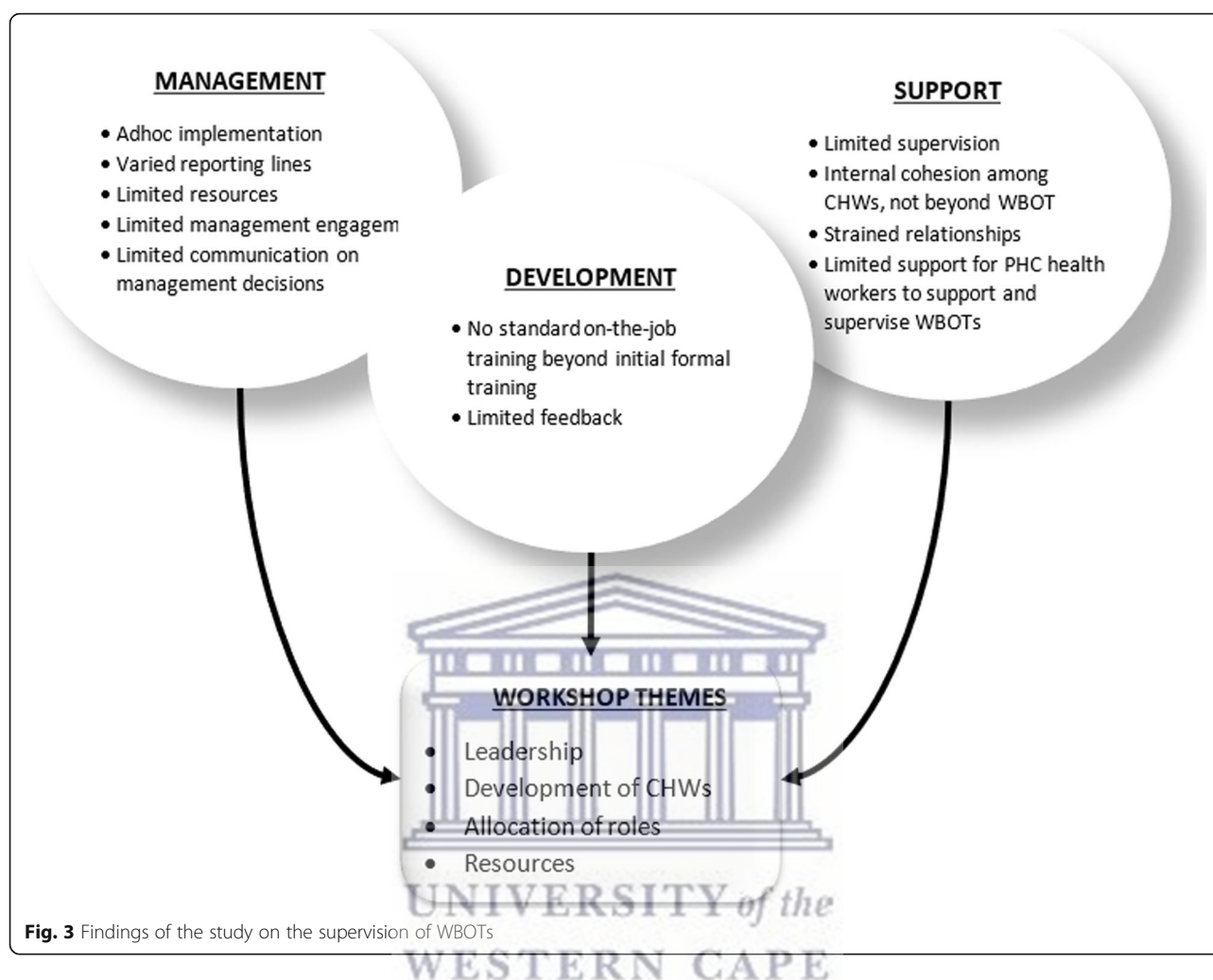
Phases 1 and 2 documented a number of weaknesses in both the design and practices of the supervisory system of the WBOTs. These are summarised in Fig. 3, categorised by the domains of supportive supervision (management, development and support). At the time of the research there was no official standalone framework guiding the supervision system of CHWs and WBOTs nationally or in the province. The absence of a clear guide on WBOT supervision led to varied reporting lines and practices of supervision. The critical challenges facing the programme also impacted on the supervision of WBOTs. A dire shortage of professional nurses in the province led to a shortage of team leaders. The other challenges included limited resources to undertake administrative and clinical tasks and inadequate engagement from middle and top management with the programme.

With regards to the development of WBOTs, supervisors (team leaders and PHC facility managers) lacked adequate orientation on the programme and supervision. Feedback on decisions relating to the programme, referrals from PHC facilities and general feedback on CHW performance was poor in many settings. In-service training for CHWs beyond the formal training was informal and infrequent. While there was a general sense of cohesion and support among CHWs themselves and with their team leaders, the interactions and relationships between WBOTs and PHC facilities workers was often strained. Because of poor engagement from management beyond PHC facilities, facilities had little support and encouragement in supervising WBOTs.

Drawing on these findings, four key themes were identified for the discussion in the final workshop: leadership, development of CHWs, allocation of roles and resources. Using the knowledge that was generated iteratively, and involving some participants in all the three phases, meant that by the time of the workshop there was general consensus on the key issues facing the WBOTs. This fed naturally into the development of a local framework that all could own.

Influence of co-production on recommendations for practice

The culmination of the co-production process was the generation of a set of recommendations for a framework of supportive supervision as set out in Table 2. Participants in the final workshop brainstormed around possible strategies in response to constraints identified, and practicalities steps to solve challenges were discussed. An example was the issue of transport. There is a general shortage of state vehicles and almost none to the disposal of the WBOTs programme. Team leaders who are willing to make use of their vehicles are allowed to make an application to use their vehicles, however there is a limit on the kilometres



they can claim for in a month and they are often requested to fulfil other tasks, like transporting medication for the facilities they are attached to. Options and suggestions in dealing with such limitations were explored by provincial managers, district officials and team leaders.

While some of the strategies of the framework remained at a fairly general level, the fact that these were collectively generated and owned, led to a discussion of implementation. The most significant output of the co-production process was thus not the framework itself, but rather the dialogue that enabled consensus on the problem and solutions. The process produced recommendations that were contextually relevant and tailored for the district, drawing from different perspectives, and which identified systemic issues and local opportunities. In addition, the process was able to model a supervisory approach that is supportive and inclusive.

Discussion

Interventions, guidelines and reports on supervision of CHWs are typically designed or developed using an

evidence-based approach, as reflected in the 2018 WHO guideline on health policy and system support to optimize community health worker programmes [14]. This paper reports on a doctoral process that piloted an alternative, participatory approach to developing a framework to improve supportive supervision for CHWs, which drew in all the role players and delivered a district-specific, actionable plan. From the onset, the research sought to be action oriented, by encouraging reflection through interviews, role modelling respectful relationships, and testing findings through iterative engagements over time using a co-production approach.

This research experience offers a number of lessons on co-production as an approach to supervision research.

Firstly, the time and effort that participants invest in generating knowledge makes ownership and uptake of recommendations for practice more likely [25]. However, as pointed out in the literature, the process is labour-intensive and time-consuming and conducting extensive co-production research may not always be feasible [20–23]. This research was conducted over 5

Table 2 WBOT supportive supervision framework

Theme	Constraints	Strategies
Development of CHWs	<ul style="list-style-type: none">Formal training<ul style="list-style-type: none">- Limited trainers for CHWs- Non-prioritisation of CHW training (Province)In-service training<ul style="list-style-type: none">- Shortage of team leaders- Poor supervision from PHC facility workers- Lack of support from programme (HIV, MNCH, etc) managers	<ul style="list-style-type: none">- In-service training must be done regularly by team leader (TL), facility manager, and peers- Human resource development should come with the schedule for training of CHWs on new guidelines and policies- Absorb existing CHWs into the health system
Allocation of roles	<ul style="list-style-type: none">- Vacant posts- Severe shortage in key positions- Lack of supervision guidelines for the programme	<ul style="list-style-type: none">- Appoint a fully functional WBOT (including TLs, CHWs, environmental health practitioners, data capturers, health promoters)- Develop supervisory tools for managers- Appoint PHC facility manager- Re-orientation of managers on the programme – in general role clarification- Training of CHWs- Training of newly recruited CHWs- Debriefing/early identification of burnout and act on it
Leadership	<ul style="list-style-type: none">- Non-responsiveness of management to requests- Lack of resources- Lack of understanding of roles by managers- Lack of commitment by managers to the programme- Lack of capacity building	<ul style="list-style-type: none">- Consistent implementation of the policies- Continuous support and interaction- Provision of resources e.g. working tools for TLs, CHWs uniform, name tags- Commitment, selflessness, passion- Good communication, confidentiality, equality- Training and development
Resources	<ul style="list-style-type: none">- Shortage of team leaders and other relevant health workers- No transport for WBOT- Poor integration of WBOT into the health system, fragmentation- Limited space for administration work (office, stationery, medical supplies)- Lack of supplies (stationery, medical supplies)	<ul style="list-style-type: none">- Create, fund and fill posts- Procure facility-based transport- Dedicated management structure for WBOT to be standardised- There must be a schedule for quarterly in-service training for CHWs TLs- Develop a framework for supervision

years, as data collection had to happen when the majority of participants were available, and findings from the preceding round of data collection needed to be ready and available for participants to comment on and validate.

Secondly, supportive supervision is a complex phenomenon that involves multiple actors and relationships and which therefore requires a systems perspective. The study involved participants at both functional and strategic levels in the WBOT supervision system. It demonstrated that co-production can be beneficial for social interactions as relationships across different hierarchies and functional levels are equalised and placed on a new footing [20, 23, 25, 38]. The research approach assisted in building confidence among participants and allowed them to articulate concerns and reflect honestly on their own local experiences, enabling a process of reciprocal accountability and consensus on the need to improve supervision for CHWs [39].

Thirdly, the research showed the importance of integrating and translating generic knowledge and recommendations on supervision within specific sets of relationships and context by mobilising tacit understandings and knowledge. The recommendations arising from the research cannot be regarded as an evidence based universal framework but rather the best fit for the local context. In this regard, the processes of engagement are more important

as generalisable knowledge than the specific elements of the research product (i.e., framework).

Finally, the role and positionality of the researcher in the co-production process is key, and requires a high degree of reflexivity, and in some instances, resilience. Researchers may have to navigate reluctant participants, and entrenched ways of seeing, doing and engaging. It is also important to recognise that power relationships, priorities and expectations of researchers and policy makers inevitably “shape and direct these processes” [24, 26]. Linked to this, is a fact that researchers are not decision-makers and therefore may have limited influence, especially in the face of unfavourable contexts.

The study had some limitations that should be acknowledged. In particular, the wider provincial crisis, including civil servant protests and strikes in the Province during the study period delayed data collection process and affected the momentum of the co-production process. Despite these delays, a degree of stability was maintained, participation was secured over time and the planned data collection was eventually all completed. As indicated, the first author has had a prolonged engagement in the study site, and built on prior relationships during the research. This may have posed a potential bias in understanding and analysing findings. On the other hand, the author's

long association with the WBOTs programme enabled her to negotiate entry and participation and contextualise findings in trends over time. Another limitation was that the study was confined to supportive supervision in the formal PHC and the district health system and excluded communities where the services are rendered. The inclusion of communities in the study population and their contribution in the participatory process would have broadened knowledge generation and added valuable recommendations to the development of the framework.

Conclusion

This research adopted a co-production approach to developing a district level framework for supportive supervision of CHWs, recognising that the phenomenon is fundamentally a system of relationships. Rather than seeking to develop technical recommendations using ‘evidence-based’ methodologies, it drew on the tacit knowledge of practitioners, modelling different behaviours, encouraging dialogic approaches, and working within and across groups to flatten hierarchies. Co-production can enable local impact of research findings by providing a bottom-up, collaborative platform of active participation, iterative feedback and mutual learning that can complement guidance and frameworks from above. However, this form of research is time consuming and not always feasible or without its limitations.

Abbreviations

CHW: Community health worker; PHC: Primary Health Care; WHO: World Health Organization; WBOT: Ward-based outreach teams; NMM: Ngaka Modiri Molema; HIV/TB: Human Immunodeficiency Virus and Tuberculosis; FGDs: Focus Group Discussions; SNA: Social network analysis; MNCH: Maternal, Newborn And Child Health; TL: Team leader

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Authors' contributions

TA, HS and VS conceptualized the study. TA wrote the first draft of the manuscript; HS and VS provided substantial revisions. All authors read and approved the final manuscript.

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Availability of data and materials

The datasets generated and analysed during the study are not publicly available due to the qualitative nature of the research as this can potentially compromise participants' identities, but codes are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate

The authors confirm that all research was performed in accordance with relevant guidelines/regulations. Ethical approval for the study was obtained from University of the Western Cape Research Ethics Committee (Registration No: BM/17/3/3) and the North West Provincial Research Ethics Committee. All interviews and focus group discussions participants provided written informed consent prior to participation.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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CHAPTER 4: DISCUSSION, CONCLUSION AND RECOMMENDATIONS

This chapter presents a summary of the findings, the contributions of the study to the field and the limitations of the research. The chapter also presents the conclusions and recommendations for policy makers.

The doctoral study's aims were to explore supportive supervision mechanisms of CHWs, which could stimulate trust and enhance CHWs' performance and, on the basis thereof, to develop a district supportive supervision framework for WBOTs. In line with the first objective, the study mapped available policy and guidelines and described role players and contextual conditions (paper 1 and paper 2) relevant to supervision of CHWs. This process highlighted the importance of clear, national policy guidance on supervision, the need for a holistic approach to that guidance and to see supervision as part of a complex system with multiple interacting components. These components include, amongst others, formal guidelines, resources (financial and material), the presence of supervisors and, functioning sets of relationships between local stakeholders. Key to these is ensuring that the supervisory process is supportive (as outlined in figure 1 in paper 2), together with the traditional administrative and capacity building elements. At a practical level, team leaders need to be provided with relevant training to perform their roles in supervising and mentoring CHWs. They require adequate resources such as transport in vast rural areas typical of where CHWs are usually placed in and clinical equipment for basic screening during household visits (Marcus *et al.*, 2017). Facility managers require adequate knowledge on the CHW programme and team leader roles, and to afford team leaders adequate space and time to support CHWs in the field, instead of expecting them to assist in clinical duties in the facilities. Management at district and provincial levels are also required to engage and understand the needs of the CHW programme and make available necessary resources such as adequate budgeting and financing (Schneider, 2018; Schneider & Nxumalo, 2017).

The second and third objectives of the research involved an in-depth look at relationships and how trust played a role in facilitating supervision in the CHW programme (paper 3). The balance between supportive supervision domains – development, support and management – influences workplace and interpersonal trust, while the vulnerability of trust relationships impacts the success or failure of programmes (Adam *et al.*, 2020; Hernández *et al.*, 2014; Kok *et al.*, 2016a; Kok *et al.*, 2016b). In the early stages of the programme (outlined in paper 3), the high level strategic processes in the province steering the revitalisation of PHC were found to be beneficial

to the programme (Padayachee, Chetty, Matse, Mampe, & Schneider, 2014; Schneider, English, Tabana, Padayachee, & Orgill, 2014). However, over the years the gains were not sustained. A growing shortage and demand for professional nurses, led to team leaders being recalled back to clinical duties in health facilities, leaving a large number of teams without dedicated team leaders. At the same time facilities were unable to adapt to the supervision gap as facility managers' roles in this area remained unclarified, while many had low interest in the programme. Resources and management engagement gradually diminished, fuelling protest action by CHW across the province as described in paper 3.

Viewing supervision as a complex system of both hardware and relational, software components, it became apparent that developing a meaningful district approach needed a holistic approach, anchored in a local, participatory process of problem identification, analysis and solution development. In realising the fourth objective of the research – the development of a district supportive supervision framework, it became clear that *process* of developing such a framework was more important than the design of a fixed and elaborated framework. The notion of co-production thus emerged as the best way to describe how the research journey unfolded. The term co-production to look at the phenomena was thus not adopted or interpreted in a tightly defined sequence of steps, but as a lens over time. In strict terms, the use of the approach in this study might not fit specific criteria. For example, role players were not co-authors but the focus was on jointly generating knowledge and strengthening relationships over time. The researcher engaged in an iterative manner through methods that deliberately sought to shift the practices locally, in a process that allowed for a back and forth and discussion overtime of ideas. The important lesson in the study is about the process, not the framework itself.

This study contributes to the clarification of the phenomenon of supportive supervision of CHWs and CHW programmes in a number of ways.

Firstly, the conceptual framing developed in this study (see Chapter 2) illustrates the technical components that make up supportive supervision, as reported in the literature. Using a systems thinking approach, the study not only investigated these components but viewed supportive supervision as a complex system that involves resources, people and relationships. This conceptual framing seeks to capture the phenomenon of supportive supervision in a holistic manner, as further developed and alluded to in the methods chapter, paper 2 and paper 3. This framework views supportive supervision as three interlinked domains or functions (administration, development and support), at the centre of which is a set of horizontal and

vertical relationships among system actors, spanning system levels that go beyond the immediate supervisor–supervisee interaction. Supervisory systems should set out to even out power relations and rely on relationships based on trust, responsiveness and team spirit (Bailey *et al.*, 2015; Kilminster and Jolly, 2000; Marquez and Kean, 2002; Peach and Horner, 2007). In the human resource management field, the literature refers to the importance of a combination of functions, or “bundles of practices”, to enhance performance. It is argued that interrelated and internally consistent components, rather than independent individual components, create mutually reinforcing conditions that support employee motivation and organisational performance (Macduffie, 2014; Tadi *et al.*, 2014). The supportive supervision components, bundled with other health system support functions such as training, need to be understood as interrelated and mutually constituting.

The second contribution of the study is that it locates supportive supervision within the specific context of national policy, the provincial health system and district/local practice. As stated in Chapter 1, the NWP was an early adopter of the WBOT programme and the district was chosen on the basis that it was a good performer. The researcher was able to observe the changing provincial and organisational landscape and the profound impact of wider health system crises on the coalface functioning of the programme (paper 3). These contextual factors formed an important backdrop for assessing supportive supervision of CHWs. This is an example of the value and practical relevance of embedded research (Ghaffar *et al.*, 2017).

The third contribution of the study is that it recognises that trust relationships form the basis of supervisory systems. Simply identifying a set of components of the supportive supervision is not sufficient. The impact (whether positive or negative) of these components on supervision in CHW programmes depends on the quality of the relationships, the level of trust in the relationships and the context of the system supporting the relationships. Using both qualitative and quantitative methods, the researcher thus evaluated the nature and quality of the relationships and focused on factors influencing trust. The study also explicitly sought to shape local relationships in positive ways by modelling a supervisory approach through engagements and dialogue across a hierarchy that was both supportive and inclusive. The resilience and sustainability of CHW programmes could be nurtured by focusing on positive, trusting relationships rather than on the traditional compliance and targets (Sheikh *et al.*, 2014; Kok *et al.*, 2016b; Topp and Chipukuma, 2016). Bundling the supportive supervision components function within healthy relational dynamics, making trust relationships an important

component in supportive supervision and (as alluded to earlier) recognising that these exist within the broader health system context all suggest that supportive supervision is a complex system.

The final, key contribution of the study is its reflections on the practicalities and value of a co-production process when conducting research. As described above, the research process served to model supervision as a supportive, inclusive and empowering process and also mobilised current practices and local tacit knowledge to facilitate the design and implementation of strategies that are relevant at the local level. This approach provided a platform for participants across hierarchies to learn from each other, and also gave them insight into the broader theoretical and logical basis for supportive supervision, enabling them to think holistically and to connect their local activities to the wider supervisory system.

As discussed under methods, the original conceptual framing evolved over time to better reflect the provincial and national contexts and specific elements of supportive supervision. The evolving conceptual framings sought to widen the understanding beyond the technical components to bring in broader contexts such the national (paper 1) and provincial (paper 2 and 3) levels. The conceptual approach of the thesis represents one 'software-oriented' approach to CHW supportive supervision and complements others that have examined more intermediate factors such as motivation (Kok *et al.*, 2016, 2018).

In working systematically to identify weaknesses in the policy and practice of WBOT supervision, the actors and the quality of their relationships, which together would inform the development of the framework, the study was able to go beyond general recommendations and focus on specific, context-specific local actions. The co-production approach is a social approach and equalises relationships across different hierarchies and functional levels, placing them on a new footing (Beckett *et al.*, 2018; Greenhalgh *et al.*, 2016; Hickey, 2018). These are all action-gearred attributes in a complex system.

A process-oriented approach, focused on bringing people together at the coalface to define and co-produce guidance on supportive supervision at a local level with the support of researchers or technical advisors could happen at scale. However, this would require a supportive context, that might have existed in the initial stages of the programme in the NWP, with strong stewardship and functioning governance systems for the programme. Small scale projects such as the one reported in this research are inevitably fragile and depend largely on the wider system

for their survival. Nevertheless, in documenting the approach, others functioning in a similar context and who are in positions of influence, managerial or oversight roles of the programme could apply the principles.

Limitations

The limitations of the study are captured in the respective papers. In general, the limitations are as follows:

- The WBOT programme in the NWP went from being a flagship programme to one in crisis, in a matter of a few years. Upon embarking on her PhD, the researcher anticipated working in a much more enabled and positive policy and practical environment. If the North West Province's WBOT programme had maintained its original trajectory, going from strength to strength, there would have been a virtuous cycle of improvement and the outcome of the research would have likely been different. In the context of a wider political crisis at the provincial level, another challenge was that certain key senior officials were reluctant to be interviewed. These developments most likely affected the findings, with the supervision framework for the district and the relevance of the research not always being evident. Civil servant protests and strikes in the province during the study period delayed the data-collection process and affected the momentum of the co-production process. Despite this, the researcher maintained a reasonable degree of stability and was able to secure participation over time and complete the data-collection process. The study also played a modest role in assisting participants to voice their frustrations, gain an understanding of the changes that they were experiencing, and provide moral support and guidance in coping with the deteriorating programme.
- The researcher had a prolonged engagement at the study site prior to the commencement of the study, and this may have created a potential bias when she set out to analyse and interpret the findings. However, the advantage of the engagement was that she built on prior relationships and was able to analyse the findings based on the context at the time.
- The study was confined to supportive supervision in the formal PHC and district health systems. Including communities in the study population would have broadened the

process of knowledge generation and added valuable recommendations to aid the development of the framework.

- The research was intensively focused on one local reality, describing its various dimensions over time in great detail. This potentially limited the generalisability of findings. However, since the programme is steered provincially, it is possible that the results observed in this study would be similar in other districts. While this chapter has spelt out the study's wider contribution to the body of knowledge, there is a danger that it may be considered too small-scale and too context-specific (and parochial) to be of universal value.
- Owing to the COVID-19 pandemic that gripped the world at the end of the study, it was not possible to assess the impact of the framework.

Conclusions

National CHW programmes are re-emerging in health systems globally, mirrored in South Africa in the WBOT strategy. Across different country contexts, there are a number of challenges that are hindering the scaling up and performance of CHW programmes. There is therefore a need for adequate support from and supervision by the local health system.

The study established that the lack of explicit, coherent and holistic guidance on CHW supportive supervision at the policy level and the failure to address supervision constraints at the local level undermine the performance and sustainability of the WBOT programme. The study further highlighted the need for holistic conceptualisations, in which CHW supportive supervision is recognised as a complex phenomenon that involves resources, supervisory processes, people and relationships.

Supportive supervision of CHWs can be thought of as a system of horizontal and vertical relationships that go beyond just one supervisor–supervisee interaction. Understanding and promoting these relationships are key to incorporating effective supportive supervision in CHW programmes. The centrality of nurse supervisors, as found in this and other studies, warrants greater CHW credibility in communities. Moreover, as per the WHO guidelines, it is important to commit to clear ratios of adequately resourced and skilled supervisors.

Relationships of trust are a key outcome of effective supervision and performance in CHW programmes. Mistrust in the health system, evidenced in poor management engagement and

inadequate skills development, impacts factors such as interpersonal trust between CHWs and other role players in the PHC system. Governance structures and management accountability – encompassing lines of communication, supply chain and training – need to be clarified, formalised and implemented so as to support the different management levels. Evidence points to the promise of community-based supervision of CHWs. However, how to effectively complement supportive supervision of health facilities needs further investigation.

The intentional use of a bottom-up, collaborative platform of active participation, characterised by the sharing of local, tacit knowledge and mutual learning, was found to facilitate a supervisory system that was able to promote relationships and generate trust between CHW programmes and the health system.

Recommendations

Key recommendations for further policy and practice

Arising out of the findings from this doctoral study are three key recommendations aimed at strengthening supportive supervision of WBOTs in the North West Province and other, similar contexts:

1. Given the renewed interest in CHWs in the wake of the COVID-19 pandemic, the following recommendations, which are specific to the North West Province, can be made: (i) Prioritise and allocate the necessary resources to the WBOT programme by creating and filling OTL posts, setting out clear key performance areas, roles and reporting lines, and provide OTLs with adequate training; (ii) Set up appropriate support systems, such as transport for household and community visits; (iii) Revitalise training of CHWs in line with current developments with due consideration given to CHWs' career development; (iv) Reorient support staff on their roles and responsibilities towards WBOTs; and (v) Promote initiatives that support a WBOT M&E system, including performance management.
2. The findings from this doctoral study revealed that trust relationships play a big part in supportive supervision. The study showed that when actors occupying different positions at different hierarchical levels are given opportunities to deliberate and share experiences, they begin to understand each other better. Key relationships that need to be developed or strengthened (discussed in paper 2) include those between WBOTs and

local PHC facilities, and those at the middle management layer of the PHC system. The centrality of OTLs and their natural leadership roles as well as peer support among CHWs also need to be recognised.

3. The co-production approach used in the study highlighted the importance of embedding national and provincial guidance in local contexts by sharing tacit local knowledge and creating new, context-specific knowledge.
4. National policies need to recognise and endorse a holistic approach to supervision. This approach includes defining and allocated core roles and responsibilities of key PHC actors; clear mechanisms of district and provincial stewardship and governance; and mandating participatory processes at a local level that encourage deliberation, flatten hierarchies and joint problem identification and solution generation.

Recommendations for further research on the supervision of CHWs

- The literature has gone some way towards examining the potential of community supervision of CHWs. However, its effectiveness in complementing health facility-based, supportive supervision needs further investigation.
- The interrelationship between supportive supervision and other health system support functions, such as training, finance and community-based supervision, need to be better understood within specific local contexts.
- There is a need for more in-depth research on the development of supervision interventions that take participatory, action learning and co-production approaches into consideration, which should be conducted by embedded researchers who are well-attuned to the local contexts in which such interventions typically take place.
- The findings from the study recognised the internal cohesion within the CHW teams and the fact that some CHWs emerged as potential natural leaders. In the South African context, where supervision is primarily the responsibility of nurses, more studies are needed on differentiated supervisory approaches, as well as how career pathing for CHWs can be better structured within existing training and human resource development programmes.

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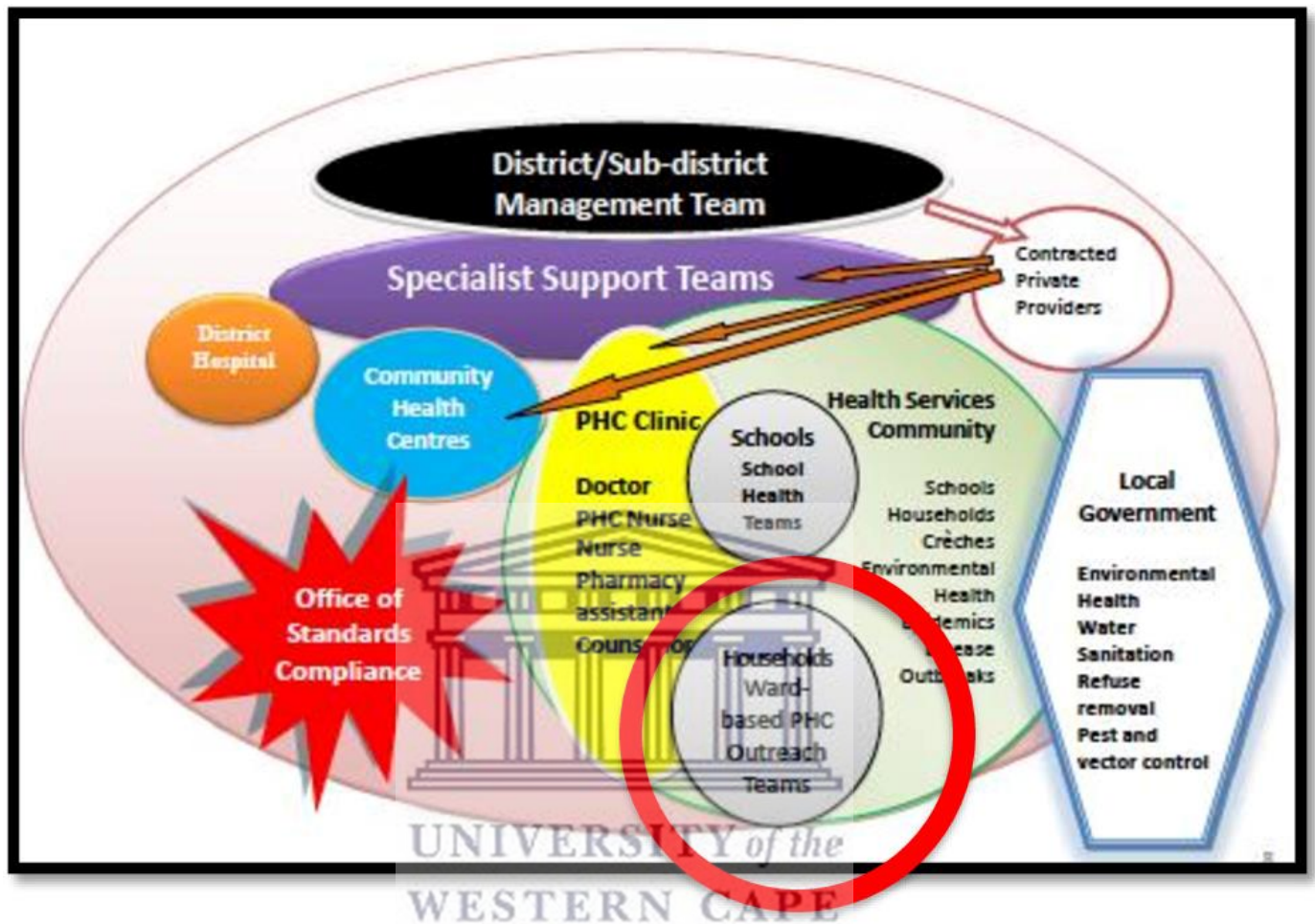


APPENDICES 1-7



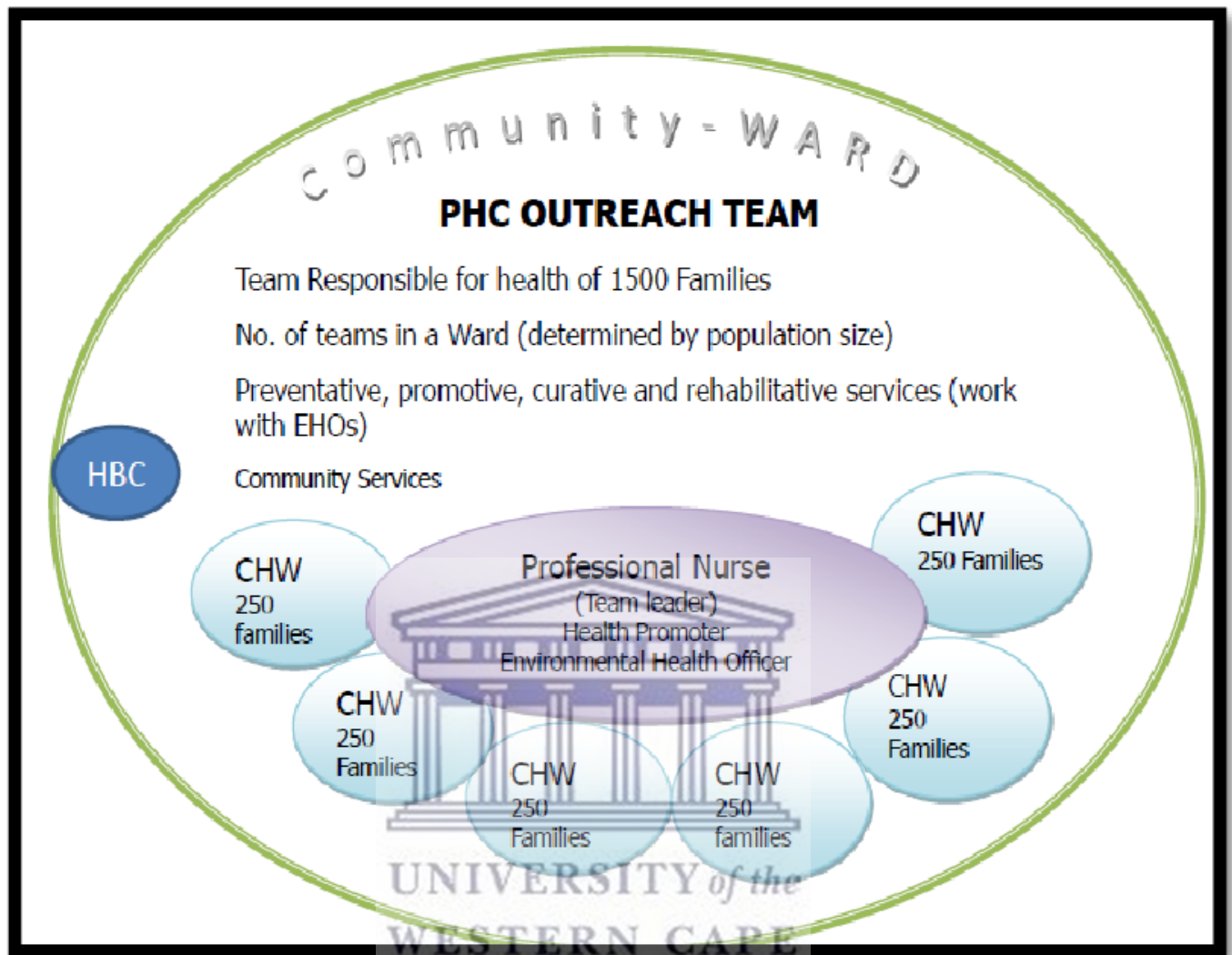
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APPENDIX 1: SOUTH AFRICAN PRIMARY HEALTH CARE MODEL



Source: (Barron et al. 2010)

APPENDIX 2: WARD BASED OUTREACH TEAM



Source: (Barron et al. 2010)

APPENDIX 3: PARTICIPANT INFORMATION SHEET AND CONSENT FORMS



UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 21-959 3563, Fax: 27 21-9592872

E-mail: soph-comm@uwc.ac.za

Information Sheet

Title of Research Project: Supervision and trust in community health worker programmes at scale: Developing a district-level supportive supervision framework for ward-based outreach teams in North West Province, South Africa

What is this study about?

This is a research project being conducted by Ms Tumelo Assegaai and Professor Helen Schneider at the University of the Western Cape. We are inviting you to participate in this research project because you have been involved in and/or identified to have relevant information about the implementation of ward-based outreach teams (WBOTs) in the North West (NW). The purpose of this research project is to evaluate the quality of the current supervision system in order to develop a supportive supervision framework for WBOTs.

What will I be asked to do if I agree to participate?

You will be approached for an interview either individually or as part of a group to get information on the supervision of WBOTs. You will be asked questions relating to the set up and quality of the current supervision system, and development of an ideal supportive supervision for WBOTs. We will ask your permission to tape record the interviews, and you will be asked to indicate this as well as your willingness to participate in the interview in a signed consent form. If you are participating in a group interview, we will also ask that you keep the identity of the other participants and the content of the discussion confidential.

Would my participation in this study be kept confidential?

The researchers undertake to protect your identity and the nature of your contribution. To ensure your anonymity, the interview schedules will not record your name, but assign you a code. Audio files will be saved using a pseudonym or code. Only the researchers will have access to the identification key for the pseudonyms or codes. All questionnaires will be kept in a locked storage area. In written reports or articles about this research project, your identity will not be revealed. This study will use focus groups; therefore, the extent to which your identity will remain confidential is dependent on participants in the focus group maintaining confidentiality.

What are the risks of this research?

All human interactions and talking about self or others carry some risks. We will nevertheless minimise such risks and act promptly to assist you if you experience any discomfort or otherwise during the course of your participation in this study.

What are the benefits of this research?

This research is not designed to directly help you personally, but the results may help the investigator learn more about the supervision of WBOTs in the province. We hope that, in the future, other people might benefit from this study through improved understanding of supervision of WBOTs.

Do I have to be in this research and may I stop participating at any time?

Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, you will not be penalised.

What if I have questions?

This research is being conducted by **Tumelo Assegaai, School of Public Health** at the University of the Western Cape. If you have any questions about the research study itself, please contact **Tumelo Assegaai** at: **082 574 4032, tumampe@gmail.com**.

Should you have any questions regarding this study and your rights as a research participant or if you wish to report any problems you have experienced related to the study, please contact:

Prof Helen Schneider
School of Public Health
Head of Department
University of the Western Cape
Private Bag X17 Bellville
7535
soph-comm@uwc.ac.za



Prof José Frantz
Dean of the Faculty of Community and Health Sciences
University of the Western Cape
Private Bag X17 Bellville
7535
chs-deansoffice@uwc.ac.za

This research has been approved by the University of the Western Cape's Research Ethics Committee. (REFERENCE NUMBER: *to be inserted on receipt thereof*)

BIOMEDICAL RESEARCH ETHICS ADMINISTRATION

Research Office New Arts Building, C-Block, Top Floor, Room 28 University of the Western Cape Private Bag X17 Bellville 7535



UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 21-959 3563, Fax: 27 21-9592872

E-mail: soph-comm@uwc.ac.za

CONSENT FORM

Title of Research Project: Supervision and trust in community health worker programmes at scale: Developing a district-level supportive supervision framework for ward-based outreach teams in North West Province, South Africa

The study has been described to me in language that I understand. My questions about the study have been answered. I understand what my participation will involve and I agree to participate of my own choice and free will. I understand that my identity will not be disclosed to anyone. I understand that I may withdraw from the study at any time without giving a reason and without fear of negative consequences or loss of benefits.

This research project involves making an audiotape of your interview. To ensure your anonymity the interview schedules will not record your name, but assign you a code. Audio files will be saved using a pseudonym or code. Only the researchers will have access to the identification key for the pseudonyms or codes. All questionnaires will be kept in a locked storage area. In written reports or articles about this research project, your identity will not be revealed.

☐ I agree to be audiotaped during my participation in this study.

☐ I do not agree to be audiotaped during my participation in this study.

Participant's name.....

Participant's signature.....

Date.....

BIOMEDICAL RESEARCH ETHICS ADMINISTRATION

Research Office New Arts Building, C-Block, Top Floor, Room 28 University of the Western
Cape Private Bag X17 Bellville 7535



UNIVERSITY OF THE WESTERN CAPE

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FOCUS GROUP CONFIDENTIALITY BINDING FORM

Title of Research Project: Supervision and trust in community health worker programmes at scale: Developing a district-level supportive supervision framework for ward-based outreach teams in North West Province, South Africa

The study has been described to me in language that I understand. My questions about the study have been answered. I understand what my participation will involve and I agree to participate of my own choice and free will. I understand that my identity will not be disclosed to anyone by the researchers. I understand that I may withdraw from the study at any time without giving a reason and without fear of negative consequences or loss of benefits. I understand that confidentiality is dependent on participants in the focus group maintaining confidentiality.

I hereby agree to uphold the confidentiality of the discussions in the focus group by not disclosing the identity of other participants or any aspects of their contributions to members outside of the group.

Participant's name.....


Participant's signature.....

Date.....

BIOMEDICAL RESEARCH ETHICS ADMINISTRATION

Research Office New Arts Building, C-Block, Top Floor, Room 28 University of the Western
Cape Private Bag X17 Bellville 7535

APPENDIX 4: UWC BIOMEDICAL SCIENCE RESEARCH ETHICS COMMITTEE APPROVAL LETTER

 UNIVERSITY of the WESTERN CAPE	OFFICE OF THE DIRECTOR: RESEARCH RESEARCH AND INNOVATION DIVISION	Private Bag X17, Bellville 7535 South Africa T: +27 21 959 2988/2948 F: +27 21 959 3170 E: research-ethics@uwc.ac.za www.uwc.ac.za
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16 May 2017

Ms T Assegaai
School of Public Health
Faculty of Community and Health Sciences

Ethics Reference Number: BM/17/3/3

Project Title: Supervision and trust in community health worker programmes at scale: developing a district level supportive supervision framework for ward-based outreach teams in North West Province, South Africa.

Approval Period: 15 May 2017 – 15 May 2018

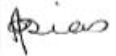
I hereby certify that the Biomedical Science Research Ethics Committee of the University of the Western Cape approved the scientific methodology and ethics of the above mentioned research project.

Any amendments, extension or other modifications to the protocol must be submitted to the Ethics Committee for approval.

Please remember to submit a progress report in good time for annual renewal.

The approval letter from the NW Department of Health or Institutional REC should be submitted to the BMREC for record keeping.

The Committee must be informed of any serious adverse event and/or termination of the study.


Ms Patricia Josias
Research Ethics Committee Officer
University of the Western Cape

PROVISIONAL REC NUMBER -130416-050

FROM HOPE TO ACTION THROUGH KNOWLEDGE



OFFICE OF THE DIRECTOR: RESEARCH
RESEARCH AND INNOVATION DIVISION

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19 June 2019

Ms T Assegaai
School of Public Health
Faculty of Community and Health Sciences

Ethics Reference Number: BM17/3/3

Project Title: Supervision and trust in community health worker
programme at scale: developing level supportive
supervision framework for ward-based outreach teams
in North West Province, South Africa.

Approval Period: 07 September 2018 – 07 September 2019

I hereby certify that the Biomedical Science Research Ethics Committee of the
University of the Western Cape approved the scientific methodology and ethics of the
above mentioned research project.

Any amendments, extension or other modifications to the protocol must be submitted
to the Ethics Committee for approval.

Please remember to submit a progress report in good time for annual renewal.



The Committee must be informed of any serious adverse event and/or termination of
the study.

Ms. Patricia Josias
Research Ethics Committee Officer
University of the Western Cape

BMREC REGISTRATION NUMBER -130416-050

FROM HOPE TO ACTION THROUGH KNOWLEDGE.

APPENDIX 5: NORTH WEST DEPARTMENT OF HEALTH RESEARCH COMMITTEE

	health Department of Health North West Province REPUBLIC OF SOUTH AFRICA	Off: Sekame & First Street New Office Park Mafikeng, 2745 Private Bag X2068 MMAABATHO, 2735	Enq. Nthabiseng Mapogo Tel: 018 391 4504 Fax: 018 386 6202 nmapogo@nwpp.gov.za www.nwhealth.gov.za	
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POLICY, PLANNING, RESEARCH, MONITORING AND EVALUATION

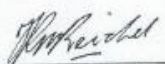


Name of researcher : Ms. T. Assegaal
University of the Western Cape
Physical Address SCHOOL OF PUBLIC HEALTH
(Work/ Institution) ROBERT SOBUCHE ROAD
BELLVILLE, 7535


Subject : Research Approval Letter – Supervision and trust in community health worker programmes at scale: developing a district level supportive supervision framework for ward-based outreach teams in North West Province, South Africa.

This letter serves to inform the Researcher that permission to undertake the above mentioned study has been granted by the North West Department of Health. The Researcher is expected to arrange in advance with the chosen facilities, and issue this letter as proof that permission has been granted by the Provincial office.

This letter of permission should be signed and a copy returned to the department. By signing, the Researcher agrees, binds him/herself and undertakes to furnish the Department with an electronic copy of the final research report. Alternatively, the Researcher can also provide the Department with electronic summary highlighting recommendations that will assist the department in its planning to improve some of its services where possible. Through this the Researcher will not only contribute to the academic body of knowledge but also contributes towards the bettering of health care services and thus the overall health of citizens in the North West Province.

Kindest regards.

 Dr. FRM Reichel Director: PPRM&E		<u>14/07/2017</u> Date
 Researcher		<u>14/07/2017</u> Date


Healthy Living for All

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APPENDIX 6: INTERVIEW GUIDES

Phase 1 Feedback Summary

DOCUMENT REVIEW

Table 1: Documents Reviewed

Title of document (short title)	Purpose	Year of Publication
Provincial guidelines for the implementation of the three streams of PHC Re-engineering (Toolkit)	Provincial guidelines and toolkit for implementation of the WBOT programme	2011
CHW participant guide – Phase 1 (CHW manual)	Accredited training guide for CHWs	(First version 2011) 2014
Ward-based PHC outreach team leader orientation programme learner guide (Team Leader Guide)	Orientation guide for team leader on their roles	2012
Ward-based PHC outreach teams management information (Management Guide)	Middle and top management overview of WBOTs' value, purpose, roles and responsibilities.	2012
Policy framework and strategy for ward based primary healthcare outreach teams (Policy)	A framework to improve WBOTs' working conditions and standardise their scope of work and application across the provinces.	2017

Table 2: Coverage of functions (+) per theme across the documents

Document	Management			Development	Support
	Line Authority	Performance Evaluation	Resources		
Toolkit	+++	+++			++
CHW manual	++++	+	+	+	+

Team Leader Guide	++++	++	+	+	+++
Management Guide	++	+++	+	+	++
Policy	+++	+++	++	+	+

No standalone supervision framework

Teams and facilities functioned in an ad hoc manner that best suited them in the delivery of services

In practice, there was a variety of reporting lines

Development and support processes were informal and often lacking

Teams were poorly resourced (space to work, work supplies/equipment)

There was internal cohesion and support within teams members

Facility managers struggled to supervise the teams amidst high workloads in facilities

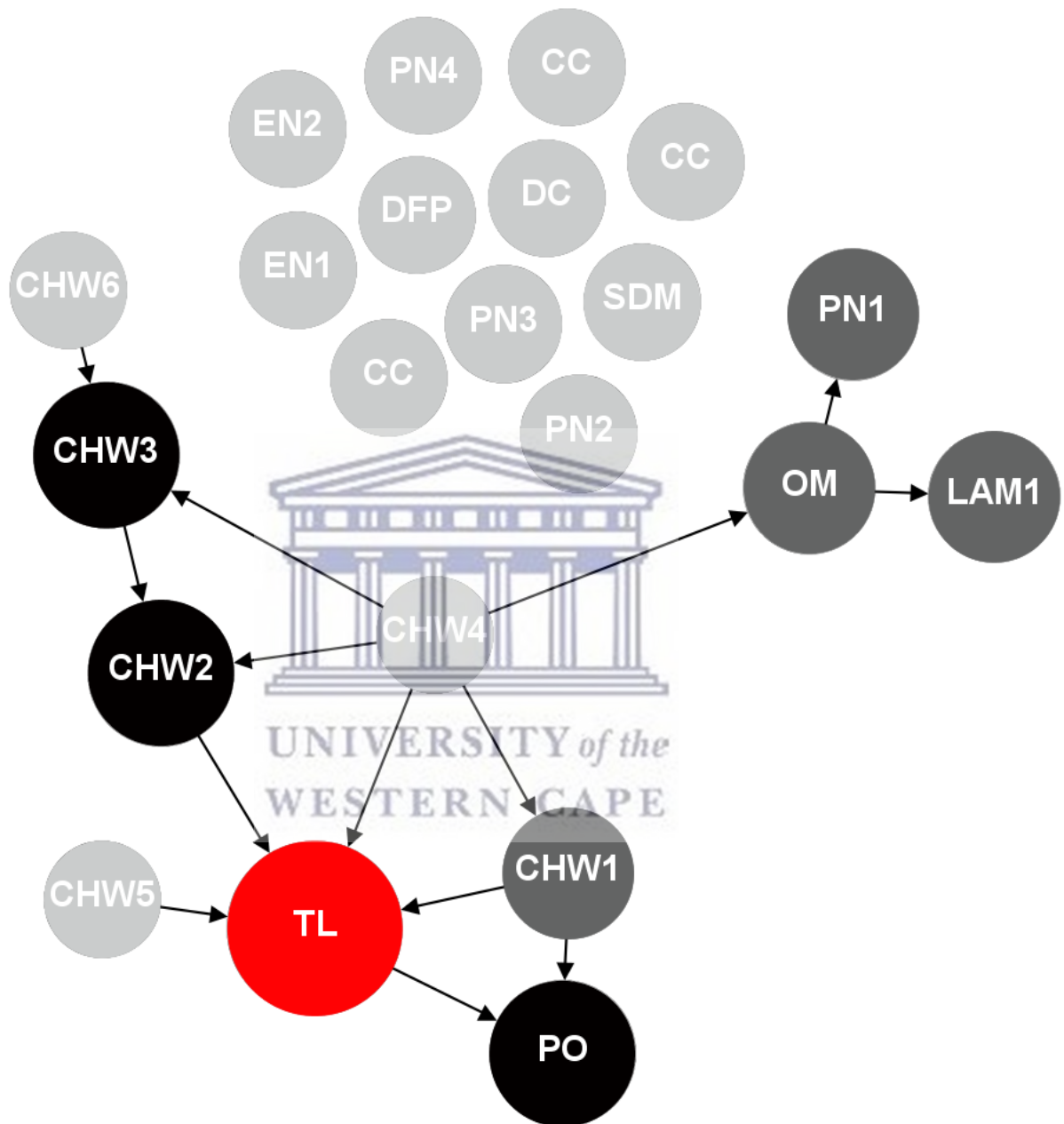
Relationships between WBOTs and facilities often remained strained



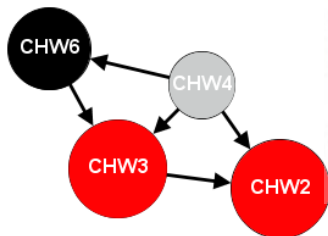
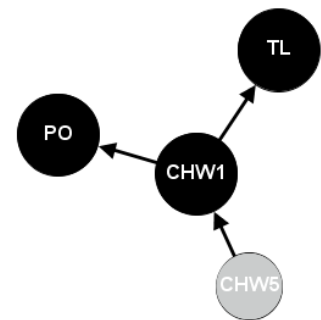
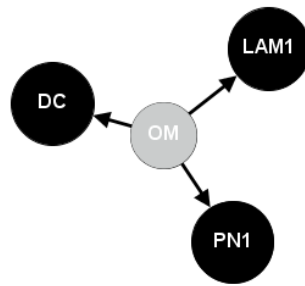
SOCIAL NETWORK ANALYSIS SUMMARY

Communication	Dense networks of communication, within teams, with local health facilities (OM and staff), to some extent NPOs and sub-district and even district players
Checks Work	CHWs: for the most part TL, residual roles of NPO TL: sometimes OM, sometimes LAM, sometimes both; sometimes no-one OM: LAM, SDM or no-one
Feedback	TL have a central role but also draw on other players
Sensitive	Inter-personal trust amongst CHWs but not beyond
Challenges	Mostly TL but also each other Little involvement of facility

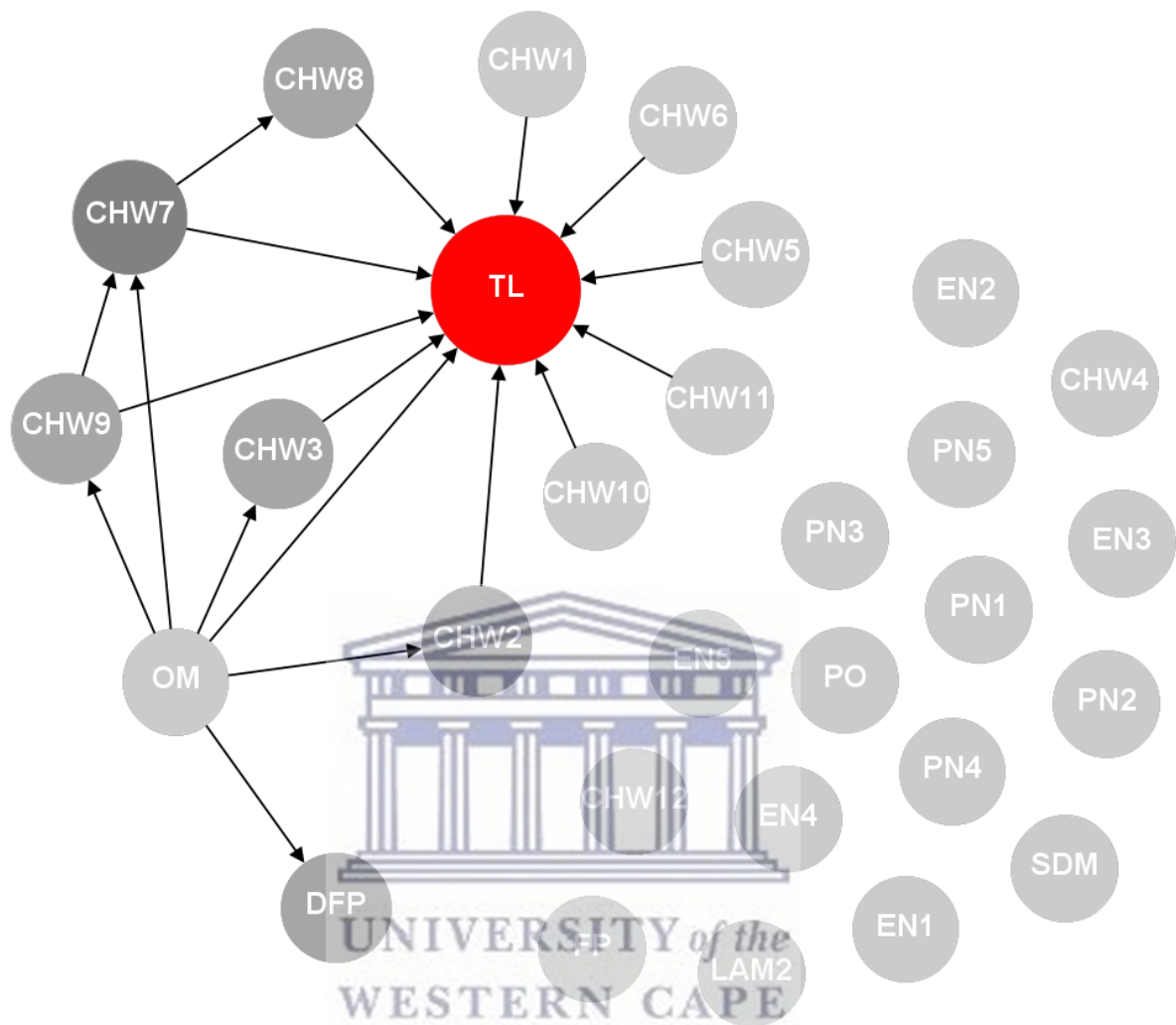
CHALLENGES



SENSITIVE

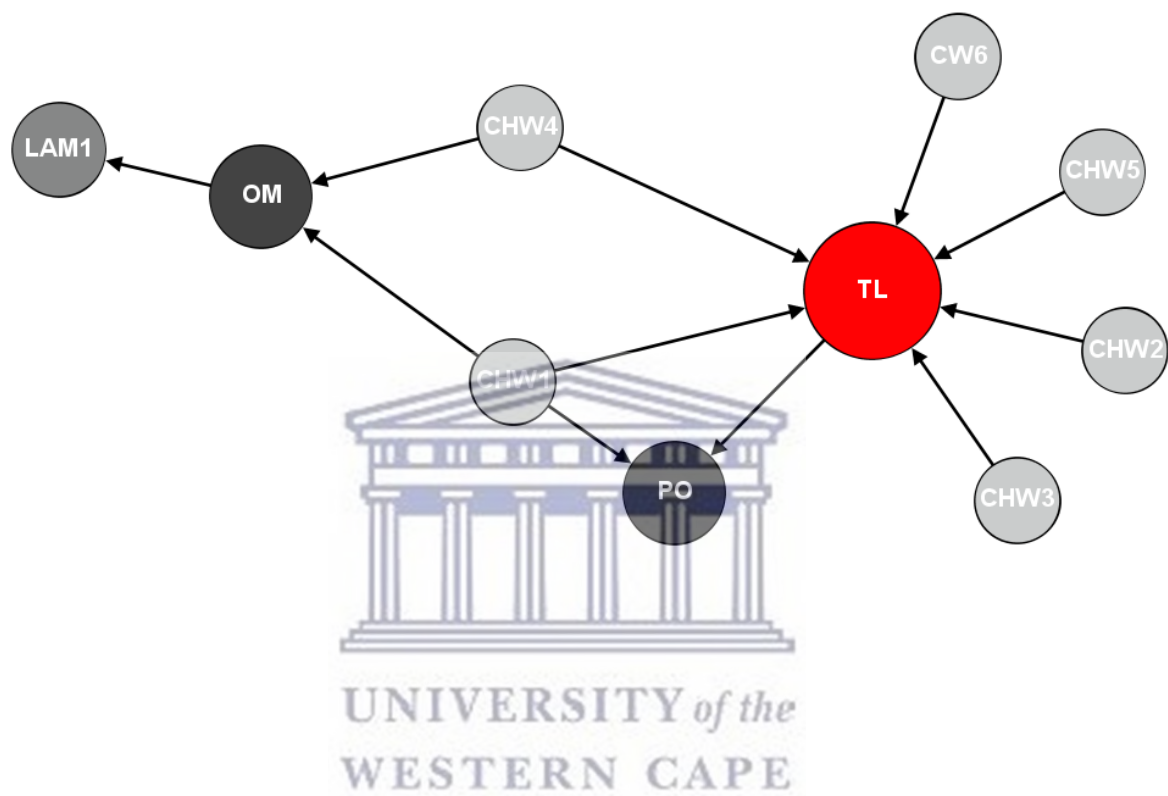


FEEDBACK



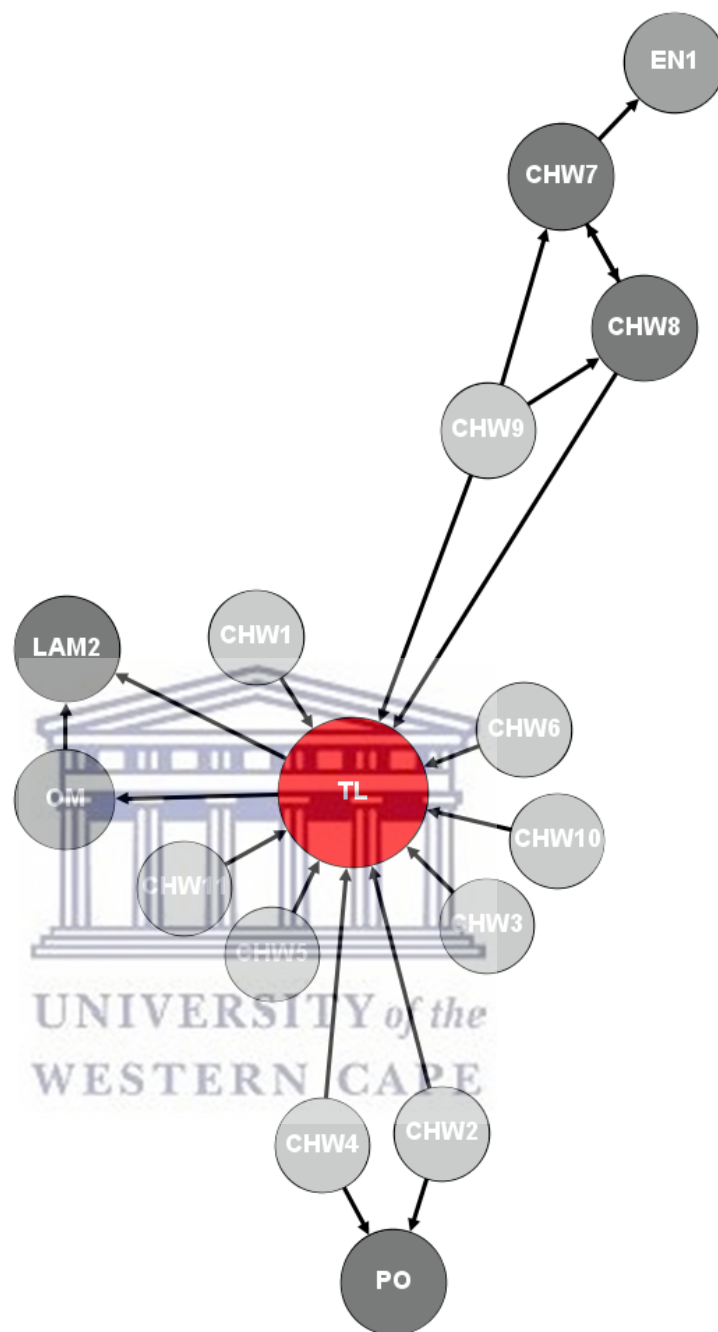
CHECKS WORK

TL

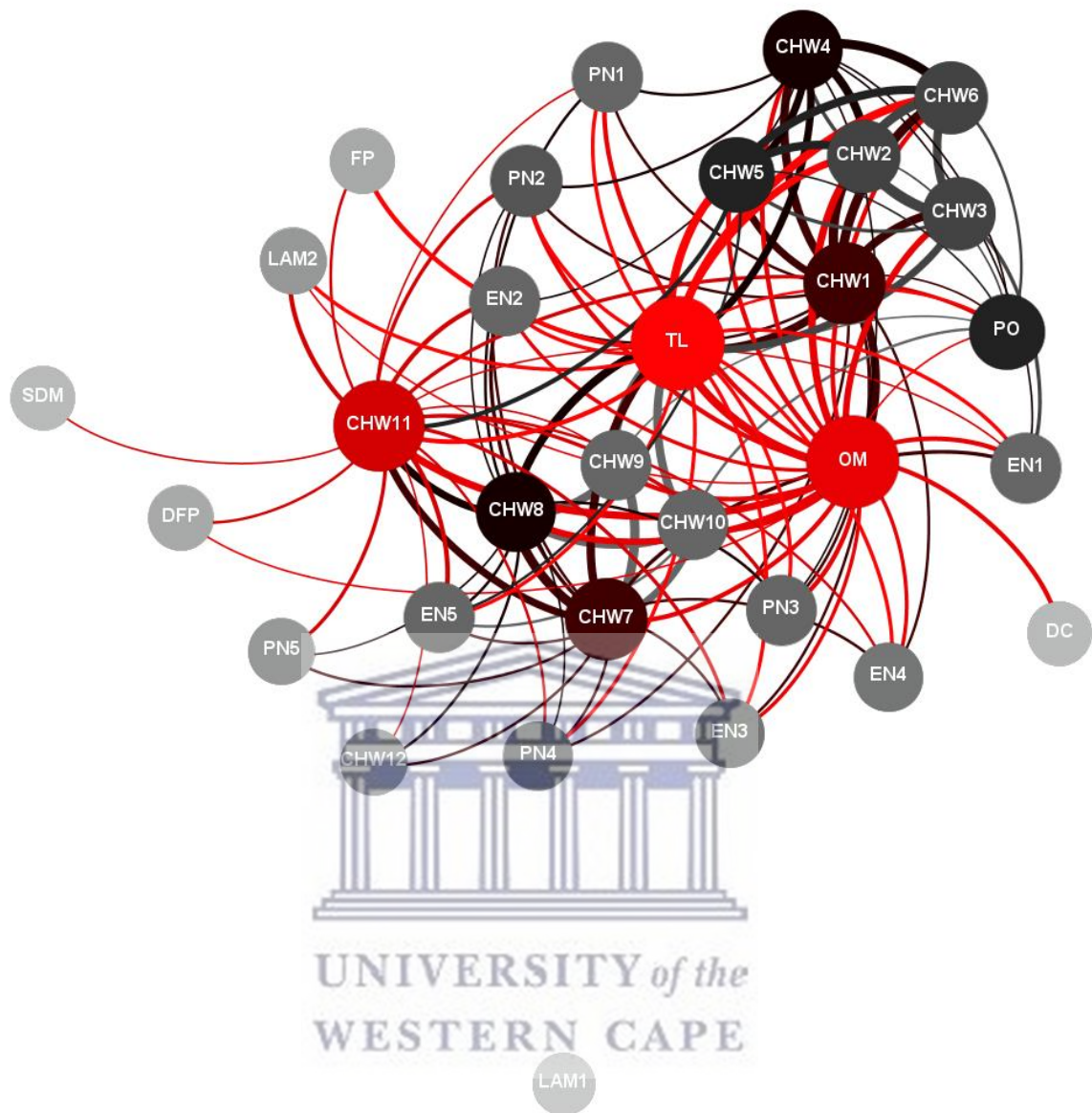


CHECKS WORK

CHW



COMMUNICATON



ABBREVIATIONS

CHW – Community Health Worker

TL – Team Leader

OM – Operational Manager

PN – Professional Nurse

ENA – Enrolled Nurse

CC – Councillor

DC – Data Capturer

PO – NGO project officer / Coordinator

LAM – Local Area Manager/Nurse Assistant Manager

CL – Cleaner

AC – Admin Clerk

SDM – Sub-district Manager

CHWT – Community Health Workers in another team

DFP – District Focal Person

FP – Focal Person



Phase 2 Interview Guide

As seen from the feedback form the first Phase, there are challenges in the current supervision system. In your view, why is SS the way it is?

Issues to cover:

What are the mechanisms/systematic issues that influence SS?

What are the contextual factors that influence SS?

Probing Questions:

Please share some of the experience from what you have describe

Challenges in working with TL

Challenges in working with facility manager, staff

Any demotivating factors?

Some of the good experiences working with TL

Some of the good experiences working with facility manager, staff

Motivating factors

Working environments involve people with relationships. Tell me about the relationships you have with each other; team leader, OM and facility staff

Issues to cover:

Do you believe health workers think you are competent in your work?

Do you believe health workers have your interests at heart?

Do these things affect how SS is conducted?

Does supervision affect how you treat each other?

Probing Questions:

Decision making

Communication

Confidentiality

APPENDIX 7: REVIEW COMMENTS

Paper 1

Submission to BMJ Global Health: Submitted on 12 November 2018 accepted on 11 March 2019. Peer Review comments below:

Date: 15 Jan 2019

To: "Tumelo Assegaai" mampetumelo@yahoo.com

From: "Human Resources for Health Editorial Office" shaira.gavini@springernature.com

Subject: Your submission to Human Resources for Health - HRHE-D-18-00190

HRHE-D-18-00190

National guidance and district level practices in the supervision of community health workers in South Africa: a qualitative study

Tumelo Assegaai, MPH; Helen Schneider, MBChB, MMed, PhD

Human Resources for Health

Dear Mrs Assegaai,

Your manuscript "National guidance and district level practices in the supervision of community health workers in South Africa: a qualitative study" (HRHE-D-18-00190) has been assessed by our reviewers. Based on these reports, and my own assessment as Editor, I am pleased to inform you that it is potentially acceptable for publication in Human Resources for Health, once you have carried out some essential revisions suggested by our reviewers.

Their reports, together with any other comments, are below. Please also take a moment to check our website at <https://hrhe.editorialmanager.com/> for any additional comments that were saved as attachments.

Once you have made the necessary corrections, please submit a revised manuscript online at:

Your username is: *****

If you forgot your password, you can click the 'Send Login Details' link on the EM Login page at <https://hrhe.editorialmanager.com/>.

Please include a point-by-point response within the 'Response to Reviewers' box in the submission system and highlight (with 'tracked changes'/coloured/underlines/highlighted text) all changes made when revising the manuscript. Please ensure you describe additional experiments that were carried out and include a detailed rebuttal of any criticisms or requested revisions that you disagreed with. Please also ensure that your revised manuscript conforms to the journal style, which can be found in the Submission Guidelines on the journal homepage.

The due date for submitting the revised version of your article is 14 Feb 2019.

Please note, if your manuscript is accepted you will not be able to make any changes to the authors, or order of authors, of your manuscript once the editor has accepted your manuscript for publication. If you wish to make any changes to authorship before you resubmit your revisions, please reply to this email and ask for a 'Request for change in authorship' form which should be completed by all authors (including those to be removed) and returned to this email address. Please ensure that any changes in authorship fulfil the criteria for authorship as outlined in BioMed Central's editorial policies (<http://www.biomedcentral.com/about/editorialpolicies#authorship>).

Once you have completed and returned the form, your request will be considered and you will be advised whether the requested changes will be allowed.

By resubmitting your manuscript you confirm that all author details on the revised version are correct, that all authors have agreed to authorship and order of authorship for this manuscript and that all authors have the appropriate permissions and rights to the reported data.

Please be aware that we may investigate, or ask your institute to investigate, any unauthorised attempts to change authorship or discrepancies in authorship between the submitted and revised versions of your manuscript.

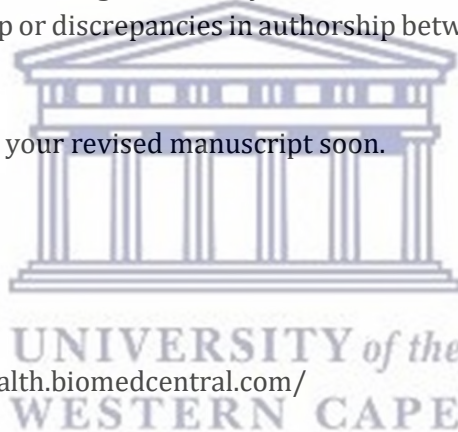
We look forward to receiving your revised manuscript soon.

Best wishes,

Mohsin Sidat

Human Resources for Health

<https://human-resources-health.biomedcentral.com/>



Reviewer reports:

Reviewer #1: Comments: HRHE-D-18-00190

A detailed study to identify gaps between policy and guidance materials and working and relationship conditions at working level in the CHW context. Methods applied could be replicated in similar contexts to identify gaps in other systems and enhance performance.

Some small typing errors need to be remedied prior to publication:

Page 2, line 56: replace "definition" with "definitions"

Page 3, line 48: add "level" after "national"

Page 11, line 22: after "(40)" add a full stop.

Page 12, line 34: replace "dedicate" with "dedicated"

In addition, please check and correct the punctuation throughout the reference section, for example, reference 35 "... Health.; 2010." Semicolon after the full stop?

Reviewer #2: This is an interesting article, focusing on the importance of the role of supportive supervision in the health system, and the translation of policies and guidelines into practice, in

particular at the provincial and district levels. It also highlights the importance of community health workers in the primary health care. Overall, the article is well written, clear and concise. Minor comments follow regarding specific sections of the article.

Background

The objective written in the last paragraph of the Background should state that the study included two districts from one province in South Africa, as stated in the abstract.

It is not clear in the Background (nor in the methods section) if the policies and guidelines reviewed are national documents or if these are developed/adapted at the province or district levels.

Methods

In the abstract is mentioned that the North West Province was selected because this was an early adopter of the WBOT strategy. This should also be mentioned in the methods section. It could also be interesting to include the dates when the WBOT strategy implementation started at the different provinces and, specifically, within the selected districts.

It is not clear to me if the document analysis was based on a predefined extraction grid (based on a framework, for example; although it is mentioned some literature in the background section - ref. 27 and 29 it is not clear that this is followed in the analysis) or if the themes and sub-themes emerged from the analysis. Clarifying this would support the reader in understanding the findings.

Also, it is unclear if the document review (data extraction and analysis) was conducted by more than one researcher, as a measure to limit bias and increase accuracy. If so, I suggest adding this information in the methods section.

Discussion

Some questions that could be interesting to explore in the discussion: Do the authors expect this to be the case of other provinces, i.e., the same findings across South Africa? If policies and guidelines are developed or adjusted at the provincial and district level, could major differences be expected in the supervision process?

References

The citations and reference list require review for consistency and accuracy.

Paper 2

Submission to BMJ Global Health: Submitted on 12 July 2019, accepted on 19 November 2019. Peer Review comments below:

From: info.bmjgh@bmj.com

To: mampetumelo@yahoo.com

CC:

Subject: BMJ Global Health - Decision on Manuscript ID bmjgh-2019-001839

Body: 25-Aug-2019

Dear Mrs. Assegaai,

Manuscript ID bmjgh-2019-001839 - "The supervisory relationships of community health workers in primary health care: social network analysis of ward based outreach teams in a South African District"

Thank you for submitting this manuscript to BMJ Global Health. We are unable to accept it for publication in its present form. However, we shall be happy to reconsider it after revision, providing you have responded to the referees' comments which can be found at the end of this email.

The Editorial Office have also checked your manuscript for any minor formatting issues and these will be listed at the end of this email.

To start your revision click on the link below:

*** PLEASE NOTE: This is a two-step process. After clicking on the link, you will be directed to a webpage to confirm. ***

https://mc.manuscriptcentral.com/bmjgh?URL_MASK=a1905b66f46b4effb7c62947079f84f0

You can also start/continue your revision by logging in to your Author Centre, where you will find your manuscript in the "Manuscripts with decisions" queue.

Formatting instructions for revised manuscripts:

(1) You are requested to provide a word count on the title page of the revised manuscript. Please remain within the word count limit for your submission type. If you need to exceed this substantially, please explain why this is necessary in your covering letter. Please refer to the instructions for authors for word count limits: <http://bmjgh.bmj.com/site/about/guidelines.xhtml>

(2) We require a specific reply to each of the referee comments. You should make it clear whether or not you have accepted their suggestions and whether or not the appropriate changes have been made in the text. Otherwise, please state your reasons for rebutting the reviewer comments if their recommendations have not been followed.

Reviewer comment(s) are at the end of this email.

(3) Text that has been altered should be UNDERLINED to help speed up assessment of the revised version. Please upload this as a "Revised marked copy" in addition to your clean copy as the Main Document.

(4) All abbreviations with their definitions should be listed on the title page, and all abbreviations should be spelt out in full at their first mention in the text.

(5) Please ensure that your manuscript includes a title page containing the following details:

- (i) title of the paper
- (ii) the names of the authors
- (iii) authors' affiliations (one department and institution each)
- (iv) the name and postal address (+tel, fax and e-mail numbers) of the corresponding author

(v) keywords

Please check that all author names are correctly entered as this will be the name displayed in any PubMed search.

6) We ask that all authors declare all relevant competing interests in the Competing Interests field on the submission form; you must also include this statement at the end of the manuscript file. Please also include a statement if you wish to declare no competing interests.

Your manuscript may be returned to you if a competing interest statement is not included in your manuscript file. For further information on what should be declared please view the BMJ declaration and corresponding editorial (BMJ 1998;317:291-2) for guidance.

You will receive a proof if your article is accepted, but you will be unable to make substantial changes to your manuscript; please take this opportunity to check the revised submission carefully.

Your revised manuscript should be submitted by 23-Sep-2019. If it will not be possible for you to submit your revision by this date, please contact the Editorial Office to request an extension.

If you experience any difficulties please contact the Editorial office: info.bmjgh@bmj.com

Yours sincerely,

Dr. Stephanie Topp
Associate Editor, BMJ Global Health

Dr. Seye Abimbola
Editor in Chief, BMJ Global Health



FORMATTING AMENDMENTS

Required amendments will be listed here (if any); please include these changes in your revised version:

1. Title page

Kindly add a title page in your main document.

The title page must contain the following information:

- Title of the article.
- Full name, postal address, e-mail, telephone and fax numbers of the corresponding author.
- Full names, departments, institutions, city and country of all co-authors.
- Up to five keywords or phrases suitable for use in an index (it is recommended to use MeSH terms).
- Kindly cite a Word count in title page excluding the no. of words in title page, abstract, references, figures and tables.

Please take note that this should match the details provided on your submission screen and title page.

2. Figures

Figures shouldn't be embedded in the text file, but uploaded as separate Image files.

Please convert and submit your figure into TIFF, JPEG or PDF file format.

Choose the correct file designation whether as mono image or colour image.
Please ensure that figures are a minimum of 300 dpi and a maximum of 600 dpi.

Comments to Author:

Editorial comments:

1. Please change your title to: "The supervisory relationships of community health workers in primary health care: social network analysis of ward based outreach teams in Ngaka Modiri Molema, South Africa"

Reviewer: 1

Comments to the Author

It was a pleasure reading this paper which is well written and interesting for readers who work in CHW programmes in South Africa and beyond. To my knowledge, SNA has not been applied in the field of CHW or supportive supervision: the authors describe the method well and it is clear what results SNA can generate. I think the visualisations are of good quality and the results section is well structured. I have few editing comments but a few substantial comments that would need to be addressed, in particular in the discussion section.

1. Aim of the study (mentioned in both the abstract and the introduction, page 4, lines 7-11). You use 'role players' as a key term, but I would suggest to use 'actors' throughout the paper as that is also the term used in SNA. In the last part of the aim, you state 'patterns and quality... that affect the supportive supervision'. I am not sure you are studying how the relationships affect the supportive supervision, you are rather assessing 'the patterns and quality of relationships of/within/constituting the supportive supervision system'. Suggest to reformulate the aim in this sense.

2. Abstract - methods. Your conceptual framework has 4 dimensions, including trust. Suggest to include that in the methods section (page 1, lines 29-30). It now suddenly appears in the results section.

3. Abstract - results. I did not read in the results that the nurse cadres ensure 'cohesion'. I suggest to elaborate on cohesion among WBOT members or to leave out the term.

4. Abstract – conclusion. The conclusion is a bit general. You could add to the last sentence the type of relationship you suggest should be strengthened in the context of the South African health system, e.g. TL-CHW or TL-PHC staff.

5. Key questions (page 2). The statement from line 29 to 31 is one of your most important conclusions. I would like to see it more elaborated, at least in the discussion. What do you mean with 'mobilised'? Trained, mandated, paid? Also, what comes out strongly in your paper is that the team leaders are important actors for the CHW; if they already do a great job (even though they need more resources, focused mandate etc.), why invest in a range of other actors to conduct supportive supervision?

6. Introduction: page 3, line 46. Here you introduce for the first time the central concept of 'trust' while it is already mentioned in the figure 1 that is introduced earlier (line 24). I suggest to introduce the concept of trust earlier, when you introduce the other concepts; make 'trust' the fourth concept.

7. Introduction. For someone who is not familiar with the SA CHW system, it would be important to explain in one sentence (for example around line 12, page 4) the characteristics of CHW – what type of training do they have, how are they selected and how are they paid, all employed by government?

8. Methods. Page 5, lines 16-19. This short paragraph with subtitle is not needed in my view as it is better explained why the public was not involved at a later stage in the paper.
9. Study setting. Why was North West Province selected (page 4, line 5) and within that the NMM district? Can you also reflect on the implication for the generalisability of the findings in the discussion section?
10. Study setting. Suggest to provide a clarification: according to policy, is each PHC facility supposed to have a WBOT?
11. Study setting. Page 6, line 56. The seven team leaders that were hired for the position, were hired by whom?
12. Page 7, line 11. What is meant with “longest period”?
13. At the end of page 7 and the beginning of page 8 you explain how you operationalized the main concepts of your framework. Were the identification and formulation of indicators done by you and tested before you conducted the interviews, or were they part of an existing research tool? Maybe you could also reflect on the choice of terms used in the discussion and how they may have affected your results (concept validity)?
14. Page 8, line 23. How often was the space “other” used and what did respondents fill there?
15. Page 8, line 29. Could you explain why the researcher was present? Was that needed? What could have been a potential risk or bias for data collection (ie. reflect on that in the discussion section- limitation if it is a limitation)
16. Page 8, line 38. Could participants only tick one person or multiple persons?
17. Results. Page 10, line 17-24. Why were those questions included in the questionnaire? Or why are the perceptions important for the results? Or how does ‘feeling respected’ relate to the results of the SNA? This is not clear to me.
18. Results are organized per supportive supervision dimension. For each of the dimensions, do you have some examples of what it means in practice: what is the content of the ‘feedback’ between actors (page 13), what they mean with ‘support to resolve challenges’, what type of challenges (page 14), what are typical sensitive issues (page 15). If you do not have not collected this information, please reflect on it in the discussion section (see also comment below).
19. Does figure 3 present data of all facilities? If so, indicate this in the figure title.
20. Page 13. Lines 51-55. I do not understand the sentence, there is too much information in it. Please clarify by breaking into two.
21. Page 16, line 36: ‘sources of support to WBOT members’ – is this correct? From the previous paragraph I understand that teamleaders are sources of support, except for personal matters.
22. Page 16, line 38-43 and discussion. You conclude that there is a limited role for PHC facility managers, other professional nurses and middle managers in the sub-district in supportive supervision. How does this finding relate to official policy? Do PHC managers need to supervise directly CHWs, according to policy? If they don’t have the formal mandate, it is hard to judge the relations as poor or problematic (see also page 17, lines 25-30).
23. Discussion. Page 17. Line 3-5. Could you specify: what do you mean with “many of the players” and with “mobilized” and with “supportive role”. Do you mean actually conducting supportive supervision (theme of your analysis) or support in other ways? Also, what do you mean with ‘poor relationships’, it is a judgment that I do not necessarily find supported by the results chapter.
24. Page 17, line 35. Could you specify what you mean with “largely informal set of processes”?
25. Page 17, line 39. Again a “quick conclusion” that there is “little apparent confidence. I did not find support for this in the results section.

26. Page 18, line 31. What is meant with 'dysfunctional relationships', please discuss this in the context of supportive supervision. Or if it is about dysfunctional relationships in other areas, discuss how it is relevant for supervision.

27. Page 18, line 46-47. I find this conclusion a bit too general. All roles and responsibilities of all actors for all dimensions? Could you give a more concrete example? Or maybe the recommendation is rather to make WBOT programmes more holistic (taking into account 4 dimensions)?

28. Discussion: I miss a reflection on strengths and limitations of the study. E.g on potential bias (see comments above) or on the fact that a limited number of team leaders were interviewed. Please also refer to STROBE guidelines: "discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias. Discuss the generalisability (external validity) of the study results".

29. As part of the limitations section you could address the fact that a qualitative research component was missing. I think such component (for example a FGD with interviewed CHW) would have given more insights into, for example, why there is no interaction between certain actors, what is the content of the 'feedback' between actors (page 13), what they mean with 'support to resolve challenges', what type of challenges (page 14), what are typical sensitive issues (page 15). Such methods would have enriched the results but may be done in future research as well.

Reviewer: 2

Comments to the Author

Title: The supervisory relationships of community health workers in primary health care: social network analysis of ward based outreach teams in a South African District

Comments:

* Overall this was a clear and well written paper that builds on existing work relating to South Africa's Ward Base Outreach Teams (WBOTs).

* This article presents compelling evidence from SNL analysis of the critical role played by WBOT team leaders as the main source of supportive supervision in this setting - highlighting the heavy dependence of team members on this individual, and the risks inherent in over reliance on team leaders to a) manage more than one team b) while concurrently leading/coordinating other activities and tasks.

* The evidence was presented in a clear and compelling manner - and I have only two suggestions to improve the transparency and thus rigour.

First - it would be helpful for the authors to provide, as a Supplemental/online file, *all* of the Management, Development, Support (challenges), and Support (personal) network diagrams for all facilities - to allow the reader to observe the patterns in each of these domains across all the facilities should they wish. This would help alleviate concerns that perhaps the network observed in the Facility represented is substantively different from others.

Second - I would recommend the authors consider softening the suggestion that frequent interaction or low degrees of interaction are synonymous with higher degree of trust. Trust not monolithic - and so, for example I may trust a colleague in relation to their professional work and that trust may enable interactions and communication on work matters, but may not choose to share or seek personal advice. Based on the data present, I question whether this particular analysis, or the networks diagrams for *Support (personal matters)* provide an adequate basis to interpret the (likely complex) nature of trust in these settings. If the authors feel that these

associations are strongly supported, more backgrounding of the concept and it's relationship to the supportive supervision framework is probably necessary.

A minor note that some formatting of the citations on pg 2 (first para of the introduction) need correction.

Reviewer: 3

Comments to the Author

Thank you for the opportunity to review this paper. Supportive supervision of CHWs is an important study topic, and this paper provides insights into supervision relationships in a specific context in South Africa. The authors nicely present supportive supervision as a set of relationships embedded in the wider context of social and professional relationships and hierarchies within the health system. While this is also the conclusion and the presented data are valuable, the presented data are quite limited if compared with the wide definition of supportive supervision. It would be good to significantly strengthen the paper by reflecting more on this, including the limitations of the chosen methods and more context specific conclusions or gaps that would need further research. My specific comments are as follows:

- To me, the methodology seems quite limited to research supportive supervision. Only 5 questions were asked quantitatively (combined with attaching it to persons in the WBOTs). There was one general communication question on WBOT work. It is not surprising that less relationships were shown there from people at higher level, because these people are, according to how the system is organized, not 100% of their time working on WBOT. The other 4 questions are said to cover the 3 elements of supportive supervision: support, management and development. It is unclear why these particular questions were asked to cover these elements, and why not more of them (adding some other questions that could also say something about management, for example). The question on personal matters is said to represent interpersonal trust relationships, but it is unclear why. Interpersonal trust relationships can also be measured through other questions that are related to work (e.g. issues around trust when dealing with sensitive matters within the work, not only personal matters). The choice of questions and the limitations need to be articulated better, and the conclusions that are drawn in the paper should reflect the limitations.

- Related to the above, recognizing that supervision is complex, why did the study not include a qualitative component? Or, if it included a qualitative component, why are qualitative data not presented in this paper?

- It should be clear from the text whether issues were similar or different between facilities. For example Figure 2, was this diagram similar in all study sites?

- Page 12 line 34 says that facility staff did not play much of an oversight role in the WBOT programme. This is stressed again in the discussion. Is this not an expected finding? According to the description about the system earlier, the team leaders are the most important actors for oversight.

- The summary at the end of the results section is clear, but the situation seems to represent roughly how the system is designed on paper. If my interpretation is not correct, then this (findings do not correspond with how system is) should be further elaborated on in the discussion. If it is correct, then more reflection is needed on whether changes are needed to be able to improve supportive supervision, although you might need more (qualitative) research to conclude that.

- In the first paragraph of the discussion it is stated that there are poor relationships between CHWs and PHC facility staff. Based on what is this conclusion drawn? Does this staff have an

official role in CHW supervision at all and if yes, could you still draw the conclusion on the answers of the limited questions asked? Later on it is said that they have problematic relationships, because 'Other staff in the PHC facility and middle managers at Sub-District and District levels generally did not apparently have much of a role in supporting and overseeing the work of the WBOTs'. On page 18, line 31 the authors speak about 'dysfunctional relationships'. I feel that conclusion is drawn too fast, without explanation. These people are further away from the CHWs, the team leaders are the direct supervisors for support as well as oversight. Based on the answers on those 2 questions about oversight and support, I would not dare to say the relationships were problematic or dysfunctional. You do refer here to a recent qualitative study which is helpful, but then some more explanations is needed of how the findings of that study (ref 20) relate to what is presented here. (Even better, is conducted in same study site, the qualitative data could have been presented in this paper).

- Page 17, line 52 till page 18 line 7: this paragraph provides a general reflection, but does not relate the content to the study findings.

- The conclusion of the manuscript simply repeats the starting point of the argument in the paper. It could make the reader think: What's new?

Date Sent: 25-Aug-2019

From: info.bmjgh@bmj.com

To: mampetumelo@yahoo.com

CC:

Subject: BMJ Global Health - Decision on Manuscript ID bmjgh-2019-001839.R1

Body: 25-Oct-2019

Dear Mrs. Assegaai,

Manuscript ID bmjgh-2019-001839.R1 - "The supervisory relationships of community health workers in primary health care: social network analysis of ward based outreach teams in Ngaka Modiri Molema District, South Africa"

Thank you for submitting this manuscript to BMJ Global Health. But we are still unable to accept it for publication in its present form. However, we shall be happy to reconsider it after revision, providing you have responded to the referees' comments which can be found at the end of this email.

To start your revision click on the link below:

*** PLEASE NOTE: This is a two-step process. After clicking on the link, you will be directed to a webpage to confirm. ***

https://mc.manuscriptcentral.com/bmjgh?URL_MASK=309a279db7044a6bb52eb9cd566ccbe3

You can also start/continue your revision by logging in to your Author Centre, where you will find your manuscript in the "Manuscripts with decisions' queue.

Formatting instructions for revised manuscripts:

(1) You are requested to provide a word count on the title page of the revised manuscript. Please remain within the word count limit for your submission type. If you need to exceed this substantially, please explain why this is necessary in your covering letter. Please refer to the instructions for authors for word count limits: <http://bmjgh.bmj.com/site/about/guidelines.xhtml>

(2) We require a specific reply to each of the referee comments. You should make it clear whether or not you have accepted their suggestions and whether or not the appropriate changes have been made in the text. Otherwise, please state your reasons for rebutting the reviewer comments if their recommendations have not been followed.

Reviewer comment(s) are at the end of this email.

(3) Text that has been altered should be UNDERLINED to help speed up assessment of the revised version. Please upload this as a "Revised marked copy" in addition to your clean copy as the Main Document.

(4) All abbreviations with their definitions should be listed on the title page, and all abbreviations should be spelt out in full at their first mention in the text.

(5) Please ensure that your manuscript includes a title page containing the following details:

- (i) title of the paper
- (ii) the names of the authors
- (iii) authors' affiliations (one department and institution each)
- (iv) the name and postal address (+tel, fax and e-mail numbers) of the corresponding author
- (v) keywords

Please check that all author names are correctly entered as this will be the name displayed in any PubMed search.

6) We ask that all authors declare all relevant competing interests in the Competing Interests field on the submission form, you must also include this statement at the end of the manuscript file. Please also include a statement if you wish to declare no competing interests.

Your manuscript may be returned to you if a competing interest statement is not included in your manuscript file. For further information on what should be declared please view the BMJ declaration and corresponding editorial (BMJ 1998;317:291-2) for guidance.

You will receive a proof if your article is accepted, but you will be unable to make substantial changes to your manuscript, please take this opportunity to check the revised submission carefully.

Your revised manuscript should be submitted by 23-Nov-2019. If it will not be possible for you to submit your revision by this date, please contact the Editorial Office to request an extension.

If you experience any difficulties please contact the Editorial office: info.bmjgh@bmj.com

Yours sincerely,

Dr. Stephanie Topp
Associate Editor, BMJ Global Health

Dr. Seye Abimbola
Editor in Chief, BMJ Global Health

Comments to Author:

Editorial comments:

1. We note that both reviewers have identified concerns in relation to the methods used, and interpretation of data collected to discuss workplace and interpersonal trust. We agree with the reviewers that in this case, the questions used to assess the presence or absence of trust, absent formative qualitative work to characterise the nature of trust and its different dimensions in the PHC facilities being studied, is problematic. In other words, more work is needed to better convince the reader that the questions adopted are a robust proxy for the two types of trust being examined.

2. Alongside your response to the Reviewers' more specific suggestions, we recommend the authors acknowledge more comprehensively throughout the manuscript these issues (ie not just in the limitations) and include some discussion of the trade-offs of SNA (with its reliance on limited, closed-ended questions) as a method to capture trust in relationships in the absence of formative qualitative work. We note that this does not preclude presenting or discussing the nature/quality of relationships based on the data collected; rather - and recognising too that it has many strengths - a more robust acknowledgement of the explanatory limits of this type of data.

Reviewer: 1

Comments to the Author

- With regard to point 17 of reviewer 1, I would like to note that the background context of the questionnaire cannot be found in Supplementary file 2.
- Thank you for nuancing the discussion and deleting references to 'poor relationships' 'little confidence' and 'dysfunctional relationships'.
- With regard to the limitation of not having conducted qualitative research: I appreciate the new text: 'The SNA validated and served to quantify previous qualitative observations on the limits of the supervisory system. A follow-up qualitative phase is being conducted, in which the findings of the SNA are presented to the participants in phase 1 and findings probed in more depth.' It is good to know that a follow-up qualitative phase is conducted, but the authors do say that qualitative observations took place prior to this SNA. It is important to explain what these qualitative observations entailed. In the data collection/ analysis part, earlier in the manuscript, the authors state 'As there were no pre-existing, validated tools to draw on, the indicators/questions posed for each element of the framework were generated by the first author, based on a first phase of qualitative research, her knowledge of the cultural context, and discussions with her supervisors and an expert in organisational SNA.' Here, the authors refer to qualitative research being conducted before the SNA. Did this include the qualitative observations or more than that? How was this done, and how did that inform the final selection of the 4 questions posed for the SNA? This is very important to know for the reader, especially because you indicate that no pre-existing validated tools were there.
- I appreciate the new text about trust, and the difficulty of operationalising it, in the discussion section. You state that in so far as trust is a relational concept, a SNA is an appropriate methodology to adopt. I would like to challenge that statement, because this SNA, without a qualitative component, can never capture all dimensions of trust.
- I still disagree that a question on personal matters is the best way to conclude something about interpersonal trust. The authors did not answer my question, they instead (often) just copy paste the adjusted text in the manuscript, this time in the Data collection and analysis part and in the

Discussion. As for the Data collection and analysis amendment, it reads: 'With respect to trust we sought to differentiate between notions of workplace trust ('resolves challenges') and interpersonal trust ('discussion of personal issues'). 23 Various iterations of questions were tried out and pilot tested in order to achieve face validity.' I feel that this text does not address my concern. Earlier in the manuscript, workplace trust is defined as 'relationships between an employee and their manager' and interpersonal trust as 'individual relationships'. With respect to the latter, I am still of the opinion that a question on personal matters is not the most appropriate to find out about interpersonal trust, it could have been better something related to CHWs' work, e.g. sensitive matters that CHWs encounter within their work, with clients or between colleagues. Why was interpersonal trust translated to one question about discussion of personal issues?

- The discussion has improved. Still, I think it is lacking a reference to the issue that upper managers are supposed to spend x% of their time (probably a small percentage) on WBOT. These actors have a lot of other (core) tasks. It would be good to acknowledge the double burden that many supervisors have, and recommend that their improved involvement in supervision towards WBOTs (which is indeed needed) should be seen in the light of their other tasks and responsibilities.

Reviewer: 2

Comments to the Author

* Thank you for the revisions made. You have addressed the majority of the comments made by myself and the other reviewers and, as a whole, the manuscript is tighter and reports more accurately.

* Thank you particularly for moderating the language around the confidence/quality of the relationships in the Discussion.

* My one major remaining area of concern relates, again, to the authors' explanation/justification and operationalisation of their exploration of trust. The authors state: "in so far as trust is a relational concept, a SNA is an appropriate methodology to adopt" - but to my mind this is not really sufficient. Trust is indeed relational - but that is not to say that SNA (and in this case a single question/item on which the relationships are mapped) is always sufficient or appropriate a methodology for capturing the presence/absence of trust. While in relation to the broader paper I can absolutely appreciate the value of SNA as an approach, its use in this instance to posit whether and what type of trust is present feels extremely thin. The reliance on single question items (respectively for workplace and interpersonal trust), un-backed (by the authors' own description) by formative qualitative work to ensure accurate characterisation of the nature of workplace and interpersonal trust in this environment, makes the conclusions drawn about trust highly speculative and even (unintentionally) potentially misleading. I would still recommend removal of the claims about trust from analysis, at least until the qualitative work mentioned as ongoing can better inform - through triangulation and comparisons - what responses to these questions do and do not capture.

Paper 3

Submission to International Journal of Health Policy and Management: Submitted on 6 July 2020, Accepted on 11 January 2021. Peer Review comments below:

International Journal of Health Policy and Management <journal@ijhpm.com>
To:mampetumelo@yahoo.com
Cc:anna-karin.hurtig@umu.se,
hschneider@uwc.ac.za

Wed, 11 Nov 2020 at 18:58

Date: Nov 11, 2020

Manuscript ID: IJHPM-2007-5121

Manuscript Title: Factors Associated With Workplace and Interpersonal Trust in the Supervisory System of a Community Health Worker Programme in a Rural South African District

Dear Ms. Assegaai,

I hope this email finds you well!

I am writing to inform you that the above manuscript has been assessed by our reviewers. They have recommended major revisions to your manuscript before it can be considered for publication at the IJHPM. The reviewers' comments are sent to you via the IJHPM portal and are attached to this mail as well. I invite you to respond to reviewers' comments and revise your manuscript. Please submit your revisions within 13 weeks (by February 10th, 2021).

Technical Editor Comments:

1. Please provide a response to reviewer (for each reviewer separately), in which you are required to respond to all comments one by one.
2. Please make your changes on attached file (Original Article-5121-IJHPM).
3. Please highlight the changes you are making to your manuscript with yellow colour or track and change service so that the reviewers can easily follow the changes.

Thank you for submitting your work to our special issue on the multiple lenses on the community health system: implications for research and action. I will look forward to your revisions. Please do not hesitate to contact me if you have any questions.

Best wishes,

Special Issue Editor

--

Anna-Karin Hurtig

Co-editor of the Forthcoming IJHPM Special Issue on the Multiple Lenses on the Community Health System: Implications for Research and Action
International Journal of Health Policy and Management (IJHPM)

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Paper 4

Submission to BMC Health Services Research: Submitted on 5 January 2021, Accepted on 26 March 2021. Peer Review comments below:

From: **BMC Health Services Research** <bmchealthservicesresearch@biomedcentral.com>

Date: Mon, 01 Mar 2021 at 15:55

Subject: BMC Health Services Research: Decision on your manuscript

To: <tmampe@uwc.ac.za>

Ref: Submission ID 14fa8c5b-4a87-4678-ad0b-470a44418a23

Dear Dr Assegai,

Re: "Developing a district level supportive supervision framework for community health workers through co-production in South Africa"

We are pleased to let you know that your manuscript has now passed through the review stage and is ready for revision. Many manuscripts require a round of revisions, so this is a normal but important stage of the editorial process.

Editorial Board Member comments

Editor's comments:

1. Language revisions

Please have the text edited by a professional language editing service or a native English-

speaking colleague. There are many issues with grammar, wording, spelling, and/or punctuation that need to be addressed. Please note that the use of a professional language service is not a guarantee of acceptance for publication.

2. COREQ checklist

In accordance with BMC's editorial policies

(<http://www.biomedcentral.com/submissions/editorial-policies#standards+of+reporting>),

could you please ensure your manuscript reporting adheres to COREQ guidelines

(<http://intqhc.oxfordjournals.org/content/19/6/349.long>) for reporting qualitative

studies. We note that a number of points of the COREQ checklist are not covered in your study reporting e.g. when data saturation was considered reached. Therefore, please carefully check your reporting against the checklist and revise accordingly. Please include a completed COREQ checklist as an additional file when submitting your revised manuscript.

3. World Bank

As per the world bank classifications, South Africa is classified as an upper middle-income country, please adjust your manuscript accordingly.

To ensure the Editor and Reviewers will be able to recommend that your revised manuscript is accepted, please pay careful attention to each of the comments that have been pasted underneath this email. This way we can avoid future rounds of clarifications and revisions, moving swiftly to a decision.

Once you have addressed each comment and completed each step listed below, please log in here with the same email you used to submit your manuscript to upload the revised submission and final file:

<https://submission.nature.com/submit-revision/14fa8c5b-4a87-4678-ad0b-470a44418a23>

CHECKLIST FOR SUBMITTING YOUR REVISION

1. Please upload a point-by-point response to the comments, including a description of any additional experiments that were carried out and a detailed rebuttal of any criticisms or requested revisions that you disagreed with. This must be uploaded as a 'Point-by-point response to reviewers' file.

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3. Check the format for revised manuscripts in our submission guidelines, making sure you pay particular attention to the figure resolution requirements:

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To support the continuity of the peer review process, we recommend returning your manuscript to us within 21 days. If you think you will need additional time, please let us know and we will aim to respond within 48 hours.

Kind regards,

Tillie Cryer
Editorial Board Member
BMC Health Services Research



Reviewer Comments:

Reviewer 1

This is well and clearly written article that highlights the importance of supervision for CHWs. It provides evidence of how a bottom-up approach in one district in South Africa was able to bring together front line CHWs and their supervisors and professional support colleagues to collectively discuss some of the challenges faced in the supervision of CHWs as well as some of the solutions to these.

Reviewer 2

I wish to congratulate the authors in producing a quality manuscript that explains in detail the process towards developing the framework. In my understanding this manuscript explains the process that was followed in developing the framework and the bigger picture is the framework. My only suggestion is that the title be slightly tweaked to reflect this such as Designing a framework for ???

I also noticed that NGO is used once in the manuscript but is abbreviated.

Kind Regards