

UNIVERSITY OF THE WESTERN CAPE
Faculty of Community and Health Sciences

**EMPOWERING COMMUNITY HEALTH WORKERS TO IMPROVE THEIR HEALTH
BEHAVIOURS USING A SELF-MANAGEMENT APPROACH**

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ABSTRACT

South Africa and the Western Cape Province are under severe strain with an increasing quadruple burden of disease, and a deficit in the number of professionally trained healthcare workers available to meet the health needs of the population. Risky health behaviours have contributed to the rising prevalence of non-communicable disease, which in turn has largely contributed to the burden of disease. Community health workers are key frontline workers, who have been specifically appointed as links between the professional health force and the communities, to act as change agents and advocate for improved health behaviours. Taking into consideration that more than 80% of the population is dependent on the public health system, and in particular, the primary healthcare sector, these laypersons have a mammoth task to fulfil.

An area that has been sorely lacking is the need for community health workers to understand and to be able to address their own health behaviours. This cadre requires skillsets that will empower them to become successful managers of their own holistic well-being; before they can effectively transfer this knowledge to the communities, they serve. Self-management, a problem-based, cost-effective strategy that is patient-centred in its approach, allows incremental success to be achieved, in the quest for an improved health status. It empowers participants to take ownership of their own health, while instilling the skills of decision-making, finding and utilising resources, being able to form partnerships with healthcare providers, taking action, and setting goals. These crucial skills are required by community health workers, who need to fulfil diverse roles. As they become effective self-managers, they could influence a larger following within the communities, which may subsequently positively reduce the burden of disease and contribute to reaching the Healthcare 2030 and 'Health for All' goals.

Therefore, the overall aim of this current study was to adapt, implement, and evaluate the effects of a self-management programme, for CHWs to improve their own health behaviours, and ultimately influence the communities they serve. A mixed methods, exploratory, sequential design was employed to characterise the research problem being evaluated, and was conducted, using a conceptual framework with four sequential phases within the study. The specific objectives of this study were firstly, to describe the health needs and perceived risk factors to

NCDs that CHWs face (quantitative survey design). Secondly, to explore and describe the challenges experienced by CHWS in performing their duties (qualitative design). Thirdly, to identify and describe self-management interventions used among health professionals (systematic review). Fourthly, to adapt, design and implement a self-management programme (intervention development), and fifthly, evaluate the impact of participation in a self-management programme, by exploring the perceptions of participants (longitudinal quasi-experimental pretest-posttest design employing quantitative and qualitative methods).

The findings from Phase 1 suggest that community health workers (CHWs) are in the ideal position to model healthy behaviours to the communities they serve, as the majority of this cohort had a low risk prevalence for developing non-communicable diseases. Those CHWs, who participated in high-risk health behaviours, did so at a much higher rate than elsewhere reported; therefore, this highlighted the need for ongoing health promotion and education, to address these concerns, and prevent the risk of developing non-communicable diseases. The qualitative study conducted in Phase 1 outlined the professional and personal challenges encountered by the community health workers, and indicated that these challenges directly affected their job tasks. This aspect of the study highlighted that it is crucial for the decision-makers, policy-makers, and healthcare leaders, to take cognisance of this fact, when planning training programmes. In addition, this phase highlighted that self-management interventions should be considered to enhance the overall well-being of community health workers.

The systematic review conducted in Phase 2, highlighted that self-management interventions and programmes, which target health behaviours, could have a positive impact on the overall health status of healthcare workers. The dearth of information available suggests that more attention should be directed at improving the holistic health of the health workforce. The findings further revealed that, in order to produce and promote effective self-managers among healthcare workers, interventions need to incorporate the holistic view of health in their designs.

While developing the adapted self-management intervention (Phase 3), applicable to the urban and rural community health workers of the Western Cape, South Africa, it was important to maintain all the core objectives and principles of a self-management approach, within its design. The modifications were culturally relevant, and the final intervention that was used to train the community health workers, included attention to the length of the programme,

feedback and support sessions, and the level at which engagement took place, as well as linguistic level and peer support. These factors guided development of a culturally relevant self-management intervention in Phase 4.

The impact of self-management assessed in the first part of Phase 4 indicated that this intervention produced significant overall health behaviour changes, both immediately post-intervention and long-term. The intervention was associated with significant long-term improvements and the maintenance of positive changes in the mood, self-efficacy, physical activity, and stress management of community health workers. The second part of Phase 4 conducted at 12 months post-intervention, highlighted that the skills obtained from the training strengthened this cadre's resilience, while their empowerment equipped them to be better prepared to cope during the COVID-19 pandemic. The findings of this phase clearly demonstrate the reasons that self-management should be considered as an intervention, to not only improve the health status of healthcare workers, but ultimately to have those improvements snowball into the enhancement of the communities' health, and the burden of disease reduced.

The self-management intervention, adapted from the Act Healthy programme, could assist in equipping and empowering additional community health workers, as well as the broader healthcare professionals, to become effective self-managers. The intervention was associated with improved coping and resilience building in the study population, which was successfully applied during the COVID-19 pandemic. This current study would aid future research, by providing a foundation for self-management training in South Africa, and similar low-income countries. Additionally, it could provide insights into the health behaviours of community health workers, as well as the challenges they experience, which could inform the actions of public health decision makers. It could also provide useful information to the Department of Health, regarding the best way to use community health workers in the primary care setting.

Finally, this current study highlighted that self-management is a viable strategy, as an integral part of training on the healthcare platform, as it produces both immediate and long-term significant results, and should be considered as an avenue to reduce the burden of disease, and reach the health goals.

KEYWORDS

Burden of disease

Community health workers

Empowerment

Health behaviours

Noncommunicable diseases

Self-management



LIST OF ABBREVIATIONS

CDSMP:	Chronic Disease Self-Management Program
CHWs:	Community health workers
CHWSM:	Self-management intervention programme for community health workers
COVID-19:	Coronavirus disease 2019
CVD:	Cardiovascular Diseases
HIV:	Human Immunodeficiency Virus
HIV/TB:	Human-Immunodeficiency Virus/Tuberculosis
HPLP 11:	The Health Promoting Lifestyle Profile 11
LMICs:	Low and middle-income countries
MDGS:	Millennium Development Goals
NCDs:	Non-communicable diseases
NGOs:	Non-governmental organisations
PEO:	Population of Interest, Exposure to phenomena, Outcome of Interest
PHQ 9:	Personal Health Questionnaire 9
PICO:	Population, Intervention, Comparison and Outcomes
SF-12:	Shortform 12 questionnaire
SPSS:	Statistical Package for Social Science
SRA:	The Self-Rated Abilities for Health practices
TB:	Tuberculosis
WHO:	World Health Organisation

YLL: Years of Life Lost

6SQuID: Six Essential Steps for Quality Intervention Development



DECLARATION

I, *Levona Jean Johnson*, do hereby declare that “**Empowering Community Health Workers to improve their health behaviours using a self-management approach**” is my own work. I also declare that the thesis has not been submitted for any degree or examination to any other university, and all sources I have used, or quoted, have been indicated and acknowledged by complete references.

Name: Levona Jean Johnson

Date: December 2021

Signature:

Levona Johnson

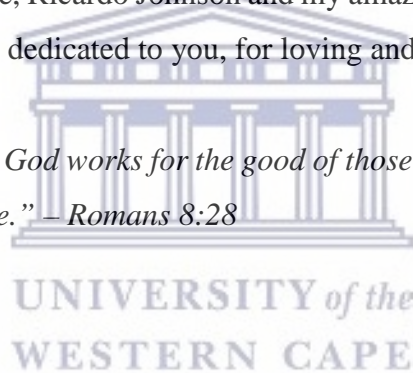


DEDICATION

To the community health workers, who dedicate their lives, so willingly, and with so much passion to the communities they serve! I will forever respect and appreciate the mammoth impact you make on the holistic well-being of our society. In particular, this is dedicated to all the community health workers in the Retreat, Steenberg, Lavender Hill, Genandental and Greyton areas, under the umbrella of the Compassion in Action, Living Hope, GLD, and Red Cross NGOs, who participated in this study. You truly are the unsung and silent health heroes, to whom, I trust, this study has brought song and sound. I hope that shining a light on you will be a step towards bringing about the rightful recognition & accompanying resources, you have earned.

To my honey, the love of my life, Ricardo Johnson and my amazing munchkins, Riko, Reagan, Nazeer and Letitia; this work is dedicated to you, for loving and supporting me.

“And we know that in all things God works for the good of those who love Him, who have been called according to His purpose.” – Romans 8:28



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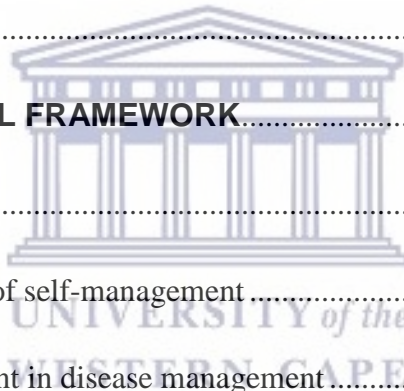
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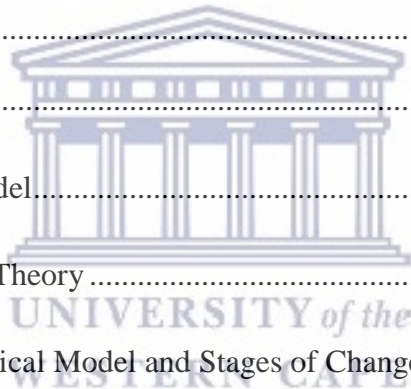
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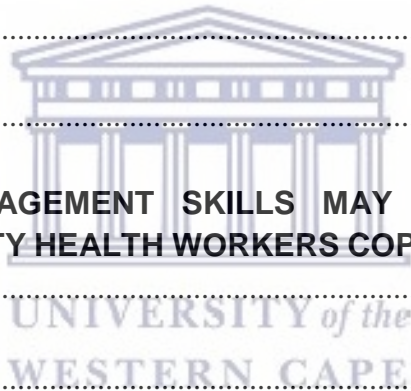
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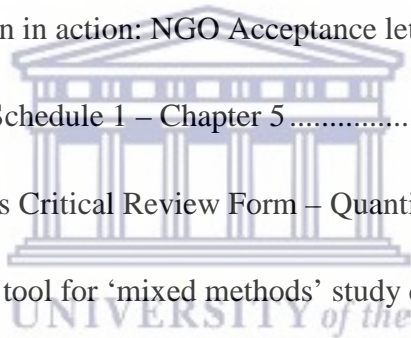
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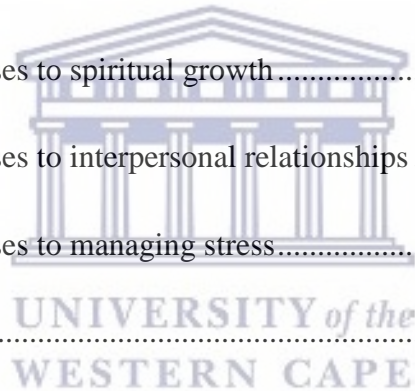


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CHAPTER ONE

BACKGROUND AND ORIENTATION

1.1. Introduction

In this introductory chapter, the context, as well as the rationale for this current study is presented. The overall aim of the study is stated, with the specific research questions, objectives, and methodology that were employed, outlined. In addition, the definitions of key terms, and the outline of the chapters are presented.

1.2. Background and literature review

1.2.1. Burden of disease in South Africa and the Western Cape

South Africa has a quadruple burden of disease, namely communicable, non-communicable, perinatal and maternal, as well as injury-related disorders. Additionally, an increase in non-communicable diseases, and injury-related disorders, are being observed in urban and rural populations. This is placing an already human resource-stricken health service, under more pressure to provide both acute and chronic healthcare services (Mayosi, Flisher, Lalloo, Sitas, Tollman, & Bradshaw, 2009; Mayosi, Lawn, Van Niekerk, Bradshaw, Abdool Karim, & Coovadia, 2012).

The first burden of disease study for South Africa, conducted in 2000, reported that HIV/AIDS was the leading cause for the mortality burden (Bradshaw et al., 2003). This was followed by homicide, TB, motor vehicle accidents, and diarrhoeal illnesses. HIV/AIDS was the cause of 38% of Years of Life Lost (YLL), of which 47% were female, and 33% male. NCDs accounted for 21%, injuries 16%, and poverty-induced diseases totalled 25% of the YLLs. More recently, it has been observed that, in sub-Saharan Africa, the burden of disease is being exacerbated by non-communicable diseases. Mental and behavioural disorders, musculoskeletal conditions, and diabetes, have presented new challenges, and compounded the burden of disease (Murray et al., 2012). Groenewald et al. (2007) observed that smoking was the cause of 8-9% of deaths in South Africa, while the increase in obesity and undernutrition of children and adolescent populations, have further increased the burden of disease (Rossouw, Grant, & Viljoen, 2012).

In South Africa, the burden of disease has continued to increase steadily (Pillay-van Wyk et al., 2016), and a recent report by Statistics South Africa (Stats SA, 2017) indicated that the leading causes of death in the country were TB, Diabetes Mellitus, and cerebrovascular diseases. NCDs have continued to climb, and was placed in the top 10 leading causes of natural deaths. The report further stated that diabetes mellitus had moved from third to second place in 2015. Alarming, NCDs were the cause of 62.5% of deaths in females, aged 65 years and older, and 48% of deaths in males aged 65 years and older. Basu (2018) confirms the increasing quadruple burden of disease in South Africa. This increasing burden of disease, coupled with a shortage of health professionals, places a strain on the health system.

According to another burden of disease study for the Western Cape, it was reported that the top six leading causes of death in the provinces are HIV/AIDS, ischaemic heart disease, stroke, lung cancer, chronic obstructive pulmonary disease, and diabetes (Pillay-van Wyk et al., 2016). Evidently, in the Western Cape, chronic diseases of lifestyle are a major concern, and therefore, a need exists for Community Health Worker (CHW) programmes that focus on managing Chronic Diseases of Lifestyle (CDL). The Burden of Disease Survey for the Western Cape, which was released on 25 April 2017, reported that NCDs contributed to 61% of deaths in the Western Cape (South African Medical Research Council [SAMRC], 2017). Of these, 23.4% were attributed to cardiovascular diseases, and 15.5%, to cancers. This upward trend of NCDs is a shocking, but not an unexpected revelation (Bradshaw et al., 2003), as it reveals a 21% increase, when compared to the South African Burden of Diseases Report, released in November 2016 (Pillay-van Wyk et al., 2016). Additionally, it is noteworthy that 79.5% of deaths in persons older than 45 years were attributed to NCDs (SAMRC, 2017).

In the current situation, the stark reality is that the Western Cape's quadruple disease is on the rise. While mortality rates for HIV/AIDS have decreased with the more efficient roll out of antiretroviral medication, the mortality rates associated with NCDs have escalated. The challenge of this increasing burden of disease, on an already overburdened health system, puts further strain on the human resource capability, and consequently, calls for interventions that could assist in managing this burden. Mayosi et al. (2009, 2012) suggest strategies to combat this continuous increase. They state that strategies should focus on strengthening the district-based primary healthcare system, to provide

cost-effective prevention of primary and secondary diseases, within the community and health system. The challenge to provide the additional health services that an increased burden of disease has placed on South Africa was identified as an urgent one, which demanded serious action (Kahn, 2006; Mayosi et al., 2009, 2012).

1.2.2. Community health workers

The first community health workers (CHWs), who were trained on a large scale, took place in China in the 1920s (Sidel, 1972). These were peasants, who were provided with three months' training, and referred to as the 'barefoot doctors'. These 'barefoot doctors' were tasked with servicing the areas, which trained physicians were unable to reach. Prior to that, in the 1800s, Russia trained literate lay people as paramedics, and called them 'feldshers'. The 'feldshers' were assigned to work in rural areas, where there were no physicians. Historically, therefore, both the 'barefoot doctors' and the 'feldshers' became the forerunners of community health worker programmes, as it is known today (Perry & Amieva, 2013; Sidel, 1972).

From the outset, the deployment of this cadre of lay people, as grassroots community healthcare workers, was clear; they were to act as change agents in the communities, and as spokespeople to urge community members to take responsibility for their own health issues (Perry & Amieva, 2013; Rifkin, 2009). Earlier, literature referred to community health workers (CHWs) as the communities' advocates for social change, and in many cases, as the primary healthcare providers (Werner, 1981). The CHW movement waxed and waned over the next few decades (Perry & Amieva, 2013).

During the 1960s, it was observed that, globally, the Western medical approach to healthcare was taking strain, as the professionally trained health workers were not adequately reaching and servicing the health needs of the poor and rural population groups (Perry & Amieva, 2013). It was at this stage that the 'barefoot doctors' model was closely considered, and later served as reference for the development of the CHW programmes (Perry & Amieva, 2013). Although this new approach to healthcare was strongly advocated by the World Health Organization (Litsios, 2004), it was, however, the Alma Ata Declaration (World Health Organization [WHO], 1978), with its 'Health for All' campaign that placed community health workers firmly on the health radar, and finally ensured global support for this group. Consequently, many CHW programmes

were established in the 1970s, to address the health needs of communities in low-to-moderate income countries (Perry & Amieva, 2013; Rifkin, 2016). In Zimbabwe and Tanzania, the CHWs focussed on eradicating poverty, diminishing inequalities, rural development, and improving self-reliance, amid the ongoing political uprising, during the 1970s (Heggenhougen & Magari, 1992; Sanders, 1992). In Indonesia, the CHWs concentrated their efforts on health education, family planning, child immunisations, nutrition, monitoring the growth of children, and treatment of especially diarrhoeal diseases (World Health Organization [WHO], 2007b).

In South Africa, interest in CHWs peaked, when the Millennium Development Goals [MDGs] were established in 2000 (Sachs, 2012). The MDGs set targets, which were aimed at urgently addressing poverty and hunger, gender inequality, child mortality, education, maternal health, disease, environmental decline and global partnership. The MDGs highlighted the stark realisation that the professionally trained workforce were unable to adequately, and with urgency, meet the targets that were set (Dwyer & Pacqué-Margolis, 2011; Perry & Amieva, 2013).

Currently, in the USA, the role of CHWs have been established firmly, and acknowledged as having an important role to play, in achieving 'health for all' (Rosenthal et al., 2010). Balcazar et al. (2011) confirms this upward trend in the use of CHWs in the United States healthcare system, and recommends that this cadre be included in health teams that provide service to the communities. Perry, Zulliger, and Rogers (2014) confirm that CHWs have started to receive credit for their positive contribution to certain areas of primary healthcare, for example, improving adherence to chronic medications, TB, HIV, and improving maternal and child care. In addition, they state that, in Brazil, this workforce is already integral to the primary healthcare programmes that are rolled out. In the United States, their role in contributing to a decrease in the burden of disease, by participating in the management of chronic conditions, such as hypertension, has been highlighted (Balcazar et al., 2011; Perry et al., 2014).

In South Africa, the driving force behind the growing numbers of non-governmental organisations (NGOs) that supervise the CHWs, stems from community members, with the strong desire to address the health issues of the *underserved* communities (Languza, Lushaba, Magingxa, Masuku, & Ngubo, 2011). This sentiment was shared globally

(Pérez & Martinez, 2008). During the Apartheid era, the Black communities, particularly, were underserved (Nxumalo, Goudge, & Manderson, 2016). The Public Health Act (Republic of South Africa [RSA], Act No. 63 of 1997) was aimed at rendering health services to the Black communities, but failed to deliver on this mandate. As a result, the healthcare in these communities continued to decline, until the communities organised their own community-based healthcare structures (Languza et al., 2011). In 1994, in post-apartheid South Africa, the need to strengthen the primary healthcare service that served the largest proportion of the communities was identified; however, South Africa sidelined the CHW workforce, and employed only qualified doctors and nurses (Languza et al., 2011; Van Ginneken, Lewin, & Berridge, 2010). This led to the collapse of many effective CHW programmes, while the primary healthcare service remained under-resourced (Languza et al., 2011). An emergence of CHW programmes was observed around 2004, as the CHW workforce was increasingly considered to bridge the human resource void in the health departments (Chopra, Munro, Lavis, Vist, & Bennett, 2008; Lewin et al., 2010). Consequently, in 2004, a CHW framework was developed (Van Ginneken et al., 2010, p. 1116), which aimed to “establish cohesion between the old and new CHW organisations”, while simultaneously addressing the shortage of healthcare workers. The focus was primarily disease-driven, with HIV/Aids and TB at the forefront of the education programmes and health promotion activities (Friedman, 2005; Murphy et al., 2021; Schneider, Okello, & Lehmann, 2016). In 2011 the ward-based Primary Health Care Outreach Team strategy was established in South Africa, to facilitate PHC re-engineering. Each team comprised generalist CHWs, supervised by a nursing leader, and linked to a local PHC facility. This strategy served to enhance the existing NGO programme and was accompanied by an accredited training curriculum for CHWs (Schneider, Sanders, Besada, Daviaud, & Rohde, 2018).

Currently, literature indicates that, in South Africa, the CHW programmes are still largely focussed on HIV/Aids and TB (Languza et al., 2011; Schneider, Hlophe, & Van Rensburg, 2008; Tsolekile, Puoane, Schneider, Levitt, & Steyn, 2014). Globally, findings reveal that CHW programmes have been utilized in the successful management of non-communicable diseases (Nandi & Schneider, 2012; Sanduraraman, 2007). For South Africa, particularly the Western Cape, some evidence exists; however, more research into this area is recommended (Kouznetsov, Beales, & World Health Organisation [WHO], 1996; Mwai, Mburu, Torpey, Frost, Ford, & Seeley, 2013; Tsolelike et al., 2014).

Studies in South Africa have confirmed that the professional health workers are acknowledging the CHW workforce, as credible auxiliary healthcare workers (Schneider et al., 2008), as well as for their contributions in immunisations, TB/HIV/Malaria compliance, maternal health, and hypertension (Ndou, Van Zyl, Hlahane, & Goudge, 2013; Schneider et al., 2008; Tsolekile et al., 2014). Initially it was observed that less success was achieved with CHW interventions for conditions such as Diabetes, in which there was a greater need for the patients to take an active role in their health management (Ndou et al., 2013). More recently, though, it has been reported that adherence to diabetic management had improved in CHW-led programmes (Newman et al., 2018).

An increase in political support for CHWs has been observed during the past few years, as the state determines which NGOs should be employed and funded by the state (Languza et al., 2011). Consequently, CHWs are regarded as being an integral part of the healthcare team currently. They have been identified as the workers, who increase the communities' access to health services and care, facilitate the appropriate use of the available healthcare resources, provide education, perform health screenings and detection, as well as improve the communication between the community and the professionals (Witmer, Seifer, Finocchio, Leslie, & O'Neil, 1995). However, despite the value they add, their need for appropriate, quality, and continuous training, has largely gone unfulfilled, and instead, met with apathy (Haines et al., 2007; Werner & Bower, 1984; Witmer et al., 1995). A review, conducted by Lehman and Saunders (2007), commissioned by the WHO, highlighted that, among other recommendations, if CHWs were to make an effective contribution, appropriate training and support was required. In addition, these authors also highlighted the vulnerability of community health programmes, if community ownership was lacking, or ignored.

1.2.3. South Africa's situation: NCDs and CHWs

South Africa is currently facing a challenge of combatting the ever-increasing burden of disease that has been prevalent in the last decade. With more than 80% of the population depending on the public health system, particularly in primary healthcare, the health department has supported the re-emergence of the CHWs, in an effort to provide cost-effective, as well as quality healthcare to all South Africans, irrespective of their economic status (World Health Organisation [WHO], 2010). With knowledge gained from Stats SA, outlining the mortality and causes of death (Statistics South Africa [Stats

SA], 2020), coupled with the Burden of Disease Survey, released on 24 April 2017 by the South African Medical Research Council (SAMRC, 2017), it has been established that the top six leading causes of death are mostly NCDs. These could be modified effectively, with behavioural interventions that address the risk factors.

In addition, the Western Cape, Department of Health has developed a Healthcare 2030 strategy that has a patient-centred approach as its central principle (Republic of South Africa [RSA], National Department of Health [NDoH], 2014). In this strategy, the strengthening and expansion of community-based services is emphasised. Within this primary healthcare approach, community health workers are key to the health teams that address the needs of communities. The focus of the CHWs will be on prevention and health promotion. The healthcare plan of South Africa has set the bar very high, with its aims to achieve healthcare for all, and reduce poverty by 2030. With less than 10 years to this deadline, the agents of change, namely the CHWs, who have been identified as the group that would provide the impetus to assist in reaching these goals, remain undertrained and under-supported (RSA, NDOH, 2014; Stevenson, 2016).

Therefore, in order to combat the quadruple burden of disease challenge in South Africa, adequate training and empowering of community health workers is essential, to enable them to deliver the health education and promotion programmes to the underserved communities (Mayosi et al., 2009, 2012; Stevenson, 2016). In addition, the World Health Organization has stressed the importance of having a framework that guides task-shifting, defining roles, and training (WHO, Health Systems and Services [HSS], 2007a). According to the WHO (WHO, HSS, 2007a), task shifting refers to a process of delegation, whereby tasks are shifted, where appropriate, to less specialised health workers. By reorganizing the workforce in this way, task shifting could use the currently available human resources more efficiently.

In addition, understanding how CHWs could be engaged in the process of self-management of NCDs would be worth exploring. The possibility of an intervention that could engage CHWs in an empowerment process of accessing knowledge on self-management, and subsequently, have them participate in knowledge translation, should positively influence the communities they serve.

1.2.4. Training and empowering of community health workers

Community health workers have been identified to fulfil a major role in the management of NCDs (Newman et al., 2018; Schneider, Okello, & Lehmann, 2016; Tsolekile et al., 2014). Their different roles as health educators, advisors, rehabilitation workers, and group support facilitators, enhance their credibility, when they engage the communities (Tsolekile et al., 2014). In addition, they have an important role to fulfil in aiding the communities to meet their health & social needs (Friedman, 2005). Tsolekile et al. (2014) concluded their discussion on the role of CHWs, by stating that it is complex, and the training needs to be focussed on the competencies required to perform the community-specific roles. Consequently, in the context of this current study, their competency-based training should focus on mitigating the risks associated with the burden of disease.

According to the World Health Organisation, regular ongoing training is considered essential to the success of CHW programmes, although tertiary education is not a prerequisite (WHO, 2006, 2010). Additionally, among the CHW population, some members are literate, while others are illiterate; therefore, this needs to be taken into consideration when designing the training curriculum, to empower rather than disempower participants. With respect to training, the WHO also acknowledges that there would be discrepancies, such as length, depth, and approaches in the trainings offered, because of the differences across communities. However, the organisation stresses that all the training offered, must be competence- and practice-based, and should be held close to the CHWs working environment. The training should also be tailor-made for CHWs, and not be training materials, sourced from curricula that had been offered to facility-based professionals. There is sufficient evidence to suggest that, in the absence of regular ongoing training, the acquired skills and knowledge would be lost soon over time; therefore, high quality continuous training is imperative (WHO, 2006).

In South Africa, CHWs have received a substantial amount of training in the treatment of HIV/AIDs & TB, which has yielded good results for these illnesses. However, the training for the other health areas has lagged behind (Schneider et al., 2008). South Africans would do well to study the successful programmes, conducted around the world, and subsequently, modify them for the South African context, specifically. Developing a

training curriculum that is suitable to each specific community is a challenge; however, it should not detract from the responsibility of realising the training goals.

The CHW audit, by the Department of Health in 2011, indicated that there were 72,000 CHWs in South Africa (Malan, 2014). According to the HIV & TB Plan for CHWs, the training of CHWs varied from province to province. The Western Cape seemed to have a separate provincial system; however, the numbers trained in this province was unavailable. The highest number of CHWs trained is recorded as 4,284 in the Eastern Cape, and the lowest number trained, reportedly, was in Mpumalanga, where between 168 and 348 were trained (Malan, 2014). The National Developmental Plan 2030 has set the target of 700 000 CHWs by 2030, who will serve an estimated population of 60 million people (Republic of South Africa [RSA], Department: The Presidency, National Planning Commission, 2011). However, this ambitious target needs to be revisited, and a robust, sustainable training model for CHWs must be considered. In addition, a greater effort must be made to upskill the current CHWs in the health system and, as a second tier; training must be expanded to all the new NGOs, identified by the state, to address the countries' growing health needs.

Currently, communities lack understanding about the impact of NCDs, especially concerning perceived susceptibility and severity (Metta et al., 2014). Therefore, the training of CHWs should be two-pronged: (1) equip them with the knowledge and skillset to empower themselves, to improve their own health behaviours (Jarvis, Kataria, Murgor, & Mbau, 2016); and (2) to serve as catalysts and role models, by transferring the training, practically, to the community members with whom they interact. Laverack (2006, p. 113) defines empowerment as “the process by which relatively powerless people work together to gain control over the events that determine their lives and health.” Empowerment must be sought (Laverack, 2006), and when it is, positive health behaviour changes are observed, both at the individual, and community levels, which results in a continuum of the empowering process (Woodall, Raine, South, & Warwick-Booth, 2010).

The role that CHWs play in communities has already been flagged as an empowerment strategy to reach communities, with the aim of improving healthcare (Tsolekile et al., 2014). CHWs are ideally positioned on the healthcare platform. Once they are

empowered, the health promotion they execute, will address the WHO's (2006, p. 5) recommendation that "Health promotion should include empowerment strategies, such as: promoting community action through collective involvement in decision-making and participation in all phases of public health planning, implementation & evaluation, use of lay helpers and leaders, advocacy & leadership training & organisational capacity development." Once communities are empowered, an increase in the sense of self-determination and self-efficacy is achieved (Kelkar & Mahapatro, 2014).

1.2.5. Self-management as a tool in health promotion

The term, *self-management*, is not a new term. It has its roots in the 1960s (Creer, Renne, & Christian, 1976), where it was used during the rehabilitation process, when working with chronically ill children. Creer et al. (1976) linked this self-management to the earlier work of Albert Bandura on self-efficacy. Bandura (1997, p. 194) state that "perceived self-efficacy affects people's choice of activities and behavioural settings, how much effort they expend and how long they will persist in the face of obstacles and aversive experiences. The stronger the perceived self-efficacy, the more active the coping effort." Consequently, it is evident that, the greater an individual's self-efficacy, the more likely s/he would be to pursue goals, tasks, and challenges. In terms of self-management, Bateson (1980) asserts that it is virtually impossible for anyone to be completely ignorant about his/her own health behaviours. Everyone has to exercise day-to-day private and personal management; therefore, choosing not to follow a healthy behaviour, should also be considered a form of *self-management*.

Self-management is problem-based, and in the process, the patient's perception is important (Corbin & Strauss, 1988). Therefore, it makes perfect sense that, in order to achieve success with this model, one of the key skills would be the ability to problem solve (Center for the Advancement of Health, 2002; D'Zurilla, 1986). Other essential skills in self-management are decision-making; finding and utilising resources; assisting people to form partnerships with their healthcare providers; and taking action (Center for the Advancement of Health, 2002). This cooperative-facilitative relationship between healthcare providers and patients/clients is in direct contrast to the traditional hierarchical model used. In the traditional model, the medical staff members are seen as the experts, whose diagnoses and treatment options are supreme, while the patients are the passive

recipients, who rely on the medical staff to decide on the actions they should take, to achieve better health (Center for the Advancement of Health, 2002).

In the self-management process, the patient devises an *action plan*, to assist him/her in working towards his/her own health-related goal. The *action plan* should be realistic and specific, in relation to the goal, and the patient should be able to achieve it within 1-2 weeks. In addition, the patient should rate his/her confidence level, as levels of seven, or higher, are regarded as good indicators that they, most likely, would accomplish their action plan (Bandura, 1977; D’Zurilla, 1986; Lorig & Holman, 2003).

From its inception, self-management was intended to be patient-focussed, allowing people to attain small successes, on their journey to improved wellness (Lorig & Holman, 2003). Currently, the term, *self-management*, is commonly used in relation to health promoting activities, interventions, and education programmes, specifically dealing with chronic conditions (Bodenheimer, Lorig, Holman, & Grumbach, 2002; Lorig & Holman, 2003). Lorig & Holman (2003) designed a programme that would help people with chronic illnesses, to manage and assume responsibility for their own health. The programme was designed in the context of working with patients, who suffered chronic conditions, particularly arthritis, and based on their 1996 study, as well as other studies conducted on self-management programmes. The *Chronic Disease Self-Management Program [CDSMP]* (Lorig & Holman, 2003), as it was entitled, was a 6-week self-management programme, specifically designed to assist people with chronic illnesses.

1.2.5.1. *Self-management and disease*

Various studies have used self-management as an intervention in various settings for disease management (Jonker, Comijs, Knipscheer, & Deeg, 2009; Lorig, 1996; Lorig & Holman, 2003). Positive changes were recorded in health behaviour, namely, self-efficacy, health status, cognitive symptom and mental stress management, as well as communication between patient and physician (Brady et al., 2013; Dongbo, Ding, McGowan, & Fu, 2006; Franek, 2013; Jonker et al., 2009). Researchers observed that the participants spent fewer days in hospital, had less outpatient visits, and shorter-stay hospitalisation. In addition, these benefits were maintained for as long as 3 years, after they had completed the programme (Lorig, 1996; Lorig & Holman, 2003)

1.2.5.2. *Self-management in the workplace*

Currently, the focus has shifted beyond the patients, and into the workplace, where corporations have recognised the value in their employees being equipped to become self-managers. There is good evidence to show that this has resulted in better productivity, less hours off work for illnesses, and, generally, happier employees (Funnell et al., 2009). Additionally, it has been determined that when employees become better self-managers, an improvement in their lifestyles, as well as overall health status in the workplace, was the result (Brady & Murphy, 2011; Schopp, Bike, Clark, & Minor, 2015; Schopp, Clark, Lamberson, Uhr, & Minor, 2017). The University of Missouri is a good example of a workplace that has successfully used the self-management programme among their staff, to improve wellness. They modified the 6-week programme, to make it more user-friendly in a working environment, and dubbed their self-management program, *Act Healthy* (Schopp et al., 2015).

1.2.5.3. *Self-management and community health workers*

As self-management has evolved, the essential skills identified include problem solving; decision-making; finding and utilizing resources; assisting people to form partnerships with their healthcare providers; and taking action (Loriqu, Sobel, Ritter, Laurent, & Hobbs, 2001). These are key skills that would benefit community health workers in the execution of their roles. CHWs, in their diverse roles, are the ideal candidates to be trained as self-managers. They are members of the same communities they work in, and share the same health and social needs as these communities. Therefore, training them in self-management would yield a 4-fold outcome, namely:

1. They would be equipped to achieve healthy behaviours for themselves, by making action plans;
2. Upon mastery of this new skill set and way of thinking, they should be enabled to implement and transfer these skills to the communities they work with, by modelling the new behaviours;
3. They will find an alternative reason for their symptoms; and

4. The snowballing effect, or social persuasion, would reach a much wider audience, and the goals of patient-centred healthcare, patient advocacy, as well as ‘health for all’, would be achieved (Bandura, 1977; Lorig & Holman, 2003).

1.3. Problem statement

South Africa is currently facing a challenge in combatting the ever-increasing burden of disease that has been prevalent in the last decade. With more than 80% of the population depending on the public health system, particularly Primary Healthcare, the Health Department has supported the re-emergence of the CHWs, in its effort to provide cost-effective, and quality healthcare to all South Africans, irrespective of their economic status (WHO, 2010). Therefore, considering the challenges of the South African health system, coupled with an existent, established (though human-resource-stricken) CHW workforce, the need exists to equip CHWs with a skillset that empowers them to gain knowledge on the successful management of their own health behaviours. Subsequently, they would be expected to participate in knowledge translation, in order to influence the communities they serve, in a positive manner. Consequently, the experiences of the current CHWs need to be explored, and based on evidence, interventions that empower them, should be provided.

1.4. Significance of the study

The significance of this current study is three-fold, as it will influence the individual, the community, and the country. At the *individual level*, the aim was to empower the CHWs to understand the urgency of managing their own health behaviour. While on this road of discovery and enlightenment, they create a multiplier effect of community self-management care, as they support and educate the *communities* they serve.

The positive impact on the prevalence of NCDs, because of communities being enabled to model positive lifestyle changes, will ultimately help to eradicate the burden of disease. The information gained from this current study would be useful to the Department of Health, when considering how best to utilise CHWs in Primary Healthcare settings, to combat the burden of disease, and achieve the healthcare goals of the 2030 Healthcare Plan, and ‘Health for All’, which is a *national* initiative (RSA, NDoH, 2014).

1.5. Aim of the study

To adapt, implement, and evaluate the effects of a self-management programme for CHWs, to improve their own health behaviours, and ultimately, influence the communities they serve.

1.6. Research questions

- i. What are the health needs and perceived risk factors faced by CHWs?
- ii. What are the perceived challenges experienced by CHWs as they perform their duties?
- iii. What self-management interventions are used among health professionals to improve their own health?
- iv. What would the content of a self-management programme for CHWs be in the Western Cape?
- v. What are the participants' perceptions of a self-management programme?

1.7. Objectives

- i. To describe the health needs and perceived risk factors for NCDs faced by CHWs;
- ii. To explore and describe the challenges experienced by CHWs in the execution of their duties;
- iii. To identify and describe the self-management interventions used among health professionals;
- iv. To adapt, design, and implement a self-management programme; and
- v. To evaluate the impact of participation in a self-management programme, by exploring the perceptions of the participants.

1.8. Definitions of terms

Community health workers: “The umbrella term ‘community health worker’ (CHW) embraces a variety of community health aides selected, trained and working in the communities from which they come. ...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 organization, and have shorter training than professional workers” (WHO, 2007b, p. 3).

Empowerment: “The process by which relatively powerless people work together to gain control over the events that determine their lives and health” (Laverack, 2006, p. 113).

Non-communicable diseases: “...also known as chronic diseases, tend to be of long duration and are the result of a combination of genetic, physiological, environmental and behaviours factors. The four main types of non-communicable diseases are cardiovascular diseases (like heart attacks and stroke), cancers, chronic respiratory diseases (such as chronic obstructed pulmonary disease and asthma) and diabetes” (WHO, 2021).

Health professionals: “Health professionals maintain health in humans through the application of the principles and procedures of evidence-based medicine and caring. Health professionals study, diagnose, treat and prevent human illness, injury and other physical and mental impairments in accordance with the needs of the populations they serve. They advise on or apply preventative and curative measures and promote health with the ultimate goal of meeting the health needs and expectations of individuals and populations and improving population health outcomes. They also conduct research and improve or develop concepts, theories and operational methods to advance evidence-based healthcare. Their duties may include the supervision of other health workers” (WHO, 2013).

Self-management: “It is a popular term in health education for behavioural interventions as well as for healthful behaviours and is the name attached to many health promotion and patient education programs. This is especially true for the management of chronic conditions” (Lorig & Holman, 2003, p. 1).

Task shifting: “Is the name now given to a process of delegation whereby tasks are moved, where appropriate, to less specialized health workers. By reorganizing the workforce in this way, task shifting can make more efficient use of the human resources currently available” (WHO, 2007a, p. 3).

Health behaviours: “Actions taken by individuals that affect health or mortality. These actions may be intentional or unintentional, and can promote or detract from the health of the actor or others. Actions that can be classified as health behaviors are many; examples include smoking, substance use, diet, physical activity, sleep, risky sexual activities, health care seeking behaviors, and adherence to prescribed medical treatments” (Short & Mollborn, 2015, p. 79).

1.9. Dissertation layout

Five chapters of this thesis, Chapters 4, 5, 6, 8, and 9, are presented in the form of publications. Each publication was submitted, or will be submitted as an article.

Chapter One

In chapter one, the reader is introduced to the background of CHWs, their need to be empowered, to improve their own health behaviours, as well as the concept of *self-management*. As the chapter unfolds, the case is made for *self-management* as a viable strategy to decrease South Africa's quadruple burden of disease.

Chapter Two

In this chapter, the researcher renders an outline of the conceptual framework that underpins, as well as provides a reference point from which to understand this current study. The framework comprises 4 phases. Phase 1 is dedicated to understanding the problems that exist among the CHW workforce (Chapters 4 & 5). Phase 2 involves the literature synthesis, conducted in a systematic review, to understand the self-management interventions, available for health professionals to improve their own health behaviours (Chapter 6). Phase 3 comprises the development of the intervention in three stages (Chapter 7), and in Stage 4, the long-term impact of the intervention (Chapter 8) is explored. The researcher provides an overview of the definition and principles of self-management, the role of self-management in disease management, the theories underpinning self-management, self-management and health professionals, as well as self-management interventions. The purpose of this overview is to provide a firm comprehension of the value that self-management provides to community health workers, as well as the subsequent impact those skills could render on the individuals and communities

Chapter 3

In this chapter, the research methodology (methodological framework, research setting and research design) employed in this current study is outlined. The four phases of the study and the stages in each one are detailed with a clear overview of the various instruments used. The rural and urban populations that participated in the study are highlighted. The chapter concludes with considerations for self-management intervention for this cadre of community health workers.

Chapter 4

In this chapter, the researcher introduces Phase 1(a) of the study, which reports the findings of an assessment conducted to determine the health risk behaviours practiced by CHWs that predispose them to NCDs. This chapter is presented as an article manuscript, which has been accepted for publication. The citation for the article is Johnson L, Schopp L, Waggie F, Frantz J. Assessment of risk factors for non-communicable diseases among a cohort of community health workers in Western Cape, South Africa. *Malawi Medical Journal*.

Chapter 5

Chapter 5 contains Phase 1(b) of the study and reports on the challenges that CHWs face, while performing their duties. Their motivation to attend a self-management programme is also explored. This chapter is presented as an article manuscript, which has been accepted for publication. The citation for the article is Johnson L, Schopp L, Waggie F, Frantz J. Challenges experienced by community health workers and their motivation to attend a Self-Management program. *The African Journal of Primary Health & Family Medicine*.

Chapter 6

In Chapter 6, Phase 2 of the study is presented as a systematic review, in which articles were reviewed to determine the self-management strategies that health professionals used to improve their own health status. This chapter is presented as an article manuscript, which has been submitted for publication. The citation for the article is Johnson L, Schopp L, Waggie F, Frantz J. Self-management interventions for health professionals: A systematic review. *BMC Systematic Reviews Journal*.

Chapter 7

This chapter encapsulates the process of developing the intervention used in this study. It journeys through four stages, namely, the exemplar intervention, the pilot study conducted in the rural area, the adaptations applied for the South African context, and finally, the delivery of the intervention that was presented to the CHW study population.

Chapter 8

This chapter is focused on the impact of the self-management intervention. The longitudinal quasi-experimental pre-test-post-test design that was used is described, incorporating

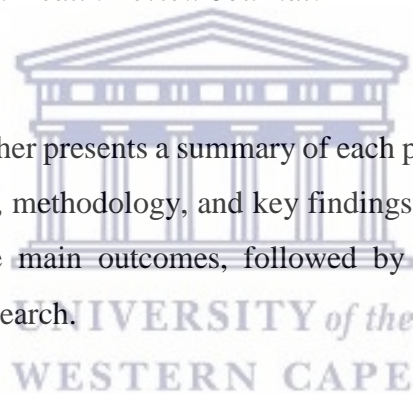
quantitative and qualitative methods, to determine the short and long-term outcomes. It presents the importance of considering self-management training, to improve health behaviour, which could possibly improve the global burden of disease.

Chapter 9

Chapter 9 contains the exploration and description of the CHWs coping abilities, during the COVID-19 pandemic, and whether the self-management skillsets, they had acquired, aided the management of themselves and others during the health crisis. The chapter concludes with the deliberation that the self-management intervention programme be considered, as the health effort towards flattening the curve continues. This chapter is presented as an article manuscript, which has been accepted for publication. The citation for the article is Johnson L, Frantz J. Self-management skills may be key to helping Community Health Workers cope amidst the COVID-19 crisis. *South African Health Review Journal*.

Chapter 10

In this final chapter, the researcher presents a summary of each phase of the study, and features the objective research question, methodology, and key findings pertaining to each phase. The chapter is concluded with the main outcomes, followed by limitations of the study and recommendations for future research.



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CHAPTER TWO

CONCEPTUAL FRAMEWORK

2.1. Introduction

In this chapter, the researcher presents a conceptual framework to underpin this current study, and provides a reference point from which to understand why self-management is important for community health workers, as well as the impact it could have on the individual and the community s/he serves. Conceptual frameworks are used to present the preferred approach to the study. A conceptual framework is not merely a collection of concepts, but rather a construct, in which each concept plays an integral role (Suman, 2014). Walker and Avant (2010) propose that concepts could be used as mental representations of a phenomenon, which accurately represent these occurrences within clinical practice. They advocate that the conceptualisation of concepts, and their use in describing practice, as in the case of community health, could be used as a stepping-stone towards the standardisation of a common language, in relation to community health workers and self-management. A concept analysis, therefore, is a rigorous and precise process of operationalising the defining characteristics and attributes of a phenomenon into a communicable understanding, which is undertaken by using a structured framework. A conceptual framework provides not a causal/analytical setting, but rather, an interpretative approach to social reality; consequently providing understanding. In this chapter, therefore, the researcher explores: (1) the definition and principles of self-management; (2) the role of self-management in disease management; (3) the theories underpinning self-management; (4) self-management and health professionals; and (5) self-management interventions.

2.2. Definitions and principles of self-management

The World Health Organisation [WHO] defines health as a state of complete physical, mental, and social well-being, and not merely the absence of disease (WHO, 2006). However, Huber et al. (2011, p. 344) regarded the WHO definition of health as limiting, and proposed a shift, with the focus on the “ability to adapt and to self-manage” in the face of social, physical, and emotional challenges. Consequently, the transition to use the term, *self-management*, emerged. A study, conducted by Jambroes, Nederland, Kaljouw, Van Vliet, Essink-Bot, and Ruwaard

(2016), revealed that this new approach to health helped to encourage individuals to adapt a healthy lifestyle, and identified the need for health professionals to include health promotion in the management of their patients. According to Bury, Newbould, and Taylor (2005), the concept of self-management is not new, but tracks back to the early 20th century, in the United Kingdom. Much is written about self-management, but the focus is predominantly on long-term condition management. Van de Velde et al. (2019) highlight that there is no consensus on the meaning of self-management. Therefore, a need exists to define self-management as a concept, as well as clarify its meaning for use in practice, especially in the case of community health workers. If public health is to be promoted, a need for adaptive strategies exists, to define key action terms, as well as build capacity to implement the strategy. In Table 2.1, a summary of definitions for self-management is illustrated, based on the identified definitions. The best-suited definition for this current study emanates from Jonkman, Schuurmans, Jaarsma, Shortridge-Baggett, Hoes, and Trappenburg (2016). They describe self-management as strategies that “aim to equip patients with skills to actively participate and take responsibility in the management of their chronic condition in order to function optimally through at least knowledge acquisition and a combination of at least two of the following: stimulation of independent sign/symptom monitoring, medication management, enhancing problem-solving and decision-making skills for medical treatment management, and changing their physical activity, dietary, and/or smoking behaviour” (Jonkman et al., 2016, p. 35).

Table 2.1: Definitions of self-management in health

No	Reference	Definition
1	Clark, N., Becker, M., Janz, N., Lorig, K., Rawkowski, W. & Anderson, L. (1991). Self-management of chronic disease by older adults: a review and questions for research. <i>Journal of Aging and Health</i> , 3(1), 3–27. https://doi.org/10.1177/089826439100300101	“Self-management is interpreted as the day-to-day tasks an individual must undertake to control or reduce the impact of disease on physical health status. At-home management tasks and strategies are undertaken with the collaboration and guidance of the individual’s physician and other healthcare providers” (p. 5).
2	Barlow, J., Wright, C., Sheasby, J., Turner, A. & Hainsworth, J. (2002). Self-management approaches for people with chronic illness: A review. <i>Patient Education and Counseling</i> , 48(2), 177–187. https://doi.org/10.1016/s0738-3991(02)00032-0	“Self-management refers to the individual’s ability to manage the symptoms, treatment, physical and psychosocial consequences and life style changes inherent in living with a chronic condition. Efficacious self- management encompasses ability to monitor one’s condition and to effect the cognitive, behavioural and emotional responses necessary to maintain a satisfactory quality of life. Thus, a dynamic and continuous process of self-regulation is established.” (p. 178)
3	Lorig, K. R., & Holman, H. R. (2003). Self-management education: History, definition, outcomes, and mechanisms. <i>Annals of Behavioral Medicine</i> , 26(1), 1–7. https://doi.org/10.1207/S15324796ABM2601_01	Refers to self-management as a daily, life-long process that individuals engage in to manage their chronic illnesses and includes health behaviours. The process is problem-based and encompasses five core self-management skills, namely problem solving, decision-making, utilizing resources, establishing partnerships between the patient and health provider, and taking action.

4	Richard, A. A., & Shea, K. (2011). Delineation of self-care and associated concepts. <i>Journal of nursing scholarship: an official publication of Sigma Theta Tau International Honor Society of Nursing</i> , 43(3), 255–264. https://doi.org/10.1111/j.1547-5069.2011.01404.x	Self-management refers to “the ability of the individual, in conjunction with family, community, and healthcare professionals, to manage symptoms, treatments, lifestyle changes, and psychosocial, cultural, and spiritual consequences of health conditions” (p. 261).
5	Panagioti, M., Richardson, G., Small, N., Murray, E., Rogers, A., Kennedy, A., Newman, S., & Bower, P. (2014). Self-management support interventions to reduce health care utilisation without compromising outcomes: a systematic review and meta-analysis. <i>BMC Health Services Research</i> , 14(1), 356. https://doi.org/10.1186/1472-6963-14-356	Self-management is defined as “the care taken by individuals towards their own health and well-being: it comprises the actions they take to lead a healthy lifestyle; to meet their social, emotional and psychological needs; to care for their long-term condition; and to prevent further illness or accidents, and could include responding to symptoms, managing acute episodes, relaxation, exercise, smoking cessation, managing the emotional impact of conditions, and working effectively with health professionals and other community resources.” (p. 357) “An intervention primarily designed to develop the abilities of patients to undertake management of health conditions through education, training and support to develop patient knowledge, skills or psychological and social resources” (p. 358).
6	Jonkman, N. H., Schuurmans, M. J., Jaarsma, T., Shortridge-Baggett, L. M., Hoes, A. W. & Trappenburg, J. C. A. Self-management interventions: Proposal and validation of a new operational definition. <i>Journal of Clinical Epidemiology</i> , 80, 34–42. https://doi.org/10.1016/j.jclinepi.2016.08.001	Self-management is defined as strategies “that aim to equip patients with skills to actively participate and take responsibility in the management of their chronic condition in order to function optimally through at least knowledge acquisition and a combination of at least two of the following: stimulation of independent sign/symptom monitoring, medication management, enhancing problem-solving and decision-making skills for medical treatment management, and changing their physical activity, dietary, and/or smoking behaviour” (p. 35).

2.3. The role of self-management in disease management

A key driver of the interest in self-management is its potential to contribute, significantly, to efficient healthcare delivery, by increasing patient engagement in care, improving uptake of preventive activities, and reducing reliance on formal healthcare services, through better management of existing conditions (Lorig & Holman, 2003). Evidence exists that self-management support interventions could reduce hospital use and total costs (Panagioti et al., 2014). Although the effects are generally small, and the implementation of self-management is challenging in certain chronic conditions, such as diabetes (De Man et al., 2019), it remains a key strategy for improving disease management.

In addition to improving the quality of life for patients, living with a chronic disease, it is an opportunity for all healthcare professionals to approach the management of chronic conditions in a logical manner (Grady & Gough, 2014). This opportunity could help to address the health and economic concerns that the management of chronic conditions instigates. However, Hessler et al. (2019) argue that, for self-management interventions to become valued interventions for patient-centred care, more opportunities for the patients’ input are required. Dineen-Griffin, Garcia-Cardenas, Williams, and Benrimoj (2019) concur, and highlight a need

to upskill primary healthcare providers, in order to deliver effective self-management interventions, to improve the quality of healthcare and disease management.

Patients' self-management abilities, to preserve their overall well-being, has been linked to improved patient-professional engagements, as well as their perceptions of the quality of care (Cramm & Nieboer, 2015); therefore, it is important to minimize the risk of patients neglecting the application of self-management in their daily lives (De Man et al., 2019). One of the core objectives of self-management is to improve partnerships between the patient and the professional healthcare worker (Lorig & Holman, 2003). Therefore, it could be used to address the need to strengthen the patient-professional relationship, which may safeguard against a decline of self-management strategies in people with chronic diseases (Cramm & Nieboer, 2015; Vestjens, Cramm, & Nieboer, 2021). By creating interactional interactions (Franklin, Lewis, Willis, Rogers, Venville, & Smith, 2019), using the principles of self-management, will create a conducive environment for patients to contribute freely towards their own health plans, and make decisions for their own health-related goals (Franklin et al., 2019). These interactions will refute the more common approach of the healthcare professional maintaining control over the patient's health plan (Franklin, Lewis, Willis, Bourke-Taylor, & Smith, 2018). Self-management, by its very nature, cultivates improved patient engagement, by creating an environment where the patient is the central focus, brainstorming is encouraged, problem solving and goal setting are facilitated, and gradual improvements, as well as self-monitoring are celebrated. This diversity is required to promote improved health behaviours in persons with chronic illnesses (Brew-Sam & Chib, 2019).

Self-efficacy refers to the perceived confidence, or self-belief that a person has in his/her ability to execute, and successfully complete a conquest (Bandura 1977, 1997). Self-efficacy differs from self-esteem, lack of control, or projected outcomes (Bandura, 1997), and it plays a pivotal role in all human function, as it directly influences the achievement of set goals, the perception of challenges, as well as the latitudes presented in the social environment (Bandura, 2006; Moritz, Feltz, Fahrback, & Mack, 2000). It is an important aspect to consider in health interventions, as it directly impacts whether the individual's thought processes are unpredictable or rational, and whether his/her outlook on life is one of negativity or positivity (Bandura, 2006). An improved self-efficacy, allows individuals to cope better, and enables them to tackle tasks, as well as work towards set goals (Bandura 1997).

Studies, related to self-management in stroke sufferers (Jones & Riazi, 2011), and diabetic patients (Sarkar, Fisher, & Schillinger, 2006), conclude that self-efficacy is a crucial influence on the quality of life, perceived health status, physical activity levels, and depression. Self-efficacy could be boosted, when patients experience improvements in their quality of life and overall health status, which both could be achieved through the application of self-management principles (Angwenyi, Bunders-Aelen, Criel, Lazarus & Aantjes, 2021). The learnt principles, and increased knowledge base, gained with self-management training, has been observed to initiate improved physiological markers (Hearn, Ssinabulya, Schwartz, Akiteng, Ross, & Cafazzo, 2019), which improves self-efficacy (Angwenyi et al., 2021). These improvements promote positive changes in health status, which are observed in persons suffering with heart failure, hypertension, and diabetes, in low and middle-income countries (Hearn et al., 2019). The comprehensive benefit of the improvement in health behaviours, and subsequent improvement in health status, allows individuals to feel in control, and encourages them to take *more* control of their own health, giving them the ability to accept their diagnosis, as well as the understanding to prevent flare-ups (Ryan & Stangroom, 2013). These benefits, credited to the self-management training, develop individuals with a decreased reliance on the formal healthcare sector. Additionally, the human-resource stricken health system (Campbell et al., 2013) could benefit from this trend, as it seeks to decrease the demand on its services in the global increased burden of disease (World Health Organization [WHO], 2018). Self-management allows the individual to choose action plans that allow him/her to achieve the goals that have been set, in increments (Lorig & Holman, 2003). The advantage of self-management goal setting is that it places the individuals in charge of selecting their own plan, which personalised approach, yields results (Gay, Chabaud, Guilley & Coudeyre, 2016). The self-management approach, therefore, is a worthwhile strategy to consider for behaviour change facilitation.

2.4. Theoretical underpinning of self-management

Numerous theories and frameworks substantiate the development of self-management. For the purpose and context of this current study, the researcher focussed on the following six theories.

2.4.1. Intervention mapping

According to literature, the effectiveness of intervention mapping has been established, when tailor-making interventions for specific groups. A stepwise approach uses theory

and evidence to develop and implement interventions (Fernandez, Ruiter, Markham, & Kok, 2019). According to Bartholomew, Parcel, Kok, and Gottlieb (2006), one of the strengths of the intervention mapping approach is the use of theories to influence behaviour change, and generally, the social cognitive theory, or goal-setting theory, is employed. In the Netherlands, Detaille, Van der Gulden, Engels, Heerkens, and Van Dijk (2010) used intervention mapping in their research, to develop a self-management programme for employees living with a chronic disease. However, one of the reported disadvantages of this process was that it was time-consuming. According to French et al. (2012), the use of the intervention-mapping framework, based on theories, helps to improve outcomes in targeted populations.

Springer, Evans, Ortuño, Salvo, and Arévalo (2017) support intervention mapping as a framework to identify environmental factors that have to be considered, when designing health intervention designs. These authors expand by highlighting the importance of, what they refer to as, health promotion interviewing, which allows health promotion designers to acknowledge the context of the participants, involved in the intervention, as essential to influence health outcomes, directly, following the intervention. In this current study, the context of the CHWs was important to consider, as the intervention was planned, which is unpacked in Chapter 7.

2.4.2. Health promotion interweaving

Environmental factors are known to impact individuals' health behaviours (Centers for Disease Control & Prevention, 2014). Therefore, it is vital that the design of health promotions, factor in the geographical context in which the targeted population perform their various life activities, so that it could be tailor-made to their needs (Sallis, Cervero, Ascher, Henderson, Kraft, & Kerr, 2006). Placing emphasis on the individual is insufficient; instead, the full context of the environment should be considered (Minkler, 1989). Springer et al. (2017) assert that, for the proposed health promotion activity to be distinctive and pertinent to the targeted group, interweaving should not simply be general interweaving of context (May, Johnson, & Finch, 2016), but the target population's context should be the pivotal concept, around which the health promotion is focused. In addition, the environmental context should not be limited to residential addresses, study locations, and religious gatherings (Centers for Disease Control & Prevention, 2014). A relevant health promotion is achieved by including the context of the environment (May

et al., 2016), the policies governing the environment (Rudolph, Caplan, Ben-Moshe, & Dillon, 2013), the applicable information systems (VanEpps, Roberto, Park, Economos, & Bleich, 2016), as well as the social, cultural & organizational contexts (Springer & Evans, 2016). Self-management, by its very nature, is problem-based, which allows the individual to be the focus. During this current study, the participants' environmental context had to be factored in, and adaptations made to the original programme, to tailor-make the intervention, and maximise participation.

2.4.3. PRECEDE-PROCEED Model

This ecological model for health promotion (Crosby & Noar, 2011) centres on the premise that a successful programme must involve a process, in which the target group is active participants (Tapley & Patel, 2016). It focuses on the planning and evaluation of an intervention, and takes the individual's cognitive abilities, skills, and behaviours along with all the environmental factors of the intended participants into account (Crosby & Noar, 2011). It comprises two components, namely the acronyms, PRECEDE and PROCEED, which in turn, are each divided into 4 phases (Crosby & Noar, 2011; Green & Ottoson, 2006; Tapley & Patel, 2016). PRECEDE encompasses phases 1-4, and is the acronym for Predisposing, Reinforcing, Enabling, Constructs in Educational Diagnosis and Evaluation. PROCEED houses phases 5-8 and is the acronym for Policy, Regulatory, and Organizational Constructs in Educational and Environmental Development (Tapley & Patel, 2016).

When using the PRECEDE-PROCEED Model for health promotion, the programme must be adaptable, comprehensive, and scalable, as well as evidence-based and able to be evaluated. It should involve a process of participation, and create a platform for best practice (Green & Ottoson, 2006). This model has proven to be successful across a variety of health promotion interventions in diabetes (Azar, Solhi, Darabi, Rohban, Abolfathi, & Nejhaddadgar, 2018; Moshki, Dehnoalian, & Alami, 2017), hemodialysis (Mosavi, Aliakbari, & Rabiei, 2020), and HIV (Millard et al., 2018).

In this current study, the subjects were active participants, as self-management training lends itself to this engagement, and additional opportunities for participation were created, by adding peer facilitation sessions, as well as ice-breaking activities (see Chapter 7). The impact of the intervention is discussed and elaborated on in Chapter 8.

2.4.4. Design for behaviour change framework

The role of a strategy is to promote behaviour change (Gibbs & Collett, 2016). It plays role on the global health agenda for Ending Preventable Child and Maternal Deaths (United States Agency for International Development [USAID], 2015). This framework is based on the “stages of change” (Prochaska & DiClemente, 1983, p. 391), and requires the user to specify the resultant behaviour logically, as well as outline the priority group, and the circumstances/conditions, in which the behaviour will be implemented (Gibbs & Collett, 2016). The strength of this framework lies in the data collected, using Barrier Analysis Surveys that identify the underlying reasons for challenges in practicing behaviours. The data, gathered from these surveys, allow the health promoter, or programme designer, to design a health promotion that takes the identified barriers and motivational factors into consideration (Gibbs & Collett, 2016), and includes accelerator behaviours (Core Group, 2008). In this current study, the researcher identified the challenges that CHWs experienced, as well as their motivation for enrolling in a self-management programme (See Chapter 5). In addition, the researcher used the information gathered from the pilot study, described in Chapter 7, to improve the self-management intervention programme.

2.4.5. The 6 SQuID model

According to Speller, Learmonth, and Harrison (1997), the purpose and design of interventions should not be neglected, in the drive to ensure that interventions are evaluated. In order to maximise the available limited public resources, prevent overspending on overpriced evaluations, as well as optimize the effectiveness of the programme, researchers formulated a model, which concisely incorporates six pivotal steps that should be followed, to guide the health promoter in designing a relevant programme for the intended population (Wight, Wimbush, Jepson, & Doi, 2016). The model is known as Six Essential Steps for Quality Intervention Development [6SQuID] (Wight et al., 2016). Step 1 is, *understanding the problem*. Step 2 is, *identifying the causal and contextual factors that could be modified*. Step 3 involves *deciding on the mechanisms of change*. Step 4 entails *elucidating how the change will be delivered*. Step 5 encompasses *the trial and adaptation of the intervention*; and the last step, step 6 involves *the gathering of an adequate amount to evidence, to perform a meticulous evaluation*. The 6SQuID model has been used effectively and successfully in adolescent

programmes (Hartley, McAteer, Doi, & Jepson, 2019; Pringle, Doi, Jindal-Snape, Jepson, & McAteer, 2018). In addition, it has been used in the development of programmes across diverse settings and population groups (Prins, Kamphuis, De Graaf, Oenema, & Van Lenthe, 2016; Van Rooyen et al., 2016), including South Africa (Masquillier et al., 2020).

2.4.6. Participatory Intervention Model

The strength of this model is three-fold. It has the ability to bring about the development of feasible interventions, increase the capacity building of the stakeholders, and allows for prevailing social change (Nastasi, Varjas, Schensul, Silva, Schensul, & Ratnayake, 2000). It has the advantage of integrating theory, research, and practice. In self-management interventions, capacity building is key, and empowering the participants is a core objective, while promoting positive health behaviours is the overall aim. This model has been used successfully to develop peer victimization intervention, which was piloted and successful, qualitatively, as well as quantitatively (Varjas et al., 2006).

2.5. Self-management and health professionals

According to Johnston, Rogerson, Macijauskiene, Blaževičienė, and Cholewka, (2014), eight self-management support roles could be played by health professionals, namely, advocate, educate, facilitate, problem solve, communicate, set goals, monitor, and report.

2.5.1. Self-management, health professionals and advocacy

Advocacy is a key role of health professionals and should be an integral to the management of each case, with the aim of improving patient care and ensuring better service quality. In their core role of providing care to the patients, liaison with the caregivers, as well as ongoing work within the multi-disciplinary medical team, health professionals are ideally positioned to be the advocates for patients (International Council of Nurses, 2012). Ware, Bruckenthal, Davis, and O'Conner-Von (2011), as well as Josse-Eklund, Jossebo, Sandin-Boio, Wilde-Larsson, and Petzall (2014) describe the characteristics that influence their role as advocates, to include, being nurturing, empathetic, ethical, assertive, persistent and compassionate. According to Chambers, Wakley, and Blenkinsopp (2006), health professionals must upskill, as well as gain new knowledge about self-care, to motivate and empower patients, for behaviour change. However, although the health professional perceives his/her role of advocate as a means

of improving the image of the health system to patients, which increases job satisfaction (Mahlin, 2010; Sundqvist & Carlsson, 2014), fatigue, frustration, lack of appreciation from patients, and an increased workload, could hinder this vital role (Dadzie, Aziato, & Aikins, 2017). Therefore, factors that lead to decreased advocacy must be acknowledged and addressed, to motivate health professionals (Laari & Duma, 2021).

2.5.2. Self-management and health professionals as educators

Literature has reported that self-management is important as part of secondary prevention, as well as a way of reducing the burden of chronic illness (Kennedy, Gask, & Rogers, 2005). According to these authors, using a process of guided self-management interventions assists patients to take ownership of, and manage their disease. A review conducted by Rochfort et al. (2018) highlighted two important factors concerning self-management, and the role of health professionals, as educators. These authors highlighted the scarcity of studies that report on the impact on patient outcomes, following the training health professionals in patient self-management interventions, which is concerning, as patient self-management has been deemed important, because of the shift to a patient-centred approach in healthcare. In addition, these authors highlighted that “when health professionals undergo training in empowering patients for self-management of chronic conditions, it is possible to achieve improvement in patients’ self-efficacy, autonomy and motivation to change, functional capacity, pain free days and quality of life” (Rochfort et al., 2018, p. 8).

Health professionals are expected to engage in patient education, as part of their daily duties, and it is anticipated that the education would evolve into, not only an increase in patient knowledge, but ultimately, independence (Bastable, Gramet, Jacobs, & Sopczyk, 2011). A common assumption is that the education/teaching ability is intrinsic to health professionals, and that their interactions with patients naturally lead to efficient learning (Burch & Norcini, 2019). However, this not so; therefore, resources should be allocated to their regular upskilling, to be effective educators, especially in South Africa, where the National Development Plan’s goals have to be met (Burch & Norcini, 2019).

2.5.3. Self-management and health professionals as facilitators

In self-management, the facilitator encourages the participants to become efficacious self-managers of their own health (Lorig & Holman, 2003). The concept of facilitation

in healthcare, which encompasses the objectives of shared decision-making, empowerment, participation, and engagement, has been infiltrated into the health system since the mid twentieth century (Harvey & Lynch, 2017). In order to be the catalyst for change with the targeted audience, the health professionals need support to develop this skillset for themselves (Harvey & Kitson, 2015). In addition, the common traits (empathetic, passionate, resilient, authentic, credible, and pragmatic), required to be proficient in this endeavour, should be nurtured (Dogherty, Harrison, Graham, Vandyk, & Keeping-Burke, 2013; Harvey et al., 2002).

Health professionals have demonstrated their ability to be effective facilitators in self-management interventions, with positive health outcomes (Eriksson et al., 2016; Persson et al., 2013; Russell et al., 2018). Consequently, the call for them to receive the support in this area is warranted.

2.5.4. Self-management, health professionals and problem solving

Problem solving is an essential skill, which is learnt as part of a self-management programme, in which the facilitator guides the person into, firstly, identifying the problem, and subsequently, identifying steps to problem-solve, utilizing the knowledge gained (Corbin & Strauss, 1988). Health professionals are involved in problem solving with every patient engagement; however, with the self-management approach, the focus is on being patient-centred. The patient, therefore, takes the lead role in this collaborative effort, to assist him/her to problem-solve the adverse health behaviour, and find healthier alternatives, as well as action steps to reach it (Lorig & Holman, 2003). The transfer of this problem-solving skillset onto the patient is of special interest to health professionals (Koçoğlu, Duygulu, Abaan, & Akin, 2016), who have to hone the person's critical thinking skills (Bentley, 2001), in order for them to become creative and expand their problem-solving abilities. As with other skillsets, required by health professionals to be effective in their jobs, problem solving is also an area that requires training, to enable them to transfer these skills to their patients (Koçoğlu et al., 2016).

2.5.5. Self-management and health professionals as communicators

While being able to communicate is regarded as a fundamental skill of all healthcare professionals (Almutairi, 2015), it is important that this workforce be trained to be effective communicators in different healthcare settings (Alsheikh & Iqbal, 2020;

Denniston, Molloy, Nestel, Woodward-Kron, & Keating, 2017). When health professionals are proficient at being communicators, there is an improvement in patient-health professional rapport (Schyve, 2007), allowing for patients' concerns to be raised and dealt with earlier (Alsheikh & Iqbal, 2020; Schyve, 2007), which culminates in increased positive health outcomes (Schyve, 2007). The findings of a recent study (Salemons, Førlund, Hansen, & Holm, 2020) revealed that health professionals were able to provide self-management support, by communicating in a non-judgemental manner, with an amenable attitude, which created a beneficial dialogue between patient and professional. According to the researcher of this current study, the collaborative partnership that was created, improved self-efficacy in the participants, with the health professionals describing communication as vital in self-management.

2.5.6. Self-management, health professionals and setting goals

For individuals to be enabled to set their own goals is a core objective in any self-management programme (Lorig & Holman, 2003). It is important that the individual be guided to identify goals that are significant to them, as this improves their motivation to remain engaged in the process (Hughes, Lewis, Willis, Rogers, Wyke, & Smith, 2020). Although it is challenging for health professionals to coach patients into setting their own goals (Lenzen, Daniëls, Van Bokhoven, Van der Weijden, & Beurskens, 2015), it is important for them to do so, to ensure that the process remains patient-centred, and the patients' goals are not side-lined (Hughes et al., 2020). Young (2015) advises that managing goals, as a collaborative effort, require working with patients to define their goals, and using groups to assist patients to set their goals. Both of these tips are incorporated into the self-management model.

2.5.7. Self-management, health professionals and monitoring

Once the health professional and patient has collaborated to help the patient define and set their goals (Bodenheimer, Wagner, & Grumbach, 2002), monitoring is implemented, through the support of the health professional, to evaluate the improvements in the patients' health, by reviewing the action steps outlined (Jonkman, 2016; Jonkman, Schuurmans, Jaarsma, Shortridge-Baggett, Hoes, & Trappenburg, 2016). This evaluation is supported by the health professional in a facilitatory role, and is conducted in a non-threatening manner, allowing the patient to reflect and apply adaptations, in their quest to become self-monitors (Lorig et al., 1999).

Health professionals need upskilling as they support the patients (Dineen-Griffin, Garcia-Cardenas, Williams, & Benrimoj, 2019). The SMART approach has been applied to goal setting, as it facilitates the monitoring of the goal, when it is applied. According to SMART, goals should be specific, measurable, achievable, realistic, and time-bound (Jordan, 2014).

2.5.8. Self-management, health professionals and reporting practices

Record keeping is vital in the healthcare system, as it documents the care process provided, and is used as a communication mechanism within the medical team (Mutshatshi, Mothiba, Mamogobo, & Mbombi, 2018). When record keeping is executed incorrectly, or is absent, it holds grave medico-legal consequences. Within self-management programmes, the facilitator reports on the overview provided by the participants' feedback. The reporting is usually presented verbally, and is focused on the successes achieved in the steps taken towards a goal, as well as the acknowledgement of the progress made in the improvement of the core skillsets of self-management (Lorig et al., 1999; Lorig & Holman, 2003).

2.6. Health intervention models

“A public health intervention is defined as a planned action to prevent, or reduce, a particular health problem, or the determinants of the problem, in a defined population” (Wight et al., 2016, p. 520). As these interventions are designed, they can be focused at different levels, namely, the individual, the community, and ultimately policy. Various frameworks have been identified for the designing of health interventions; however, for the context of this current study, the researcher has selected the principles of five of these frameworks, namely, the Ecological Model; Health Belief Model; Social Cognitive Theory; The Trans-theoretical Model and Stages of Change; as well as The Theory of Reasoned Action/Planned Behavior.

2.6.1. Ecological Model

This model for health behaviour highlights the complexity of environmental, policy, social, and psychological influences that affect health behaviour, namely, intrapersonal, interpersonal, organisational, community, physical environment, and policy (Sallis, Owen, & Fisher, 2008; Simons-Morton, 2013). It emphasises that, in order to realise the full capability of changing behaviour, these influences need to be factored in, societal

support and norms need to be strengthened, and individuals need to be educated and motivated to make positive health choices (Sallis et al., 2008).

After researching health education and health promotion interventions over a twenty-year period, Golden and Earp (2012) drew the conclusion that very few interventions are focused on institutional, community, and policy factors. These researchers also discovered that a social ecological model was more often, as well as successfully adopted with interventions in particular settings, for example schools, and in relation to the themes of physical activity and nutrition. Examples of successful interventions/models, based on the ecological model framework, are the Model of Community Food and Environments (Glanz, Sallis, Saelens, & Frank, 2005), Resources & Skills of Self-Management Model (Fisher, Brownson, O'Toole, Shetty, Anwuri, & Glasgow, 2005), and The Social-Ecological Model: A framework for Prevention (Centers for Disease Control and Prevention, 2021). It has also been applied successfully, to understand the multi-level influences involved in cigarette smoking (Fisher, Brownson, Luke, Sumner, & Heath, 2004), physical activity (Giles-Corti, Timperio, Bull, & Pikora, 2005), and in self-management of diabetes (Norris, Lau, Smith, Schmid, & Engelgau, 2002).

2.6.2. Health Belief Model

This cognitive-based model is one of the most widely used models in research on health behaviours, and has the two-fold purpose of being used as a framework to guide health behaviour interventions, as well as offer the reasons that influence change and maintenance of behaviour change (Champion & Skinner, 2008). There are six conceptual elements (constructs) of the Health Belief Model (Champion & Skinner, 2008; LaMorte, 2019). The first is *perceived susceptibility*, which refers to an individual's subjective belief about the risk of contracting an illness, or condition, followed by *perceived severity* that expresses his/her feelings about the severity of the illness/condition, as well as the consequences thereof. The third is *perceived benefits*, which is the individual's perception regarding the effectiveness of proposed actions, to mitigate the risks associated with the illness/condition, or cure it. The fourth conceptual element is *perceived barriers*, which expresses the individual's feelings about the obstacles that need to be overcome, in order to apply a recommended health action. The fifth element, *cue to action*, refers to the internal and external incentives, or triggers that are required

to prepare the individual to accept proposed health actions. Lastly, *self-efficacy* is the element that accounts for the self-confidence of the individual take action, successfully.

The findings of a study conducted by Jones, Jensen, Scherr, Brown, Christy, and Weaver (2015) revealed that *perceived barriers* habitually affected the association between exposure and behaviour. These authors concluded that the construct of *perceived barriers* was only relevant for individuals, who presented with low to moderate levels of self-efficacy (Jones et al., 2015). This model has been used successfully to develop Colorectal cancer screening (Rawl, Menon, Champion, Foster, & Skinner, 2000), Mammography scales (Allen & Bazargan-Hejazi, 2005), and HIV-related behaviours (Hounton, Carabin, & Henderson, 2005).

2.6.3. Social Cognitive Theory

This theory, initially known as the Social Learning Theory (Bandura, 1986), proffers an extensive conceptual framework that allows for the comprehension of the various factors, which influence human behaviour, includes the learning process, and provides the understanding of an array of health related concerns (McAlister, Perry, & Parcel, 2008; McLeod, 2016). Its key concepts are divided into five groups, namely: psychological determinants of behaviour; observational learning; environmental determinants of behaviour; self-regulation; & moral disengagement (Bandura, 1986; McAlister et al., 2008). Self-efficacy plays a large role in this theoretical framework, which goes into detail about four ways to achieve an increase in self-efficacy (Bandura, 2004). Good evidence exists to suggest that increased self-efficacy leads to improved changes in behaviour (Jones, Harris, Waller, & Coggins, 2005; McAlister et al., 2008). This could be achieved by allowing the individual to experience ongoing success, incrementally, when applying the proposed healthy behaviours (mastery experience), demonstrating to the individual that people with similar contexts as themselves, have tackled the desired health behaviours successfully, by taking small steps at a time, to reach the set goals (social modelling). Additionally, ensuring the individual's readiness before s/he attempts a new behaviour, in terms of getting sufficient rest, and minimizing stress levels (improving physical and emotional states), as well as offering verbal encouragement, expressing confidence that they have the ability to be successful in the new behaviour (verbal persuasion), also helps. This model has proven to be valid and reliable (Dewar, Lubans, Plotnikoff, & Morgan, 2012), as well as successful for many years. Examples of

its successful application are evident in, information research (Middleton, Hall, & Raeside, 2019); physical activity health promotion (Joseph, Ainsworth, Mathis, Hooker, & Keller, 2017); chronic pain intervention, tailored for persons with HIV (Merlin et al., 2018); as well as self-management for heart disease in adult sufferers (Clark et al., 1997).

2.6.4. The Trans-theoretical Model and Stages of Change Model

This model is based on the premise that change is a process that occurs over time, and occurs in stages, which do not necessarily follow a linear pattern (Prochaska, Redding, & Evers, 2008; Raihan & Cogburn, 2021). The five stages of change are identified as precontemplation, contemplation, preparation, action, and maintenance (Norcross, Krebs, & Prochaska, 2011; Raihan & Cogburn, 2021). It is important that healthcare providers understand the stages of change (Zimmerman, Olsen, & Bosworth, 2000), in order to design interventions that match individuals to the stage they are in, as this will result in the more successful adoption of behaviour change (Ludden & Hekkert, 2014). The strength of this model is that the target persons/s, who are presented with a behaviour change intervention, are not pressured, but instead, supported and guided within the stage in which they find themselves (Raihan & Cogburn, 2021). The Transtheoretical Model and Stages of Change Model has been successfully applied across a variety of holistic healthcare issues, such as bullying prevention (Prochaska, Evers, Prochaska, Van Marter, & Johnson, 2007), smoking cessation (Dijkstra, Conijn, & DeVries, 2006), weight control and medical screening interventions (Raihan & Cogburn, 2021).

2.6.5. The Theory of Reasoned Action/Theory of Planned Behaviour

These theories aim to elucidate social behaviour, taking into account cognitive determinants (Rossmann, 2020). They specify that the individual's motivational levels will be the deciding factor as to whether s/he will implement a prescribed behaviour practically (Montaño & Kasprzyk, 2008). When used in physical activity interventions (Downs & Hausenblas, 2005; Hagger, Chatzisarantis, & Biddle, 2002), it was observed as effective to expound on intent and the applied behaviours (Downs & Hausenblas, 2005), while the researchers noted that the inclusions of self-efficacy and past behaviours strengthened the model (Hagger et al., 2002). As one of the highly utilised models in behavioural psychology, the success of the model in health interventions is dependent on the individual's attitude towards the suggested new behaviour, the degree of control over the behaviour, and the individual's perception about the norms of the new behaviour

(Montaño & Kasprzyk, 2008; Rossmann, 2020). This model can be implemented as a strategy to monitor and assess interventions that aim to bring about behavioural change (Montaño & Kasprzyk, 2008; Rossmann, 2020).

Table 2.2: Theories underlying health promotion interventions

Existing Theories	Description	Aims	Reference
Ecological model	The ecological perspective is a useful framework to understand the range of factors that influence health and wellbeing. It is a model that could assist in providing a complete perspective of the factors that affect specific health behaviours, including the social determinants of health. Because of this, ecological frameworks could be used to integrate components of other theories and models; consequently, ensuring the design of a comprehensive health promotion, or disease prevention programme, or policy approach.	<p>Aims to affect behaviour change, including health behaviour change, and explains behaviour by acknowledging and utilising the various influences, which, in turn, expands the possibilities for interventions.</p> <p>It is also key in promoting health.</p> <p>It achieves its health behaviour and promotion aims by factoring in the following four considerations, when deciding on interventions targeted at influencing health behaviour:</p> <ol style="list-style-type: none"> i. There are multi-level influences (for example, public, intrapersonal) and many factors to be included; ii. Understanding how the various factors interact across the levels; iii. Interventions that are multi-level in design, should be more effective; and iv. Maintain a behaviour-specific approach. 	Sallis, J., Owen, N., & Fisher, E. (2008). Ecological models of health behaviour. In K. Glanz, B. K. Rimer, & K. Viswanath (Eds.), <i>Health behavior and health education: Theory, research, and practice</i> (pp. 465–485). San Francisco, CA., USA: Jossey-Bass.
Health Belief Model	The Health Belief Model is a theoretical model that could be used to guide health promotion and disease prevention programmes. It is used to explain and predict individual changes in health behaviours. It is one of the most widely used models for the understanding of health behaviours.	Key elements of the Health Belief Model focus on individual beliefs about health conditions that predict individual health-related behaviours. The model defines the key factors that influence health behaviours as an individual's perceived threat to sickness or disease (perceived susceptibility), belief of consequence (perceived severity), potential positive benefits of action (perceived benefits), perceived barriers to action, exposure to factors that prompt action (cues to action), and confidence in ability to succeed (self-efficacy).	Rosenstock, I. M. (1974). The Health Belief Model and Preventive Health Behavior. <i>Health Education Monographs</i> , 2(4), 354–386. https://doi.org/10.1177/109019817400200405
Social Cognitive Theory	Social Cognitive Theory (SCT) describes the influence of individual experiences, the actions of others, and environmental factors on individual health behaviours. SCT provides opportunities for social support by instilling expectations, self-efficacy, and using observational learning, as well as other reinforcements, to achieve behaviour change.	<p>Mostly aims to improve the individual's self-efficacy. This is achieved in 3 ways, which could occur separately, or in combination:</p> <ol style="list-style-type: none"> i. Mastery of skills: the individual acquires confidence by finding success in achieving small goals. ii. Modelling/vicarious learning: confidence gained by observing individuals who are analogous with them successfully perform a behaviour. iii. Verbal persuasion: Using suggestion to usher individuals into the belief that they can successfully manage in the areas they previously found too challenging. 	<p>Bandura, A. (1986). <i>Social foundations of thought and action: a social cognitive theory</i>. Englewood Cliffs, NJ., USA: Prentice-Hall.</p> <p>Bandura, A. (1997). <i>Self-efficacy: the exercise of control</i>. New York, NY., USA: Freeman.</p> <p>Bandura, A. (1989). Social cognitive theory. In R. Vasta (Ed.), <i>Annals of child development. Vol. 6. Six theories of child development</i> (pp. 1–60). Greenwich, CT., USA: JAI Press.</p>

Existing Theories	Description	Aims	Reference
The Transtheoretical Model and Stages of Change Model	<p>The Transtheoretical Model explains an individual's readiness to change his/her behaviour. It describes the process of behaviour change as occurring in stages. These stages include:</p> <ul style="list-style-type: none"> ● Pre-contemplation: There is no intention of taking action. ● Contemplation: There are intentions to take action and a plan to do so in the near future. ● Preparation: There is intention to take action, while some steps have been taken. ● Action: Behaviour has been changed for a short period. ● Maintenance: Behaviour has changed, and continues to be maintained for the long-term. ● Termination: There is no desire to return to prior negative behaviours. 	The Stages of Change Model describes how an individual, or organisation integrates new behaviours, goals, and programmes at various levels. At each stage, different intervention strategies will help individuals progress to the next stage, and through the model. Individuals within a population would likely vary in their readiness to change. In addition, it is important to recognise that movement through this model is cyclical – individuals may progress to the next stage, or regress to a previous stage.	<p>Sutton, S. (2005). Stage theories of health behaviour. In M. Conner & P. Norman (Eds.), <i>Predicting health behaviour: research and practice with social cognition models</i> (2nd ed., pp. 223–275). Maidenhead, England, United Kingdom: Open University Press.</p> <p>Weinstein, N. D., Rothman, A. J., & Sutton, S. R. (1998). Stage theories of health behaviour: conceptual and methodological issues. <i>Health Psychology, 17</i>(3), 290–299. https://doi.org/10.1037/0278-6133.17.3.290</p>
The Theory of Reasoned Action/Theory of Planned Behavior	The Theory of Reasoned Action and the Theory of Planned Behavior – suggest that a person's health behaviour is determined by his/her intention to perform a behaviour. A person's intention to perform a behaviour (behavioural intention) is predicted by, 1) a person's attitude toward the behaviour, and 2) subjective norms regarding the behaviour.	Aims to bring about change in behaviour including health behaviour changes by placing emphasis on the attitude, the perception of control, subjective norms and by expounding on the variety that exists in intent and prediction of behaviour. (e.g. smoking, sun protection, exercise, HIV/STD prevention)	Sallis, J., Owen, N., & Fisher, E. (2008). Ecological Models of Health Behavior. <i>Health Behavior and Health Education, 4</i> .

2.7. Conclusion

Taking into consideration all of the factors above, the researcher used a combination of frameworks in this current study to identify the needs, and design, as well as implement a context specific intervention .

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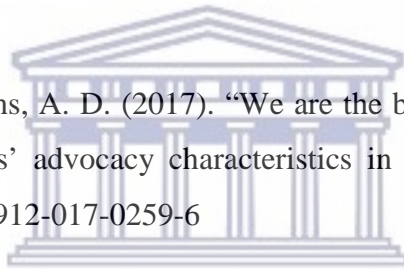
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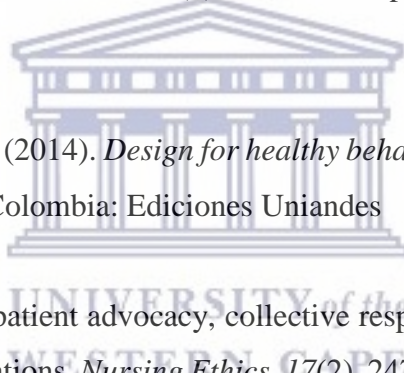
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CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Introduction

In this chapter, the researcher presents the research methodology, which includes the methodological framework, research setting, and research design. Subsequently, each phase of the study is discussed.

3.2. Methodological Framework

The methodological framework of this current study comprises four sequential stages (Phase I – IV). Phase I consists of a quantitative and qualitative exploratory descriptive study. Quantitatively, the prevalence of risk factors among CHWs is determined, and qualitatively, the perceived benefits and barriers to behaviour change among CHWs are explored and described. Phase II is a systematic review that aims to identify the self-management interventions used among health professionals. Phase III focuses on the intervention development, and, based on a pilot study that was conducted in a rural setting (Majee, Anakwe, Johnson, Rhoda, Frantz, & Schopp, 2020; Majee, Schopp, Johnson, Anakwe, Rhoda, & Frantz, 2020), the adaptations that needed to be made. In Phase IV, the implementation in an urban setting, using the pre-test post-test design is presented, and the qualitative evaluation of the study is reported on, immediately post, as well as 12 months post implementation.

3.3. Research setting

The study includes both a rural and urban aspect. Currently the burden of disease changes in the Western Cape has seen non-communicable diseases move to fifth place, according to the burden of disease study (Msemburi et al., 2016). A prerequisite of suitable settings for this current study was CHWs actively working in the area. The two towns of Genandendal and Greyton in the Western Cape, South Africa, were chosen to represent the rural component, as many of the community health workers in these two towns, fulfilled the role of first responders to the health needs of the community, because of the shortage of qualified medical professionals. This is primarily an Afrikaans-speaking community, 97% comprising a Coloured population, with a low socio-economic status. Similar parameters were taken into

consideration, when an urban area was selected. The Lavender Hill, Retreat area, which is located in the South Western substructure, was conveniently selected as the urban area. Originally, the community in this area comprised victims of the Group Areas Act (Union of South Africa, 1950, Act 41 of 1950), during the Apartheid era. Most of the residents are classified as Coloured, who had been forcibly removed from their previous areas of residence that had been declared “White” residential areas, according to the Act. Consequently, the community health workers in this area work in environments that are both socio-economically poor, as well as ridden by violence.

3.4. Research Design

The researcher of the current study employed a mixed method, exploratory sequential design, which refers to the mixing of qualitative and quantitative methods in a singular study, to best understand the research problem being evaluated (Creswell, 2003; Denzin & Lincoln, 2005). An explorative design is undertaken to explore and investigate the holistic nature of a phenomenon, and its associated components in the development/testing of a theory, or the evaluation of a phenomenon within a specific population in a new area of research (Creswell, 2013). The study is conducted in four phases, as presented in Figure 3.1 below. This methodology was found suitable for this current study as Zhang and Watanabe-Galloway (2014) assert that, using both qualitative and quantitative methods, allows the researcher to use qualitative methods to explore the in-depth reasons for the quantitative findings.

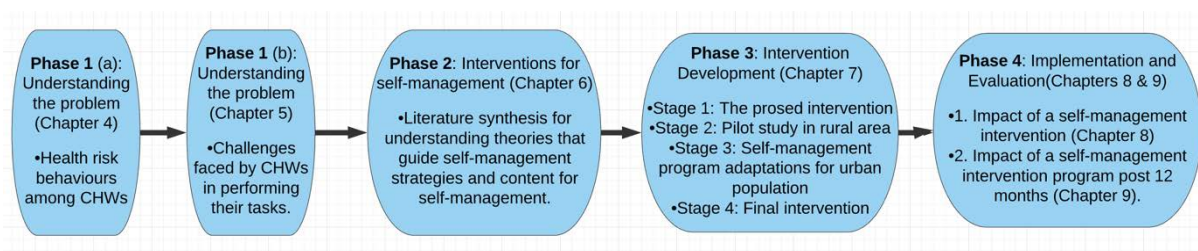


Figure 3.1: Phases of the study

3.5. Phase 1: Problem Identification

The primary objective of the first phase was an analysis of the problem, to establish what needed to be changed and implemented. During this phase of the study, the researcher established the current state of health of the CHWs, the perceived risk factors of NCDs among

them, the challenges experienced by them in performing their duties, and their motivation to participate in a self-management programme.

3.5.1. Phase 1a: Assessment of risk factors for NCDs among CHWs (Chapter 4)

3.5.1.1. *Research design*

This aspect of the study employed a quantitative survey research design, which has its origins in applied social research, market research, and election polling, is described as a quantitative, flexible approach that could be employed to investigate a range of basic and applied research questions (Price, Jhangiani, & Chiang, 2015). Nardi (2014) states that this method is useful, when data are required on the respondents' own thoughts, behaviours, and feelings. This method of research, in which anonymity can be guaranteed, is used effectively for large, randomly selected samples, as it most accurately reports the true estimates in a population. This design, therefore, was suitable for this aspect of the study that investigated the CHWs perceptions about their health.

3.5.1.2. *Population and sampling*

When considering all the people (population), who share the common characteristics, disease, or condition that a given study is investigating, including everyone in the study is practically questionable (Elfil & Negida, 2017; Taherdoost, 2016). Therefore, in clinical research, sampling is used, implying that a section of the target population is chosen for a study (Elfil & Negida, 2017; Shorten & Moorley, 2014). This sample, known as the study population, is deemed a representative of the target population (Acharya, Prakash, Saxena, & Nigam, 2013; Elfil & Negida, 2017).

In South Africa, approximately 72 000 CHWs are actively employed. In the Western Cape, there are 3 400 CHWs, of which 1 300 are in the rural communities, and 2100 in the metro districts (Stevenson, 2016). CHWs are employed by non-government organisations [NGOs] that may, or may not, be funded by the Department of Health (Stevenson, 2016). For the purpose of this current study, convenience sampling was used, and 22 CHWs, who agreed to participate, were selected in the Genadendal/Greyton area, as part of the rural sample. The urban

sample included 132 CHWs from the Southern Western substructure. All the recruited CHWs (n=154) were invited to participate in this current study.

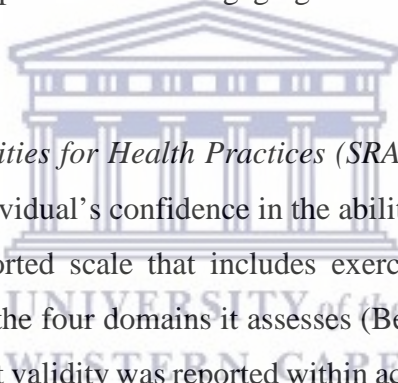
Convenience sampling is a non-probability sampling method (Ackoff, 1953; Elfil & Negida, 2017; Gravetter & Forzano, 2012), employed to select respondents, who are easily and readily available to the researcher. The disadvantages of this sampling method, which include the inability to generalise the findings, not being able to measure or control bias (Acharya et al., 2013), and the possibility of outliers (Etikan, Musa, & Alkassim, 2016), are generally recognised. However, the advantages of convenience sampling make it a popular and the most widely used sampling method in clinical research (quantitative and qualitative). These advantages include that it is inexpensive, quick and convenient, saves time during data collection, and could be utilised in pilot studies, as well as when generating hypotheses. In addition, it contributes to the plethora of qualitative data, and the explanation of potential bias, which may add to the validity of the study (Acharya et al., 2013; Etikan et al., 2016; Gravetter & Forzano, 2012; Taherdoost, 2016).

3.5.1.3. *Data collection methods*

Data collection methods for this phase comprised a set of questionnaires. The use of questionnaires is effective in a research study with a large sample, as standardised questions could be posed to the respondents. It requires less effort when collecting data, allows the respondents to respond at their own pace, and makes coding easier (Nardi, 2014). For this current study, several questionnaires were merged into one. The prospective questionnaires included The Health-Promoting Lifestyle Profile 11 questionnaire [HPLP-11], The Self-Rated Abilities for Health Practices [SRA], The Personal Health Questionnaire-9 [PHQ-9], and the Short Form 12 questionnaire (SF-12), as well as questions to determine the respondents' health status and bio-demographics.

The Health-Promoting Lifestyle Profile II questionnaire [HPLP-11] (Hosseini, Yaghmaei, Hosseinzade, AlaviMajd, Sarbakhsh, & Tavousi, 2012; Walker, Sechrist, & Pender, 1987) is a self-reported 52-item questionnaire that uses a 4-point Likert-type scale to ascertain the prevalence of the respondents' engagement in health behaviours. It is considered a main strategy in motivating the population

to participate in healthy behaviours, as well as prevent non-communicable diseases (Hosseini et al., 2012). In addition, it has a high construct reliability, namely, an internal consistency alpha of 0.94, and test-retest reliability of 0.89 (Walker & Hill-Polerecky, 1996). In order to minimize the Type-1 error, the total scores are evaluated in data analysis, as in a study by Walker and Hill-Polerecky (1996), which reported 0.94 for internal consistency alpha and a test-retest reliability of 0.76. The questionnaire is divided into six subscales, namely, Health Responsibility (9 items), Physical Activity (8 items), Nutrition (9 items), Spiritual Growth (9 items), Interpersonal Relationships (9 items) and Stress Management (8 items). Each item score could range from 1 (never participates in health behaviour), 2 (sometimes participates in health behaviour), 3 (frequently participates in health behaviour), and 4 (regularly participates in health behaviour). A high total score signifies that the respondents were engaging in health-promoting behaviours more regularly.



The *Self-Rated Abilities for Health Practices (SRA)* is a 5-point Likert-type scale that assesses an individual's confidence in the ability to perform certain tasks. It is a 28-item, self-reported scale that includes exercise, well-being, nutrition, and health practices, as the four domains it assesses (Becker, Stuifbergen, Oh, & Hall, 1993). The construct validity was reported within acceptable ranges in a population of community-living adults, and Cronbach alpha recorded an internal consistency as 0.94 (Becker et al., 1993). In this current study, where statistically significant increases in SRA scores equated to enhancement in self-efficacy (Becker et al., 1993), the internal consistency alpha was 0.93, and test-retest reliability was 0.73.

The *Personal Health Questionnaire-9 (PHQ-9)* has been observed to be valid and reliable to diagnose and determine reliability for depressive disorders in general primary care, with an excellent internal reliability, namely, a Cronbach's alpha of 0.89 (Kroenke, Spitzer, & Williams, 2001), as well as in patients with coronary heart disease (Haddad, Walters, Phillips, Tsakok, Williams, Mann, & Tylee, 2013). A good internal consistency, with a Cronbach alpha of 0.799, was demonstrated, when the tool was employed in a recent study (Molebatsi, Motlathledi, & Wambua, 2020). It uses a 4-point Likert scale and the nine criteria of the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-IV)'s depressive

disorder criteria to measure the frequency of certain items bothering respondents in the past two weeks (Kroenke et al., 2001). The PHQ-9 has been translated into various languages (Arthurs, Steele, Hudson, Baron, Thombs, & (CSRG) Canadian Scleroderma Research Group, 2012), and studies have revealed its reliability across languages (Carballeira, Dumont, Borgacci, Rentsch, De Tonnac, Archinard, & Andreoli, 2007; Lotrakul, Sumrithe, & Saipanish, 2008; Omoro, Fann, Weymuller, Macharia, & Yueh, 2006; Yeung, Fung, Yu, Vorono, Ly, Wu, & Fava, 2008).

The *Short Form 12* (SF-12) (Ware, Kosinski, Turner-Bowker, & Gandek, 2002) contains 12 categorical and Likert-type questions, to assess the limitations of physical or emotional health, as well as their impact on functioning, from an individual's perspective. The SF-12 has been extensively used in health status studies involving the general population (Gandek et al., 1998), as well as in studies with disease groups (Gandhi, Salmon, Zhao, Lambert, Gore, & Conrad, 2001). Obtel, Rhazi, Elhold, Benjelloune, Gnatiuc, and Nejjari (2013) further tested and confirmed the internal consistent reliability of the tool across different cultures, and illustrated alpha coefficients of 0.80 and 0.79. In addition, the tool demonstrated good convergent and discriminant validity, when multitrait analysis was conducted (Obtel et al., 2013).

All the questionnaires were translated from English into Afrikaans, which are the dominant first languages spoken and read by the CHWs. The questionnaire was translated first into Afrikaans by one translator, and then back into English to ensure that the credibility of the questionnaire was not lost. Catford (1978) states that language possibly is the most important way in which humans interacted. Translation is defined as “replacement of textual material in one language by equivalent textual material in another language” (Catford, 1978, p. 20). Sokolovsky (2010, p. 287) concluded that *translation* is a process with particular traits, and defined it as “a type of language mediation, socially serving to approximate a mediated bilingual communication to a common monolingual communication.” Therefore, it was important to translate the English questionnaires into Afrikaans to provide the respondents with the opportunity to complete them in their first language.

3.5.1.4. Data collection process

Ethical clearance for the study was obtained from the University of the Western Cape Humanities and Social Science Research Ethics Committee (HS/17/8/23, Appendix 1). Permission to conduct the research at the relevant NGOs was obtained by the researcher (Appendices 2, 3, 4, & 5). Subsequently, the researcher set up appointments via the heads of the NGOs to inform potential respondents about the study, and invite CHWs to participate in the study. In both the rural and urban settings, the meetings were held in church halls, which the NGOs used to conduct their meetings. Dates and times that were convenient to the CHWs were selected for the researcher to meet with the groups. The researcher took along information sheets and consent forms to be completed, and explained the study to the prospective respondents. Suitable dates, for the researcher to conduct the data collection, were selected by the respondents. Once the respondents understood the aim of the research, and had signed the consent forms, the researcher distributed the questionnaires, which were completed while the researcher was available to answer any questions that the respondents might have had. The questionnaires had to be completed prior to the start of the intervention programme.

3.5.1.5. Data analysis

Both descriptive and inferential statistics were conducted. Descriptive statistics presents a summary of the data (Kaliyadah & Kulkarni, 2019), and investigates the values for the variables that are present in the data set (Guetterman, 2019). The first step of the statistical analysis process in quantitative studies is descriptive statistics that reports on the traits of the responses, followed by inferential statistics, which allows the researcher to reach a conclusion about the study's hypothesis, and assists in deciding on the generalisability of the findings (Bhandari, 2020; Kaliyadah & Kulkarni, 2019). Descriptive statistics is employed to outline univariate analysis (single variable), or bivariable/multivariable analysis (two or more variables) (Kaliyadah & Kulkarni, 2019), whereas inferential analysis is not limited to the description of data, but assists the researcher to determine the generalisation of data, from the sample into the broader population (Guetterman, 2019). Other differences between the two are that, with differential statistics, the findings equate to the conclusions that are drawn, and no interpretative errors are plausible. However,

with inferential statistics, errors in interpretation are entertained, and the study's conclusions are equivalent to decisions made (Kern, 2014). Descriptive statistics was used to summarise urban and rural information of CHWs in the form of means, standard deviations, ranges, and t-tests, to establish whether urban and rural CHWs differed on any of the measures of interest (Mehta & Patel, 2011). The Statistical Package for Social Science (SPSS) was employed for the data analysis. In order to explore the possible associations between the respondents' health behaviours and their socio-demographics, the Fishers-exact test was employed, and a significance level of 0.05 (5%) was used (Mehta & Patel, 2011).

3.5.2. Phase 1b: Challenges experienced by CHWs and motivation to participate in a self-management programme (Chapter 5)

3.5.2.1. Research design

For this aspect of the study, a qualitative design was employed; using semi-structured interviews to describe the challenges experienced by CHWs, personally and professionally, while performing their duties, as well as to explore their motivations for joining a self-management programme. Rubin and Rubin (2005, p. 113) describe qualitative interviews as “conversations in which a researcher gently guides a conversational partner in an extended discussion.” It allows the researcher to achieve a deeper understanding of the participants' perceptions, involved in the same task, process, or event (Johnson & Rowlands, 2012). Interviews allow for the perceptions and values of the participants to be identified (Collin, 2010). Each interview is unique, and the researcher is able to adapt his/her questions, according to the participant's knowledge base, and willingness to share (Rubin & Rubin, 2005).

Having the interviewer/researcher present in the conversation has many advantages. Firstly, a high response rate is expected. Secondly, the non-responses are minimised, as the participant is able to clarify questions, while the researcher is able to clarify answers, and delve deeper into personal issues, as well as gather additional details and information about specific responses. Thirdly, the researcher's comprehension of the participant's perception, regarding the intervention, process, or event, is improved (Lavrakas, 2008; Rubin & Rubin, 2005;

Singleton & Straits, 2012). These advantages influenced the decision to explore the challenges experienced by CHWs, personally and professionally, in the performance of their duties, as well as their motivations for joining a self-management programme.

3.5.2.2. Sampling

Purposive sampling is a technique that is used in qualitative research to obtain rich information from key participants (Patton, 2002). Participants with particular characteristics, and who meet the set criteria, are deliberately sought out (Jupp, 2006; Lewis-Beck, Bryman, & Liao, 2004). This method was useful in this phase of the study, as the researcher could select the participants, who were interviewed, according to their relevance to the research question, and the study's theoretical position (Mason, 2002). In the qualitative phase of this current study, the 15 participants had to meet the following criteria:

- They had to be willing to participate in a self-management training programme;
- They had to be employed by the NGO at the time of the interview;
- They had to be available and willing to be interviewed

It is customary in qualitative research that the participants select the venue and time of the interviews (Doody & Noonan, 2013; Hay-Gibson, 2009; Showkat & Parveen, 2017). The quality of the interview depends on the skillset of the interviewer (DeJonckheere & Vaughn, 2019), while simultaneously, a good rapport between interviewer and interviewee is also required (DeJonckheere & Vaughn, 2019; McGrath, Palmgren, & Liljedahl, 2018). Conducting the interviews at the participants' convenience enhances this rapport (Showkat & Parveen, 2017), as it considers the context (Oltmann, 2016), and allows the participants to feel empowered. Ultimately, this enables the researcher/interviewer to extract detailed and in-depth particulars from the participants about the specific subject matter (Elwood & Martin, 2000; Showkat & Parveen, 2017), while bearing ethical considerations in mind (McGrath et al., 2018). In this phase of the study, the interviews were arranged to accommodate the participants' schedules and were conducted in various places, and at various times. The participants were

interviewed to gain insight into the challenges they had experienced, while performing their duties, as well as how a self-management programme could assist them in understanding themselves and their clients better.

3.5.2.3. Data collection methods

Semi-structured interviews were used to collect data for this phase of the study. The advantage of this is that it provides the researcher with more explicit information, as opposed to quantitative surveys, and allows insight into the participants' perceptions about a programme, which enables the researcher to infer conclusions (Boyce & Neale, 2006; Given, 2008). Its employment is considered applicable, when the all-inclusive understanding, regarding an intervention, idea, or situation of participants, is being sought in a nonthreatening environment (Boyce & Neale, 2006).

Once a suitable date had been set by the participants, the researcher conducted the semi-structured interviews, with the aid of an interview schedule (Appendix 6), at a venue that was convenient for them, in the language of their choice (English/Afrikaans), after informed consent was obtained, and they had given permission for the interviews to be audiotape recorded. Each interview lasted approximately 20-30 minutes, and revolved around two central questions, "What are the challenges you experienced, personally and professionally, while conducting your duties?" and "Would you be interested in joining a self-management programme and why?" The individual interviews were conducted until data saturation was reached. Immediately after each interview, the researcher recorded field notes and observational cues (McGrath et al., 2018).

3.5.2.4. Data analysis

Each interview was audiotape recorded and transcribed. To promote trustworthiness, the central questions of the study were repeated in various ways, to ensure the participants' comprehension of those questions (credibility). To ensure dependability, the researcher audiotape recorded the interviews, and took detailed notes, while conducting the interviews (Braun & Clarke, 2006).

The data analysis process was conducted as follows: the researcher became immersed in the data, by reading the transcriptions individually, several times, and searching for meanings and patterns. The researcher made notes for coding during this stage. After becoming familiar with the data, the second stage commenced, which involved producing codes from the data, which was done manually. The data were coded by writing notes in the margins of the text being analysed and using highlighters to identify related segments of data. The researcher initially identified the codes, and subsequently matched them to data extracts that demonstrated the identified codes. It was crucial that all actual data extracts be coded, and subsequently collated within the various codes (Braun & Clarke, 2006). The common themes that emerged were identified, and narratively reported on later in the dissertation.

During the analysis stage, the research supervisors appraised all the notes, as well as the conclusions that were drawn (confirmability). Actual relevant quotes were used, when reporting the results and the context was described in detail to promote transferability.

3.6. Phase 2: Interventions related to self-management interventions among health professionals (Chapter 6)

The aim of Phase 2 was to conduct a systematic review to examine the literature available for self-management strategies by health professionals. A systematic review is regarded as the explicit and systematic method employed to amalgamate evidence, reported by a group of interrelated studies, on a particular phenomenon (Higgins & Green, 2011; Mulrow, 1994). The systematic review serves as a literary concept synthesis that allows for the acquisition of new insights about the phenomenon under investigation (Walker & Avant, 2005). In this current study, the systematic review helped to identify the strategies that were used effectively by health professionals for self-management.

3.6.1. Research question

In order to structure the research question for this systematic review, the PEO (Population of interest, Exposure to phenomena, Outcome of interest) method was employed (Bettany-Saltikov, 2012; Munn, Stern, Aromataris, Lockwood, & Jordan, 2018). The PEO and not the PICO (Population, Intervention, Comparison and Outcomes) was

selected as the framework for this systematic review, because the researchers aimed to assess the exposure to self-management interventions, linked to the specific health outcomes among health professionals, including CHWs. The PEO method links the association and relationship between the population and exposure of interest, and allows for the specific responses expected to be specified (Bettany-Saltikov, 2012; Moola et al., 2015; Munn et al., 2018). The question for this systematic review was, “What are the aims and outcomes of self-management interventions focused on health professionals, including CHWs?” The population of interest was health professionals; the exposure was a self-management intervention; and the outcomes of interest comprised the core principles of self-management (Jonkman, Schuurmans, Jaarsma, Shortridge-Baggett, Hoes, & Trappenburg, 2016). These included enhanced self-efficacy, advancement in knowledge, action planning, goal setting and making decisions, monitoring of signs and symptoms, self-management of medication, adaptations to levels of physical activity, dietary changes, smoking habits and cessation, as well as enhancements in health status.

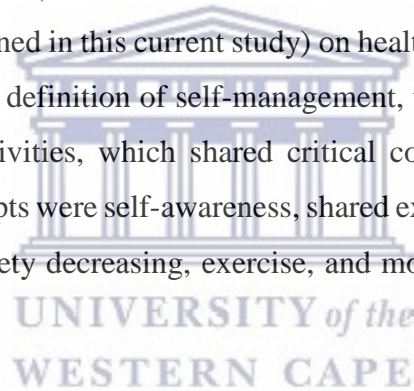
3.6.2. Inclusion and exclusion criteria

In order to focus the question, the inclusion and exclusion criteria had to be identified narrowly, to answer the research question. The criteria used in this current study was selected to ensure rigour, and allow the data set to be defensible and replicable (Abrami, Cohen, & d’Apollonia, 1988; Meline 2006). The inclusion criteria necessitated studies to be: (1) published between 2015 and 2020; (2) quantitative and/or mixed-method methodology; (3) in English language medium; (4) full-text and peer reviewed; (5) focussed on the health professionals workforce (including community health workers); and (6) include outcomes stemming from self-management activities or interventions in which health professionals participated. The publication period was limited to five years, to include the most recent literature (Meline 2006), and be a result of a recent systematic review, which focused on the perspective of the stakeholders of self-management interventions (Boger et al., 2015). Studies with quantitative and mixed-methods methodology were assessed for inclusion, because this current review embarked on determining the purpose and outcomes related to self-management interventions, focussed on health professionals. Studies that focussed on patients, or the public population groups, were excluded, because at present, a paucity of literature exists on self-management related to health professionals’ own health status (Boger et al., 2015; Russell et al., 2018). In addition, studies that were published outside of the designated

publication period, were not published in the English language, and not peer-, were also excluded.

3.6.3. Search strategies

The search strategy followed the four levels of review, outlined in the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA), namely: (1) identification; (2) screening; (3) eligibility; and (4) inclusion (Moher, Liberati, Tetzlaff, Altman, & PRISMA Group, 2009). Data bases included in this current review were MEDLINE (EbscoHost), Science Direct, MEDLINE (Pubmed), CINHALL, EMBASE, and Google scholar, searched from 2015 to 2020. The key words for the systematic review included self-management, health professionals (healthcare workers, community health workers, nurses, doctors, physiotherapists and physicians), and non-communicable diseases (diabetes, cancer, stroke etc.) Due to the limited literature on the aims and outcomes of self-management (as defined in this current study) on health professionals, the researcher (LJ) expanded the search definition of self-management, to include studies that focused on interventions and activities, which shared critical concepts of a self-management programme. These concepts were self-awareness, shared experience, group support, well-being enhancement, anxiety decreasing, exercise, and motivations for change in health behaviours.



MESH terms were used for the relevant terms, as follows:

1. Self-management AND health professionals AND interventions NOT patients
2. Self-care AND health professionals AND interventions NOT patients
3. Self-management AND health professionals OR Healthcare workers AND interventions
4. Self-management AND outcomes AND health professionals AND strategies
5. Self-management support AND health professionals AND interventions
6. Self-care AND health professionals OR healthcare workers OR community health workers AND interventions and outcomes.
7. Self-management AND health professionals AND effectiveness NOT patients AND health outcomes OR benefits

8. Self-management AND health professionals AND effectiveness NOT patients AND health outcomes OR benefits
9. Self-management AND confidence AND benefits AND effectiveness AND health status AND health professionals OR healthcare workers
10. Self-management AND health professionals AND effectiveness AND outcomes
11. Self-care AND confidence AND benefits AND effectiveness AND health status AND health professionals OR Healthcare workers.
12. Self-regulation AND confidence AND benefits AND effectiveness AND health status AND health professionals OR healthcare workers.
13. Self-management AND health professionals OR nurses OR community health workers OR doctors OR healthcare workers OR physicians OR physiotherapists AND Interventions AND Outcomes.
14. Self-management AND health professionals AND Health behaviours.

3.6.4. Method of review

Two reviewers (LJ and a research assistant) conducted the search of the databases, across the four levels of review. During identification, relevant titles pertaining to the study were identified. The results were recorded in an Excel spreadsheet, indicating the hits, extracted titles, duplicates, and relevant titles. The abstracts of relevant studies were retrieved and screened, according to the pre-defined inclusion criteria for inclusion. For eligibility, the full text of pertinent abstracts were appraised rigorously and critically for methodological quality, before being included in the review. All disagreements, regarding the methodological quality and inclusion were discussed until consensus was reached. The researcher (LJ) discussed the articles identified with the supervisor (JF) before proceeding to methodological quality assessment.

3.6.5. Methodological quality of assessment

The McMaster Critical Review Form for quantitative studies (Appendix 7) and the Evaluative Tool for Mixed Methods Studies (Appendix 8) were used to assess the methodological quality of the included studies (Law, Stewart, Pollock, Letts, Bosch & Westmorland, 1998; Long, Godfrey, Randall, Brett, & Grant, 2002). Inherent to systematic reviews is the appraisal of the methodological quality of the included studies.

These critical appraisal tools (Appendices 7 & 8) were used to assess the various study designs – quantitative and mixed methods. The McMaster tool has been deemed reliable to assess quality of studies, and has been used in other systematic reviews (Dankiw, Tsiros, Baldock, & Kumar, 2020; Dars, Uden, Banwell, & Kumar, 2018; Fisher, Lennon, Bellon, & Lawn, 2015). In the quantitative tool, eight components were included as part of the appraisal, namely, study purpose, literature review, study design, sample, outcomes, intervention, results, conclusion, and implication for practice. The mixed methods tool incorporated relevant questions from qualitative and quantitative evaluation tools, and compiled it into a concise tool that critically appraised all the key elements, required to review studies that employed more than one method (Long et al., 2002). It incorporated seven components, as part of the appraisal, namely, study evaluative overview, study and context setting, sample and outcome measurement, ethics, group comparability and qualitative data collection and analysis.

The rating scales of the appraisal tools were adjusted to produce a composite score, which indicated the quality of studies, from weak [0–30], moderate [31–65], strong [66–80], to excellent [81–100] (Law et al., 1998; Tierney & Simon, 2004). The predetermined threshold score, set for this current study, was any study within the categories of *strong* and above.

3.6.6. Data extraction and analysis

All included studies were subjected to a process of data extraction, prior to analysis. The data extraction sheet was developed, based on the research question, as well as the information that needed to answer the question. These sections included the author/s, publication year, aim, research design, population, country the study was conducted in, type of intervention, length of intervention, and the outcomes achieved, as described by the authors' conclusion. A meta-synthesis analysis, regarded as the joining, or uniting of an interrelated group of studies, was undertaken (Schreiber, Crooks, & Stern, 1997).

3.7. Phase 3: Intervention Development (Chapter 7)

This phase was conducted in four stages. Initially, the researcher reviewed prior interventions, followed by the piloting a self-management intervention, subsequently adapting the

intervention, based on phases 1, 2 and 3, and finally implementing the adapted self-management programme.

3.7.1. Stage 1: Proposed intervention

The Chronic Disease Self-Management Program (CDSMP) (Appendix 9), and the Act Healthy Programme (Appendix 10), were considered suitable interventions to be used, in order to meet the needs of the study. The CDSMP was developed by a team of researchers at Stanford University (Lorig et al., 2001), as an interactional programme, constructed from a workshop model, and has been used successfully, in facilitating persons with chronic conditions to improve their overall health status (Haslbeck et al., 2015). Its success in improving the quality of health, abilities to self-manage, and decreasing depression, is well documented (Foster, Taylor, Eldridge, Ramsay, & Griffiths, 2007; Hudon, Chouinard, Diadiou, Bouliane, Lambert, & Hudon, 2016). It was also reportedly adaptable across cultures and communities (Haslbeck et al., 2015), and was effectively used to decrease hospitalisations, visits to general practitioners, and overall health costs (Ahn et al., 2013; Lorig et al., 2001).

The Act Healthy programme was adapted from the CDSMP, and specially implemented to assess the health preventative and promotive impact in a workplace setting (Schopp, Bike, Clark, & Minor, 2015). The Act Healthy programme was implemented with a healthy population of employees, at a university in the USA, and was observed to produce similar improvements in the participants' health behaviours and self-efficacy levels, as with the CDSMP (Schopp et al., 2015). When comparing this adapted self-management programme to an intensive health monitoring approach, it proved superior in mood, energy levels, physical exercise, and health hindrances that affect daily life (Schopp, Clark, Lamberson, Uhr, & Minor, 2017).

In general, the Act Healthy programme, although limited in its further documented use, has highlighted that it could be used with healthy individuals, to prevent health issues and promote healthy behaviours, is cost-effective, and promotes the participants' ownership of their own health status (Schopp et al., 2015; Schopp et al., 2017). After assessing the objectives of this current study, the researcher decided to use the Act Healthy programme, and implement it in the rural area, as a pilot.

3.7.2. Stage 2: Pilot study implemented in the rural area

The programme was implemented in the rural area, and the challenges experienced with implementation was documented, while proposed adaptations were noted. Pilot studies are considered important, as they are meant to be mini versions of the larger study to be conducted (Hassan, Schattner, & Mazza, 2006; Van Teijlingen & Hundley, 2002), and could be used to steer the methodology, employed in the larger study. There is sufficient literature to support the importance and value that conducting a pilot study has in research (Malmqvist, Hellberg, Möllås, Rose, & Shevlin, 2019). These studies establish the feasibility of the proposed study protocol, study design, data collection, as well as analysis processes (Hassan et al., 2006), while it highlights weak areas, and tests the instruments (Hasan et al., 2006; Malmqvist et al., 2019), thereby preparing the researcher for the larger study. The benefits of the time and resources dedicated to the pilot study (Hassan et al., 2006), is evidenced by the improved confidence in the selected instruments (Malmqvist et al., 2019).

3.7.3. Stage 3: Adaptations made to the self-management programme

Following the pilot study, it was deemed necessary to adapt the implementation process of the self-management programme. Adaptations to successful health programmes and interventions allow the intervention to be applied to a broader sector of the global population, ensuring the sustainability of the intervention (Zullig & Bosworth, 2015). The important issues to consider, when making changes to a health programme, firstly dictates that the core concepts of the intervention be recognised, and secondly, an equilibrium must be reached between the original intervention and the requirements of the targeted population group (Escoffery et al., 2018; Zullig & Bosworth, 2015). In a recent systematic review (Escoffery et al., 2018), cultural modifications, population needs, and community setting, were highlighted as the most prevalent reasons for the adapting of interventions. Culturally adaptations applied to successful interventions have resulted in improved health knowledge (Howie-Esquivel, Bibbins-Domingo, Clark, Evangelista, & Dracup, 2014), comprehensive advancement in health outcomes (McCallum, Morris, Brown, & Chang, 2017), and furtherance in the management of chronic diseases in communities (Attridge, Creamer, Ramsden, & Hawthorne, 2014). In Chapter 7 of this report, the researcher expands on the adaptations made, and provides the final programme that was implemented.

3.7.4. Stage 4: Description of the final self-management intervention

Based on the pilot study, the researcher identified the areas of the interventions that needed to be modified, to meet the study population's needs. The researcher, therefore, designed an intervention, which was culturally relevant, and that met the needs of the population.

3.8. Phase 4: Implementation and evaluation phase

During this stage, the researcher clarifies the procedure, prior to the participants' enrolment and participation in the intervention. The intervention is described in detail, with the inclusion of the core objectives, target audience, key activities, as well as a description of what the sessions included. The programme outline of the final intervention, is included as part of this stage.

3.8.1. Phase 4. Implementation & impact of a self-management intervention (Chapters 8 & 9)

During this phase of the study, the intervention is implemented, and the impact assessed, through a pretest-posttest intervention.

3.8.1.1 *Research design*

This aspect of the study employed a longitudinal, quasi-experimental, pre-test-post-test design, using both quantitative and qualitative methods. A pretest-posttest design is usually a quasi-experiment, during which, participants are studied, before and after, the experimental manipulation (Salkind, 2010). Quasi-experimental simply implies that the participants are not randomly assigned. In a pretest-posttest design, there is only one group, and all the participants are in the experimental condition. The reason for conducting a pretest-posttest experiment is, to determine whether the manipulation of the phenomenon under study, has caused a change in the participants (Seifert, Pascarella, Erkel, & Goodman, 2010). Since everyone is being manipulated similarly, any changes observed across the group of participants, are likely from the manipulation. Consequently, for this current study, a pretest-posttest design was employed, with a 6- and 12-month follow up. At the 6-months follow up, the quantitative questionnaire was administered again, and semi-structured interviews were conducted. At the 12-months follow-up, only interviews were conducted.

3.8.1.2. *Population and sampling*

As previously stated, convenience sampling was used to recruit one hundred and thirty two (132) CHWs from the Cape Flats and twenty two (22) CHWs from two NGOs in the Theewaterskloof area, in the Western Cape Province of South Africa (n =154), to participate in the quantitative aspect of this current study. The aim of this phase was to ascertain the participants' perceptions of the intervention's impact and not to generalise findings; therefore, the sample size was considered sufficient. The inability to apply the findings beyond the study population was taken into consideration when finalising the sample size.

At the pre-intervention stage, 154 CHWs participated; at post-intervention, 114 CHWs were included; and at 6-months-post-intervention, the study population was 84 CHWs. Attrition is usual in research studies, or clinical trials, and has been defined as the loss of relevant individuals occurring after definition of the population to be included in the study (Matthews, Chatfield, Freeman, McCracken, Brayne, & Medical Research Council, Cognitive Function and Ageing Studies [MRC CFAS], 2004, p. 2). The problem affiliated with attrition is the risk of bias (Barry, 2005); therefore, it is important that attrition be acknowledged and reported (Dumville, Torgerson, & Hewitt, 2006; Kearney et al., 2018). Bias is more of a concern, when the participants, who drop out of the study, possess a unique characteristic, which consequently, alters the representation of the sample, when they exit (Barry, 2005; Li, 2017). Both types of major attrition (selective and non-selective) (Li, 2017) are expected in research studies, although most attempts at reducing attrition has been made by incentivizing participants (Brueton et al., 2014). However, Kearney et al. (2018) proposes that efforts be directed at improving the participants' grasp of the consequences of non-adherence on follow up sessions, and the data collection process. In this current study, one of the major reasons that could be attributed to the attrition rate in pre- to post intervention, and post intervention to six months post intervention, was the participants' inability to complete the intervention programme, due to work obligations.

At the six-month follow-up, interviews were conducted with 15 participants, to explore the impact of the intervention. Subsequently, at the 12-month follow-up,

interviews were once again conducted with an additional 15 participants, to explore how they were implementing their knowledge and skills. This transpired during the COVID-19 pandemic period.

3.8.1.3. Data collection methods and process

Prior to the intervention, data were collected via a questionnaire (Appendices 17 & 18) and semi-structured interviews, as described earlier. The same surveys were used to assess the participants' perceptions of the intervention at six-month follow-up, post intervention. In addition, in-depth interviews were conducted to explore the impact of the intervention. An interview guide was used to assist with the collection of the data for this phase of the study (Appendices 6, 11, & 19). The interviews were conducted at locations and times specified, and convenient to the CHWs. The participants were purposively selected from both groups. Prior to the interviews, the researcher obtained permission to record the interviews, which lasted between 20 and 30 minutes. The questions were focused on the impact of the self-management intervention training on the CHWs. The interviews were concluded when the researcher observed that new data were no longer emerging. At the conclusion of each interview, the researcher recorded field notes and observational cues.



The 12-month interviews were conducted via WhatsApp, due COVID-19 pandemic restrictions (Chapter 9). WhatsApp is a fast, easy to use, and cost-effective instant messaging application (Duys, Park-Ross, Van Straaten, Grant, & Copley, 2021; Manji, Hanefeld, Vearey, Walls, & de Gruchy, 2021) that is used by more than 1.5 billion users in 180 countries (Digital Information World, 2019). Additionally, its usage is prevalent in low- and middle-income countries (Manji et al., 2021), and is an instant messaging application most cited in healthcare (Mars, Morris, & Scott, 2019). Researchers have acknowledged that WhatsApp has improved patient-healthcare provider communication (Nardo et al., 2016), offers persons in a WhatsApp group a sense of belonging (Mefolere, 2016), and improved learning (Nardo et al., 2016). In addition, communication during a research project is simplified and faster, which may enhance the quality of the project (Jailobaev, Jailobaeva, Baialieva, Baialieva, & Asilbekova, 2021). It also facilitates peer support, is a catalyst for enhancing team spirit (Jailobaev et al., 2021), and improves

the care patients receive (Nardo et al., 2016). Despite these great benefits, the challenges with WhatsApp are maintaining privacy and confidentiality (Kaufmann & Peil, 2019), as well as the ethical considerations pertaining to the confidentiality and anonymity of participants (Manji et al., 2021). The protection of personal information is at the forefront, with the POPIA active (Republic of South Africa [RSA], Act 4 of 2013). In order to address the ethical concerns, researchers should: (1) clearly explain their use of WhatsApp in the research process; (2) orderly and transparently document; (3) ensure that only the information pertinent to the research process is recorded; (4) employ data saving; and (5) execute all precautions to protect personal identifiable information of the participants (Manji et al., 2021). In this current study, the participants were duly informed about the use of the WhatsApp application in the study, their consent, as well as their right to opt out at their own discretion.

3.8.1.4. Data analysis

Quantitative:

All the analyses were conducted in consultation with a statistics coach. Descriptive and inferential statistics were conducted. In order to assess significant pre- to post-training changes in depression, health self-efficacy, and health behaviours, the ANOVA, or t-tests, were conducted for pre- vs post-training scores on the measures of depression, self-efficacy, and health behaviours (HPLP-II).

Qualitative:

The researcher used the six-step guidelines, suggested and meticulously furnished by Braun & Clark (2006; 2012; 2017), when conducting the thematic analysis for the qualitative aspect. Firstly, the researcher set out to become familiar with the collected data. Subsequently, the researcher generated codes, identified themes, categorised the themes, named the themes, and generated a report, with all the themes and associated quotes (see table in Chapter 8). While the analysis process is flexible in nature (Nowell, Norris, White, & Moules, 2017), it has been strongly postulated to be fundamental in qualitative research (Braun & Clark, 2006). Thematic analysis allows the researcher to fulfil dual purposes, namely, to interpret the process of code selection, as well as provide a description of the data (Kiger & Varpio, 2020). In this current study, the researcher sought to understand the

participants' perceptions of their experiences, after attending a self-management intervention; therefore, it was deemed an appropriate method to use (Braun & Clark, 2012). The supervisors of the study were engaged in reviewing the full thematic analysis process until the conclusion.

3.8.1.5. *Rigour*

Although the qualitative aspect of the study represented a small component, every effort was made to ensure its trustworthiness. The following procedures were used to enhance trustworthiness:

- **Credibility:** The chosen methods and procedure of identifying participants are described. Based on the notes recorded during the semi-structured, in-depth interviews, a summary of the discussion was presented to the participants to verify its accuracy and confirm that it was a true reflection of the original data (Nowell et al., 2017).
- **Transferability:** To maintain the similarities between the context of sending and receiving, the researcher used quotations with sufficient details and precision (Mays & Pope, 2000).
- **Dependability:** The researcher ensured dependability, by ensuring that the information provided was accurate (Nowell et al., 2017).
- **Conformability:** The analysis of the raw data was subjected to peer examination by colleagues, who had a better understanding of qualitative research. The study supervisor reviewed the field notes and transcriptions, data reduction and analysis, data reconstruction and synthesis (themes, categories, interpretation) to ensure that the findings were not influenced by the researcher's bias (Nowell et al., 2017).

The in-depth interviews were conducted in English and Afrikaans, which were the preferred languages of the participants. Detailed notes were documented by the interviewer throughout the discussions, and read back to the interviewee to ensure that correct documentation was made. The discussions were also recorded on audio tape to ensure accuracy in the data collection process.

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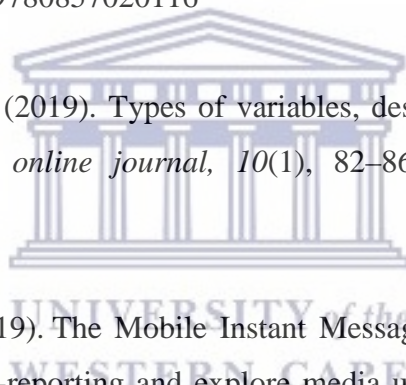
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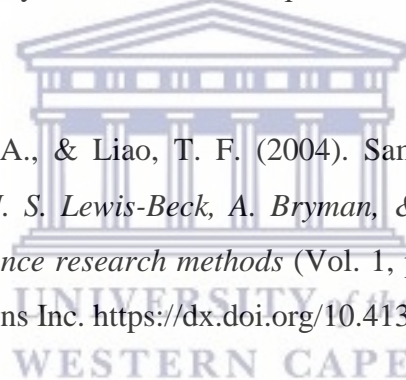
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CHAPTER FOUR

ASSESSMENT OF RISK FACTORS FOR NON-COMMUNICABLE DISEASES AMONG A COHORT OF COMMUNITY HEALTH WORKERS IN WESTERN CAPE, SOUTH AFRICA.

4.1. Introduction

In the previous chapter, the researcher rendered an overview of the research methodology that was employed in this current study. In this chapter, the researcher introduces Part 1 of the first Phase of the study, which involves an assessment of the risk factors that predispose CHWs to NCDs. The findings of this chapter suggest that CHWs are in an optimum position to act as role models for the community; however, those who engage in risky health behaviours are cautioned to acquire ongoing education, to alleviate the risks of NCDs (Article 1).

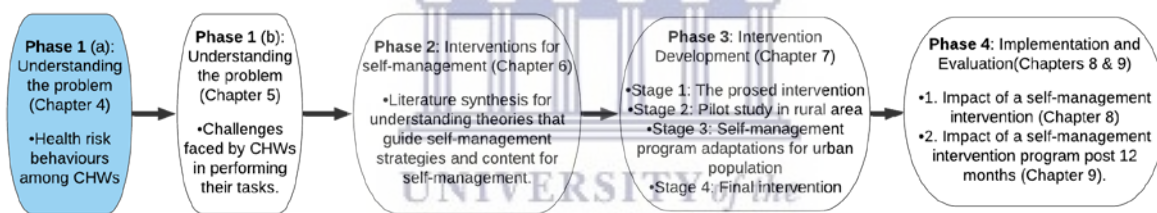


Figure 4.1: Phases of the study

4.2. Publication details

Article 1 was accepted for publication (Appendix 15) by the *Malawi Medical Journal*, the details of which are provided in Table 4.1.

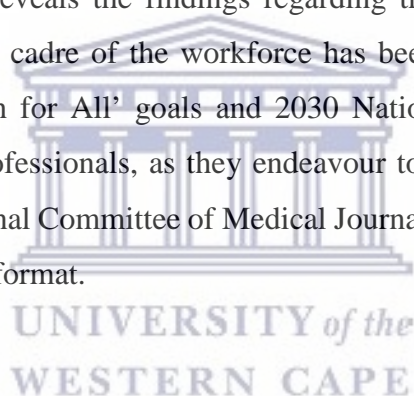
Table 4.1: Article 1 details

Title	Assessment of risk factors for non-communicable diseases among a cohort of community health workers in Western Cape, South Africa.
Authors	Johnson, L., Schopp, L., Waggie, F., & Frantz, J. M.
Year	2021
Journal	Malawi Medical Journal
Volume	
Issue	
Page no.	

Status	Published
Full citation	Johnson L, Schopp L, Waggie F, Frantz J. Assessment of risk factors for Non-Communicable diseases among a cohort of community health workers in Western Cape, South Africa. J. Malawi Medical Journal 33 (3); 196-203. September 2021. DOI: 10.4314/mmj.v33i3.7

4.3. Journal overview

The manuscript will be published in the journal titled, Malawi Medical Journal. This international, peer-reviewed journal, published by the University of Malawi, College of Medicine and the Medical Association of Malawi, focuses on facilitating and providing impetus to Malawian and African researchers, by publishing content that assists and supports ongoing learning, daily practice, and career advancement. It aims to publish relevant research in Africa, which will serve as a catalyst for scientific debate among health professionals. The journal's focus is ideal, as this article reveals the findings regarding the assessment of risky health behaviour among CHWs. This cadre of the workforce has been identified as the vehicle to provide impetus to the 'Health for All' goals and 2030 National Healthcare Plan, and the findings will benefit health professionals, as they endeavour to achieve the set health goals. This journal uses the International Committee of Medical Journal Editors referencing style and the chapter is presented in this format.



4.4. Published article

The content of this chapter contributes to a larger study, which explores the improvement of the health behaviour of community health workers, using a self-management programme. It highlights this cadre's health issues, which need to be addressed, using new skills obtained from self-management. This chapter leads on to the next chapter, in which the challenges that CHWs experience, while executing their duties, as well as their motivation to join a self-management programme, are explored.

4.5. ABSTRACT

Background:

With South Africa experiencing a quadruple burden of disease, Community Health Workers (CHWs) have been identified as key health professionals to drive the agenda of the prevention of health risk behaviours, linked to non-communicable diseases (NCDs). As the designated

advocates for change, they have been tasked with spurring communities on towards good health behaviours, to reach the health behaviour goals set out by the South African National Department of Health (Healthcare, 2030). However, this CHW cohort is also afflicted by various NCDs.

Objectives:

To assess the prevalence of risk factors leading to non-communicable diseases (NCDs), in rural and urban community health workers (CHWs).

Methods:

In this current study, the researcher employed a quantitative design to investigate the prevalent risk factors among 154 conveniently selected community health workers, from purposively selected rural and urban towns. Data were collected by means of a questionnaire, which was aimed at determining the bio-demographic data of the respondents, health status (including medical conditions), health responsibility, physical activity, nutrition, spiritual growth, interpersonal relationships and stress management. The data were analysed using descriptive statistics, SPSS, and the Fishers exact test.

Results:

Data were retrieved from 154 CHWs, of which 144 were female. The mean age of the respondents was 42.2 years (SD=10.9), and 90% held less than a grade 12 level of education. Of the sample, 35.1% reported at least one medical condition, while 25.9% had more than one medical condition. More than 30% of the respondents suffered from hypertension, smoked, and were physically inactive. Spiritual growth scored the highest on the health responsibility scale, and served as a strong coping mechanism for the respondents.

Conclusion:

The majority of the CHWs did not report health risks or co-morbidities, which places them in a prime position to model good health behaviours to communities. However, cognisance is taken of the fact that the information was self-reported, and 30% reported the presence of risk factors. This highlighted the need for ongoing education and health interventions, to mitigate the risks of NCDs, and address the needs of the CHWs.

Keywords:

Community health workers, health, risk behaviours, non-communicable diseases

4.6. INTRODUCTION

Community Health Workers (CHWs) have been identified as the key health professionals to drive the agenda of the prevention of health risk behaviours, linked to non-communicable diseases (NCDs) in South Africa. They are regarded as the agents of change, who will provide impetus to the achievement of the health behaviour goals, set out by the South African National Department of Health¹. However, this cohort may suffer from an array of NCDs. There are various risk factors that influence the health of individuals and contribute to NCDs, including modifiable and non-modifiable risk factors, which cannot be changed, or altered by an intervention, such as age, family history, gender and ethnicity^{2,3}. Modifiable risk factors have been classified as behavioural, physical, and biological⁴.

Globally, NCDs are responsible for 80% of premature deaths in low- and middle-income countries (LMICs)^{5,6}. In response to the NCD *pandemic*, the World Health Organisation (WHO) set a global target in 2012, which was aimed at reducing premature deaths, caused by NCDs, by 25%, by the year 2025⁷. However, this goal will require drastic, immediate, and targeted approaches that address the root causes of NCDs. South Africa has followed the global trend, and evidence depicts an increase in NCDs⁸, with a 27% probability of dying between the ages of 30 and 70 years, as a result of cardiovascular diseases (CVDs), diabetes, cancers, or chronic respiratory conditions^{7,9}. This is similar to other countries such as India (26%), Philippines (28%), Democratic People's Republic of Korea (27%), Mali (26%), Russian Federation (30%), Ukraine (28%), Tajikistan (29%), Fiji (31%), Afghanistan (31%) and Armenia (31%)⁹. In the Western Cape, the prevalence of chronic diseases of lifestyle raises major concerns about the communities' health risk behaviour. The Burden of Disease Survey for the Western Cape, which was released on 24 April 2017, reported that NCDs contributed to 61% of deaths in the Western Province¹⁰.

The top 6 leading risk factors contributing to the global burden of NCDs, are reported as high blood pressure (13%), tobacco use (9%), increased blood glucose levels (6%), physical inactivity (6%), harmful consumption of alcohol (5.9%) and obesity/overweight (5%)^{9,11}. In South Africa, the 4 top modifiable risk factors that influence the burden of disease are unhealthy diets, smoking, physical inactivity and the harmful use of alcohol, especially in citizens living in urban areas^{5,12}.

In addition, studies have revealed that the prevalence of NCDs, such as cardiovascular disease, diabetes, and hypertension, among healthcare workers are similar to the general population, and could be attributed to lifestyle choices^{13,14,15}. Evidently, healthcare workers do not *practice what they preach*, and instead have unhealthy health behaviours, such as smoking, physical inactivity, consumption of alcohol, eating junk food, obesity and sleeping erratically¹⁶. These behaviours clearly predispose them to NCDs. In addition to modifiable risk factors for NCDs, non-professional healthcare workers (those without formal and/or tertiary education) (20.3%) reported a higher HIV prevalence, than professional healthcare workers (13.7%)¹⁷. Current studies have also reported that asthma is more prevalent in healthcare workers, than in non-healthcare workers¹⁸. In addition, workplace exposure, which includes stress, physical exertion, exposure to disinfectants, aerolised drugs, powered gloves, second-hand smoke & allergens could cause asthma in previously healthy individuals¹⁸.

Communities may lack the understanding about the impact of NCDs, especially regarding perceived susceptibility and perceived severity¹⁹. Since CHWs originate from the communities in which they work²⁰, it is assumed that they, consequently, will have similar misconceptions about the full impact of NCDs¹⁹ on their quality of life, and demonstrate similar health risk behaviours as these communities. It is perceived that, in order for health professionals to deliver accurate and effective service, they have to be good role models and understand their own health behaviours^{21,22}.

Studies suggest that CHWs lack sufficient knowledge about NCDs and the risk factors²³, therefore, empowering the CHWS with this knowledge would help them to identify and address it in their own lives, and communicate this insight during their health engagements with the communities. As CHWs are afforded the means to improve their own healthcare, it is assumed that they would transfer the new skill sets and health behaviours to the communities, by modelling their newly adopted lifestyles to them. Once communities are empowered, there could be an increase in the sense of self-determination and self-efficacy²⁴. The snowballing effect, or social persuasion effect, would promote healthy behaviours, and decrease the health risk behaviours in the communities, which could result in a continuum of the empowering process²⁵. In order to *train the trainer* in healthcare for self, and simultaneously equip him/her to transfer these self-management skills to others, an understanding of their perceived risk factors is required. Therefore, this current study is aimed at assessing the risk factors of NCD prevalence among CHWs in urban and rural areas.

4.7. METHODOLOGY

This article forms part of a larger study that explored the empowering of CHWs, to improve their health behaviours, using a self-management approach. A quantitative survey design was employed for the aspect of the study that this article is based on. This method is useful when data on individuals' personal thoughts, behaviours, and feelings are sought²⁶; therefore, it was applicable to this current study that explored the perceptions of CHWs.

The study was conducted in two communities of the Western Cape province of South Africa, purposively selected, because of their need for active CHWs to work in the area. Genadendal and Greyton were selected for the rural area, while Lavender Hill and the Retreat area were considered for the urban area. Both the urban and rural areas are classified as low socio-economic and are inhabited by predominately persons racially profiled as 'coloured'. The Lavender Hill and Retreat areas are ridden with violence. Due to the scarcity of qualified tertiary-trained medical professionals, the CHWs in Genadendal & Greyton act as first responders for these towns.

The population for this current study included, approximately, 3 400 CHWs. The study focused on those working in the selected areas, which employ approximately 200 CHWs. All of them were targeted to participate in the study but only 154 agreed to participate. In recent years, there has been an increased political support for CHWs in South Africa. With the focus placed on re-engineering primary healthcare, it was determined that CHWs should be arranged into nurse-lead teams²⁷ and be employed by Non-governmental organisations NGOs identified and funded by the provincial health departments²⁸. The roles of CHWs in South Africa are concentrated in the domains of prevention and promotion at both household and community levels. Predominately, they are lay health workers who have received informal job training and have no professional or tertiary training²¹.

By means of the convenient sampling technique, a sample of 154 CHWs, from four NGOs, were selected for this study. As this was a pre-test post-test design, generalisability of results is not the focus of the study but the effect on the group and thus the sample size was considered large enough. A questionnaire²⁹ was employed in the data collection process (Appendices 17 & 18). The questionnaire was based on questions from various tools, namely, the *Short Form 12* (SF-12), the Health Promoting Lifestyle Profile 11 (HPLP-11), while an additional section,

comprising health status and bio-demographics were included, as well. The SF-12 has been used extensively in the general population³⁰, as well as in studies with disease groups³¹. In addition, the reliability of the tool was further tested across various cultures³². The HPLP-11 questionnaire is a 52-item, self-reported questionnaire that employs a 4-point Likert-type scale (including 1 = never, 2 = Sometimes, 3 = Often, and 4 = Routinely), to determine the frequency that respondents participate in health behaviours. It has been used widely in research on health behaviour, and has demonstrated high construct reliability, internal consistency, and test–retest reliability.³³ The subscale total scores were derived by generating the mean of items within those subscales (Health Responsibility, Physical Activity, Nutrition, Spiritual Growth, Interpersonal Relationships and Stress Management). The mean score can range from 1 (low participation) to 4 (high participation) for each subscale, with each subscale composed of different numbers of items. Total scores were used in the data analysis to minimize risk of Type I error, as analyses using individual variables would inflate the number of analyses and thereby risk reporting a significant relationship between variables where no such relationship exists.

The researcher (LJ) contacted the head of the NGOs and explained the purpose of the study. CHWs were then invited to a meeting, where the study was outlined, and all the CHWs were invited to participate in this current study. Those who were willing to participate in the study received an information sheet, and signed a consent form before completing the questionnaire. The questionnaires were available in both English and Afrikaans, which allowed the respondents to complete the questionnaires in their language of choice. The questionnaires were administered by the researcher (LJ), and was completed in the presence of the researcher (LJ), to allow the respondents to receive clarity to questions that might have arisen.

Data analyses were done in consultation with a statistics coach. Descriptive, as well as inferential statistics were conducted. Descriptive statistics were used to summarise the urban and rural information of the CHWs, in the form of means, standard deviations, ranges, and t-tests, to ascertain whether urban and rural CHWs differed on any of the measures of interest. The measure is not on a nominal scale, the responses are 1-4 (an interval scale) and verbal descriptor anchor points were added to the numeric scale for clarity. The SPSS was used to analyse the data. Fishers-exact test was used to examine possible associations between socio-demographic characteristics and behaviour status. A significance level of 0.05 (5%) was used for the test.

Ethical clearance was obtained from the Humanities and Social Science Research Ethics Committee of the University of the Western Cape (HS/17/8/23 Appendix 1), and permission was received from the boards of the relevant NGOS that employed the CHWs (Appendix 5). Written informed consent was obtained from all respondents, and confidentiality was ensured.

4.8. RESULTS

Demographics

Of the 154 respondents, 10 were male and 144, female, with a mean age of 42.2 years (SD=10.9). The socio-demographic status indicated that 90% had an education level below grade 12. In addition, the mean years of working experience was 4.5years. The health status of the respondents in this current study are depicted in Table 4.2.

Table 4.2: Health status of participants

VARIABLE	TOTAL	MALE	FEMALE	P-VALUE
Physical Activity				
Physically active for 30 minutes < 3 days	52(33.8)	4(40.0)	48(33.3)	0.734
Physically active for 30 minutes > 3 days	102(66.2)	6 (60.0)	96(66.7)	
Tobacco use				
- YES (Current use of tobacco products)	55(36.2)	3(30.0)	52(36.6)	1.000
- No (No tobacco products used)	97(63.8)	7(70.0)	90(63.4)	
High Blood Pressure				
YES	46(30.1)	3(30.0)	43(30.1)	1.000
NO	107(69.9)	7 (70.0)	100(69.9)	
High Cholesterol				
YES	17(11.0)	1(10.0)	16(11.1)	1.000
NO	137(89.0)	9(90.0)	128(88.9)	
Heart Attack				
YES	2(1.3)	1(10.0)	1(0.7)	0.126
NO	152(98.7)	9(90.0)	143(99.3)	
Diabetes				
YES	17 (11.1)	1(10.0)	16 (11.2)	1.000
NO	136 (89.9)	9(90.0)	127 (88.8)	
High Blood Sugar (Not on medication)				
YES	5(3.3)	0(0.0)	5(3.5)	1.000
NO	148(96.7)	10(100)	138(96.5)	
Depression				
YES	11(7.1)	1(10.0)	10(6.9)	1.000
NO	143(92.9)	9(90.0)	134(93.1)	
Heart Disease				
YES	3(1.9)	1(10.0)	2(1.4)	1.000
NO	151(98.1)	9(90.0)	142(98.6)	

Stroke				
YES	1(0.6)	0(0.0)	1(0.7)	1.000
NO	153(99.4)	10(100.0)	143(99.3)	
Arthritis				
YES	12(7.8)	0 (0.0)	12(8.3)	1.000
NO	142(92.2)	10(100.0)	132(91.7)	
Anxiety				
YES	7(4.5)	0(0.0)	7 (4.5)	1.000
NO	147(95.5)	10(100.0)	137 (95.1)	
Asthma				
YES	21(13.6)	0(0.0)	21(14.6)	0.359
NO	133 (86.4)	10(100.0)	123(85.4)	
Diagnosed other medical conditions				
YES	26(16.9)	4(40.0)	22(15.3)	0.066
NO	128(83.1)	6(60.00)	122(84.7)	

The associations between the gender and medical conditions of the respondents were not statistically significant. The relatively small sample size, and the unevenness in the values within many of the variables (for instance, 93.6% of respondents were females), could be a reason that the associations between the respondents' gender and their medical conditions, were not statistically significant. Approximately 30% of the respondents smoked, had high blood pressure, and participated in less than 3 days of physical activity.

Based on the health need questionnaire, the behaviour of the respondents, and the risk factors that could contribute to NCDs, are described in Tables 4.3 to 4.8. The mean for each question was determined, as well as the mode. The overall mode for health responsibility was 3, for physical activity, it was 1, nutrition 3, spiritual growth 4, interpersonal relationships 3, and stress management 4.

Table 4.3: Health responsibility responses

BEHAVIOUR	MEAN	MODE
How often do you report signs, or symptoms, to a doctor, or other health professional? (Report Signs)	2.27	3
How often do you read, or watch TV programmes about improving health? (TV)	2.86	3
How often do you ask health professionals, so that you can understand instructions? (Instruct)	3.33	4
How often do you get a second opinion, when unsure about your healthcare provider's advice? (sec. opinion)	3.07	3
How often do you discuss your health concerns with health professionals? (Concerns A)	2.88	3

How often do you check your body, at least monthly, for physical changes/danger signs? (Inspect)	2.73	3
How often do you ask for information from health professionals about how to take good care of yourself? (Ask)	2.90	3
How often do you attend programmes to learn about healthcare?(Ed Programmes)	2.65	3
How often do you ask for advice, or counselling when you need it? (Guidance)	3.09	3
TOTAL		3

Notes: HPLP-II has 52 items, with responses including 1 = never, 2 = Sometimes, 3 = Often, and 4 = Routinely.

It is noted that the mode (3) is high, and on average, the results indicated that the respondents were neither reporting, nor discussing personal health challenges with health professionals, or pursuing information about improving health.

Table 4.4: Physical activity participation

BEHAVIOUR	MEAN	MODE
How often do you follow a planned exercise programme? (programme)	2.08	1
How often do you exercise intensely for 20, or more minutes, at least 3x per week (such as fast walking, bicycling, dancing)? (Vigorous Exercise)	2.61	3
How often do you participate in light to medium physical activity (such as walking 30-40 minutes at a time 5 or more times a week)? (Take Part)	3.14	4
How often do you participate in leisure-time (recreational) physical activities (such as swimming, dancing, bicycling)? (Leisure)	2.15	1
How often do you perform stretching exercises at least 3x per week? (Stretch)	2.26	2
How often do you exercise during usual daily activities (such as walking during lunch, using stairs, walking)? (Daily Exercise)	3.18	4
How often do you check your pulse, when exercising? (Pulse)	2.14	1
How often do you reach your target heart rate, when exercising? (Target)	2.18	1
TOTAL		1

Notes: HPLP-II has 52 items, with responses including 1 = never, 2 = Sometimes, 3 = Often, and 4 = Routinely.

The mode for physical activity emerges as a 1; although, it is important to note that the respondents were participating in physical activity on a regular basis. However, they were not assessing the impact that the exercise had on their heart rates, nor were they, specifically, planning their activities. The mean for leisure time activity was low, which could be influenced by their definition of leisure time activity, or highlight their cultural differences in the type of activities this questionnaire presented.

Table 4.5: Nutrition responses of participants

BEHAVIOUR	MEAN	MODE
How often do you choose a diet, recommended by my healthcare provider? (Diet)	2.19	3
How often do you limit the use of sugars and food containing sugar? (sweets) (Sugar Use)	2.66	3
How often do you ask health professionals, so that you can understand instructions? (Instruct)	3.33	4
How often do you eat 4-5 servings of fruits each day? (Fruit)	2.38	2
How often do you eat 4-5 servings of vegetables each day? (Vegetables)	2.80	3
How often do you eat 2-3 servings of milk, yoghurt or cheese each day, or as directed by your healthcare provider? (Dairy)	2.44	3
How often do you eat, at least 6 or less servings of meat, poultry, fish, dried beans, eggs, nuts each day, or as directed by your healthcare provider? (Protein)	2.75	3
How often do you read food labels to understand nutrition in packaged food? (Labels)	3.07	4
How often do you eat breakfast? (Breakfast)	2.85	4
TOTAL		3

Notes: HPLP-II has 52 items, with responses including 1 = never, 2 = Sometimes, 3 = Often, and 4 = Routinely.

On average, the respondents were not consuming the recommended allowance of fruit and vegetables each day, coupled with failing to limit sugar intake, and refusing to follow a prescribed diet plan. This could predispose them to certain health conditions, including obesity.

Table 4.6: Participants' responses to spiritual growth

BEHAVIOUR	MEAN	MODE
How often do you feel that you are growing and changing in positive ways? (Growing)	3.02	3
How often do you believe that your life has purpose? (Believe)	3.63	4
How often do you look forward to the future? (Future)	3.62	4
How often do you feel happy and at peace with yourself? (Peace)	3.33	4
How often do you work towards long-term goals in your life? (Long term goals)	3.30	4
How often do you find each day interesting and challenging? (Challenges)	3.25	4
How often are you aware of what is important to you in your life? (Important)	3.43	4
How often do you feel connected with some force greater than you? (Connected)	2.99	3
How often do you try new things? (Expose)	3.36	4
TOTAL		4

Notes: HPLP-II has 52 items, with responses including 1 = never, 2 = Sometimes, 3 = Often, and 4 = Routinely.

This is an area, in which the respondents excelled. In addition, it is important to note that this could be one option, which could be used to cope with the daily challenges experienced.

Table 4.7: Participants’ responses to interpersonal relationships

BEHAVIOUR	MEAN	MODE
How often do you discuss problems and concerns with people close to you? (Concerns)	2.61	3
How often do you praise other people easily? (Praise)	3.44	4
How often do you maintain meaningful relationships with others? (Relationships)	3.53	4
How often do you spend time with close friends? (Friends)	2.99	3
How often do you touch, and are you touched by, people you care about? (Touch)	3.55	4
How often do you find ways to meet your needs for intimacy? (Intimacy)	2.66	3
How often do you get support from a group of people, who care about you? (Support)	2.98	3
How often do you settle conflicts through discussion, or give and take? (Conflicts)	2.99	3
TOTAL		3

Notes: HPLP-II has 52 items, with responses including 1 = never, 2 = Sometimes, 3 = Often, and 4 = Routinely.

The mode reflected high for this section; however, the concern was whether the respondents were able to disclose their problems, and/or whether the relevant human resources were available to them to do so.

Table 4.8: Participants’ responses to managing stress

BEHAVIOUR	MEAN	MODE
How often do you get enough sleep? (Sleep)	2.83	3
How often do you take some time for relaxation each day? (Relax)	2.92	3
How often do you accept those things in your life that you cannot change? (Accept)	3.27	4
How often do you concentrate on pleasant thoughts at bedtime? (concentrate)	2.97	3
How often do you use specific methods to control your stress? (Stress)	2.55	3
How often do you balance time between work and play? (Balance)	2.74	3
How often do you practice relaxation, or meditation, for 15-20 minutes? (Meditation)	2.23	1
How often do you pace yourself, to ensure that you do not become too tired? (Pace)	2.66	3
TOTAL		3

Notes: HPLP-II has 52 items, with responses including 1 = never, 2 = Sometimes, 3 = Often, and 4 = Routinely.

The mean for most of these items were reported as low; however, the concern existed that the respondents did not possess adequate stress management skills.

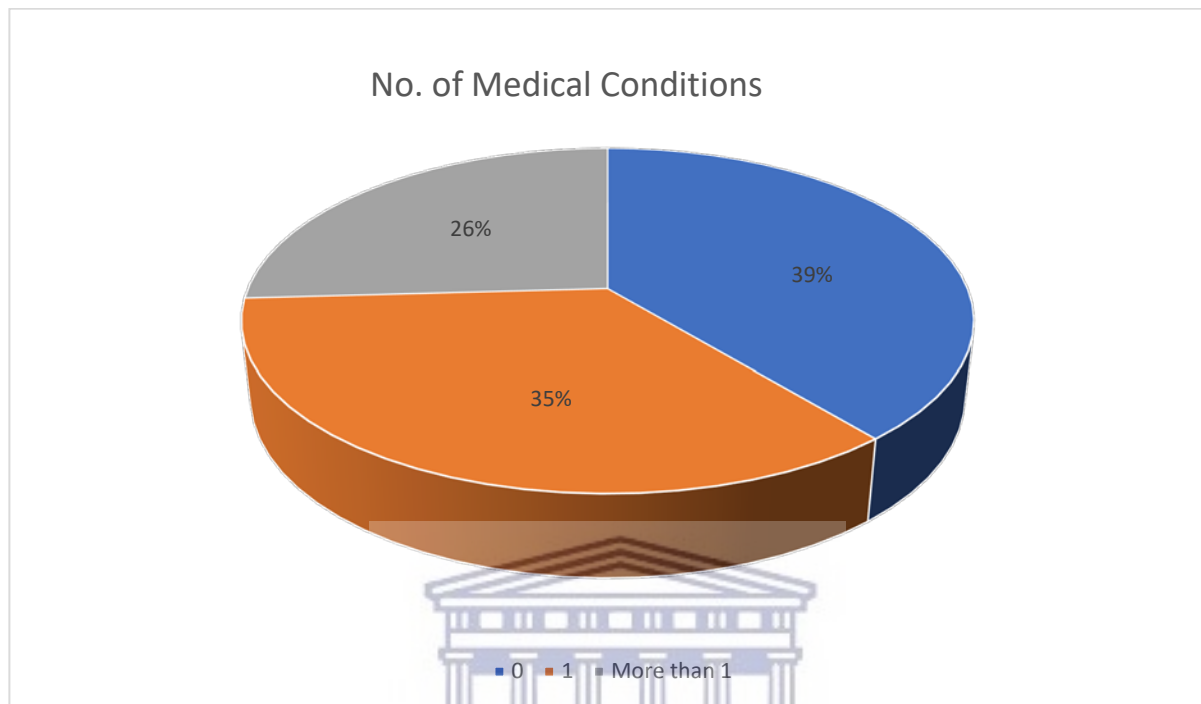


Figure 4.2: Number of medical conditions reported by participants

As depicted in figure 4.2, the majority of the respondents reported not having any medical conditions [60 (39%)], while 35.1% had one medical condition. Fewer respondents [40, (25.9%)] reported having more than one medical condition.

4.9. DISCUSSION

It is important to determine the risk factors for NCDs in any population, when planning to implement prevention programmes. More importantly, establishing the presence of NCDs in health workers is essential. This current study focused on determining the prevalence of risk factors for NCDs in CHWs. NCDs share common risk factors, such as poor nutrition, excessive use of alcohol, physical inactivity and smoking⁵.

In this current study more than 30% of the respondents reported hypertension, tobacco use, and physical inactivity. The results of this study are aligned with, and even higher than the findings of other studies. In one study, smoking rates of 11% among health workers were reported³⁴.

Recent studies have reported an increase in the use of tobacco in LMICs³⁵, as well as the coloured population, where a 50% higher mortality rate for coloured smokers has been reported³⁶.

Participation in physical activity was observed to be beneficial for the majority of the respondents; however, they did not understand how to monitor the impact of exercise, as well as the health benefits thereof. The results also revealed that the respondents did not have good coping strategies to manage their stress, which highlighted the need for education. Spiritual growth emerged positively among the respondents, which could be perceived as their main coping strategy. However, there is a void in literature, regarding the way, in which spirituality and spiritual growth could assist CHWs to cope. Although, there is evidence to suggest that strong religious and spiritual affiliations, lead to positive physical and mental health outcomes, as well as improvement in coping skills^{37,38,39}.

The mean for the concept intimacy was also low, which could be attributed to their lack of understanding of the full concept of intimacy. This question the researcher had to explain, during the completion of the questionnaires, as the respondents were unclear about whether the question referred especially to the physical pleasuring of their bodies. This uncertainty about the term is understandable as it is referenced in different ways in varying cultures⁴⁰.

It has been reported that the CHWs' training and knowledge of risk factors for NCDs is limited and needs drastic improvement²³, to raise awareness and provide education around modifying lifestyle behaviours⁴¹. However, this group of respondents presented a low risk profile, in terms of risk factors for NCDs. Consequently, it is logical to conclude that, should this group be provided with adequate training, they could be ideally positioned to lead the way in advocating the cessation of smoking³⁵, as well as the rehabilitation of other risk behaviours that predispose individuals to NCDs, to the wider society⁴².

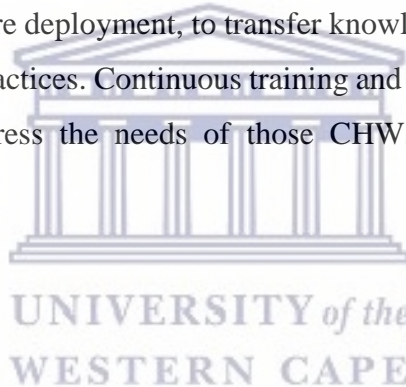
CHWs are engaged in health promotion and health education activities in communities, to facilitate behaviour change among community members. Therefore, as change agents in communities, CHWs are considered the advocates of the health of the general public⁴³, and the role they fulfil in empowering communities with various health promoting activities, is duly acknowledged⁴⁴.

4.10. FUTURE DIRECTIONS

Future empirical work will be conducted to examine and validate possible cut-off scores for the dimensions of the HPLP-II with respect to health status and health outcomes. This could assist employees to guide the health of CHWs.

4.11. CONCLUSION

This current study reported that most of the respondents did not engage in health risk behaviours, or have co-morbidities. Their years of experience (mean=4,5 years) as CHWs, doing health promotions may have equipped them with knowledge, to understand the risks and consequently, they have been able to implement good health behaviours into their own lives. These characteristics in this cohort of CHWs match the profile of an effective CHW, making them good role models for future deployment, to transfer knowledge and educate communities about good health behaviour practices. Continuous training and health awareness programmes, however, are required to address the needs of those CHWs, who engage in health risk behaviours.



4.12. STUDY LIMITATIONS

Convenience sampling provides the opportunity to collect data easily, but does not allow all the findings to be generalised. This however, does not prevent the information to be used as a guide for practice. Another limitation was the inability of the CHWs to understand some questions/concepts such as “intimacy”, “leisure time activity”. Furthermore, the sample size is small, raising concerns about the generalization of the findings. Because the data were self-reports of prevalence of risk factors, it is subject to recall bias. Despite these limitations, the information can serve as a guide for countries, which have a similar context.

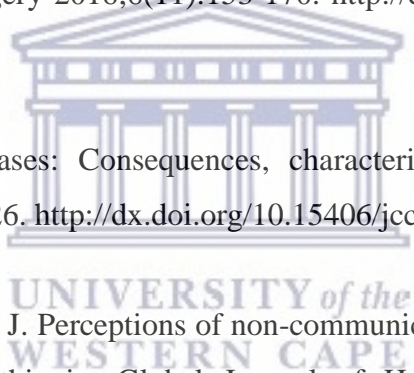
4.13. IMPLICATIONS OF THE STUDY

On an individual level, this cohort of CHWs understand the gravity of managing their own health behaviours. This positive example will make them ideal role models to promote good health behaviours and minimise risky health behaviours among the communities they serve. In time, these positive lifestyles will assist in eradicating the burden of disease. This information

is also useful for the Department of Health who can utilize this data when deciding on the best implementation strategy of CHWs in the primary healthcare setting to achieve the 2030 healthcare goals and decrease the burden of disease.

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CHAPTER FIVE

CHALLENGES EXPERIENCED BY COMMUNITY HEALTH WORKERS AND THEIR MOTIVATION TO ATTEND A SELF-MANAGEMENT PROGRAMME

5.1. Introduction

In the previous chapter, the researcher presented an assessment of the health risk behaviours linked to NCDs, which CHWs engaged in. This current chapter introduces Part 2 of Phase I of the study, which explores the challenges faced by CHWs while performing their tasks, as well as their motivation to attend a self-management programme. Subsequently, the researcher outlines the results following the in-depth interviews with the CHWS. The findings of this chapter indicate that it is important to listen to the often, *silenced voices* of CHWs, in order to provide them with empowerment and motivation, which ultimately, will influence the health behaviours of the communities positively, as well as reduce the burden of disease (Article 2).

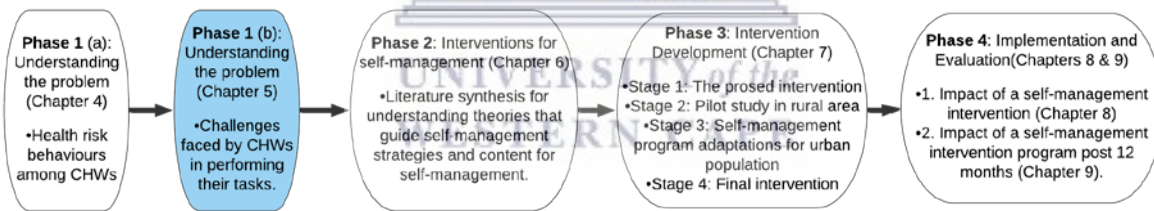


Figure 5.1: Phases of the study

5.2. Publication details

Article 2 was accepted for publication (Appendix 16) in *The African Journal of Primary Health & Family Medicine*, the details of which are provided in Table 5.1 below.

Table 5.1: Article details

Title	Challenges experienced by community health workers and their motivation to attend a self-management program
Authors	Johnson L, Schopp L, Waggie F, Frantz JM.
Year	2021
Journal	PHCFM. The African Journal of Primary Health & Family Medicine.

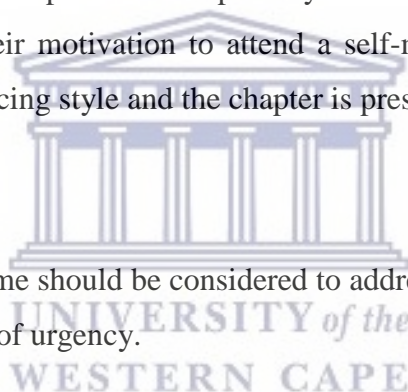
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5. 3. Journal overview

The manuscript was published in the journal titled, *The African Journal of Primary Health & Family Medicine*. The international, peer-reviewed journal, stored under AOSIS publishing house, focuses on family medicine and primary healthcare across Africa, and globally. The focus is ideal for this article, as it is positioned in primary healthcare, and focuses on challenges experienced by CHWs and their motivation to attend a self-management programme. This journal uses Vancouver referencing style and the chapter is presented in this format.

5.4. Published article:

The self-management programme should be considered to address the many health challenges that CHWs endure, as a matter of urgency.



5.5. ABSTRACT

Background:

Community health workers are change agents expected to assist in decreasing the global burden of disease in the communities they serve. However, they themselves have health risk behaviours, which predispose them to non-communicable diseases and thus need to be empowered to make better health choices. There is a gap in literature detailing the challenges faced by community health workers in addressing their own health risk behaviours.

Aim:

The overall aim of this study was to explore the challenges experienced by community health workers in carrying out their daily duties and the motivating factors to join a self-management program.

Setting:

The study was conducted in a low socioeconomic urban area of the Western Cape, South Africa.

Methods:

This study used a qualitative exploratory design using in-depth interviews to obtain rich data about the personal and professional challenges that community health workers experience on a daily basis.

Results:

Five themes emerged with regard to professional challenges (social conditions, mental health of patients, work environment, patient adherence and communication). This cadre identified ineffective self-management as a personal challenge, and two themes emerged as motivation for participating in a self-management program: empowerment and widening perspective.

Conclusion:

The challenges raised by the community health workers have a direct impact on their role in communities. This study therefore highlights an urgent need for policy makers and leaders who plan training programmes to take intentional strategic action to address their health challenges, and to consider utilising a self-management intervention model to improve their overall health status.

Key words:

Challenges, Community health workers, health behaviours, motivation, self-management

5.6. INTRODUCTION

Community health workers (CHWs) are central to driving health promotion and prevention strategies as part of community-based primary healthcare infrastructure. The global shortage of health professionals has driven an increase in the use of CHWs as a key cadre to meet the health needs of society. Globally, there is a shortage of health workers such as midwives, nurses and physicians.¹ Parallel to this shortage in the workforce is the increase in the disease burden in resource-constrained countries with an increase in communicable and non-communicable diseases.² Sub-Saharan Africa has only 3% of the total health workers in the world and this group provides service to a region that carries 24% of the global burden of disease.³ South

Africa has an inequitable distribution of medical resources as a result of the apartheid epoch, and has struggled to increase the formal health force with skilled health professionals, as many health workers opt to relocate to countries that provide higher incomes.¹ Consequently, the global shortage of health professionals has affirmed the resolve to invest in training more CHWs, to address these health and development needs.⁴ CHWs are regarded as an integral part of the model designed to increase the number of persons able to meet the health needs of society and simultaneously provide a vehicle for sustainable improvement in global health.⁵

CHWs have very basic-level healthcare skills, and CHWs require training to achieve ‘structural competency’ in primary healthcare practice.⁶ Training helps CHWs gain understanding of underlying complex structural, disease, and individual factors related to patient non-adherence to recommended medical regimens, rather than attributing treatment failures solely to poor patient-level motivation.^{7,8} Structural competence has been defined as ‘the capacity for health professionals to recognise and respond to health and illness as the downstream effects of broad social, political and economic structures.’⁶ CHWs who by definition are trusted members of the communities they serve⁹ understand and are knowledgeable about the environmental, social and political factors as well as the interpersonal networks community members encounter.⁸ CHWs’ intimate knowledge of these social determinants, coupled with their role as community advocates, enable CHWs to play a vital 2-prong role: 1) to contribute to policy change¹⁰ to redress imbalances in healthcare, and 2) to foster long-term well-being of communities.¹¹ First-hand knowledge of information about local structural factors impeding community health positions CHWs in an ideal role to use this cultural competence to deliver improved patient-centred health services.¹²

The impact of CHWs in the care of non-communicable diseases has garnered empirical support. CHWs’ roles as health educators, advisors, rehabilitation workers and group support facilitators stand them in good stead to influence community health.¹³ CHWs also play an important role in helping communities meet their health & social needs.¹⁴ As key frontline health workers who are active in communities and have a deep understanding of community needs, they are expected to provide appropriate health information and to advocate on behalf of the neighbourhoods they serve.

Literature highlights that CHWs use their personal experiences to play a crucial role as a buffer between communities and the health system.¹⁵ A recent study emphasised that it is important

that health trainers such as CHWs negotiate the tension between knowledge of health risk behaviours and individual lifestyle choices.¹⁶ They are considered pivotal players in managing health risk factors, and so must serve as local role models. In a study conducted in the African context which focused on personal physical activity and patient counselling practices, the authors highlighted the need for the credibility of health professionals to do health education that is in line with their own personal practices.¹⁷ This is supported by researchers that highlighted the need for health workers to be more proactive in terms of their own risk behaviours and increase their own understanding as to why individuals make certain decisions about health behaviours.¹⁸

One tool that has been identified as an effective way to promote behaviour change is self-management. Self-management is a health behaviour change strategy¹⁹ which zeroes in on the patient's perception²⁰ and allows individuals to enhance their own health status by achieving graduated success in self-determined health goals.²¹ It has been used successfully in a variety of disease management with positive changes in health behaviours recorded.^{22,23} A recent study²⁴ found that CHWs wanted to participate in self-management interventions in order to gain knowledge and skills to help themselves and others. This is important, as CHWs are seen as public health workers who can build individual capacity in communities. This article explored the challenges experienced by CHWs in carrying out their duties as well as their motivation to join a self-management program.

5.7. METHODS

Study design

This study employed a qualitative exploratory design using in-depth interviews among CHWs prior to enrolment in a self-management program. The interviews were conducted with two primary purposes namely to describe the CHWs' personal and professional challenges in performing their duties, and to examine motivations for wanting to join a self-management program. This study design allows for the in-depth, rich, and holistic understanding of the phenomena under investigation.²⁵

Research setting

The study was conducted in an urban setting in the Western Cape, South Africa. According to the 2011 Census of Cape Town, the high rates of poverty (47%) within the community tends

to compromise the mental health and well-being of the residents.²⁶ The CHWs in this area work in environments which are both socio-economically poor and have high rates of violence. Approximately 84% of attempted murders in this area is attributed to gang activity and this region is in the top ten for illegally possessing firearms and ammunition.²⁷

With the re-engineering of primary healthcare in South Africa, the support for the CHW workforce has expanded leading to them being employed by NGOs sanctioned by the provincial health departments.²⁸ These lay healthcare workers who did not have formal training, worked in nurse-led teams¹³ and their focus was directed towards health prevention and promotion.

Sampling

Participants formed part of a bigger study where they completed a survey related to determining their risk factors for non-communicable diseases.²⁹ Based on the survey, participants were purposively selected to be interviewed. Purposive sampling is a technique used in qualitative research to obtain rich information from key participants³⁰ thus allowing for recruitment of participants meeting predetermined criteria aligned with study objectives.³⁰ Stratified purposive sampling allows the researcher to capture variations in thoughts rather than identify a common core although the latter may emerge during analysis.³⁰ Thus, the number of participants is not important, but rather the information obtained from participants. The two inclusion criteria for participation in the study were that CHWs had to be employed as CHWs at the time of the study, and they had to indicate that they were willing to participate in a self-management program. Participants were excluded if they were not willing to participate in the self-management program. Fifteen participants were recruited from two NGOs that employ CHWs in the Western Cape.

Data collection

Data were collected by means of in-depth interviews. In-depth interviews are relevant when comprehensive insight about participants' concepts, perspectives, behaviours and experiences regarding a specific intervention, idea or situation is sought.³¹ Interviews allow the researcher to understand how participants view the phenomena under investigation.^{31,32} This interview strategy provides a comfortable and natural atmosphere which facilitates conversation,³² as meeting one on one with the interviewer enables those who would normally shy away from contributing opinions in a group setting to voice their perspectives, and provides more explicit information than surveys.³¹ In this study interviews were conducted by a trained researcher at a mutually suitable date and venue.²⁴ The researcher has a background in physiotherapy and

has conducted several interviews as part of research projects. She was also guided by experts as supervisors for this project. Informed consent and permission to record the interviews was obtained prior to interviews, and interviews lasted approximately 20-30 minutes. Interviews were started with the key questions and probes were used during the interview process. The interviews were based around two central questions: 'What are the challenges you experience personally and professionally in conducting your duties? Why would you be interested to join a self-management program or what would be your motivation to join a self-management program? Individual interviews were conducted until saturation was achieved. The participants were interviewed in the language they preferred (English/Afrikaans) as the researcher was versatile in both languages. Field notes and observational cues were recorded by the researcher at the end of each interview.

Data analysis

Each interview was transcribed verbatim. Given the exploratory nature of the study, thematic analysis was conducted following a rich and detailed account from the participants.³³ The interviews were transcribed verbatim and each transcript read several times by the primary researcher. Initial codes were created by writing notes on the transcripts. Codes were then group and clustered together into agreed upon themes by the researcher and co-researchers.

To promote confidence in the research and ensure quality it is essential that the protocols and procedures employed in the study are detailed.³⁴ The following procedures were conducted to ensure trustworthiness: during interviewing the researcher repeated the central questions in different ways to ensure that the participants understood the questions (credibility). In addition, detailed notes were taken during the interview process and interviews were recorded (dependability). Co-researchers who were academics and had expertise in the field of qualitative research, reviewed all notes made during the analysis process and discussed the conclusions reached (Confirmability). During the reporting of the findings, actual quotes are used relevant to the participants and a full description of the context is provided (Transferability).

Ethics

This study was approved by the Human and Social Sciences Research Ethics Committee at the University of the Western Cape, HS17/8/23. Consent was sought from individual participants prior to all interviews and observations. For confidentiality, pseudonyms are used throughout this article for CHW clients, geographical areas and the names of the NGOs.

5.8. RESULTS

Fifteen participants were interviewed. As indicated in Table 1, CHW participants lived in the communities, in which they worked, for an average of 21.5 years, and have been working as CHWs for an average of 3.7 years. The participants were primarily female (80%), 33 % were married and had a mean age of 43.2 years. All the participants received a monthly stipend through the two NGOs. Participants were primarily engaged in home visits, providing home-based assistance with activities of daily living, ensuring adherence to TB and HIV medication regimens, and conducting blood pressure and blood glucose monitoring.

Interpretation of the results yielded five themes (social conditions, mental health of patients, work environment, patient adherence and communication) of challenges experienced by the CHWs in performing their duties. Personal challenges revealed ineffective self-management as a theme, and motivation for participating in a self-management program was characterised by two themes: CHW empowerment and widening CHWs' perspectives (Table 2). Quotations are used to illustrate how the information is rooted in the participants' perceptions and experiences.

Table 5.2: Description of the participants

No	Years living in the community	Years as a CHW	Age	Type of work	Family
1	37 years	7 years	37	Follow up on TB and HIV patients	Single mother of 3 kids
2	20 years	5 years	31	Seniors BP monitoring, exercise and health talks	Single mother with 1 child
3	4 years	1 year	50	Assist elderly patients with ADL	Single mother with 2 children
4	12 years	6 years	42	Assist patients with ADL and at senior clubs do BP readings and sugar testing	Married mother with 2 children
5	23 years	7 months	23	Follow up on TB and HIV patients and breast-feeding counselling	Single mother with 2 children
6	10 years	3 years	46	Home based care and TB and HIV follow ups	Widowed mother with 1 child.
7	20 years	5 years	52	Home visits and follow up on HIV patients	Divorced mother of 3 and grandmother of 5 children
8	11 years	4 years	42	Work with patients who have TB, HIV and diabetes	Single female
9	24 years	3 years	54	Follow up and home visits of HIV patients	Divorced mother of 3 and grandmother of 3
10	7 years	5 years	39	Adherence support for TB and HIV patients	Married mother with 2 children
11	8 years	2 years	67	Home assessments (BP etc)	Married father with children

12	56 years	1 year	56	Home visits, massage, medication	Married mother with 8 children & grandmother of 6
13	27 years	7 years	43	Manage CHWs	Single mother with one child
14	34 years	4 years	34	TB and HIV care	Single male without children
15	30 years	18 months	32	TB and HIV care and administration	Married father with 2 children

Source: Information from transcripts

Table 5.3: Emerging themes of challenges

Question	Codes	Theme
What are some of the challenges/difficulties you face in: <input type="checkbox"/> Promoting the health of your patients?	Social circumstances and depression Challenges in the home and understanding fearful behaviour	Social conditions
	Depression in patients Denial Empathy shown by CHWs	Mental health status of patients
	Lack of patient compliance Lack of understanding	Patient adherence
	Workload and expectations of the CHWs' employers	Work environment
	Perceived rudeness of patients Patient interaction Stigma associated with certain illnesses e.g. TB and HIV Lack of education in community members	Communication
What are some of the challenges/difficulties you face in: <input type="checkbox"/> Promoting your own health?	Lack of self-care Lack of motivation Personal personality challenges	Ineffective self-management
What would motivate you to participate in a self-management program?	Get to know myself better Goal oriented	Empowerment
	Learn new things Improved outlook and understanding	Widening perspective

Source: Information from transcripts

Challenges experienced by CHWs

The challenges experienced by the CHWs included the influence of social conditions, mental health status of the patient, patient adherence, communication, and work environment.

Social conditions

This theme comprised social factors influencing patient health status, such as the impact of socio-economic status on individual and community mental health.

“Sometimes it is difficult for us to get through to them in a sense like they have their own house problems as well” (P5F)

Participants also noted that poverty affected patients’ response to healthcare interventions.

“..it’s already poor communities so all that circumstances depress these people” (P1F)

The participants also commented about gaining access to patients’ homes and the patients’ reactions that arriving at their homes could evoke. These reactions are because of the CHWs daily interaction in the community and living in fear. They expressed being received poorly by patients, such as instances in which patients rudely addressed CHWs and were dismissive of CHWs when CHWs requested access to patient homes. These CHWs noted that this was particularly prevalent, when the CHWs started to work in a particular area, and were not yet well known to community members.

CHWs in the study also reported being denied access to clients’ homes, albeit for different reasons. The CHWs noted that clients were concerned that the police were at their door. This is consistent with the high-crime neighbourhoods in which the CHWs conduct their work, and police visits were not associated with favourable news or outcomes.

“I discovered that when you get to people, sometimes....a lot of them are very edgy if you knock they think it is the police” (P11M)

Mental health status of patients

This theme captured how participants experienced their patients when doing home visits. Although the community health workers realised that they cannot diagnose patients, they were able to recognise mental health symptoms and demonstrate empathy as they dealt with patients.

“...some of them are very depressed, they have other issues as well, so when you try and speak to them, they are very closed” (P1F)

“...most of them are in denial or they don’t want to know they are sick” (P2F)

“It’s basically trying to like bring yourself on the same level as the person cause obviously you are not as sick as that person is, so sometimes it’s difficult for you to get through to the patient” (P5F)

Patient adherence

CHWs communicated frustration in getting community members to change their health behaviours.

“She does nothing like I tell her, not the exercise, nothing. Every time when I must go treat her then her skin everywhere and arms are stiff like rocks, then I massage it right again.” (P3F)

Participants expressed a perception that patients refuse to adhere to health advice despite concerted CHW efforts.

“I struggled a lot to get through because why it puts a strain on me especially when I communicated with a patient but they don’t want to listen.” (P8F)

Follow up of patients who defaulted treatments can be complicated and unsuccessful.

“...when the patient default and you’re supposed to go look for the patient and you find out that this patient doesn’t live here. This patient gives the incorrect address, stuff like that.” (P13F)

Work environment

CHWs in the study also identified this struggle to manage workload in their high-need, low-resource community settings.

“Sometimes it feels like they didn’t think this through cause there’s just so much that a person can do in a day but then they expect you must have a workload of so much” (P1F)

Occupational stress triggered by perceived inadequate staffing to ensure patient safety was also a factor.

“I was so scared that I will do something with the old people, because if they fall, I will get into trouble” (P3F)

Communication

The participants reported communication challenges, when met with disrespect from community members, as well as how they managed this dynamic, while ensuring appropriate health service delivery.

“Some of the patients are very rude. What we came to learn is that one must just be quiet” (P9F)

“A lot of times I have been in peoples’ homes that are a bit rude, [previously] some of the patients who were not rude, but are now so rude” (P12F)

The CHW participants noted community members’ lack of education as a factor limiting their ability to comprehend healthcare instructions. The CHWs in the current study showed insight into this barrier and were able to utilise their knowledge of the community to advance the treatment or programs they were administering.

“sometimes we have to explain more detail for the patient because sometimes the people don’t know exactly about TB and then the stigma” (P10F)

“I mean, not everybody is educated and etcetera, so you have to come down on a level of understanding so that would have to be patience and understanding also,” (P15M)

Challenges with their own health

The second question of this study focused on the challenges that CHWs experienced with their own health. The themes that emerged were ineffective self-management with lack of self-care, lack of motivation, and CHWs’ own personality challenges.

Ineffective self-management

“The challenges that I had is to eat healthy and even if I’m on medication and not taking medication,” (P10F)

“For myself, I will say, yes because I’m very lazy hey- I’m not lazy, it’s almost like, I always need a coupling [colleague] to do something.” (P13F)

“I faced a lot of challenges and so with that I had destructive ways about me because that was the way I managed things to keep it there and not let it go any further” (P15M)

Motivations to participate in a self-management program

The third line of inquiry in interviews focused on why the CHWs would want to engage in a self-management program. The two themes that emerged were empowerment and widening perspectives.

Empowerment

The participants indicated a desire to become more confident and to take control of their own lives, including the need to focus on themselves at times rather than on the community.

“So obviously that has to do with me personally and I wanted to like, basically just get to know myself much better also than what I do at the moment and manage myself properly also in a way that is pleasing and also pleasant for other people around me.” (P15M)

“The main emphasis...–I would say it was like mostly goal orientated and that was, kind of, exactly what I needed. To be honest with you, the way I grew up I wasn’t really motivated and I needed to get motivated.” (P14M)

“For me, it was that I wanted to learn more about myself and when I learn about myself, I can learn other peoples that what I was learnt.” (P8F)

Widening perspective

CHW participants communicated their interest in gaining new knowledge. New knowledge acquisition fuels possible job advancement (personal benefit) and the transference of newfound knowledge to benefit others (community benefit).

“I like to learn new things, I like to- to- but because to me it is- if I learn new things, tomorrow I come somewhere and I can educate somebody else.” (P13F)

“I told myself every training or something that you get...that ...uhmmm..um..um...it makes you more...um...um...more aware of things, not just things that fit into your field of work, but to learn how to look after yourself, how to handle things, so I grab every opportunity that I get.” (P12F)

5.9. DISCUSSION

The aim of the study was twofold: (i) to explore the challenges CHWs’ experience in carrying out their duties and (ii) to explore their motivation to join a self-management program. Based on the findings of the study the emerging themes that describe the challenges are discussed initially and then the motivation to join the self-management program.

Social conditions and mental health

In the current study, the CHWs reported that the social conditions of the patients led to fear, depression and an inability to focus on what the CHWs wanted them as patients to do. Literature from India commented on the CHWs' description of not gaining access to clients' homes as one of the negative experiences of the job.³⁵ A recent study determined that social conditions do have an impact on the mental health of an individual.³⁶ Although there is evidence that CHWs are not always safe when they enter the homes of patients with mental health problems,³⁷ concern for safety was not raised in the current study. Rather, CHWs noted the need to understand the patient and how to communicate depending on the mental health status of the patient, and CHWs in this study demonstrated empathy towards their clients' mental health needs. Understanding the mental health conditions of patients thus becomes a key aspect of the skills that CHWs require. The need to include mental healthcare training and co-ordination at the primary care level, is consistent with needs expressed by CHWs in the current study.³⁸ Using CHWs resourcefully in the primary care setting may result in stress reduction and mental health promotion amongst community patients, especially in low- and middle-income countries that are severely under-resourced with respect to mental health services.

Patient adherence and communication

The lack of patient adherence to the prescribed treatment regimens were identified as a challenge. Factors contributing to the lack of adherence to proposed health regimens are multifaceted, ranging from undervaluing preventative measures to psychosocial and socioeconomic hurdles to fears over stigma and challenges with traversing the health sector.^{39,40,41} As community health workers can play a key role in areas where health service access or motivation is poor,¹³ 'training on behaviour change techniques' would stand CHWs in good stead to deal with adherence concerns.⁴² CHWs have themselves reported that they are capable of motivating community members to seek appropriate health services.³⁹ It is thus apparent that CHWs can make a positive difference in assisting patients to adhere to medical regimens if they receive the correct training. Communication between the community and the health system is vital. The CHW workforce is like an important conveyor belt that transports the key health messages to the community and simultaneously increases the formal health professional's awareness of the social determinants contributing to the patients' health status. CHWs in their dual role are more effective when they receive the respect they deserve from the formal health professionals and the community they serve because they feel that their

contribution is valued.⁴³ One advantage of the CHW workforce is that they come from the communities they serve and therefore have a unique ability to speak the language of the community.⁴⁰ Although the community may not always understand the role of the CHW, it is important that communication channels remain open as it has been shown that CHWs are effective in strengthening communication between the medical system and the community.^{44,45}

Work environment and ineffective self-management

In this study the CHWs raised workload and the environment as a barrier to successfully implementing their duties. Literature has previously highlighted CHW workload as a barrier to achieving goals set by supervisors or health systems.⁴⁶ In a study aptly titled ‘We are the people whose opinion don’t matter,’ CHWs expressed their need to have their work environment challenges addressed by the NGOs with which they are affiliated.⁴⁷ World-wide it has been reported that increased workload and the absence of clearly-defined boundaries for the job causes stress.⁴⁸ This is no different for CHWs, who are under tremendous pressure to meet health needs with subpar human resources, increasingly having additional responsibilities added to their workload and disconnection between themselves and the formal health sector.^{47,49,50} Studies have documented these factors as significant contributors to occupational stress.^{51,52}

Aligned to the fact that the CHWs were not coping with their increased workloads, was their inability to successfully manage their own health. Literature reveals much research about the roles that CHWs play in addressing health challenges in the communities, yet there is a dearth of information on CHWs’ health needs and how they manage their own health. A substantial proportion of health professionals including CHWs struggle to manage their own health behaviours and to ‘practice what they preach.’^{18,53} A recent study amongst rural CHWs reported that they present with chronic conditions like those of the community members they serve, and that they also experience physical and emotional barriers in managing their own chronic conditions, suggesting that CHWs themselves may be good candidates for self-management interventions.⁵⁴

Motivations to participate in a self-management program

In the current study the participants highlighted empowerment and widening perspectives as two key reasons for joining a self-management program. Research indicates that CHWs feel empowered when they are valued for the healthcare contributions they make, when they are

included as part of the healthcare team and when they receive training to improve their competence.^{35,43,55} With the expectation that CHWs need to contribute productively to improvements in overall community health, it is important that CHWs feel empowered.⁵⁵ Training is highly regarded among CHWs globally and a substantial contributor to CHW effectiveness and motivation. As such, CHWs need to be empowered to improve their own health behaviours and then to serve as a catalyst and role model by empowering the community members with increased knowledge and support.⁵⁶ The role that CHWs play in communities has been flagged as an empowerment strategy to reach communities with the aim of improving healthcare. Once communities are empowered there is an increase in the sense of self-determination and self-efficacy and a positive cycle of health behaviours may be perpetuated and sustained.⁵⁷

It has been found that CHWs were very keen to gain new knowledge, as such new information modified their worldview.³⁵ This study echoed these findings, but it also yielded further reasons for the CHWs participation in the self-management program. These included the enjoyment they receive from gaining new knowledge, possible job advancement, the transference of new-found knowledge to benefit others, learning coping skills, and the desire to learn ways to manage their health. The participants in this study also indicated that they would not pass up an opportunity for training.



5.10. IMPLICATIONS FOR PRACTICE

Research has shown that most engagement with the CHW workforce has been around upskilling to improve the health and empowerment in the communities they serve.⁵⁸ Much has been documented about CHWs as a liaison between the formal healthcare system¹³ and the community and as a vital strategic resource to achieve global health goals, the actual CHWs and their own needs have been grossly overlooked. There is sufficient evidence to inform decision-makers about the factors that motivate CHWs into performing their roles effectively.^{35,43} Empowerment of this cadre should be high on the agenda, as CHWs cannot transfer skillsets of confidence, goal setting, and action planning needed to create behaviour change without themselves developing and maintaining these skills. A self-management program, which by its design is problem-based and incorporates the person's perception in the process, is ideally suited as a tool to achieve this end, and CHWs as frontline providers are ideal candidates to be trained as self-managers.²⁰ As members from the same communities they

work in and sharing the same health and social needs as their communities, becoming effective self-managers will enhance CHWs' cultural competence. Self-management programs train participants in decision-making, finding and utilizing resources, forming partnerships with their healthcare providers, and taking action as key skills, and mastery of such skills would benefit CHWs in meeting role expectations.^{21,59}

Simply coming from the same community and having shared experiences aren't sufficient to equip CHWs to work with clients who are unresponsive, who undervalue CHWs' role, and who do not adhere to recommended health behaviours. Therefore, there is a need to incorporate these competencies into all training offered to CHWs coupled with regular maintenance sessions. Self-management is a cost-effective strategy⁶⁰ that can be used to address this, and it can therefore be successfully rolled out in low-income areas. As the CHWs become effective self-managers they can train community members and the positive cycle can continue.

The formal health system has been remiss in failing to fully accept the CHW as a critical link in the patient-centred delivery model^{45,47}. It is important that health systems develop insight into the critical role of CHWs, the impact CHWs make in their communities, and work to remedy the strained relationship that currently exists between CHWs and health systems. Self-management is an empowerment strategy of meta-skills that does not rely on deep content knowledge within an aspect of medicine. One strategy to improve mutual respect could be to enable CHWs to serve as self-management trainers to members of the formal health system. During these trainings, CHWs can present their field findings to formal health professionals. CHW-led training may improve the structural competence of health professionals. Another way to address this current divide is to have more 'multidisciplinary' engagements, wherein all parties have an equal voice to contribute.

5.11. CONCLUSION

Community health workers (CHWs) affiliated with community-based organisations are central to the implementation of primary healthcare in district health services in South Africa. The themes presented above offer insight into the benefits and challenges described by CHWs. Although these findings are context-specific and so cannot be generalised to the global population, there is sufficient commonality among CHW roles worldwide to warrant an urgent response to these challenges. Hearing these often "silenced voices" and responding with

tangible risk mitigation strategies will support motivation and empowerment levels required by CHWS to work optimally. This study highlights that CHWs are eager to find solutions to these challenges, and one of the ways they did it was by taking the opportunity to learn self-management skills by signing up for self-management training.

Equipping CHWs with self-management tools should positively influence the communities they serve, and may ultimately result in healthier communities and a decreased disease burden.

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Competing Interests

The authors have declared that no competing interest exist.

Author contributions

LJJ and JMF analysed the data and drafted the article. LHS and FW contributed to conceptualizing the study and reviewing the manuscript.

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Data availability statement

Data are available upon request to the corresponding author.

Disclaimer

The views and opinions expressed in this article are those of the authors and do not necessarily reflect the official policy or position of any affiliated agency of the authors.

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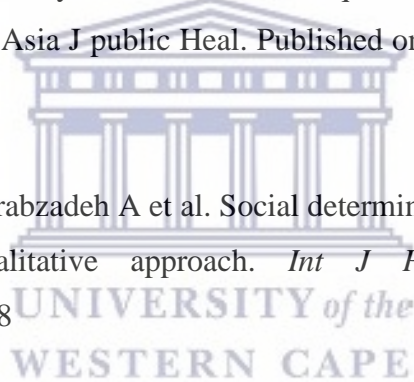
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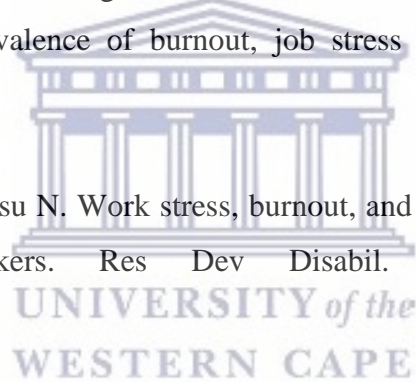
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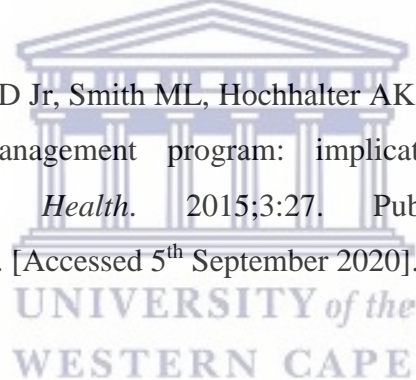
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CHAPTER SIX

SELF-MANAGEMENT INTERVENTIONS FOR HEALTH PROFESSIONALS: A SYSTEMATIC REVIEW

6.1. Introduction

In the previous chapter, the challenges experienced by CHWs and their motivation to join a self-management intervention was presented. It concluded Phase 1 of the study where the overarching focus was to understand the problem. The current chapter introduces Phase 2 of the study, which outlines a systematic review, which was conducted to determine which self-management strategies health professionals used to improve their own health status. This chapter methodically outlines the process and includes the search strategy inclusion and exclusion criteria, databases searched, methodological tools used, method used to extract the data, the results and the discussion. The findings highlight that Self-Management and similar interventions could influence the health status of health professionals positively (Article 3).

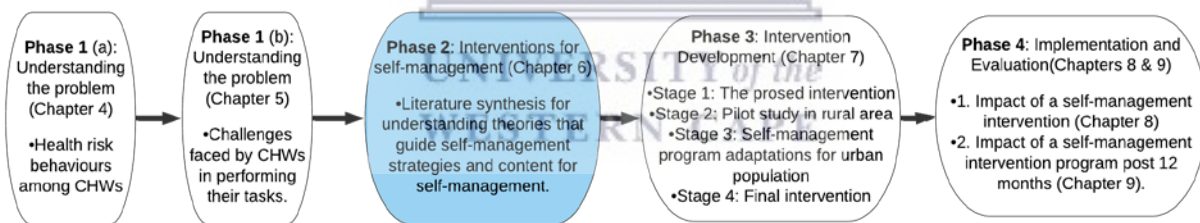


Figure 6.1: Phases of the study

6.2. Publication details

Article 3 has been submitted to the *BMC Systematic Reviews Journal*, the details of which are provided in Table 6.1 below.

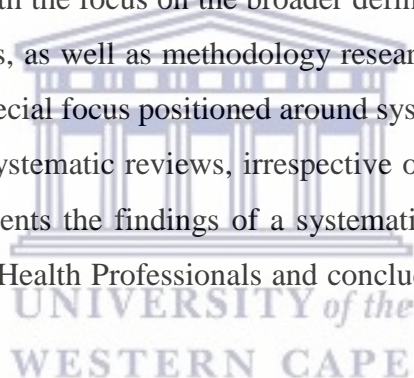
Table 6.1: Article details

Title	Self-management interventions for health professionals: a systematic review
Authors	Johnson L, Schopp L, Waggie F, Frantz JM.
Year	
Journal	BMC Systematic Reviews

Volume	
Issue	
Page no.	
Status	Submitted
Full citation	Johnson L , Schopp L, Waggie F, Frantz J. Self-management interventions for health professionals: A systematic review. BMC Systematic Reviews Journal, 2021. (Submitted)

6.3. Journal overview

The manuscript has been submitted to the journal titled, BMC Systematic Reviews. The journal stored under Springer Nature publishing house, has a special focus on systematic reviews. The design, conduct and reporting of the reviews are featured. The journal is inclusive of a large variety of systematic reviews, namely those that contain updates of completed systematic reviews, systematic reviews with the focus on the broader definition of health, rapid reviews, protocols of systematic reviews, as well as methodology research on the science involved in systematic reviews. With its special focus positioned around systematic reviews in healthcare, and committed to publishing systematic reviews, irrespective of the outcomes, it is ideal for this current article, which presents the findings of a systematic review that appraised Self-Management interventions for Health Professionals and concluded with a positive impact on their health status.



6.4. Published article:

A dearth of information exists around Self-Management Strategies for health professionals. The promising impact of individual interventions targeted at health professionals is highlighted and the need for modified Self-Management interventions to address the healthcare needs of health professionals is reported

6.5. ABSTRACT

Background:

Faced with the growing global burden of disease, health professionals who have a similar prevalence of non-communicable diseases as the populations they serve are expected to model appropriate health behaviours. As self-management has proven effective to tackle non-communicable diseases among patients and the health workforce, the aims of this review were:

1) to determine the best self-management strategies that health professionals use to manage their own health; and 2) to expand the inquiry to include strategies that health professionals use to improve their own health that are thematically similar to self-management.

Methods:

A comprehensive search of the following databases from 2015-2020: MEDLINE, Academic Search Complete, PUBMED, CINAHL Push with Full Text, APA Psych Articles and Health Source: Nursing/Academic Edition was undertaken. English, peer-reviewed, full text, quantitative, qualitative and mixed methods designs were included. Interventions reviewed in literature needed to examine and report on outcomes of self-management strategies for health professionals. The methodological quality of the articles was assessed using the McMaster Methodological Quality Assessment Tool.

Results:

Initially there were 23 168 hits and following the screening process 23 articles were eligible for this review. The data was analysed thematically and represented narratively. All the studies were outside of the African continent, with eight from the USA, six from European countries, and one from Brazil, UK, Thailand and Iran. Randomised Control Trials were the dominant study design employed, and 100% of the studies were conducted in urban settings. The interventions varied in length from 3 days to 2 years, with nurses and nursing aids being the most targeted population group (65%). Physical exercise, 30% (n=7), Mindfulness-based training, 22% (n=5) and Resilience training, 13% (n=3) emerged as the top 3 interventions used to improve health professionals' health behaviours.

Conclusions:

This review highlights how self-management and similar interventions can have a positive impact on the health status of the health professional. However, in order to encourage self-management as a holistic health intervention we would need to design interventions that address principles of a holistic approach to health.

Keywords:

Self-management, interventions, health professionals, health, outcomes, health behaviour, systematic review

6.6. INTRODUCTION

The global burden of disease includes ischaemic heart disease, stroke, lower respiratory infections, diarrheal diseases, and perinatal disorders, as the top five causes of mortality worldwide [1]. Non-communicable diseases (NCDs) have become the leading cause of mortality, accounting for 80% of premature deaths in low- and middle-income countries [2, 3]. The top six modifiable risk factors that the World Health Organisation (WHO) describe as leading the rising burden of NCDs are hypertension (13%), tobacco usage (9%), elevated blood glucose (6%), physical inactivity (6%), alcohol abuse (5.9%), and obesity (5%) [4]. South Africa has followed this exact pattern, with the reported increase of the burden of disease, caused by NCDs [5], leading to a 27% probability of premature mortality [6].

Health professionals are expected to set the yardstick for healthy behaviours, as role models for the populations they serve [7]. Despite this, their physical, political, economic and cultural environments, as well as the lifestyles, in which they were raised [8], predispose this group to participate in similar negative health behaviours, as the population at large [9, 10]. This results in a similar prevalence of NCDs among health professionals, as in the general population [11]. Part of the health workforce, tasked with NCD management, are community health workers (CHWs) [3]. Since the inception of CHWs, they have been seen as *links*, or *bridges* between the community and the health system [12]; however, as the burden of disease has increased, their role has expanded to include supporting health behaviour change [13, 14]. One of the key aspects of managing behaviour change, is self-management.

Self-management is not a new term. It has its roots in the rehabilitation process among chronically ill children in the 1960s [15]. While perusing self-management, Bateson [16] asserts that it is virtually impossible for an individual to be completely ignorant of his/her own health behaviours. Self-management has been identified as being problem-based, implying that it is person-centred, and the person attempts to identify and solve the problem, using his/her own knowledge. Therefore, the need exists to consider the person's perception in the process [17].

Self-management has been identified as a viable option to manage NCDs [18, 19], decrease hospital visits, and improve health behaviours [20]. In this context, the term, *self-management*, is commonly used in relation to health-promoting activities, interventions, and education

programmes specifically dealing with chronic conditions [21, 22]. This original view of self-management programmes has evolved recently, as self-management has been used in workplaces to assist individuals to become better self-managers, resulting in the improvement of the employees' lifestyles and health statuses [23]. As self-management has evolved, the essential skills that have been identified, to form part of this approach, include decision-making, finding and utilizing resources, assisting people to form partnerships with their healthcare providers, and taking specific health actions that would improve their health behaviour [24]. These are key skills that help health professionals to improve personal and community health, by making action plans, achieving personal health goals, and modelling positive health behaviours [22].

There are many terms for strategies that incorporate key facets of self-management [25]. Examples are self-care [26], self-management support [27], and self-regulation [28, 29]. In 2014, the WHO defined self-care as “the ability of individuals & families to promote, maintain health, prevent disease and to cope with illness with or without the support of a healthcare provider” [30 p.15]. Self-management support relies on individual engagement, as being central to individuals' lifestyle changes and health-promoting behaviours [31]. Self-regulation [25] is referred to as the process of self-management, and focuses on the individual's ability to direct and lead their thoughts, emotions and behaviours [19].

A recent systematic review defined self-management interventions as strategies “that aim to equip patients with skills to actively participate and take responsibility in the management of their chronic condition in order to function optimally through at least knowledge acquisition and a combination of at least two of the following: stimulation of independent sign/symptom monitoring, medication management, enhancing problem-solving and decision-making skills for medical treatment management, and changing their physical activity, dietary, and/or smoking behaviour” [32 p.35]. This operational definition was shared by another systematic review examining the effectiveness of self-management strategies in a primary healthcare setting [33]. As is evident from the aforementioned literature, self-management is a contested term. For this current review, the self-management interventions that were considered included, those interventions that focused on health professionals, as the beneficiaries of obtaining a minimum of two of the following skills: action planning; goal setting; active decision-making and problem-solving; an increase in self-confidence/efficacy, facilitating independence in the

monitoring of signs and symptoms, as well as the management of medication; and the promotion of changes in physical actions, diet, and smoking practices.

Various systematic reviews that focus on self-management interventions have been conducted, involving health professionals as *services providers*, rather than the *recipients* of a self-management intervention. One review [34] focused on identifying the outcomes of self-management interventions, from the perspectives of patients, their families, health professionals, as well as those who enlist self-management programmes, zeroing in on cancer, diabetes, and stroke, and implemented by CHWs. Another review [35] examined studies that assessed the experience of self-management support in patient-healthcare provider interactions. Therefore, the focus was on the way in which the healthcare provider engaged with patients during self-management interventions.

Yet another review focused on the patients' view of self-management interventions [36]. Despite the ubiquity of self-management strategies, there remains a dearth of information on the self-management strategies, which health professionals use to manage their health. This current review was aimed at systematically appraising literature that focused on the management strategies used among health professionals, to improve their own health, highlighting current strategies, and identifying opportunities for improvement.

6.7. METHODOLOGY

Study design

A systematic review methodology was used to determine the relevant outcomes linked to self-management strategies employed by health professionals. This systematic review of the existing empirical body of knowledge revealed an in-depth understanding of the complex notion of self-management interventions for health professionals, and the related impact thereof.

Research question

The research question for this current review was, "What are the aims and outcomes of self-management interventions focused on health professionals including CHWs?" This question was formulated using the PEO method, wherein the *population* of interest was health professionals, the *exposure* was a self-management intervention, and the *outcome* of interest

was improved knowledge, improved self-confidence, decision-making, action planning, goal setting, sign and symptom management, medication management, change in physical actions, change in dieting, change in smoking habits, and improved health status [37].

Further review revealed a paucity of literature on this topic, with a lack of information about self-management interventions for health professionals, to improve their own health outcomes. Given the paucity in literature related to self-management interventions, the researchers proceeded, empirically, and examined similar health support interventions employed by health professionals. The search definition was broadened to include studies that shared common themes with self-management, such as self-awareness, group support, present moment awareness [38], recognition of resistance to change, shared experience and improvement of well-being [39], exercise and strategies to reduce anxiety [31]. These concepts are critical aspects of self-management programmes, and consequently, have marked overlap with traditional self-management programmes.

Inclusion and exclusion criteria

Studies included in this current systematic review were required to: (1) have been published between 2015 and 2020; (2) include a quantitative or mixed-method methodology; (3) be written in English; (4) be available in full-text and peer reviewed; (5) include health professionals (including community health workers) and (6) examine outcomes of self-management strategies for health professionals. The selected time period was limited to include the most recent developments in literature [40]. Studies were excluded if they were not published within the designated time period, were not English medium, peer-reviewed, or focused on general/patient populations.

Search strategies

Databases

The electronic databases searched from 2015 to 2020 included MEDLINE (EbscoHost), Academic Search Complete (EBSCOhost), PUBMED, CINAHL Push with Full Text (EBSCOhost), APA Psych Articles (EBSCOhost) and Health Source: Nursing/Academic Edition (EBSCOhost). The databases selected focused on literature for health and medicine. The Medline, APA Psych Articles and CIHAL yielded minimal hits using the designated key terms.

Subsequently, the primary researcher opted to enter the latter search strings into PUBMED, Academic Search Complete and Health Source: Nursing/Academic Edition. PUBMED provides access to MEDLINE and NLM databases and comprises both indexed citations and abstracts to journal articles in nursing, medical, dental, healthcare, and preclinical sciences. Academic Search Complete is known as the most valuable and comprehensive scholarly and multi-disciplinary full-text database, globally. It indexes over 12,500 journals, over 8,500 full-text periodicals, more than 7,300 peer-reviewed journals, and over 13,200 publications. It also offers searchable cited references for over 1,400 journals. Health Source: Nursing/Academic Edition is updated daily and includes almost 850 journals' abstracts and indexing.

Search terms

The keywords for this systematic review included: *self-management* (self-care, self-regulation, self-management support), *health professionals* (nurses, community health workers, doctors, physicians, healthcare workers, physiotherapists), *interventions* (strategies) and *outcomes*. MESH terms or Boolean operators, and truncated terms were also used for databases' searching of key terms. The following strings were entered into each database:

1. Self-management AND health professionals AND interventions NOT patients
2. Self-care AND health professionals AND interventions NOT patients
3. Self-management AND health professionals OR Healthcare workers AND interventions
4. Self-management AND outcomes AND health professionals AND strategies
5. Self-management support AND health professionals AND interventions
6. Self-care AND health professionals OR healthcare workers OR community health workers AND interventions and outcomes.
7. Self-management AND health professionals AND effectiveness NOT patients AND health outcomes OR benefits
8. Self-management AND health professionals AND effectiveness NOT patients AND health outcomes OR benefits
9. Self-management AND confidence AND benefits AND effectiveness AND health status AND health professionals OR healthcare workers
10. Self-management AND health professionals AND effectiveness AND outcomes

11. Self-care AND confidence AND benefits AND effectiveness AND health status AND health professionals OR Healthcare workers.
12. Self-regulation AND confidence AND benefits AND effectiveness AND health status AND health professionals OR healthcare workers.
13. Self-management AND health professionals OR nurses OR community health workers OR doctors OR healthcare workers OR physicians OR physiotherapists AND Interventions AND Outcomes.
14. Self-management AND health professionals AND Health behaviours.

Method of review

The search strategy used in this current review was adapted from the *Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA)*, which describes four levels of review: (1) Identification, (2) Screening, (3) Eligibility, and (4) Inclusion [41]. Each database was systematically searched; the number of hits, retrieved articles, and duplicates were recorded in an Excel spreadsheet. The titles of the studies were screened by the primary researcher, and the abstracts of articles that were deemed relevant, were reviewed. The full texts of abstracts pertinent to the study were retrieved for rigorous and critical appraisal for eligibility and inclusion by two independent researchers. The *McMaster Methodological Quality Assessment Tool* was used to assess the methodological quality of articles in the review. The mean methodological score of the articles reviewed was considered, and the researchers determined that the threshold for acceptable study quality was 60%. All disagreements regarding the methodological quality and inclusion of studies were discussed between two researchers, until consensus was reached. Once the methodological quality was assessed, studies meeting the predetermined threshold for inclusion were subjected to the process of data extraction.

The search yielded 23,168 hits in total. Of the 23,168 hits, 172 of the hits met the criteria, based on examination of the titles and abstracts. Of this total, 137 articles were excluded on the basis of duplication, incorrect population group targeted, and those that, upon examination, did not meet the study's inclusion criteria. This resulted in 35 articles being retrieved and deemed suitable for the review. These 35 articles were subjected to a methodological quality analysis, and 12 articles were excluded, resulting in the final 23 articles, which **were subjected to data extraction**. The PRISMA flow chart was used to guide the data extraction (Figure 1). The data were analysed thematically and, presented in narrative form.

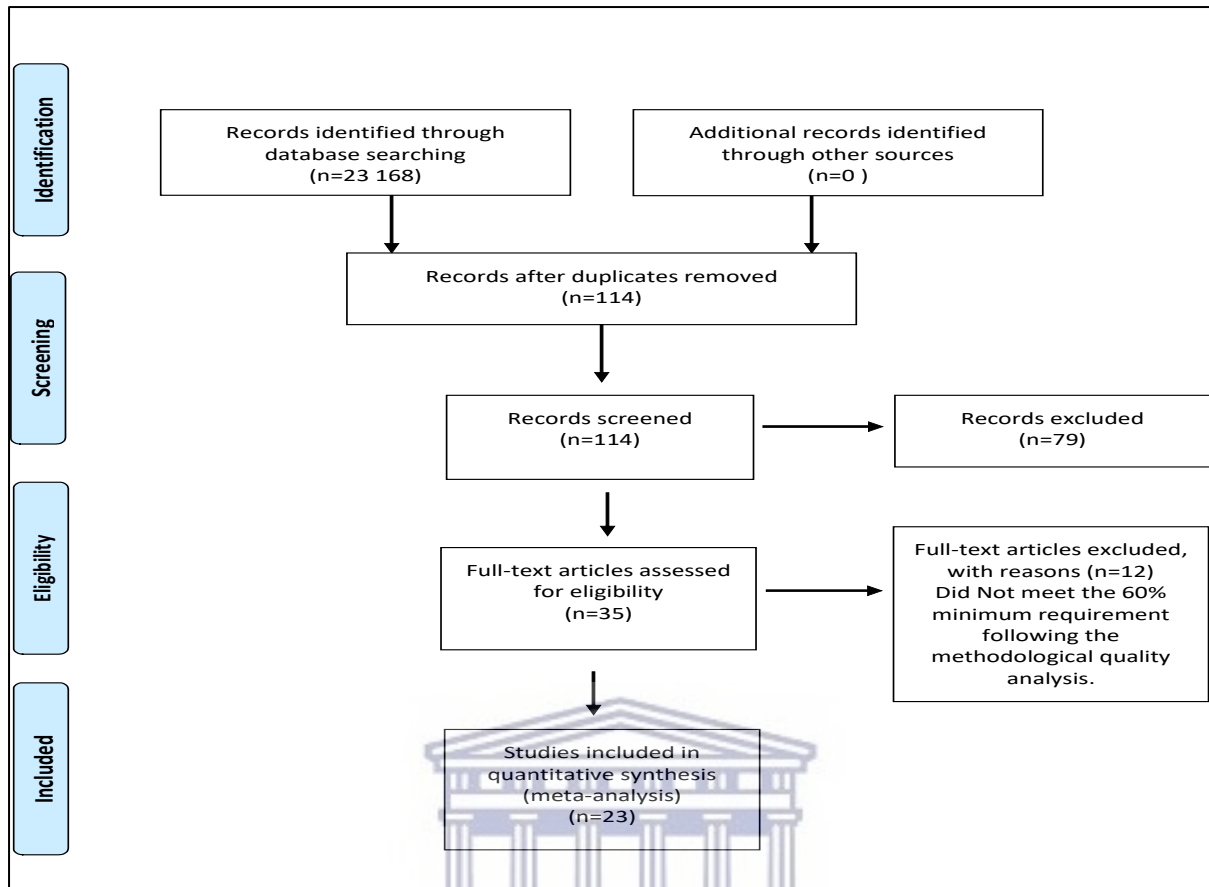


Figure 6.2: Flow of Data-Summary of the study selection process

6.8. ETHICS

Ethics clearance for this current study was obtained from the University of the Western Cape, South Africa (Project No. HS17/8/23).

6.9. RESULTS

Of the studies that were included in the review, 21 followed a quantitative research design, and two, a mixed methods research design. Randomised Control Trials was the dominant study design employed, and 100% of the studies were conducted in urban settings. All the studies were international, with eight from the USA, six from European countries, and one each from Brazil, UK, Thailand and Iran, respectively (Table 1). There were no studies from the African continent. The interventions varied in length, from 3 days to 2 years, with a most common length of 8-12 weeks. The most common target population groups were nurses and nursing aides (65%, n=15) (Table 1). Primarily, the top three types of interventions were focussed on

physical exercise, 30% (n=7), *mindfulness-based training*, 22% (n=5) and *resilience training*, 13% (n=3). The aims of the studies varied, with a focus on decreasing stress, decreasing burnout, and improving psychosocial factors (44%, n=10), and improving physical fitness (17%, n=4), such as increasing muscle strength, decreasing muscle and neuromuscular pain, and improving physical exertion (Table 1). Focusing on generic health aspects, one article looked at improving *nutrition* among health professionals [42]. In that study, forming an implementation intention resulted in an increased metacognitive process and increased fruit intake. This behavioural change in fruit consumption was attributed to increased participant self-monitoring. Another study reported that providing intensive hand hygiene education, and ensuring the availability of sanitizers, improved hand hygiene habits among health professionals [43]. In a pandemic era, this finding is especially relevant.

The results revealed that there was a general neglect of *self-care* among nurses [44]. Areas of neglect included, poor nutrition, insufficient sleep duration, and lack of physical activity. The one group in this current study that had multisensory input (touch, smell, hearing, vision and daily body moisturising) reported an improvement in self-esteem. Reducing the *stress* levels among health professionals was a feature in seven articles, with two stress management interventions [45, 46], resulting in significant decreases in stress levels. Mindfulness-based training [47, 48], and resiliency training [49, 50] were observed to produce decreased stress levels, suggesting they could be promising strategies for health professionals. One study [51] reported on the impact of a *coaching programme*. In a specific coaching programme, START, no effects of the programme on device-recorded physical activity or self-reported sleep outcomes were observed, although sleep duration did increase among only the 18-34-year age group. With the increased demand on the lives of health professionals, finding effective sleep interventions may be an important future area of self-management research.

Studies investigating *life skills and emotion regulation skills* [52, 53] were conducted among nurses [52] and general healthcare employees [53]. It was observed that upskilling emotion regulation, produced increases in acceptance, tolerance, and modification. The modification of negative emotions observed pre- to post-intervention, was maintained at the 6-month follow up. The specific life skills training workshop, Williams Lifestyle Workshop, improved emotional exhaustion and depressive rumination, which was associated with clinically significant improvements in systolic blood pressure [53].

Table 6.2: Outcomes linked to self-management

Ref	Author	Research Design	Population	Country	Type of Intervention	Aim of Intervention	Length of Intervention	Outcomes
1	Andersen et al., 2015 [66]	Secondary Analysis of Cluster Randomised control trial	Nurses and Nurse Aids	Denmark	Physical Exercise	Investigated the effects of physical exercise on workplace social capital.	10 weeks	<ol style="list-style-type: none"> 1. Social capital (bonding) was positively impacted in work group 2. Group-based exercise at work: contributed to building social capital within teams at work 3. During the intervention period decrease in social relationships in the social relationships between teams and nearest leaders
2	Apisarnthanar et al., 2015 [43]	Quasi-Experimental	ICU Nurses, ICU Nurse assistants	Thailand	Hand Hygiene	A comparison between 3 hand hygiene intervention strategies	2 years	<ol style="list-style-type: none"> 1. Improvement in observed commitment to HH among those with intensified HH intervention and those with intensive HH intervention plus access to alcohol-based rub. 2. HCW baseline self-report of HH by stages of behavioural commitment revealed a distribution of stages from Contemplation to Action in all 6 units.
3	Armitage, 2015 [42]	Mixed Measures Design with one between-participant and 1 within-participant factor	Health Professionals	England	Nutrition	Test the ability of a very brief worksite intervention based on implementation intentions to improve nutrition among Healthcare workers	4 weeks	<ol style="list-style-type: none"> 1. Forming implementation intention increased metacognitive processing and fruit intake 2. The effects of implementation intentions on behaviour change were mediated via increases in self-monitoring.
4	Jakobsen et al., 2015 [67]	Secondary analysis of a two-armed parallel-group, single-blind, cluster-randomised controlled trial	Nurses and Nurse Aids	Denmark	Physical Exercise	Investigated the effect of workplace vs home-based physical exercise on Physical exertion among Healthcare workers	10 weeks	<ol style="list-style-type: none"> 1. Performing Physical exercise at work is met with higher training adherence and therefore is more effective than home-based in reducing physical exertion at work among HCWs 2. Increased Physical capacity by means of brief resistance exercise sessions at the workplace seems to reduce the relative work demands and lower physical exertion at work.
5	Buruck et al., 2016 [52]	2x3 Factor Repeated measure design	Nurses	Germany	Emotion Regulation Skills	Evaluated the impact of a standardised emotion regulation training on emotion regulation skills and well-being of employees in elderly healthcare.	12 weeks	<ol style="list-style-type: none"> 1. Those receiving ART showed significant increases in the emotion regulation skills (acceptance and tolerance and modification) 2. Ability to modify negative emotions improved pre/post to 6/12 follow up
6	Hersch et al., 2016 [45]	Randomised Controlled Trial	Nurses	USA	Stress Management (BREATHE)	Evaluated the effectiveness of the web-based programme, BREATHE:	12 weeks	<ol style="list-style-type: none"> 1. Significant improvement in perceived nursing-related stress 2. Specifically showed reduction in specific areas of nursing stress including the stress related to death and dying, conflict with physicians, inadequate preparation, conflict with other nurses, workload and the uncertainty concerning treatment.
7	Marino et al., 2016 [51]	Cluster Randomised Trial	Health Professionals	USA	Coaching (START)	Evaluate the effects of a workplace-based intervention on actigraphic and self-reported sleep outcomes in an extended care setting	16 weeks	<ol style="list-style-type: none"> 1. No significant improvements noted 2. Younger employees (18-34) had increased sleep duration

8	Rasmussen et al., 2016 [65]	Stepped Wedge cluster randomised control trial	Nurse Aids	Denmark	Physical Exercise	Evaluated the effectiveness of a successful lower back pain (LBP) intervention on physical exertion, occupational lifting, muscle strength, fear avoidance beliefs, support from management, work ability & sickness absence d.t LBP	12 weeks	<ol style="list-style-type: none"> 1. Decrease in Physical Work Demands. 2. Increase Physical Capacity 3. Modify Maladaptive pain behaviours 4. Decrease in lifts without assistive devices 5. Improved fear avoidance
9	Jakobsen et al., 2017 [68]	Secondary Analysis of Cluster Randomised control trial	Nurses and Nurse Aids	Denmark	Physical Exercise	Investigated the effect of training adherence, type of physical ex (Home-based vs Work-based), pain status, frequency of patient handling, BMI, age, and leisure-time activities on musculo-skeletal pain relief.	10 weeks	<ol style="list-style-type: none"> 1. Significant effect on pain reduction of both training adherence (P=.04) and intervention group (P=.04) with Work experiencing better than HOME group 2. The results may suggest that obese individuals may especially benefit from physical exercise intervention targeting M-S pain
10	Jakobsen et al., 2017 [71]	Secondary analysis of a two-armed parallel-group, single-blind, cluster-randomised controlled trial	Nurses and Nurse Aids	Denmark	Physical Exercise	Evaluated the effect of workplace vs home-based exercise on Psychosocial factors among healthcare workers	10 weeks	<ol style="list-style-type: none"> 1. Improved vitality, concern and control of pain among HCWS performing physical exercise at work with colleagues seems to induce psychosocial benefits compared to home. 2. Work group: higher training adherence and is more effective than home-based exercise 3. It is noted that group-based work groups interventions aimed at relieving pain may induce physiological as well as psychosocial benefits
11	Leão et al., 2017 [44]	Open, controlled randomised clinical trial	Nurses	Brazil	Self-care	Assessed the impact of a self-care intervention mediated by the senses on the stress levels, self-esteem & well-being of health professionals in a hospital environment.	30 days	<ol style="list-style-type: none"> 1. Self-care method of touch, smell, hearing and vision improved self-esteem BUT DID NOT decrease stress.
12	Valley & Stallones, 2017 [73]	Randomised Waitlist Controlled Trial	Nurses, nurse practitioners, paramedics	USA	Mindfulness-based Stress Reduction	Evaluated the impact of a mindfulness-based training on cognitive failure, safety compliance, safety participation, sustained self-reported workplace cognitive failure and safety compliance and participation.	8 weeks	<ol style="list-style-type: none"> 1. Improvement in workplace cognitive failure 2. Improvement in safety compliance 3. Did Not significantly impact safety participation 4. Did Not significantly impact promotion of safety at work
13	Clemow et al., 2018 [53]	Randomised Controlled Trial	Medical care employees	USA	Lifeskills Training	Tested the effects of the Williams Lifeskills Workshop (a multi-component cognitive behavioural intervention) presented in a group setting in a multi-ethnic, urban workplace on BP in employees with Hypertension	10 weeks	<ol style="list-style-type: none"> 1. Scores on measures of emotional exhaustion and depressive rumination showed significant improvements and correlated with reductions in SBP. 2. A standardized worksite group intervention produced clinically meaningful reductions in SBP in participants with hypertension.

14	Jakobsen et al., 2018 [69]	Secondary Analysis of Cluster Randomised control trial	Nurses and Nurse Aids	Denmark	Physical Exercise	Evaluated the effect of a workplace vs home-based physical exercise intervention programme on pressure pain threshold and musculo-skeletal pain intensity.	10 weeks	<ol style="list-style-type: none"> 1. Workplace more effective to improve pain threshold in LBP 2. Workplace ex more effective in reducing musculoskeletal pain intensity 3. Workplace ex more effective to reduce pain intensity for in feet
15	Mistretta et al., 2018 [50]	Randomised Controlled Trial	Health Professionals	USA	Resilience Training	Assessed whether an in-person mindfulness-based resilience training MMBRT) programme or smartphone-delivered resiliency based intervention improved stress, well-being and burnout in employees at a major tertiary healthcare institution	6 weeks	<ol style="list-style-type: none"> 1. Both options reduces stress and enhance well-being in the workplace. 2. The in-person group-based MBRT have further benefit of reducing stress & work-related burnout, which is an NB aspect of work-related QOL and quality care among healthcare employees.
16	Suni et al., 2018 [70]	Blinded four-arm randomised controlled trial	Nurses and Nurse Aids	Finland	Physical Exercise	To determine which intervention was most effective for reducing pain and fear of pain in female healthcare workers with recurrent non-specific LBP. The interventions were neuromuscular exercise and back care counselling or either intervention alone against a non-treatment control arm	24 weeks	<ol style="list-style-type: none"> 1. Neuromuscular exercise no more often than once a week for 24/52 combined with 5 sessions of back care counselling is a feasible & effective programme for reducing LBP in female HCWs.
17	Werneburg et al., 2018 [49]	Single-arm cohort study	Allied Healthcare workers	USA	Resilience Training	Examined the impact of a worksite resilience training programme on resiliency & health behaviours in healthcare employees.	12 weeks	<ol style="list-style-type: none"> 1. Significant improvement in resiliency, perceived stress, anxiety, QOL & healthy behaviours. 2. Study participants reported changes in perceived stress levels after participation in the intervention. 3. Study found that building one's resiliency is associated with improvements in behavioural health domains (specifically stat significance in physical activity levels, healthy diet, quality of sleep and support for healthy living at post programme and continuous for 3/12 follow up)
18	Barattucci et al., 2019 [48]	Pre-post evaluation study with control (T0 and T1)	Doctor, nurses & healthcare assistants	Italy	Mindfulness-based Training	Analysed the efficacy of a mindfulness-based IRA model on perceived stress, anxiety & emotional regulation among healthcare professionals	4 weeks	<ol style="list-style-type: none"> 1. Self-awareness/Mindfulness has effect on well-being of workers 2. Emotional regulation has an undoubted positive relationship with perceived stress & anxiety levels.
19	Braun et al., 2019 [74]	Mixed Method, Repeated Measures, within subjects design	Health professionals (Interdisciplinary)	USA	Mindfulness-based Training	Evaluate the long-term effect of a mindfulness-based intervention in interdisciplinary HCPs and explored the perceived benefits, facilitators, barriers to the practice of mindfulness	8 weeks	<ol style="list-style-type: none"> 1. Significant reductions post intervention in 2 subscales for burnout: depersonalisation& emotional exhaustion. 2. Three facets of dispositional mindfulness showed significant increases at long term follow up. 3. Continued practice of skills of long term was facilitated by the use of informal practice and perceived improvement in work and personal life.

20	Gracia-Gozalo et al., 2019 [75]	Longitudinal study with an intrasubject pre-post intervention design	Physicians, nurses & Nursing assistants	Spain	Mindfulness-based training	Evaluate the effects of, as well as the applicability and satisfaction of a specifically designed brief mindfulness practice programme using digital supporting tools, on burnout levels, mindfulness, empathy & self-compassion.	8 weeks	1. A brief & personal practice-based mindfulness training program supported by the creation of a WhatsApp virtual community group among HCPs...has demonstrated Psychological & cognitive effects that may afford well-being & have an impact on burnout by decreasing emotional exhaustion and increasing self-compassion.
21	Navidian et al., 2019 [46]	Quasi-experimental with pre-test/post-test design	Midwives	Iran	Stress inoculation training	Evaluating the impact of stress training on the occupational stress of midwives working in healthcare centres.	2 weeks	1. Statistically significant decrease in the amount of occupational stress after the intervention
22	Coleman et al., 2020 [83]	Within-group design	Healthcare team	USA	Self-resilience training	Evaluated the effect (Move to Health (M2H) course.	3 days	1. Qualitatively the participants described that they were using the resilience strategies for self-care
23	La Torre et al., 2020 [47]	Single-arm clinical trial	Physicians, nurses & technicians	Rome	Mindfulness-based stress reduction	To assess the effectiveness of Mindfulness-Based Stress Relief (MBSR) and Yoga on mental well-being in healthcare workers.	4 weeks	1. Yoga and mindfulness seems to be effective in decreasing stress and anxiety in HCWs 2. Aspects of fear, weakness and anger were effectively diminished. 3. Interestingly, anxiety was more reduced in Physicians than other HCWs

6.10. DISCUSSION

The aim of the current study was to conduct a systematic review of outcomes linked to self-management strategies, used by health professionals to improve their own health. A review of the literature revealed that self-management interventions largely targeted the chronic disease/disability sufferer [54, 55], the population at large [56, 57], or non-health workers [58, 59]. Currently, a dearth of literature on self-management strategies exists, which strategies are employed to facilitate the improvement in health behaviours among health professionals, including community health workers [60]. This extended review focussed on studies of interventions that share common features with self-management. The results suggest that physical exercise, mindfulness, and resilience training are chosen, most often, to improve the health status of health professionals.

Physical exercise

The studies reported that all physical exercise done in a group setting at work had multiple positive outcomes on health professionals' health status, and outweighed the results achieved, when physical exercise was performed at home. These findings are relevant in practice because the high levels of physical inactivity observed among health professionals [61, 62], partially blamed on working hours [63], therefore, could be addressed by physical activity interventions

[64, 62]. This, in turn, could improve health professionals' engagement in physical activity/exercise, when they realise the health benefits of physical activity [61].

Physical exercise decreases physical work demands, improves physical capacity, modifies maladaptive pain behaviours, decreases the amount of lifts with assistive devices, and improves fear avoidance (a perpetual monitoring and attentiveness of pain sensations, with the incorrect interpretation that the pain sensations indicate reinjury or worsening of disease) [65]. Physical activity did not improve muscle strength, support from management, work ability, and sick absence from work, as a result of lower back pain. However, the findings of a study, in which reducing sick absence from work was investigated, through physical activity training, revealed that these types of interventions could decrease sick absence, as it motivates health professionals to be more active [66]. Reducing days absent from work due to illness, is key for any workforce; therefore, including and promoting physical activity, is a key target application for self-management among health professionals.

One of the key barriers to participation in a physical activity program, is usually time (61), and physical activity interventions reviewed in this current study, generally ranged from 10-12 weeks. This is important to consider when planning a self-management intervention for health professionals, in light of their busy schedules. The effect of physical activity is not only measured against physical measures, but also on workplace social capital and cohesiveness. It was observed that social bonding was positively affected by group-based physical activity, performed at work, and that group physical activity contributed to the overall improvement in social capital within the team [66].

All the articles reported positive results in the workplace group physical activity, compared to the home activity group. Examples are improvements in training [67, 68], increased threshold for lower back pain, and decreased musculoskeletal pain [69, 70] psychosocial benefits (vitality, concern and pain control), decreased physical exertion [67, 65] and decreased work demands [67, 65]. The results of these interventions confirm that, interventions aimed at ameliorating physical activity among health professionals, is vital to enhance their well-being [64, 72, 62].

Mindfulness-based interventions

In recent years, a burgeoning in mindfulness-based interventions for healthcare professionals has been observed, with a goal of improving self-awareness and distress tolerance, to improve

the ability to manage challenging healthcare settings. Well-being is improved with mindfulness-based training, while a direct correlation exists between emotional regulation, as well as stress and anxiety levels [48]. Mindfulness-based training has been observed to decrease cognitive failure and increase safety at work [73]. Combining yoga with mindfulness decreased stress, anxiety, fear, weakness, and anger [47], and physicians reported greater decreases in anxiety levels, compared to nurses and technicians. These aspects are important to ensure the well-being of health professionals.

The significant results of decreased burnout levels [74, 75] produced by mindfulness-based training, was sustained long-term, spurred by the participants' perceived improvements in their work and personal lives [74]. The findings of these studies support the extensive body of evidence that mindfulness-based training has the potential to improve occupational stress, and burnout [76, 77, 78] for up to 13 weeks.⁷⁹ Burnout, depression, stress and anxiety are prevalent among health professionals; therefore, a self-management intervention should address this occupational vulnerability.

Resilience

Resilience is described, as a protective factor [80], is multi-factorial [81], and a skill that allows individuals to adapt to difficult circumstances [82]. In every study reviewed, resilience training resulted in decreased stress among the participants, and improvements in emotional regulation directly affected both stress and anxiety levels [48]. The populations specified in the studies included general healthcare workers [83, 50], and allied health workers [49]. One group of participants [83] reported that resiliency training had no effect on burnout levels, despite using the resiliency skills for self-care. In contrast, other researchers [50] observed reductions in work-related burnout. The outcomes of the studies examined in this systematic review affirms other research, which reports that resiliency is improved when self-confident female health professionals receive resiliency training [84].

6.11. CONCLUSION

This review highlighted the dearth of evidence on self-management intervention strategies, specifically targeting health professionals. The need exists to encourage health professionals to improve their own health behaviours, in order to become effective role models in the communities they serve. Self-management interventions should be considered to address this

desired health behaviour change. When the composite definition of health is considered, it becomes apparent that self-management interventions should pursue holistic health improvements (physical, mental, social, emotional and spiritual well-being), which is the overarching objective. This review highlights the promising potential impact of individual interventions for health professionals, and underscores the need to adapt self-management to address the needs of the healthcare workforce.

6.12. DECLARATIONS

Ethical approval and consent to participate: Ethical clearance was obtained from the Humanities and Social Science Research Ethics Committee of the University of the Western Cape (HS/17/8/23).

Consent for publication: Not applicable.

Availability of data & materials: Data are available upon request to the corresponding author.

Competing interest: None.

Funding: Not applicable

Authors' contributions: The proposal for the SR was drawn up by LJ and JF. LJ conducted the initial searches, and articles to be included was checked by JF. LJ and JF drafted the article. Emerging themes were confirmed and checked by FW and LS, who contributed to the article draft and editing.

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Footnotes: Not applicable

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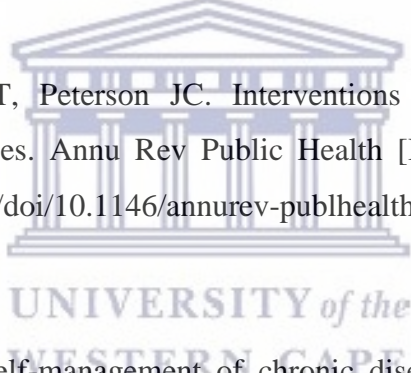
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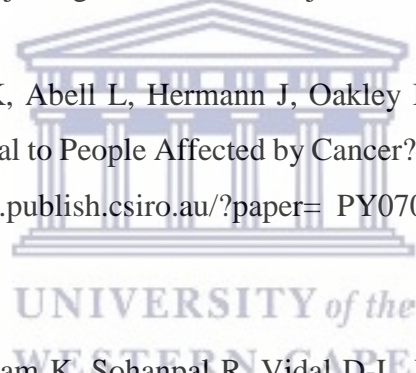
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CHAPTER SEVEN

INTERVENTION DEVELOPMENT

7.1. Introduction

This chapter is divided into four key sections. In the first section (Stage 1), the proposed intervention for this current study, is described. The second section (Stage 2) is the pilot study that was conducted in the rural area among CHWs. Subsequently, in the third section (Stage 3), the adaptations that needed to be made for implementation of the intervention in the urban area, are discussed and described. Finally, the intervention that was implemented for the urban health workers is described (Stage 4).

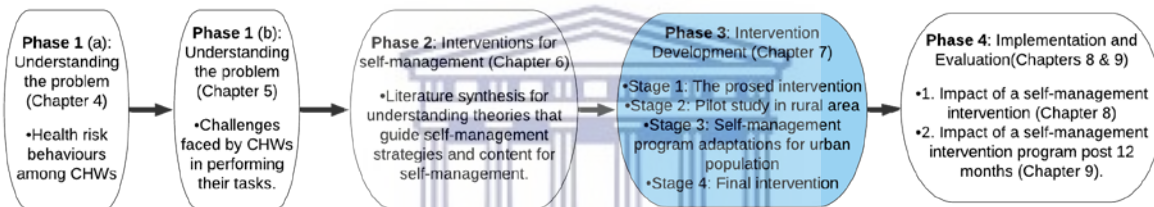


Figure 7.1: Phases of the study
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7.2. Stage 1: The proposed intervention

7.2.1. Chronic Disease Self-Management Programme

The self-management training, employed in this current study, was based on the Act Healthy Training programme, a modified Self-management intervention, based on the central components of the Chronic Disease Self-Management Program [CDSMP], which was initially developed by a team of researchers at Stanford University (Lorig, 2015). The programme was presented by lay facilitators, in the form of an education workshop that aimed to build the confidence of participants, as it related to their health, as well as to assist them to be active and engaged in their lives. The participants who attended this programme were suffering from, at least, one chronic health condition (Warsi, Wang, LaValley, Avorn, & Solomon, 2004), and the programme, therefore, was focused on disease management skills that included decision-making, problem solving, and action planning. Usually, self-management programmes would be conducted, on a weekly basis, for six consecutive weeks, with a duration of approximately 2.5 hours per session.

The number of participants per group ranged from 12 to 15. The objectives of the CDSMP were to build the confidence of the participants, increase their physical and psychological well-being, increase the knowledge of the participants, as it related to managing their chronic condition, as well as to provide motivation to manage the challenges associated with managing and living with chronic conditions (Lorig & Holman, 2003).

However, the Act Healthy training programme targeted healthy individuals, and was used as a prevention strategy, rather than a management strategy for existing disease. The Act Healthy training programme was first used in the workplace setting at the University of Missouri (Schopp, Bike, Clark, & Minor, 2015). The authors of this programme developed both a leader and participant manual, which detailed their six-week programme. The CDSMP necessitated some changes because The Act Healthy programme targeted healthy university employees. The changes included offering the programme on a weekly basis, for a much shorter period of 50 minutes, encouraging employees to work in groups on healthy behaviours, and a buddy system created via email groups. The programme, used as part of the Act Healthy Self-Management Programme, is outlined in Table 7.1.

7.2.2. The Act Healthy intervention

The Act Healthy programme is a self-management workshop for employees in a workplace setting. It is programme for healthy individuals, who would like to improve or maintain healthy behaviours. It focuses on improving self-efficacy and disease-prevention health behaviours, including decision making, problem solving, action planning, and strengthening employee bonds. The objectives of the programme were to improve the confidence, psychological well-being, knowledge related to chronic conditions, and skills related to problem solving, goal setting, and action planning.

This programme specifically targeted university employees, and included participant discussions, brain storming sessions, goal setting, problem solving, and decision-making. In addition, it included activities related to devising, practising, reviewing, and revising action-plans. There was also opportunity for behaviour modelling and the strengthening of support among the participants. For this programme, members met once a week, for 6

weeks, and the duration of the sessions was 50 minutes. The sessions for the six weeks are outlined in Table 7.1.

Table 7.1: Act Healthy Course Outline

	Class & Week	Content
1	Orientation class	<ul style="list-style-type: none"> • Introductions • ACT Healthy overview • <i>Study design and overview</i> • <i>Complete pre-test questionnaires</i>
2	Week 1 class	<ul style="list-style-type: none"> • Making changes: 'Old' Way and Self-management Way • Being an active group member • How healthy people act • Goals, action steps, action planning • Share health resources
3	Week 2 class	<ul style="list-style-type: none"> • "Thermometer" handout: components of a successful Action Plan • Action Plan report, using Thermometer handout • Make new Action Plan • Share health resources
4	Weeks 3-5 classes	<ul style="list-style-type: none"> • Review 'Thermometer" handout • Action Plan report, using Thermometer handout • Make new Action Plan • Share health resources
5	Weeks 4-5 classes	<ul style="list-style-type: none"> • Review Making changes: 'Old' Way and Self-management Way (p.9) • Action Plan report, using Thermometer handout • Make new Action Plan • Share health resources
6	Week 6 class	<ul style="list-style-type: none"> • Action Plan report, using Thermometer handout • Make new Action Plan • Recap experience, comparing 'Old' Way to Self-management Way • <i>Complete post-test questionnaires</i>

7.3. Stage 2: Pilot study in rural area

As part of the current study, the Act Healthy Self-management Program exemplar (Schopp, Bike, Clark, & Minor, 2015) was used as the basis for the intervention offered. During the current study, the Self-management Training Programme was offered to CHWs in a rural area initially, and subsequently, in an urban area. By contacting the leaders of the NGOs in the rural area, the investigators examined adaptations that would improve programme implementation in the rural health worker context.

The changes involved consolidating the standard weekly 6-week training sessions into an intensive 2-day programme, due to the limited time these carers were allowed to be away from their expected duties. Consequently, the content and support provided over the 6-week exemplar programme, was condensed into two sessions. The programme was adapted; however, the following emerged during the pilot study:

- The researchers realised that further adaptations needed to be made to the programme, in order for it to be effective.
- One of the facilitators, who was bilingual in English and Afrikaans, verbally translated the complex terms and concepts, and simplified them.
- Two facilitators conducted two training sessions on consecutive days with 22 CHWs.
- Each session was conducted in the morning, spanning a 3-4 hour period. This allowed the CHWs to return to work, and complete the rest of their working day.

The focus was on empowering CHWs to change their own health behaviours, with the intention of preparing those CHWs to effect a change in the health behaviours of the communities they serve and live in. The intervention maintained the objectives and key activities of the Act Healthy exemplar, but with the adaptations applied for the target audience of CHWs employed in rural areas. An evaluation was conducted one week post-implementation of the intervention, to determine the perceptions of the CHWs about the programme.

The programme, as it was presented over the 2 days, is outlined in Table 7.2. Day 1 of the intervention was focused on the participants gaining a clear understanding of the principles of self-management, namely, setting health goals for themselves, which they deemed important, the value in increasing self-efficacy, and becoming proficient in problem-solving abilities. The session was interactive, which allowed the participants to engage at all times, and seek clarity on concepts, as they were being presented. This culminated in the participants selecting their own health goals, which they aimed to achieve within the ensuing 3-6 months, as well as developing writing action plans that involved a weekly systematic approach to becoming successful with the set goals. The participants specifically chose an action step, which they could execute on the evening of day 1, in order to report on it the following day. The participants were asked to rate their confidence level, regarding the anticipated success of their chosen action plans on a 10-point scale. A score of eight or higher was considered a high

probability of success. The facilitators and fellow participants provided constructive guidance, to help the participants to revise their plans, should they have rated their confidence level at less than eight. The goals identified by the participants varied significantly, and included improving an intimate relationship with a spouse, improving adherence to chronic medication, losing weight, spending more time with smaller children, improving spiritual practice, and decreasing stress. The session ended with the participants choosing a health topic, which would be discussed the following day.

Day 2 of the intervention concentrated on reiterating the principles of self-management, reviewing the action plans that were decided upon, setting an action plan for the rest of the week, and a discussion of the chosen health topic (sleep). Each participant presented his/her self-identified goal and action plan s/he had developed the previous day. The facilitators and fellow participants offered their congratulations on successful completion of the action plans, as well as their guidance on modifying the plans, if the presented plans had failed. It was important to demonstrate to the participants that their plans could fail if ‘red thermometer readings’ (warning signs) were detected. Examples of these warning signs were; having more than one action step, the plan was vaguely-stated, new behaviour was attempted, substantial increases were planned (days, times, distance and/or amount), a confidence level of 7 or less was rated, as well as whether they felt coerced into choosing that particular plan.

The topic of sleep was discussed and both the facilitators, as well as the participants offered their input. Towards the end of this session, the participants wrote their action plans for the week ahead and subsequently completed the post-intervention survey. The session and training concluded with the participants receiving certificates of attendance, a photo session, and the establishing of a WhatsApp group, for them to remain in contact with each other, as well as the facilitators. Three to four days later one of the facilitators followed up on three CHWs to establish how they had progressed on their action plans, and whether they had been able to transfer their knowledge to their patients.

Table 7.2: Self-management course outline in rural area

SESSION 1: Day 1		
09H00 -09H30	Participants arrival	<ul style="list-style-type: none"> • Name Tags and pens issued. • Register completed and signed (including contact/WhatsApp numbers). • Participant Manual Issued. Tea/Coffee on arrival.

09H30-09H45	Ice Breaker and Welcome	<ul style="list-style-type: none"> Participants share something interesting about themselves. Facilitator shares excitement about the Self-Management approach
09H45-10H00	Orientation and Overview of Course	<ul style="list-style-type: none"> Orientation Session Overview of sessions 1 and 2 explained. Ground rules established - Breaks, Group participation, Respecting group members, confidentiality, no-judgement approach.
10H00-10H10	Introduction	<ul style="list-style-type: none"> Brief overview of the history of Self-management
10H10-10H15	Course Objectives	<ul style="list-style-type: none"> Objectives of the training outlined 1. Be able to differentiate between Self-management and other approaches that want to affect behaviour change 2. Recognize and apply the key tools of self-management: identifying goals, listing action steps, and forming an Action Plan. 3. Confidence 4. Identifying aspects/areas/things of their health that they would like to see improvements in 5. Identify and set a health goal that is to be achieved in the next 3 to 6 months (SMART goals) 6. Make weekly action plans towards reaching the goal 7. Successfully carry out action plans 8. Being able to evaluate the action plans
10H15-10H25	Making good health behaviour changes/choices	<ul style="list-style-type: none"> Old Way vs the Self-Management way explained
10H25-10H35	Brainstorming Activity	<ul style="list-style-type: none"> Identifying perceptions about Healthy Living and healthy people
10H35-11H00	Setting goals	<ul style="list-style-type: none"> Explanation about timeframe for health goals SMART goals Participants set personal health goals Participants select 1 health goal Sharing of goals with the group
11H00-11H10	BREAK	<ul style="list-style-type: none"> Light Refreshments provided
11H10- 11H30	Action Plan & Confidence	<ul style="list-style-type: none"> The Concepts of Action Planning and Confidence Explained (facilitator uses own goal). Warning signs highlighted (Thermometer handout in manual) Weekly Action Plan Worksheets distributed. Weekly Action Plan exercise based on the self-decided personal goal.
11H30-12H30	Presentation of Goals and Action Plans	<ul style="list-style-type: none"> Participants share their goal, their action plan for the week and their confidence score. Facilitator and group participate by means of questions to assist participants in devising the best plan to yield success. Revision of Action Plan based on feedback received. Extra Weekly Action Plan worksheets distributed.
12H30- 12H35	Health Topic	<ul style="list-style-type: none"> Consensus on a Health Topic which will be discussed in Session
12H35 – 12H45	Overview and Reminders	<ul style="list-style-type: none"> Overview of main Self-Management Skillsets Reminders to bring Participant manual and written Action Plan with to session 2
12H45- 13H00	END	<ul style="list-style-type: none"> Light Lunch served

SESSION 2: Day 2		
09h30-09h30	Participants arrival	<ul style="list-style-type: none"> Name Tags issued. Register completed and signed (WhatsApp number included) Tea/Coffee on arrival.
09H30 -09H45	Ice Breaker and Welcome	<ul style="list-style-type: none"> Ice breaker activity
09H45- 11H15	Reports on Action Plans	<ul style="list-style-type: none"> Participants share their goals and then their planned Action step for the week including their confidence level. Then they report on the Action Plan. Facilitator and group members participate by means of questions and words of affirmation. Failed plans- participants are encouraged to reflect (Using Thermometer' hand out and feedback from facilitator and group). New Action Plans for the week ahead (Previous day's outcome, feedback from facilitator and group, 'thermometer' handout and confidence level to be considered to devise the best plan.
11H15-11H25	BREAK	<ul style="list-style-type: none"> Light Refreshments provided.
11H00-11H15	New Action Plans Confidence	
11H15- 11H30	Health Topic	<ul style="list-style-type: none"> Facilitator and Group members share their resources regarding the chosen health topic.
11H30 -11H40	Overview and Reminders	<ul style="list-style-type: none"> Overview of main Self-Management Skillsets Weekly Action Plans to continue WhatsApp to be established to allow access to facilitators and fellow group members. Set dates for home/group support visits with facilitator Post 1- week post interviews. Long-term interview date will be communicated.
11H40 -12H15	Survey	<ul style="list-style-type: none"> Completion of posttest questionnaires
12H15 -12H30	Conclusion	<ul style="list-style-type: none"> Certificate Ceremony (Certificate of Attendance issued) Photo session
12H30	End	<ul style="list-style-type: none"> Takeaway lunch served.

7.4. Stage 3: Self-management programme adaptations for urban population

This stage of the study was focused on the adaptation that was made to the self-management programme, in order for it to be implemented among urban-based CHWs. As described in the previous section, the intended programme, which was planned for a duration of 6 weeks, had been reduced to 2 days. During logistics discussions with NGO leaders, it became clear that time off for 6 weeks was not an option for the intended participants. Additionally, lessons learnt upon reflection of the pilot group in the rural area, indicated that modifications were required.

Considering all these factors, the investigators again adapted the training model to suit the current group context, without losing the intended goal. The changes included the duration of programme, level of engagement (including language), feedback and support sessions, and the inclusion of a peer support component.

7.4.1 Duration of programme

Two face-to-face sessions were held over a two-week period (1 week apart), instead of a 6-week, one session per week programme, or a 2-consecutive day programme. The remainder of the 6-weeks programme was conducted informally, via a social media platform (WhatsApp), with the facilitator enquiring about the outcomes of the action plans, and the participants reporting, via WhatsApp, on their progress and challenges. The CHWs were divided into groups of approximately 16 per group.

7.4.2. Level of engagement and linguistic/language

7.4.2.1. Level of engagement

Although many CHWs spoke Afrikaans during conversations, it appeared that many preferred to have the written word in English. The facilitator, consequently, had to translate some of the concepts into Afrikaans during explanations to the participants. One of the key expectations of the Act Healthy programme was that the participants would write in their participant manuals. In the current programme, this had to be modified, as the literacy level of the participants had to be considered. Not all the participants were comfortable with writing, in either their first or second languages. Most who struggled with the writing, could read the written word, but struggled with the spelling of words, and were self-conscious about this. For these CHWs, the facilitator would scribe (by agreement), after they had verbalised their exact plan. Given the direct correlation between low health literacy levels and poor synthesis of the behaviours required for self-management skills to be developed (Mackey, Doody, Werner, & Fullen, 2016), it is imperative that every effort be made to ensure that the CHWs understand the course content and key concepts.

In order to maximise the level of engagement, there was a need to acknowledge the other roles these participants fulfilled. Some CHWs worked after-hour jobs to supplement their income, which resulted in reduced sleeping hours. This could

have a direct impact on the levels of concentration, and therefore, regular pause/body breaks were incorporated into the training sessions. The commencing and finishing times were also adjusted to accommodate CHWs' time constraints. The times of the sessions varied from morning (mostly) to afternoons to allow for this flexibility.

7.4.2.2. Linguistic/Language

Specific linguistic challenges needed to be addressed, which was an important modification, because it allowed the CHWs to receive the content in the most advantageous way, not only to facilitate the transfer of knowledge, but also to boost their self-confidence during training. Using English as the source language in the presentation of the training, certain adaptations were incorporated. These were, adopting a bilingual approach (English and Afrikaans); using a language specific to the environment and culture of the participants; minimising the use of common idioms and phrases; translating complex terms (for example, Action planning) into Afrikaans; and defining, as well as simplifying complex concepts and terms (for example, Intimacy and Self-efficacy).

The participant manual, weekly action-plan handout sheet, and presentation material were translated into Afrikaans, and the language simplified, as previously described. This afforded the CHWs the opportunity to choose the language medium with which they felt comfortable.

7.4.3. Feedback and support sessions

7.4.3.1. Social Media platform (WhatsApp)

To allow for feedback and support, in the absence of face-to-face meetings, a WhatsApp group was established for each of the training groups. WhatsApp groups were established at the beginning of the sessions, and continued for the duration of the *formal* 6-weeks programme time. Due to the known ethical considerations of ongoing consent, anonymity, and the protection of personal information with WhatsApp (De Gruchy, Vearey, Opiti, Mlotshwa, Manji, & Hanefeld, 2021; Head, 2021), every effort was made to safeguard the participants. The participants were invited to join the WhatsApp group, with the understanding that they could opt-in,

or opt-out at any given time, and could decide whether they were prepared to send their contributions via this platform, as it was explained that others in the group would be able to see their telephone numbers and messages. Additionally, clear guidelines for using the group as participants, as well as the group administration were explained to every participant (Bouter, Venter, & Etheredge, 2020). Each participant decided to offer or decline consent. WhatsApp is an inexpensive, convenient, and simple way to communicate (Ibrahim, Hafiz, & Musa, 2018). Its value has been demonstrated in the improvement of social isolation (Abiodun, Daniels, Pimmer, & Chipps, 2020), academic knowledge (Cetinkaya, 2017; Ibrahim, 2018), as well as engagement between health professionals during health crises (Motaung & Dube, 2020). These factors, coupled with the fact that this was the only financially accessible tool available to the participants, which would support group communication, made this a suitable tool to use. The WhatsApp group served multiple purposes:

1. Weekly ongoing check-in platform.
2. Reviewing of action planning, regarding the self-defined goals that were set to provide ongoing support.
3. Encouragement to persevere and opportunities to share successes.
4. Sharing of a health topic.
5. Ongoing training to clarify and reiterate the objectives of the training to assist them in their mastery of the new skillsets.

7.4.3.2. Transference of skills in daily jobs

To assist the CHWs in translating the skills of self-management, when dealing with their patients and facilitating patient goals, the facilitators followed up with several CHWs, and accompanied them on their home visits, or visits of support groups (groups of persons who have NCDs). The skill set of assisting the patients to set their own health goals, as well as determine their weekly action plan, was practically facilitated, while feedback was provided to the CHWs after these visits.

7.4.4. Inclusion of a peer support component

A coaching environment was established during the intervention, which allowed for more pervasiveness during the sessions, and was particularly important, because of the limited

face-to-face sessions. A peer-facilitated component was introduced. Once the first two participants presented their action plans and received feedback, they became peer-leaders with the facilitator. They requested that the following two persons come up (one at a time) and follow the process of engaging their peers in a positive manner, to help establish the best action plan for the goals, which had been set. The peer-leaders rotated until every participant had had the opportunity to facilitate one, or more peers, through the process of establishing specific action plans. This granted everyone the opportunity to act as a facilitator and a peer coach, which empowered the participants, and ensured that peer support was rendered and available to each person in the group

7.4.5. Other

The facilitators needed to be mindful of a number of other factors, in order to maximise the effectiveness of the Self-Management training.

7.4.5.1. Refreshments

The facilitators ensured that the CHWs were offered a light snack at the start of the session, as well as midway through, because many would not have had anything to eat or drink.

7.4.5.2. Time flexibility

Flexibility of the starting time had to be considered, as many of the urban CHWs had travelled to the training venue by public transport (taxi) or had walked. The public transport system was not always reliable, and some participants arrived late, despite leaving their homes quite early. In one of the sessions, the starting time was delayed to accommodate a CHW, who had waited for an ambulance with a stab-wound patient. In other instances, CHWs were accommodated at times outside of the designated group times, for them to catch up, prior to session two, in case they had missed out on any activity in session one.

7.4.5.3. Provision of basic essentials

With the training being conducted during the winter months, some CHWs had to walk in the rain to attend, and few of them had rain boots, umbrellas, or raincoats. Consequently, the facilitator stocked up on dry towels and spare clothes at the venue. On the way to training, one CHW got drenched with rain, to the extent that

the facilitator had to provide her with a full set of dry clothes, for her to be comfortable, and be able to focus on the session.

7.4.5.4. Post-training interviews

Post-training interviews for urban CHWs were conducted one month after the intervention, which allowed them time and opportunity to apply their newly acquired self-management skill sets. The interviews were conducted at the CHWs' convenience, mostly at the end of their workday, during their breaks, or after hours. The facilitator travelled to the location specified by the CHW, conducting the interviews in the motor vehicle, and providing a snack pack post-interview.

7.4.5.5. Self-care sessions

The facilitators offered self-care sessions as an option to the CHWs post-intervention. This option included amateur manicures and massages. In the rural community, psychotherapy was also offered by one of the facilitators, a clinical psychologist. These services were made available to support the CHWs, who were usually experiencing intense role demands, and may never have been the recipient of pampering or self-care services. The importance of these adaptations cannot be overemphasised, in the attempt to incorporate interventions into community-based settings.

7.5. Stage 4: Final intervention

The participants attended an information session prior to the intervention. At this session, information about the study was conveyed, and a brief orientation was conducted. The final intervention was conducted one week later.

7.5.1. The Final Self-Management Intervention

The final self-management intervention applied adaptations as previously described to suit the context in which training was presented. In doing so, the researchers ensured that none of the fundamental components of self-management was compromised.

About the programme: The self-management workshop is for lay-persons, working in the Primary Healthcare setting, with or without noncommunicable diseases, who would like to improve, or maintain healthy behaviours. It is focused on improving self-efficacy

and disease-prevention health behaviours, including decision making, problem solving, action planning, and the strengthening of bonds between co-workers.

Objectives: The programme aims to improve

- Confidence;
- Physical and psychological well-being;
- Knowledge of ways to prevent chronic conditions and improve health behaviours; and
- Problem solving, goalsetting, as well as action planning skills.

Target Audience:

- CHWs based in rural and urban areas

Key Activities:

- Active engagement by participants discussions on health behaviours;
- Brain storming sessions;
- Goal setting, problem solving and decision-making;
- Devising, practising, reviewing, and revising of action-planning;
- Behaviour modelling and the strengthening of support between participants; and
- Health Topic discussion, for example, sleep, stress management, healthy eating and exercise.

Setting: Group-based workshop.

Suggested class size: Maximum members

Duration: Members meet for 2 sessions, once a week, over a two-week period for 3-and-a-half to 4 hours.

7.5.2. Description of weekly sessions

The intervention extended over two face-to-face sessions, with 1 week between the sessions. They were conducted at a church hall, frequently used by the CHWs for monthly meetings with their NGO leaders. This was a convenient choice because the CHWs were familiar with the methods of traveling to the venue. A maximum of 16 participants were allowed per group. For weeks 3 to 6, the social media platform WhatsApp was used to supplement training sessions. Certain participants opted to share their goals and action plans on a one-on-one basis with the facilitator (via WhatsApp), when they deemed it too personal to divulge on the group chat. Active group participation was encouraged at the in-person meetings, as well as on the social media platform.

Table 7.3: Self-management course outline in urban area

SESSION 1: Week 1		
08h30-09h00	Participants arrival	<ul style="list-style-type: none"> Name Tags issued. Register completed and signed (including WhatsApp numbers). Participant Manual Issued. Tea/Coffee on arrival.
09h00-09h20	Ice Breaker and Welcome	<ul style="list-style-type: none"> Participants share something interesting about themselves. Facilitator shares excitement about the Self-Management approach
09h20-09h25	Overview of Course	<ul style="list-style-type: none"> Overview of sessions 1 and 2 explained. Sessions 1 and 2 will be face-to-face. Support for the 4 weeks following that will take place via the social media platform, WhatsApp Ground rules established - Breaks, Group participation, Respecting group members, confidentiality, no-judgement approach.
09H25-09h35	Introduction	<ul style="list-style-type: none"> Brief overview of the history of Self-management
09H35-09H40	Course Objectives	<ul style="list-style-type: none"> Objectives of the training outlined <ol style="list-style-type: none"> Be able to differentiate between Self-management and other approaches that want to affect behaviour change Recognize and apply the key tools of self-management: identifying goals, listing action steps, and forming an Action Plan. Confidence Identifying aspects/areas/things of their health that they would like to see improvements in Identify and set a health goal that is to be achieved in the next 3 to 6 months (SMART goals) Make weekly action plans towards reaching the goal Successfully carry out action plans Being able to evaluate the action plans
09H40-09H50	Making good health behaviour changes/choices	<ul style="list-style-type: none"> Old Way vs the Self-management way explained
09H50-10H00	Brainstorming Activity	<ul style="list-style-type: none"> Identifying perceptions about Healthy Living and healthy people

10H00-10H30	Setting goals	<ul style="list-style-type: none"> • Explanation about timeframe for health goals • SMART goals • Participants set personal health goals • Participants select 1 health goal • Sharing of goals with the group
10H30-10H45	BREAK	<ul style="list-style-type: none"> • Light Healthy Refreshments provided.
10H45 – 11H10	Action Plan & Confidence (part 1)	<ul style="list-style-type: none"> • The Concepts of Action Planning and Confidence Explained (facilitator uses own goal). • Warning signs highlighted (Thermometer handout in manual) • Weekly Action Plan Worksheets distributed. • Weekly Action Plan exercise based on the self-decided personal goal.
11H10-12H25	Presentation of Goals and Action Plans	<ul style="list-style-type: none"> • Participants share their goal, their action plan for the week and their confidence score. • Facilitator and group participate by means of questions to assist participants in devising the best plan to yield success. • Peer-facilitation encouraged.
12H25– 12H30	PAUSE ACTIVITY	<ul style="list-style-type: none"> • An easy fun activity to allow for a body break.
12H30 – 12H45	Action Plan & Confidence (part 2)	<ul style="list-style-type: none"> • Revision of Action Plan based on feedback received. • Extra Weekly Action Plan worksheets distributed.
12H45- 12H50	Health Topic	<ul style="list-style-type: none"> • Consensus on a Health Topic which will be discussed in Session 2
12H50 -13H00	Overview and Reminders	<ul style="list-style-type: none"> • Overview of main Self-Management Skillsets • Reminders to bring Participant manual and written Action Plan with to session 2 • WhatsApp group to be established post session 1
SESSION 2: Week 2		
08h30-09h00	Participants arrival	<ul style="list-style-type: none"> • Name Tags issued. • Register completed and signed • Tea/Coffee on arrival.
09H00 -09H15	Ice Breaker and Welcome	<ul style="list-style-type: none"> • Ice breaker activity
09H15- 10H45	Reports on Action Plans	<ul style="list-style-type: none"> • Participants share their goals and then their planned Action step for the week including their confidence level. • Then they report on the Action Plan. • Facilitator and group members participate by means of questions and words of affirmation. • Failed plans- participants are encouraged to reflect (Using Thermometer' hand out and feedback from facilitator and group). • Peer facilitation is encouraged.
10H45-11H00	BREAK	<ul style="list-style-type: none"> • Light Refreshments provided.
11H00-11H15	New Action Plans Confidence	<ul style="list-style-type: none"> • New Action Plans for the week ahead (Previous week's outcome, feedback from facilitator and group, 'thermometer' handout and confidence level to be considered to devise the best plan.
11H15- 11H30	Health Topic	<ul style="list-style-type: none"> • Facilitator and Group members share their resources regarding the chosen health topic.

11H30 -11H40	Overview and Reminders	<ul style="list-style-type: none"> • Overview of main Self-Management Skillsets • Weekly Action Plans to continue • Weekly WhatsApp check-ins and review dates confirmed • Set dates for home/group support visits with facilitator • Post 1-month post interviews and 6-months post intervention survey
11H40 -11H50	PAUSE ACTIVITY	<ul style="list-style-type: none"> • An easy fun activity to allow for a body break.
11H50 -12H30	Survey	<ul style="list-style-type: none"> • Completion of posttest questionnaires
Weeks 3-6		
	WhatsApp Group	<ul style="list-style-type: none"> • Midweek check-ins and reviews • Health Topic • Reiterating the self-management concepts • Weekly setting of action plans • Group interaction encouraged.

7.6. Conclusion

Conducting Implementation Research is still relatively new, and although it is growing (Peters, Adam, Alonge, Agyepong, & Tran, 2013); until recently, it has been conducted in resource-constrained health systems (Rabbani et al., 2016), and is still not well-understood (Peters et al., 2013). Additionally, conducting Implementation Research is challenging (Rabbani et al., 2016), as it not only requires synergy between the various components of health systems, but also needs fluency between these components and the communities represented, in order to be effective (Sanders & Haines, 2006). Simultaneously, the barriers of politics, environment, social and economics, are taken into consideration (Rabbani et al., 2016; Sanders & Haines, 2006). Therefore, it is imperative that researchers expand their considerations to include these barriers, as well as the external factors that could affect the outcome of their research question (Hoffman, Røttingen, Bennett, Lavis, Edge, & Frenk, 2012).

The self-management intervention rolled out in this current study is an intervention that adheres to the aims of implementation research, which are to uncover the reasons that interventions are successful in real life settings, and to test various concepts for improvements (Peters et al., 2013). A study conducted in Pakistan among CHWs, to determine the challenges in the implementation of a community-based intervention (Rabbani et al., 2016), concluded that:

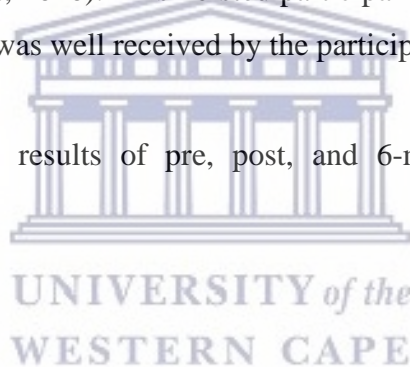
- Conducting a pilot phase among a small group of participants, prior to the final intervention, was crucial. It allowed researchers to factor in the community-specific

challenges, its cultural and structural norms, and subsequently, tailor the final intervention to maximise the outcomes.

- Post-intervention evaluations were useful to ascertain whether the CHWs sustained and retained the new knowledge and skills learnt during the implementation of the intervention.

Other researchers (Choi et al., 2019) who applied cultural changes to an established community-based intervention, observed that the intervention was feasible and the improvements were achieved, as with the original intervention. In this current study, the adaptations that were made for the final intervention did not compromise the key components, but instead, considered the cultural barriers, cognitive abilities, motivational factors, the environment, the content of the programme, as well as the objectives and main structure of the intervention (Reinschmidt et al., 2010). This hoisted participant participation, as well as their self-efficacy. The intervention was well received by the participants.

In the following chapter, the results of pre, post, and 6-months post intervention are highlighted.



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CHAPTER EIGHT

THE IMPACT OF A SELF-MANAGEMENT INTERVENTION PROGRAMME FOR COMMUNITY HEALTH WORKERS (CHWSM)

8.1. Introduction

In the previous chapter, the researcher outlined the four stages that culminated in the self-management intervention, which was presented to the community health workers (CHWs). Initially, the researcher commenced by describing the existing self-management interventions. Thereafter, a pilot study was introduced in a rural setting, using one of the existing interventions as a basis. After the pilot study, and armed with feedback from the participants, adaptations were made to the intervention, to make it more appropriate to the current study population. Subsequently, the adapted self-management intervention for community health workers (CHWSM) emerged.

In this chapter, the researcher introduces part 1 of Phase four of the study, which explores the impact of a self-management intervention presented to the CHWs. The findings of this chapter suggest that self-management positively influences health behaviours, mood, and self-efficacy. It also reported that the change was long-lasting in CHWs' report on domains of physical activity, stress management, depression, and overall health behaviours, making this low-cost intervention a strategy worth considering for the facilitation of health behaviour change (Article 4).

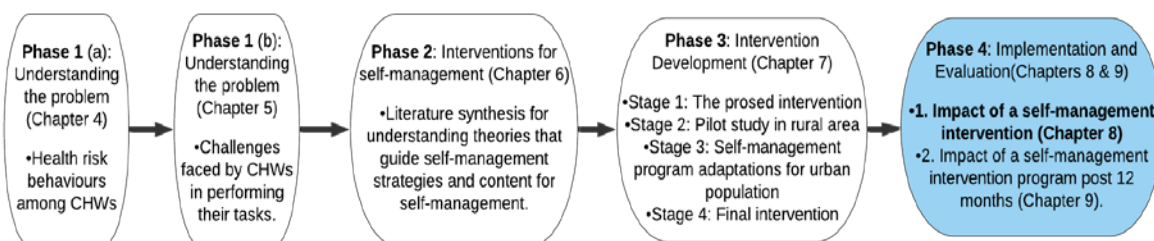


Figure 8.1: Phases of the study

8.2. Publication details

Article No. 4 has been submitted to the Journal of Primary Care and Community Health, the details of which are provided in Table 8.1 below.

Table 8.1 Article details

Title	The Impact of a Self-Management Intervention program for Community Health Workers (CHWSM)
Authors	Johnson L, Schopp L, Waggie F, Majee W, Frantz JM.
Year	2022
Journal	Journal of Primary Care and Community Health.
Volume	
Issue	
Page no.	
Status	Accepted
Full citation	Johnson L, Schopp L, Waggie F, Majee W, Frantz J. The Impact of a Self-Management Intervention program for Community Health Workers (CHWSM). Journal of Primary Care and Community Health. 2021.

8.3. Journal overview

The manuscript was submitted to the journal titled, Journal of Primary Care and Community Health. The journal is a peer-reviewed, open access journal, which is part of SAGE journals and a member of the Committee on Publication Ethics. The focus of this journal is on evidence relating to community health interventions and health programmes. Its overarching aims are to promote the exchange of information across the health platform and close the divide between medicine and public health (primary care and community health). The journal's focus is suitable because this article presents the findings of the impact of a self-management programme presented to CHWs in urban and rural areas. The findings will inform the Department of Health regarding the effectiveness of a self-management intervention on CHWs' health behaviours, and provide them with a strategy to consider implementing, in order to achieve the objective of decreasing the prevalence of NCDs, as well as the burden of disease.

8.4. Published article

This chapter contributes to a larger study that explores the improvement of CHWs' health behaviours, using a self-management programme. In this publication, the authors explore the

impact of a self-management programme, immediately post intervention, and subsequently, at six months post intervention. It highlights the positive changes that the self-management intervention generated, and suggests that this strategy be given by the Department of Health. This chapter leads into the next chapter (Chapter 9), in which the impact of a self-management intervention, presented to CHWs, is explored, twelve months post intervention, at a time when the country and the world was facing the Covid-19 pandemic.

8.5. ABSTRACT

Introduction

The community health worker model is one of the pivotal strategies identified to address the global shortage of healthcare workers, and subsequently influence the increasing burden of disease. South Africa and the Western Cape Province has a quadruple burden of disease. This workforce is responsible for healthcare to communities and expected to advocate for improved health behaviours, despite their own health behaviours not being concentrated on. Self-management is a proven intervention, which equips the participants with multiple skills, such as improved self-efficacy, goal setting, and decision-making, to improve their health behaviours.

Objectives

The purpose of the study is to implement and evaluate the impact of an adapted self-management program presented to CHWs to improve their own health behaviours and ultimately influence the communities they serve.

Methods

CHWs from two urban areas (n=132) and two rural areas (n=22) participated in the study. Quantitatively, the study employed a longitudinal quasi-experimental pre-test-post-test design and in-depth interviews were conducted for the qualitative aspect.

Results

Qualitatively five primary themes (mind-set change, improved work performance, enhanced health behaviours, feeling valued and being acknowledged, enjoyment and futuristic outlook) and three subthemes (self-care, confidence, and coping strategies) emerged. Quantitatively, significant improvements were reported for overall health behaviours and self-efficacy. Long-term (six months) evaluation found significant results in the reporting of overall health

behaviours including physical activity and stress management and significant improvement in depression scores.

Conclusion

Self-management intervention had an overall positive impact on health behaviours, mood and self-efficacy in CHWs. This low cost intervention, which requires minimum resources to roll out, should be considered by the department of health to firstly contribute to improving the overall health of healthcare workers; secondly to facilitate this cadre's role to model and advocate for positive health behaviours in the communities and thirdly, to contribute to decreasing the burden of disease.

Key words:

Community health workers, self-management, health behaviours, self-efficacy, impact, depression.

8.6. INTRODUCTION

The global health platform is in dire need of healthcare workers, who can work on the frontlines effectively and efficiently.^{1,2} One strategy identified to address the shortage in healthcare workers that has gained prominence over the last decade is the use of CHWs.³ The roles that CHWs play in healthcare has increased over the years, and now includes management of non-communicable diseases rehabilitation workers, health promoters and health educators, advisers, support group facilitators and home-based care.^{4,5,6} CHWs are expected to teach patients to become better self-managers and are considered as pivotal in patient-centred self-management programs.⁷ However, except for one recent pilot study, specific training in CHW's health self-management has been absent.⁸

The concept of self-management was described as an intervention that is centred on person-centred social cognitive theory.^{9,10} Initially the focus was on improving the health behaviours of persons with chronic diseases.¹¹ Since then, the term self-management has been commonly used as an umbrella term encompassing health promotion and prevention interventions aimed at patients with chronic conditions.¹² It has since progressed and implemented with healthy individuals in a workplace setting^{13,14} and more recently piloted among CHWs in a rural setting.^{8,15} The core skills gained from self-management training are problem-solving, decision-making, assisting people to network and form partnerships, set goals, act and improve

their self-efficacy in their quest to improve their health status.¹¹ These are requisite skills for CHWs to excel in their roles.

The purpose of the current study was to implement and evaluate the effects of a self-management programme for CHWs to improve their own health behaviours and ultimately influence the communities they serve. The current study trained CHWs in Self-Management (CHWSM), hypothesizing that as CHWs gain self-management skills, they will be able to persuade communities by modelling their own new health behaviours and modelling the core skills of CHWSM. The study tested the notion that as CHWs gain confidence and competence in health behaviours, they define their own health goals and work incrementally toward achieving those goals. To our knowledge, the current study is the first study targeting urban CHWs to improve their own health behaviours using a self-management intervention. Therefore, the aim of this study was to explore and describe the impact of a self-management programme on CHWs.

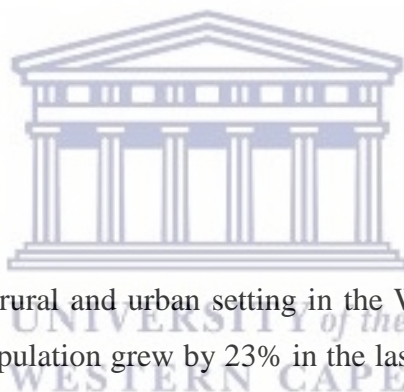
8.7. METHODS

Research Setting

The study was conducted in a rural and urban setting in the Western Cape Province, South Africa. The Western Cape's population grew by 23% in the last decade.¹⁶ The Western Cape has been identified as a province that needs to manage a quadruple burden of disease.¹⁶

Study design and participants

This study employed a longitudinal quasi-experimental pretest-posttest design (quantitative) followed by in depth interviews (qualitative). One hundred and thirty-two CHWs from the 2 NGOS in the Cape Flats urban areas and 22 CHWs from the two NGOS in the Theewaterskloof rural area were selected by convenience sampling to participate in the quantitative study. The sample size (n=154) was considered adequate for this phase of the study, because the focus of this pre-test post-test design was to gain an understanding of the impact of the CHWSM intervention on participants, rather than on broad generalizability, which is an appropriate subsequent phase of investigation for future studies. At the pre-intervention phase, 154 CHWs participated in the study and a detailed description of the participants has been published.¹⁷ The number decreased to 114 CHWs at the post-intervention evaluation and 84 CHWs participated



in the 6-months post-intervention evaluation (See Table 8.2). Measures were administered pre-intervention, immediately post-intervention, and at six months post-intervention.

Purposive sampling was employed to recruit 15 urban CHWs to participate in the qualitative aspect of the study and this was reported on previously.¹⁸ The CHWs chose to be interviewed in either English or Afrikaans, as these are the predominant first languages in the region. Interviews were conducted at locations and times specified and convenient to the CHWs. Prior to the interviews, the researcher gained permission and consent to record the interviews, which lasted 20-30 minutes. The interviews ceased when the researcher observed that no new material was emerging. At the conclusion of each interview, the researcher recorded field notes and observational cues.

Intervention

The intervention consisted of self-management training, i.e. *Act Healthy*, a self-management program, which was developed by researchers at the University of Missouri.¹³ This program was first piloted in a South African rural setting^{8,15} and the lessons gained from this pilot programme were used to tailor the training to meet the specific needs of the CHWs in the South African context. The pilot program was an intensive two-day self-management intervention program where participants were taught the core principles of self-management in order to upskill them to become better self-managers of their own health.

An adapted version of the CHWSM training was implemented in the urban setting. It was a face-to face program presented over a two-week period with one week in between and then followed up by four remaining weeks supported by the instant messaging social media application, WhatsApp. The CHWs were empowered by teaching them the fundamental skills of making decisions about their health, setting health-related goals, formulating action plans and steps, optimising resources that are at their disposal, and forming, as well as improving relationships with their healthcare colleagues. The participants reported on their health goals and based on this were able to modify their next steps towards achieving it.

Outcome measures

Three self-report instruments were used to collect information and included a section for demographic information: (i) The *Health Promoting Lifestyle Profile-II* (HPLP-II);¹⁹ (ii) The *Self-Rated Abilities for Health Practices* (SRA);²⁰ (iii) The *Personal Health Questionnaire-9*

(*PHQ-9*)²¹ (Appendices 18 & 19). Data for the qualitative component were collected via in-depth interviews and the questions focused on the impact that CHWSM training had on the CHWs (Appendix 11).

Data analysis

For the quantitative data, all the analyses were conducted in consultation with a statistics coach. Descriptive and inferential statistics were conducted. Repeated measures ANOVAs and t-tests were performed to assess significant pre- to post training changes, corrected for violation of sphericity assumption using the Greenhouse-Geissman method. A comparison was conducted at 6 months post intervention. Effect sizes were estimated per interpretive ranks proposed by Cohen.²² Comparisons between variables at baseline, post-training, and 6-months post training assessed stability of changes after CHWSM training, and a conservative approach was used via the Bonferroni method of correction for multiple comparisons.

For the qualitative data, thematic analysis was conducted and the coding was conducted manually by the primary researcher (LJJ). The final codes were verified by the co-researchers. Actual quotations from the participants were used when the findings were reported.²³ A summary of the data from the in-depth interviews were presented to the participants to allow them to confirm whether it was an accurate reflection. The analyses, discussion and conclusion were reviewed by the co-researchers.

Ethics

The study received ethics approval from the Human and Social Sciences Research Ethics Committee at the University of the Western Cape (HS17/8/23).

8.8. RESULTS

Demographics

The mean age of participants was 42.2 years ($SD=10.9$). Ninety-four percent ($n=144$) were female and 6% ($n=10$) were male, which reflects CHW populations broadly and indicates ecological validity with respect to CHWs in the South African context. The mean years of working as a CHW was 4.5 years ($SD = 3.83$), and 90% of the CHWs had not completed 12 years of education.

Baseline, post-intervention and 6-month follow up measures

In Table 8.2, a summary of the statistics at baseline, post training, and 6-months follow up stages, is provided.

Table 8.2: Descriptive Statistics for participants

Measure	Baseline \bar{X} (SD)	Post \bar{X} (SD)	6-months \bar{X} (SD)
Demographics			
% Female	94%	--	--
Age (years)	42.2 (10.9)	--	--
Years of Education	10.61 (3.04)	--	--
% with <12 Years Education	90%	--	--
Years Working as a CHW	4.59 (3.83)	--	--
HPLP-II/Health Behaviors			
Health Responsibility	26.38 (6.15)	28.33 (5.33)	28.11 (4.58)
Physical Activity	19.88 (5.63)	21.87 (5.82)	21.87 (4.16)
Nutrition	21.24 (4.79)	22.57 (4.69)	21.87 (4.22)
Spiritual Growth	29.83 (4.56)	31.67 (3.31)	30.95 (3.73)
Interpersonal Relationships	24.36 (4.05)	25.97 (3.72)	25.79 (3.35)
Stress Management	22.22 (4.55)	24.06 (4.25)	23.91 (3.85)
HPLP-II Total Score	143.27 (20.76)	153.80 (22.42)	150.84 (19.98)
PHQ-9 Total/Depression	10.29 (6.17)	8.88 (5.88)	7.86 (5.67)
SRA Total/Self-Efficacy	30.98 (5.09)	32.52 (4.25)	31.80 (4.49)

Notes: HPLP-II = Health Promoting Lifestyle Profile-II; PHQ-9 = Patient Health Questionnaire-9; SRA = Self-Rated Abilities for Health Practices Scale.

Table 8.3 contains results, using the Greenhouse-Geisser partial eta² and interpreted effect sizes for each of the primary measures.

Table 8.3: Effect sizes of participants for different measures

Measure (n)	F	Df	Greenhouse-Geisser Partial eta ²	Effect Size
<i>HPLP-II/Health Behaviors</i>				
Health Responsibility (66)	4.84*	1.79, 150.81	.069	Medium
Physical Activity (68)	7.10**	1.83, 122.66	.096	Medium-Large
Nutrition (70)	2.77 n.s.	1.82, 125.31	.039	n.s.
Spiritual Growth (64)	5.58**	1.62, 101.937	.074	Medium
Interper. Relationships (71)	5.51**	1.84, 130.79	.101	Large
Stress Management (65)	6.96**	1.63, 104.51	.098	Large
<i>HPLP-II Total Score</i> (82)	11.70***	1.74, 142.80	.129	Large
<i>PHQ-9/Depression Total</i> (81)	4.28*	1.77, 145.21	.050	Small
<i>SRA Total/Self-Efficacy</i> (82)	4.06*	1.71, 138.15	.048	Small

Notes: *HPLP-II* = Health Promoting Lifestyle Profile-II; *PHQ-9* = Patient Health Questionnaire-9; *SRA* = Self-Rated Abilities for Health Practices Scale. * = $p < .05$; ** = $p < .01$; *** = $p < .001$.

Significant changes were found in all measures between baseline and post-intervention except PHQ-9 depression. Significant improvement was maintained at 6-months follow-up for domains including physical activity, stress management, and overall health behaviours. Depression PHQ scores improved significantly between baseline and 6-months follow up. Health self-efficacy SRA scores improved significantly between baseline and post-intervention ($p < .05$) but significant improvement between baseline and 6-months follow up was not maintained (n.s.).

Table 8.4 contains summaries of comparisons planned; using Bonferroni corrections for baseline vs. post-intervention, post-intervention vs. 6-month follow up, and baseline vs. 6-months follow up.

Table 8.4: Comparisons between scores of the participants at baseline, post-intervention, and 6 month follow up

Measure	Baseline \bar{X}	Post \bar{X}	6-months \bar{X}	Baseline vs. Post	Post vs. 6-months	Baseline vs. 6-months
<i>HPLP-II/Health Behaviours</i>						
Health Responsibility	26.38	28.33	28.11	p < .05	n.s.	n.s.
Physical Activity	19.88	21.87	21.87	p < .01	n.s.	p < .05
Nutrition	21.24	22.57	21.87	p < .05	n.s.	n.s.
Spiritual Growth	29.83	31.67	30.95	p < .01	n.s.	n.s.
Interpersonal Rel.	24.36	25.97	25.79	p < .01	n.s.	n.s.
Stress Management	22.22	24.06	23.91	p < .01	n.s.	p < .05
<i>HPLP-II Total Score</i>	143.32	153.73	150.88	p < .001	p < .001	p < .05
<i>PHQ-9 Total/Depression</i>	10.29	8.88	7.86	n.s.	n.s.	p < .05
<i>SRA Total/Self-Efficacy</i>	30.98	32.52	31.80	p < .05	p < .05	n.s.

Notes: *HPLP-II* = Health Promoting Lifestyle Profile-II; *PHQ-9* = Patient Health Questionnaire-9; *SRA* = Self-Rated Abilities for Health Practices Scale. All comparisons used Bonferroni method to control for multiple comparisons.

Qualitative findings

The qualitative findings of this study highlight the changes that the CHWs experienced following the CHWSM. Their perceptions of their experience were expressed in five primary themes (mindset change, improved work performance, enhanced health behaviours, feeling valued and being acknowledged, and enjoyment & futuristic outlook) and three sub-themes (self-care, confidence and coping strategies). The quotes to support what the participants report on and explain in these themes are presented, as illustrated in Table 8.5.

Table 8.5: Primary themes, sub-themes, and quotations

Primary Themes	Sub-Themes	Quotations
Mindset change	Self-care	<p><i>"You more worried about the patient than yourself. Like sometimes you will stress because of the patient but we don't know that we making ourselves more sick also with the patient, like sometimes you think more about them than you think of yourself." (P38F)</i></p> <p><i>"You always put yourself on the back burner- whether you're a parent, when you're at work, everybody else comes before me and there was a point where I got really sick, like a lot of chronic pains and then I felt, "Why not me first?", not trying to be selfish, but if I don't take care of me, how can I take care of my patients, my kids at home? I'm always going to be sick. So I've lived that selfish life now, from that time, it's me first." (P15F)</i></p>
	Confidence	<p><i>"What I have also learnt is not keeping [with] what we have learnt to [do] ourselves. Since we have done self-management, we had a large health expo with the youth and this is in a broader spectrum to help other people. It helps a lot and it gives me more confidence in the work that I do to assist and also increase the work that we do because now I can go out to other people. The spectrum of the work is now even bigger 'cause I work with 5 people but there is 100 people that I can go to speak to them about health and also how to manage themselves." (P75M)</i></p>
	Coping strategies	<p><i>"I learnt how to deal with things on my time. Also not to take too much things on and especially where stresses are involved. I just try and minimize it like to a point where you won't have too much stress so I'm gonna take a walk now and just try to relax and solve it in the sense of ok this is what's happening, so this is why this is happening like in that form just that it don't get too much at the end of the day." (P38F)</i></p>
Improved work performance		<p><i>"I really did not know how to deal and handle people, if I go to them and they are rude...and I'm a very nervous person and then I don't want to go back to that person. But now with the training, I got my confidence back again. I can face my fear again. I can handle more". (P71F)</i></p>
Enhanced health behaviours		<p><i>"Sometimes to wear a mask is hard, yes, like before the management (self-management training). I didn't do it like I should have but in the time of the management (self-management training) I became more careful with myself ..because I know I should wear my mask as I was taught ... how can I say? I do it now." (P68F)</i></p> <p><i>"Look I was overweight. When I came to the course, the facilitator asked what our goal was. I started with walking and exercising and afterwards I cut out everything that I shouldn't eat and now I don't feel so tired and short of breath anymore. Now my body feels good. The most important thing is that I'm making time to look after myself." (P33F)</i></p>
Feeling valued and being acknowledged		<p><i>"Okay, what stood out for me also was the fact that everyone had got a chance to have leadership skills, hehe, cause most people uhm don't know how to talk in front of everyone platform was set that, "today, you're going to be in charge", something like that. Like you did learn late- leadership skills. Most of us didn't learn that in school. Like I taught my- I'm learning my daughter too ""Child* you not a follower, you a leader"" so, yes. (P28F)</i></p> <p><i>(*-Indicates pseudonym)</i></p> <p><i>"It (self-management) was- I think that is what we needed as community health workers, we needed that- we needed something, we needed someone to tell us that we are worth it and that we are more than just community workers –like we are also people, we also need to be taken care of. Like respect and show us more respect and show more, how can I say? Interest! Interest in us. The facilitator, if there's any other way that she wants to setup another course of self-management, I am willing to participate in it." (P61F)</i></p>
Enjoyment and futuristic outlook.		<p><i>"Definitely, it was very empowering for me, from every minute of it, I enjoyed it. It was just fun, just throwing out everything you came in with by the door and just concentrating on what's happening here and now. The way you came across and what you delivered to us- it came through the brain very well so we participated and we took in what was taught to us and like I said, on the first day I was very excited, the second day I was more excited because obviously, now I want to know where we're going to go further on from where we started." (P126M)</i></p> <p><i>"For me the training was a success. It was a huge success for me. Actually it was blessing. It was totally different to all the other trainings. Self-discipline, self-control, to learn more about yourself in life. It didn't just go about the clients but about us and that inspired me look ahead to the future. I have more excitement for my work now. Now it's with a passion and I'm inspired." (P69F)</i></p>

8.9. DISCUSSION

Implementing a self-management program had some positive effects on the participants. These include improvement in overall health behaviour, physical and mental health. The study found that the self-management intervention was associated with immediate significant improvements in all domains except depression, though depression improved at 6 months compared to baseline. Improvement occurs over time and an immediate objective effect is not always seen but qualitatively participants may report a positive effect because they are able to express their experiences based on their understanding of it.²⁴

Of note, significant improvements were noted at 6 months for physical activity, stress management, overall health behaviours, and depression. This supports the findings of previous research which reported that self-management interventions or skills taught that were associated with self-management, had a positive impact on physical exercise²⁵, stress management,²⁶ overall health behaviours,²⁷ and depression.²⁸

Initial significant gains in health responsibility, nutrition, spiritual growth, interpersonal relations, and health self-efficacy did not persist through the 6-month follow-up, suggesting that “booster sessions” may be required in the first few months after the intervention if gains in these areas are to be stable and persistent. Booster sessions have been seen to be valuable in CHWS retaining and being refreshed in new skills taught.²⁵

Physical Health

Health professionals who engage in physical activity have a greater propensity to advocate for it among the community they serve.²⁹ Therefore; facilitating CHWs to achieve their health goal of physical activity through self-management, is worth the time and resources²⁵ because it allows them to become more confident and knowledgeable²⁹ and then they are able to effectively lead physical activity in the communities.²⁵ The findings of the current study suggest that the CHWs will be ‘lifestyle modeling’ to their communities.

Overall Health Behaviours

The participants reported a mind-set change and realised that setting goals that were relevant to them, were effective in achieving or maintaining positive health behaviours, improving self-confidence and positively affected their work performance. This was demonstrated with the qualitative and quantitative findings. This echoes the findings of a recent study done among

overworked entrepreneurs who reported increased job satisfaction after implementing self-management skills in the daily lives.³⁰ This is supported by the CHWs' qualitative feedback. A positive relationship between health-related quality of life and self-management behaviours has been reported³¹ and numerous studies across conditions and cultures have supported this.^{32,33,27} As a result, the CHWs in this study became active in seeking out self-care which is consistent with WHO's triple billion goals of advancing global health and well-being and promoting universal health coverage.³⁴ This enhancement of personal health behaviours differs from the moderate investment in self-care that healthcare workers have previously reported.³⁵ Increased self-care has been reported to enhance professional output.³⁶ This was clearly expressed by the participants who experienced improved work performance following the self-management training.

Mental Health (Depression, stress management and self-efficacy)

With respect to depression, it is possible that immediately post intervention that the participants still required to put their newly found self-management skills into practice and therefore the significant change was observed at six months. Although benefits related to self-management include decreased depressive symptoms, decreases in relapses, improved psychosocial welfare, increased self-efficacy and improvement in quality of life²⁸ results about depression has varied. For example, a self-management program specifically geared for depressed persons found that the participants had significant improvements in their symptoms, their self-efficacy and their overall health behaviours.³⁷ Another researcher reported that a self-management intervention can be used in conjunction with traditional anti-depression treatments to improve their symptoms and not necessarily as a stand-alone approach.²⁸ A large self-management study found no change in depression³² whereas others found that peer-led interventions³⁸ and inclusion of peer support³⁹ led to positive changes.

The factors influencing depression should be acknowledged because depression is the product of chemical imbalance as well as biological and environmental factors.²⁸ Therefore; an alternate explanation could be that there was some other factor which wasn't controlled for in the study such as change in working conditions, political climate, increase in compensation etc that led to the significant decrease in depression at six months post intervention. Future studies should tease this out.

The current study found initial significant gains in self-efficacy, and qualitative data supported this finding. This improvement in self-efficacy is consistent with the literature.^{40,41,42} Unfortunately, initial gains were not sustained over the 6-month follow up period in this study. This raises concern for long-term impact, as self-efficacy plays a major role in determining individual behaviours⁴³ and their ability to be successful with the goals they have set. Many investigators have found an association between self-efficacy and self-management practices, but studies have generally investigated only patients with chronic conditions.^{44,45,46} One possible reason that the change in self-efficacy was not maintained over a 6-month period could be the intrusion of numerous life pressures and demands. It could also be due to the absence of regular check-in sessions after the 6-week mark. Regular contact and monitoring of health behaviours^{47,48,44} has been shown to improve self-efficacy in association with self-management. Other research has demonstrated maintenance or continued improvement in self-efficacy three months after self-management training.^{13,32} The current study examined a 6 month post intervention follow up window. It is likely that some changes might be maintained up to three months without engagement, but maintenance after three months would require booster sessions. We also should consider that there may be other factors which affected self-efficacy that might stifle their growth in this area such as a personal setback.⁴⁹

It is a high priority that the maintenance of the improvement in self-efficacy is maintained as it will be the driving force in achieving success in all the other health behaviours. We could consider further adaptations to the intervention and/or encouraging participants to journal about their success on a daily basis^{50,51} after the intervention to remind them of all the improvements they have made. The focus of such booster sessions should be on the areas most vulnerable to relapse at 6 months, such as health responsibility, nutrition, spiritual growth, interpersonal relations, and overall health self-efficacy.

Nutrition

Some health behaviours may be particularly context-dependent and multi-factorial, suggesting that participants will require interventions broader than a short-term training session to maintain improvements in those areas. For example, the inability to maintain initial improvement in nutrition behaviours may be attributable to the constellation of complex social-contextual factors such as cost of food for this low-income CHW population^{52,53} lack of healthy food options at work, food deserts with global food prices cascading,⁵² long work hours interfering with ability to cook at home,⁵⁴ social and cultural preferences⁵⁴, nutritional

literacy.⁵⁵ Sustained positive nutrition behaviours also require access and understanding of nutritional information⁵⁵ and application of an array of skillsets to apply this suggested dietary information practically into day to day living.⁵⁶ Our findings suggest that participants were not able to sustain improvements in nutritional choices. This finding concurs with recent literature documenting the many challenges related to access, comprehension and application of nutritional information.⁵⁷ These findings suggest that additional support is required to address multiple nutritional contextual factors, in keeping with recent studies on the importance of nutrition in self-management among persons with chronic conditions.^{57,58} For example, one strategy may include booster sessions wherein a nutritionist supports the journey from food information to daily practice, or offers time-efficient and inexpensive strategies to support healthy nutrition.

Limitations

The pre-to post design of this study without using a control group inhibits us from determining whether the intervention alone or other factors can be definitively attributed for the changes observed. Given that the vast majority of CHWs in the current study had less than 12 years of education, the educational and linguistic levels at which the questionnaires were keyed may require further adjustment. Because the measures used in this study were developed in Western and global north contexts, they may need to be re-validated among a South African population. Multiple measures of self-efficacy may detect changes in self-efficacy, as self-efficacy is variable across domains. It was not possible to control every variable and therefore there may be factors that contributed to the results that the researchers were not aware of. Finally, the qualitative study may not have garnered the most candid CHW impressions from the post-intervention interviews because the interviews were conducted by the first researcher (LJJ) who was the same person who conducted the intervention. Despite these limitations, this is the first mixed-methods intervention study evaluating a relatively large cohort of CHWs in both urban and rural settings, and represents a significant contribution to the literature on community health interventions. Investigating working CHWs supports ecological validity of findings to real-world community healthcare contexts.

Future Research

Future studies would benefit from random assignment, control groups, and larger cohorts. Random assignment, control groups, and large samples will support the internal validity of findings, and CHW cohorts will support generalizability of findings to real-world

settings. It will also be useful to compare groups without booster sessions versus those with booster sessions in order to discover whether booster sessions will help sustain post-intervention favourable changes. Intensity and timing of booster sessions is also a rich area for future investigation. Studies with an extended duration of the intervention, and using electronic devices to assist with monitoring is required. Studies including other health professionals such as nutritionists and psychologists as resources may be an interesting supplement to the participant-driven self-management self-empowerment philosophy, but only if these professionals are positioned as resources, not leaders or teachers. Future studies that determine what assists in maintaining the gains in changes over time will be helpful in practice because it will reveal some insight into ways to enhance the stability in change in participants' daily lives.

8.10. CONCLUSION

Overall, the self-management intervention had a positive impact on the health behaviours, mood and self-efficacy of the participants. The participants described the self-management intervention as powerful and enjoyable. The concept of feeling valued and acknowledged which was highlighted by the participants, led them to feel part of the multi-disciplinary health team. This cadre suggests that self-management be integrated as part of the health service's approach for patients and rolled out to the community at large. The findings of this study demonstrated lasting improvement (six months) in physical activity, stress management, depression and overall health behaviours, which is noteworthy for a low cost intervention, which requires minimum resources. Further studies to determine how to enhance the stability of change across of the variables will be valuable for the healthcare system. With South Africa's healthcare system under major constraints, the ever-increasing burden of disease, the lack of financial stability, and with the timeline for the 2030 health plan goals looming, the health department and policy makers should consider the self-management intervention to address these challenges.

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CHAPTER NINE

SELF-MANAGEMENT SKILLS MAY BE KEY TO HELPING COMMUNITY HEALTH WORKERS COPE AMIDST THE COVID-19 PANDEMIC

9.1. Introduction

In the previous chapter, the researcher described the impact of the self-management intervention, immediately post intervention, as well as at six months. In this chapter, the researcher addresses part 2 of Phase 4, which involves qualitatively exploring the impact of a self-management intervention, post-12 months. The knowledge gained from this chapter suggests that a self-management intervention was valuable in assisting CHWs with health crises/pandemic-readiness, and helped them to cope amidst the Covid-19 pandemic. The findings suggest that self-management may be a viable option to consider rolling out to the wider healthcare cadre, to facilitate their coping skills and preparedness during Covid-19, as well as future health crises (Article 5).

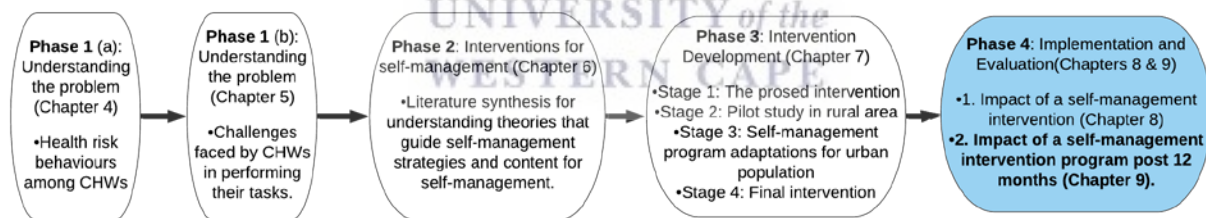


Figure 9.1: Phases of the study

9.2. Publication details

Article 5 has been accepted by the South African Health Review - Health Systems Trust Journal, the details of which are provided in Table 9.1 below.

Table 9.1 Article details

Title	Self-management skills may be key to helping Community Health Workers cope amidst the Covid-19 pandemic
Authors	Johnson L, Frantz JM.
Year	2021

Journal	South African Health Review- Health Systems Trust Journal
Volume	
Issue	
Page no.	
Status	Published
Full citation	Johnson L, Frantz J. Self-management skills may be key to helping Community Health Workers cope amidst the Covid-19 pandemic. South African Health Review. 2021.

9.3. Journal overview

The manuscript will be published in the journal titled, South African Health Review- Health Systems Trust Journal. It is an accredited peer-review journal focussed on improving health equity in Africa, by publishing evidence centred on key health issue, as it relates to health systems policy and practice. It incorporates a South African perspective on health policy as well as being primary healthcare-centred. In addition, it includes actions to decrease the burden of disease, evidence-based interventions, good practice and innovations. The journal's focus is ideal for this manuscript, which explores the impact that a self-management intervention programme had on CHWs, during the current Covid-19 pandemic. The findings provide a foundational framework of coping skills employed by the CHWs, and may assist the Health Department in their endeavour of selecting strategies to enhance the resilience of frontline workers.

9.4. Published article

This chapter contributes to a larger study, which explores improving the health behaviours of community health workers, using a self-management programme. It highlights that self-management training may help CHWs to cope during a pandemic. This chapter leads into the next chapter (Chapter 10), which presents the summary of the entire study.

9.5. ABSTRACT

Background

Community health workers are key frontline workers in the primary healthcare approach to patient-centred healthcare and are well recognised as the link between the communities and the formal health sector. From the onset of the Coronavirus disease 2019, this cadre's duties

became more critical as they had to assist with Covid-19 screening in communities and had to co-ordinate queries around medication deliveries in addition to their regular duties. The purpose of this paper was to explore and describe how community health workers coped during the pandemic and whether the self-management skills learnt in a self-management training programme they had attended prior to Covid-19 assisted them in managing themselves and others during the pandemic.

Methods

A qualitative exploratory design using mobile instant messaging interviews was used to explore and describe the coping methods employed by community health workers and the value of self-management knowledge and skills in their personal and professional capacity during the Coronavirus disease 2019.

Results

Five themes emerged, namely spirituality, communities of practice, self-care, taking-action, and self-efficacy.

Conclusion

Self-management skills proved very valuable in empowering community health workers to cope during the pandemic and facilitated their resourcefulness and resilience professionally and personally. This strategy should be considered, as community health workers continue their contribution to flatten the curve because the effort directed at improving their own-self-care will not only allow them to be maximally available for their job demands, but it should lead to them transferring these skills to the communities and colleagues they engage with daily, which may ultimately lead to a wider improvement of overall health status.

Key words: Community health workers, self-management, Covid-19, Coping, Strategies

9.6. INTRODUCTION

The outbreak of the Coronavirus disease 2019 (Covid-19)¹ worldwide has raised the importance of health professionals and their role in contributing to a healthy population. The pandemic¹ has compounded the strains under which the current healthcare system exists. With the country's quadruple burden of disease² ongoing in the face of the pandemic and the reality

that the health system is under-resourced and over-burdened³ there remained an expectation that healthcare workers needed to cope in the face of such a traumatic situation. To date, community health workers (CHWs) have been utilised, increasingly, to remedy the shortage of staff in the health sector.⁴ These key frontline workers, known since the early 1920s,⁵ are lay persons without tertiary or formal education, who render auxiliary health services most commonly in the communities they come from.⁶ Their roles have undergone a metamorphosis from simply being identified as ‘links’ between the community and the professional health force⁴ to a more varied version that includes participating in impactful health promotion programmes for HIV/TB treatments. They are also involved in the healthcare plan to decrease the prevalence of non-communicable diseases (NCDs).⁶

At the onset of the outbreak, CHWs were acknowledged as the resource to fulfil a pivotal role in combating Covid-19.⁷ In addition to rendering basic home treatments that focused on activities of daily living, this cadre took on the task of delivering (on foot) previously hospital-collected chronic medication to patients, assist with Covid-19 screening and provide Covid-19 education in the communities.⁸ This aligned with findings that in previous pandemics, CHWs have had their roles and tasks drastically altered,⁹ and that they had been crucial in plugging gaps that the formal health sector couldn’t reach. The sudden onset of Covid-19, the subsequent lockdown coupled with the new way the health services were being delivered did not allow time to prepare the CHWs adequately for their new roles.⁹ CHWs, therefore, had to rely on prior training to manage the sudden changes effectively.

Self-management is a well-documented, person-centred intervention that was initially designed to assist persons with chronic illnesses, to improve and manage their health behaviours.¹⁰ It has advanced over the years and has been employed to address the health behaviours associated with NCDs.¹¹ More recently, it has been successfully executed in the workplace setting with healthy participants.¹² In this current study, CHWs had been exposed to a self-management intervention that would assist them to manage themselves and their health conditions. The intervention presented to the participants equipped them with core skills of decision-making, finding and utilizing resources, forming partnerships with their healthcare providers, action planning and setting health-related goals¹³ that could be modelled positively to influence the health behaviours of the community. The intervention, which is part of a larger study, came at an opportune time, just prior to the onset of the Covid-19 pandemic in South Africa. The purpose of this paper was to explore and describe how CHWs coped during Covid-19 and

whether the self-management skills learnt assisted them to manage themselves and others during the pandemic.

9.7. METHODOLOGY

Research setting

The study took place in an urban town in the Western Cape, South Africa where the burden of disease changes in the Western Cape has seen non-communicable diseases move to fifth place according to the burden of disease study.¹⁴

Research design

A qualitative exploratory design¹⁵ using mobile instant messaging interviews was deemed appropriate to explore and describe the coping methods employed by CHWs and the value of self-management knowledge and skills in their personal and professional capacity during Covid-19.

Population and sampling

The population for this study (n = 13) was CHWs in a specific sub-district in the Western Cape, South Africa. They had completed a self-management intervention programme led by the primary researcher (LJJ) prior to Covid-19 and 57 CHWs remained part of a WhatsApp group post intervention. All 57 CHWs were invited to participate in the study. However, only 13 CHWs responded positively to the invitation. Therefore, a convenient sample of participants was used in this study.

Intervention

The self-management intervention that the participants had engaged in, prior to this study, is an adaptation of the Chronic Disease Self-Management Programme and the Act Healthy Programme. The workshop is targeted at health lay persons and those with NCDs, working in a primary healthcare setting who aimed to improve or maintain their health behaviours. The core foci are to improve self-efficacy and promote healthier behaviours by teaching decision-making skills, problem solving, action planning, and enhancing stronger links between co-workers. It incorporated a face-to-face two-session workshop-style programme that was presented to the participants over a two-week period with one week between sessions. The programme extended over a 6-week period.

Data collection methods and procedure

The data for this article was collected 12 months after the participants had attended a self-management intervention programme. This coincided with Covid-19. The participants were sent a set of interview questions individually via WhatsApp. They had the option to send a voice note with their responses or to send their responses as text messages on WhatsApp. Data was collected for a period of 7 days during Covid-19. The researchers ensured that the ethical concerns regarding WhatsApp were addressed by clearly explaining the use of WhatsApp, concisely and transparently documenting the data, by ensuring only the data relevant to the study was recorded, putting precautions in place to protect the participants' personal identifiable information and by using data saving.¹⁶

Data analysis

The researchers employed the six-step guidelines proposed by Braun & Clarke¹⁷ to conduct a thematic analysis. The information from each participant was transcribed verbatim to allow for rich data to emerge.¹⁷ Once all the information from the WhatsApp interactions were downloaded into one transcript per participant, the transcriptions were individually read several times to gain meaning and establish patterns. The data collected was translated from Afrikaans to English by one translator and then back to Afrikaans to certify the credibility of the original data set. Detailed notes were made by the primary researcher during this phase, followed by manual coding. Highlighters were then used to categorize the data into sections and themes were identified. Significant phrases were extracted from the transcripts and matched to the themes.¹⁸ Verification of the codes was undertaken by the second author. To ensure trustworthiness of the study, detailed accounts of data collection and reporting is given.

Ethics

Ethical approval was obtained by the Human and Social Sciences Research Ethics Committee at the University of the Western Cape (HS17/8/23) with permission obtained from the NGOs. Each participant provided consent before the WhatsApp interview.

9.8. RESULTS

Thirteen CHWs affiliated to one urban NGO participated in the study comprising of eleven female CHWs (85%) and two male CHWs (15%). Their ages ranged from 34 to 69 years, with a mean age of 48 years. Their work experience ranged from 5 to 18 years, with a mean of 9

years of experience. Of the participants, 92% (n = 12) have immediate families (spouses, children), 46% (n = 6) is married and 31% (n = 4) passed the highest school grade in South Africa, namely Grade 12.

Five primary themes emerged from the data, and these included spirituality, formation of communities of practice, self-care, taking-action, and self-efficacy.

1. Spirituality

Participants expressed that their spirituality helped them to cope during Covid-19. This is expressed by a participant in the following quote:

“I cry sometimes when I get home. When I feel like that, I cry out to God, I call on the Holy Spirit, and I read my bible. I put on my gospel music, and I dance, sing, worship and praise and then I feel better.” (P61F)

Participants also expressed that their spirituality provided motivation to continue with their assigned tasks.

“Prayer helps me, I just take every day at a time and you know, God is good. Things happen for a reason and we don’t always understand at the time. I’m even more blessed now, I’m doing my job and I’m happy to do it.” (P82F)

Furthermore, participants expressed that their religious belief alleviated their fears about Covid-19 and their personal safety.

“People fear the pandemic. Nobody wanted to die, but I have learnt to trust the Almighty. We were also scared, but we trusted God for protection.” (P61F)

Interestingly, it was noted that the community’s spirituality was more evident, which resulted in easing the burden for the CHWs, when they were dealing with the patients, for whom they had to do home-based care.

The participants expressed their increased reliance on their faith during Covid-19.

“I’m depending on God; the Holy Spirit became part of my life even more than before.” (P61F)

“All you can do is walk with faith.” (P18M)

2. Communities of Practice

The CHWs expressed that they felt part of the broader multidisciplinary healthcare team and have good working relationships.

“We will all get through it because we had to stand together as Healthcare Workers, as a community, as a country just to take care of one another.” (P15F)

They were also able to form partnerships with other members of the multi-disciplinary team.

“I think I’m on about 4 other health groups, and we’re conversing all the time, – we ask questions to one another. They are quite good and it’s doctors and pharmacists and these people. There’s no problem that side.” (P75M)

“I work with my colleague as a pair. I never had a partner before. I enjoy my work because we can laugh together while we learn from each other and do our work.” (P50F)

3. Self-Care

Self-care was highlighted by the participants. The importance of ‘caring for the carer’ in order to be most efficient in their prescribed tasks was realised.

“The biggest lesson coming from a TB background is to be more alert of what is going on around you and taking care of myself. That is part of that Self-Management course, if I’m not taking care of myself, how can I take care of my patients, my family if I’m not healthy...” (P15F)

One way the CHWs demonstrated self-care was by ensuring that that they remain optimally protected from the virus. They ensured that they followed the Covid-19 safety protocols of hand sanitizing, wearing of masks and social distancing.

“Before we even put the gloves on our hands, we sanitize our hands and then we put on the gloves. We are covered, we have our apron on, we have our gloves on, we have our masks on and we try not to talk a lot when we do the washing.” (P75M)

Self-care was expressed in the manner in which they optimised their own health status. They made changes to the execution of their daily work routines and devoted specified time to themselves at home to regroup and unwind from the demands of being a frontline worker.

“When I get home, I used to make time for myself and then I would have a little nap and relax man.” (P82F)

They also found innovative ways to be physically active.

“There’s always ways and means to do things to keep fit and even though I don’t have a yard or a freestanding house- I’m living in a flat and yes, I do make time, I walk up and down the stairs and try to rope jump.” (P25F)

Furthermore, the CHWS acknowledged their own chronic health issues and the importance to promote and maintain their own health.

“I’m still going through the steps so to keep myself healthy I need to rest; I need to take my medication because I am on medication.” (P122F)

4. Taking action

The CHWs in this study were all subject to changes in their daily work tasks and demonstrated good adaptation skills to their new roles and responsibilities.

“It’s different, you don’t have your normal work – we focus now, on issuing the peoples pills where we deliver the pills. We also have home base care – but we only do the needy people, like people who are disabled.” (P18M)

They embraced the new experiences as a learning curve and gained confidence from it.

“My clubs were closed due to the Covid, but now I’m in pharmacy and yes, It’s a new experience for me. But I love it and I love it; I’m meeting so many people and the experience for me is mind-blowing.” (P25F)

“I’ve been on a high ever since I started with the screening honestly speaking, for me, everything is a learning curve man.” (P122F)

The CHWs had to review plans by critically appraising them and then determining if changes are necessary. They also had to adapt in both their professional tasks and their personal goals.

“Your whole mindset had to change and it was difficult. ...it was challenging but it was also a great learning curve for all of us ... I think what changed was for us is that we have to set an example. When we were out and about, we had to be dressed appropriately so that people could see how important it was to wear that mask all the time to keep the social distancing because people learn from what they see and not from what you tell them.” (P15F)

5. Self-Efficacy

The CHWs expressed an increase in their self-confidence.

“My confidence in the beginning was really very low because it affects all of us in different ways. I became a bit depressed.” (P15F)

“I have also learnt to stand up for myself. My confidence boosted up more. I don’t hesitate anymore. I wanna change, I am worthy, I am capable. I am a strong independent woman who can except any challenge.” (P61F)

9.9. DISCUSSION

Five primary themes emerged from the data and these included spirituality, formation of communities of practice, self-care, taking-action and self-efficacy.

1. Spirituality

The theme of spirituality highlighted that the CHWs’ faith in God fulfilled various roles. CHWs in this study survived challenging times during Covid-19 by using their faith as a coping strategy. Religious coping was reported as an important coping tool employed by healthcare workers during the pandemic.¹⁹ This study confirmed that religious coping was credited for healthcare workers accepting the difficult situations their professions placed them in during Covid-19.¹⁹ Additionally, 50% of the healthcare workers reported that they prayed more often to cope during the pandemic.²⁰

Furthermore, participants expressed that their religious belief alleviated their fears about Covid-19 and their personal safety. This is in contradiction to the findings of a recent study,²¹ which found that religion did not significantly reduce the fear or anxiety healthcare workers faced with regard to Covid-19. The current study supports previous literature that indicated that religion helped lower people’s anxiety during hardship.²² Females demonstrated higher levels of Covid-19 related fear and anxiety.²¹ The current study had a population of 85% females which could partially attribute to their reported fear.

The participants’ religious actions were not known prior to Covid-19, therefore, this study cannot support or contradict previous findings.²³ It has been found that persons who directly experience the negative consequences of a crisis experience an increase in religious faith.²⁴ The

current study supports this because the CHWs, as frontline workers, are exposed to the negative impact of Covid-19 on a daily basis.

2. Communities of Practice

The CHWs expressed that they felt part of the broader healthcare team and have established good working relationships. Being respected by the formal health team²⁵ and being acknowledged as a vital component in the healthcare system²⁶ have definitely played a feature role in this. In self-management, being able to form partnerships and deepening their networking with the healthcare providers are considered vital skills and crucial for acting.²⁷ The CHWs in this study have demonstrated these abilities. It is evident that creating supportive work environments through creating teams that work together well, does enhance performance.

3. Self-Care

Self-care was highlighted by the participants as a crucial component to survival. There was a reawakening of the importance of caring for themselves first, an awareness of their surroundings and self-discovery amidst the stress of the pandemic. One way in which the CHWs demonstrated self-care, was by ensuring that they remained optimally protected from the virus. Self-care was also expressed in the manner in which they optimised their own health status. They made changes to the execution of their daily work routines and devoted specified time to themselves at home to regroup and unwind from the demands of being a frontline worker. They also found innovative ways to maintain or improve their physical health. Furthermore, the CHWs acknowledged their own chronic health issues and the importance to promote and maintain their own health. It is important for healthcare workers to take control of their own self-care needs, in order to be maximally available for their job demands.²⁸ Beginning with small changes, recognising their own feelings, simplifying their lives and practising self-care at work will optimise holistic self-care.²⁸ The participants in this study demonstrated these changes by incorporating factors that promoted their well-being in their daily lives.

4. Taking action

A change in job tasks for CHWs was an integral part of the health system's strategy to address the healthcare needs during Covid-19.^{7,8} The CHWs in this study were all subject to changes in their daily occupational tasks and demonstrated good adaptation skills to their new roles and responsibilities. They embraced the new experiences as a learning curve and gained confidence from it. The CHWs had to review plans by critically appraising them and then determine if

changes are necessary. They also had to adapt in both their professional tasks and personal goals. This skill was taught during the self-management programme and was employed by the CHWs when they showed great resilience and changed their mindsets during this period. Healthcare workers are regarded as role models for positive health behaviours stemming from their increased knowledge of healthy choices.²⁹ In this study, the CHWs seemed to understand this assumed role. Their holistic approach which incorporated a positive outlook, living purposefully by setting realistic goals regarding diet, exercise and personal medication adherence culminated in an improvement and transformation in their personal and professional lives. This is different from other literature that found that although healthcare workers accept the expectation placed on them to be role models of healthy behaviours, they reject having their personal health choices linked to their professional work and generally they do not ‘practice what they preach’.³⁰

5. Self-Efficacy

The CHWs expressed an increase in their self-confidence. A person’s perception of self-efficacy is directly proportional to the activities and behaviours they choose as well as the amount of effort and time they will devote to it in distressing situations.³¹ Self-efficacy is known to influence coping in various circumstances. In the current study, it is evident from the response that the CHWs had gained confidence in managing their new normal.

9.10. IMPLICATIONS FOR PRACTICE

With the onset of Covid-19, CHWs were expected to speedily, and without adequate preparation, adapt to new roles in order to counter the spread of Covid-19 in the communities. We suggest that CHWs be given training and support that will facilitate their preparedness for pandemics. As demonstrated, a self-management program can be effectively used to develop and empower healthcare workers with much needed coping strategies. The interplay of the five thematic coping strategies outlined above, provides a foundational framework of coping strategies for healthcare workers to build their resilience to face challenging health crises.

9.11. CONCLUSION

CHWs are fundamental in the country’s Covid-19 response and therefore ensuring that they are fully equipped to deal with the fallout of this health crisis is vital. The cost-effective self-

management model, which was taught to the CHWs, empowered and assisted them to be prepared to cope with Covid-19. Whilst the findings of this study cannot be generalised, it may be a viable option to consider training the broader healthcare workforce in self-management to allow them to cope with the huge demands placed on healthcare workers during this pandemic and future traumatic health crises.

Limitations

One limitation of the study is that the findings cannot be generalised to represent the country, as it used a convenient sample but the information gained can be applied to a broader community. Another limitation of the study is the small percentage of males in the study and although it is aligned to the gender disparity in the health sector, a study focusing on the gender differences could be explored.

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Competing interests

The authors have declared that no competing interests exist.

Author contributions

LJJ and JMF analysed the data and drafted the article.

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Data availability statement

Data are available upon request to the corresponding author.

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CHAPTER TEN

SUMMARY, LIMITATIONS & RECOMMENDATIONS

10.1. Introduction

In this chapter, the researcher summarises the conclusions that were reported on during the four phases of the study.

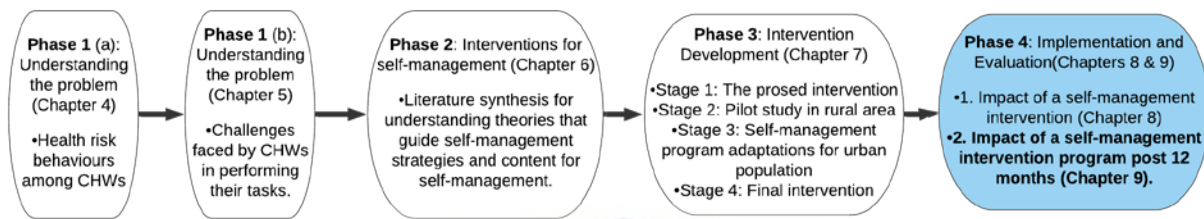


Figure 10.1: Phases of the study

The main aims, findings, and clinical implications of each phase are profiled and briefly discussed. This chapter is concluded by outlining the implications of the research study, acknowledging the limitations, and finally, suggesting recommendations for future research, emanating from findings.

10.2. Summary

The findings of this study revealed that a self-management intervention programme, presented to CHWs, would, not only improve the understanding of this cadre's health status, but also empower the CHWs to change their health behaviours, which could initiate perceptions of improved work satisfaction. Being cognisant of the CHWs role in reaching the national and global health goals of decreasing the burden of disease, this current study presents evidence that suggests that CHWs are competent to be trained and equipped, to improve their own health status. In addition, it suggests that self-management should be considered a viable strategy to impact healthcare workers' health status, coping mechanisms, and their function as role models to the communities they serve.

The aim of this current study was to adapt, implement, and evaluate the effects of a self-management programme for CHWs, to improve their own health behaviours. The research questions were:

1. What are the health needs and perceived risk factors faced by CHWs?
2. What are the perceived challenges experienced by CHWs as they perform their duties?
3. What self-management interventions are used among health professionals to improve their own health?
4. What would the content of a self-management programme be for CHWs in the Western Cape?
5. What are the participants' perceptions of a self-management programme?

The objectives of the study were:

1. To describe the health needs and perceived risk factors for NCDs faced by CHWs;
2. To explore and describe the challenges experienced by CHWs in the execution of their duties;
3. To identify and describe the self-management interventions used among health professionals;
4. To adapt, design, and implement a self-management programme; and
5. To evaluate the impact of participation in a self-management programme, by exploring the perceptions of the participants.

In this current study, the researcher highlighted the dearth of information that exists regarding CHWs' health status, and presented various significant findings, which make a valuable contribution to the evidence pool of both CHWs, and self-management interventions among healthcare workers. Therefore, each phase is discussed, in relation to a specified objective.

10.2.1. Phase 1: Problem Identification:

Phase 1a: Assessment of risk factors for NCDS among CHWS (Chapter 4).

Objective 1: *To describe the health needs and perceived risk factors for NCDs faced by CHWs*

In this current study, the researcher assessed the prevalence of the risk factors that could lead to non-communicable diseases (NCDs) in rural and urban CHWs, prior to their engaging in a self-management programme. The findings revealed that the majority of

CHWs, who participated in this current study, were low risk for developing NCDs, which placed them in the ideal position of being role models to the communities they serve. The findings were interesting, as the communities they serve have a high prevalence of NCDs, which implies that the results of this current study are not aligned with research, which indicates that CHWs share in similar health behaviours as the communities from which they emerge. The individual CHWs in this cohort understood the importance of managing their own health, and developed skills to do so, making them the ideal role models for healthy living. Consequently, the Department of Health should consider utilising this cadre of frontline workers, effectively to advocate for healthy behaviours. The Department of Health should consider self-management as a strategy to employ among CHWs in a Primary Healthcare setting. This will contribute actively to the achievement of the Healthcare 2030 goals, and towards minimizing the prevalence of NCDs, which contribute towards the quadruple burden of disease.

Phase 1b: Challenges experienced by CHWs and motivation to participate in a self-management programme (Chapter 5)

Objective 2: *To explore and describe the challenges experienced by CHWs in the execution of their duties, as well as their motivations to engage in self-management training.*

The findings of this current study outline the professional and personal challenges that CHWs face, as well as their motivations to participate in a self-management programme. It is important that the challenges faced by CHWs be identified and addressed, as these directly influence their ability to be effective frontline workers. The five professional challenges reported were, social conditions, mental health of patients, work environment, patient adherence, and communication. Ineffective self-management emerged as a personal challenge experienced by CHWs. Empowerment and a widening perspective were reasons stated as motivating factors to join a self-management programme.

The health needs and health behaviours of CHWs should be high on the health agenda, as they have been identified as the key frontline workers, to reduce the prevalence of NCDs. This suggests that more resources should be directed towards empowering CHWs to improve their own health, and that CHWs' health needs should not be side lined. Therefore, the challenges identified by the CHWs should be acknowledged and

addressed by the decision-makers, as this will serve as a motivation for CHWs to perform their roles effectively.

Self-management interventions, which provide the skill sets for confidence, goal setting, and action planning, should be considered as a candidate strategy to empower CHWs and other healthcare workers. As self-management is problem-based, this person-centred approach is suitable to achieve the health goals. Actually, CHWs are ideal candidates to be trained as self-managers. Training CHWs in self-management, which incorporates the core elements of decision-making, finding and utilising resources, taking action, and forming partnership with healthcare providers, would equip CHWs with the key skills required for their demanding job tasks, as well as prepare them for health crises.

Self-management is also an ideal candidate strategy, because it is cost-effective and requires minimum resources to implement. Consequently, it could be rolled out nationally with relative ease to low-income areas, to target health behaviour change. However, it should be understood that the intervention may need adaptations, to meet the needs of local contexts, and CHWs would likely require regular booster sessions to maintain their skill sets. Most impo systems need to acknowledge the critical role and value that CHWS bring to the health platform. This will improve mutual respect on the health platform. CHWs should be considered to become self-management trainers for their communities, because these laypersons would be able to be more culturally appropriate. In addition, being the self-management trainers would improve their, as well as other health professionals' structural competence.

10.2.2. Phase 2: Self-management interventions

Objective 3: *To identify and describe the self-management interventions used among health professionals (Chapter 6)*

The systematic review revealed a dearth of information on self-management interventions among health professionals. As part of the initial process, the researcher had to broaden the search to include studies that shared themes and critical aspects related to self-management, because the self-management term revealed limited published research. This current systematic review revealed that limited research studies, which focus on the health behaviours of healthcare workers, exist. This area appears to have

been overlooked. However, it is imperative that the Department of Health be informed about the value of self-management, and the value it could add to the achievement of the health agenda. Researchers and clinicians could observe from this systematic review that individual strategies, such as physical exercise (specifically in a group setting), mindfulness, and resilience training have been selected, frequently, as avenues to improve the health behaviours in healthcare workers. Added focus needs to be placed on publishing more context-specific articles. As holistic health (physical, mental, social, emotional and spiritual) is the overarching goal, the researcher is of the opinion that the self-management approach should be considered instead.

10.2.3. Phase 3: Intervention Development

Objective 4: *To adapt, design, and implement a self-management programme (Chapter 7)*

This phase was divided into four stages. The first stage focussed on describing the intervention that was considered for the study. In the second stage, the pilot study that was implemented in the rural area is described, followed by the third stage, in which the modifications that were needed are discussed and described. In the fourth stage, the intervention that was presented to the CHWs in the urban area is described. The lessons learnt from the pilot study resulted in meaningful adaptations to the intervention, before the final intervention was presented to the urban cohort. These changes included, the duration of programme, feedback and support sessions, level of engagement, including language, and the inclusion of a peer support component. The final intervention was presented, taking into account all the lessons learnt from the pilot study, and without compromising any key principles of self-management. It is a workshop designed for laypersons, with or without NCDs, who are working in Primary Healthcare, and would like to maintain, or improve healthy behaviours. It is referred to as the Community Health Worker Self-Management Programme (CHWSM). The focus of this programme was to improve self-efficacy and disease-prevention, by teaching the key concepts of self-management. In this section, the successful implementation of adapted self-management programme to CHWs is highlighted.

The adapted self-management programme could be used among other self-management facilitators in the South African context, as this programme has taken into account cultural and linguistic considerations. However, it would need to be adapted further for

other cultural groups within the South African context. The programme is a feasible strategy, and offers an avenue that could be explored at low cost by South Africa's Department of Health.

10.2.4. Phase 4: Implementation and Evaluation:

Phase 4a: The Impact of a Self-Management Intervention programme for Community Health Workers (CHWSM) (Chapter 8)

Objective 5: *To evaluate the impact of participation in a self-management programme, by exploring the perceptions of participants.*

A longitudinal quasi-experimental pre-test-post-test design (quantitative), followed by in-depth interviews (qualitative) was used in this current study. The aim was to implement and evaluate the effects of a self-management programme for CHWs, to improve their own health behaviours, and subsequently snowball into positively influencing the health behaviours of the communities they serve. Self-management has a positive effect on overall health behaviours, moods, and self-efficacy. In addition, it is enjoyable for the participants, and therefore, ideal for health behaviour change.

This low cost intervention has produced reports of significant long-term improvements in health behaviours, and consequently, is a viable strategy to be considered, in light of the financial constraints and human-resource-stricken position of present South Africa. This empowering strategy has brought about improvement in work performance, changing mind-sets, validating CHWs, with a futuristic outlook. Additionally, the social media application, WhatsApp, is a useful platform to provide support to CHWs, during the self-management intervention period.

Phase 4b: The Impact of a Self-Management Intervention programme for Community Health Workers (CHWSM) post 12 months.

The study title: *Self-management skills may be key to helping Community Health Workers cope amidst the Covid-19 pandemic* (Chapter 9)

Objective 5: *To evaluate the impact of participation in a self-management programme, by exploring the perceptions of participants.*

This phase of the study employed a qualitative, exploratory design, using mobile instant messaging interviews. It was specifically aimed at exploring and describing the coping methods that CHWs used during COVID-19, and to establish whether the skills obtained in the self-management training were valuable during the ongoing pandemic. The participants had undergone the CHWSM before COVID-19, and therefore, it was an ideal time to explore their perceptions. The social media platform, WhatsApp, allowed the participants to participate in the research remotely, and the researchers ensured that all ethical considerations were resolutely observed. The themes that emerged include, spirituality, formation of communities of practice, self-care, taking-action, and self-efficacy, which reinforced the CHWs' preparedness to cope with COVID-19.

CHWs need training and support to prepare them to cope during a health crisis effectively. The self-management training proved valuable in developing empowerment and enhancing coping skills, which the CHWs could apply during the Covid-19 pandemic. These coping strategies, identified by the CHWs (spirituality, communities of practice, self-care, taking-action, and self-efficacy) provides the Department of Health with a foundational framework, which could be used to strengthen resilience among healthcare workers, who have to face challenging circumstances daily. The social media application, WhatsApp, is a viable option to conduct interviews, and proved useful during the Covid-19 pandemic.

10.3. Significant findings

A number of significant findings from this current study add to the body of knowledge regarding the health behaviours of CHWs, the challenges that CHWs face, the self-management strategies used by healthcare workers, and the impact of a self-management programme. The evaluation of a relatively large sample of employed CHWs in rural and urban settings, represents an important contribution to the body of knowledge about community health interventions, and validates the findings in the real world. With the overarching aim, to reduce the burden of disease, and the CHW model, as the vehicle to achieve it, it is logical to conclude that the spotlight must be cast on CHWs' health behaviours and health status, for them to serve as role models, advocates, health promoters, and educators.

It is evident from the literature presented in the preceding chapters that research on healthcare workers, including CHWs' health behaviours, is limited. The definition for self-management is variable, and not all interventions that are referred to as self-management interventions, incorporate the core principles of self-management. For the purpose of this current study, the definition for self-management, as outlined by Jonkman, Schuurmans, Jaarsma, Shortridge-Baggett, Hoes, and Trappenburg (2014, p. 35), was used. These authors aver that self-management interventions "aim to equip patients with skills to actively participate and take responsibility in the management of their chronic condition in order to function optimally through at least knowledge acquisition and a combination of at least two of the following: stimulation of independent sign/symptom monitoring, medication management, enhancing problem-solving and decision-making skills for medical treatment management, and changing their physical activity, dietary, and/or smoking behaviour."

The findings of the systematic review (Chapter 6) reported a dearth of evidence linking self-management interventions and the health status of healthcare workers; however, some interventions targeted healthcare workers' physical exercise, mindfulness, and resilience. The literature is flooded with research focussed on patient's health and patient interventions, but has largely ignored the healthcare workers (including CHWs) themselves. Research based in the African continent is particularly scant.

In Chapter 4, the researcher concluded that the prevalence for risk of NDS among the CHWs was relatively low, complementing their role of promoting healthy behaviours to their communities. However, a concern remains for the more than 30% of CHWs, who reported a higher prevalence of tobacco smoking, hypertension, and physical inactivity than observed in other studies. There appears to be an urgency to address CHWs' lack of knowledge of the risk factors of NCDs, and assist them to understand how various factors, for example, physical activity, could be used to minimise risk, as well as assist them in the application of such health behaviours. Prior to the intervention, it was reported that CHWs struggled with stress management, as well as coping, and although spiritual growth emerged as their coping strategy of choice, the lack of skills to cope with daily tasks and community needs, remained.

The professional challenges (social conditions, mental health of patients, work environment, patient adherence and communication) and the personal challenge (ineffective self-management) reported in Chapter 5 are significant because, if left unaddressed, CHWs may be

unable to meet their considerable challenge to improve community health. The CHWs expressed enthusiasm for new knowledge, as well as greater support from the broader health community. The findings also suggested that upskilling CHWs in self-management skills may positively influence them, and may lead to improved health behaviours of communities, and ultimately, a decreased burden of disease. Chapters 8 and 9 identified the positive impacts of self-management training, from the perspectives of CHWs. Significant improvements were reported in overall health behaviours, physical activity, and mental well-being. Interestingly, depression did not show immediate gains, but the positive impact was seen at six months, and again demonstrated at 12 months, even as CHWs were in the midst of the COVID-19 pandemic. Although there was a significant improvement in overall health behaviours, quantitatively it was observed that certain areas were not maintained up to 6 months post-intervention, suggesting the need for booster sessions. Nutrition, a complex health behaviour, was not significantly affected in the long term. The training programme, itself, was perceived as enjoyable, and the skills obtained through self-management were utilised by the CHWs. These skillsets led to reports of improvements in physical activity, stress management, depression, and overall health behaviours (Chapter 8). Additionally, during the COVID-19 pandemic, these skill sets led to improved coping skills, improvement in working relationships within the multi-disciplinary team, enhanced self-care, action-planning, and increased self-efficacy (Chapter 9), suggesting that self-management training, prior to COVID-19, was identified by CHWs as a tool that helped them to cope during this crisis.

Adapting a self-management programme to address the specific needs of CHWs in South Africa, and in particular in the Western Cape, was important (Chapter 7). The changes made regarding the length of the programme, feedback, support, as well as peer involvement, allowed the training to be pragmatic, well received, and beneficial among this specific population.

10.4. Limitations

The limitation of each study is outlined below.

10.4.1. Chapter 4

- Convenience sampling coupled with a small sample size suggests that the findings may not be generalised. This study, however, may still be used to guide practice.

- Certain concepts and questions were not easily understood by the participants; therefore, the concepts need to be simplified.
- Recall bias is acknowledged because the data were self-reports from the participants, regarding the prevalence of risk factors.

10.4.2. Chapter 5

- The in-depth interviews were conducted by the researcher, who also aimed to facilitate the intervention. Consequently, this may have compromised frank feedback from the participants.
- Females formed the largest percentage of the participants, which may suggest that the study does not represent the male healthcare workers sufficiently.

10.4.3. Chapter 6

- While every attempt was made to include self-management intervention programmes that address the health behaviours in healthcare workers, limited articles were available. No articles, specifically utilising the self-management approach, was found, and therefore, the researcher broadened the search to include studies that incorporated key elements of self-management intervention.

10.4.4. Chapter 7

- Self-management intervention, incorporating all the core objectives, have not been adapted for use among healthcare workers previously, or utilised in the South African context among CHWs. Therefore, the findings from the pilot study were used to decide on the adaptations required.

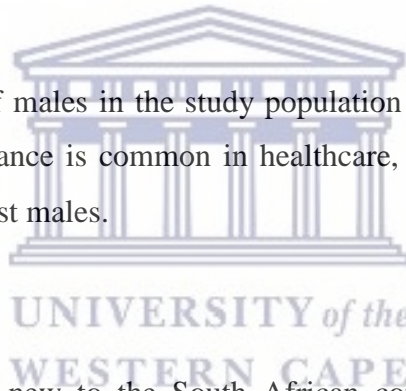
10.4.5. Chapter 8

- The pre-to-post-test design of this current study, without the inclusion of a control group, implies that the changes, reported, could not be attributed to the intervention alone.
- It is important that the questionnaires be linguistically adjusted and set at the educational level of the participants.

- The measures used should be re-evaluated in another South African context, as prior to this current study, it was developed and mainly used in Western and global north contexts.
- The measurement chosen for self-efficacy did not necessarily take into account the fact that self-efficacy varies across domains.
- The interviewer of the in-depth interviews and the facilitator was the same person, which may have limited forthright impressions from the participants.

10.4.6. Chapter 9

- Convenience sampling was used in this current study, which implies that the findings of this study could not be generalised to represent South Africa. The knowledge gained from this study, however, could still be applied to the broader community.
- The percentage of males in the study population was very small, and although this gender imbalance is common in healthcare, the study does not reflect the perceptions of most males.



10.5. Future research

Self-management is relatively new to the South African context. From the findings and learnings gleaned from this research project, the following recommendations are proposed:

10.5.1. Research recommendations:

- Explore how self-management training facilitates the preparedness of healthcare workers (including CHWs) for health crises and pandemics.
- Explore the way in which spirituality and spiritual growth assists CHWs to cope, as this theme emerged positively in this current study.
- In order to assist the employers of CHWs to guide their health behaviours, future empirical research, focussing on the examination and validation of possible cut-off, HPLP 11 scores for the domains of health status and health outcomes should be considered.

- The prevalence of NCDs among CHWs, who engage in unhealthy health behaviours, should be explored.
- Explore the health needs and challenges of CHWs, as well as their perceived value among the rest of the multi-disciplinary team.
- Increase the total number of males, who participate, in future studies.
- Explore the impact of self-management, using randomised controlled trials, with larger sample sizes.
- Conduct future research in self-management, to compare groups that receive booster sessions, with those who do not receive booster sessions, in order to determine whether booster sessions would augment the maintenance of change in the long term.
- Investigate the intensity and timing of booster sessions between various groups of participants, to allow good guidance for self-management facilitators.
- Future studies, in which the duration of self-management is extended, and electric devices used to assist with monitoring, will be insightful.
- Future studies, in which specialist health professionals, for example nutritionists, are included as resources for the participants, should explore the behaviour change and long-term impact, as well as the comprehension levels.
- Studies that explore the factors, which influence the maintenance of positive changes from self-management, would help to determine how stability of these changes could be provided.
- A study, focussing on the impact of CHWSM in various genders, should be explored.

10.5.2. Practice recommendations:

- Ongoing training and health promotions, focussing on risky health behaviours among CHWs, should be incorporated regularly.
- The adapted self-management training (CHWSM), presented in this current study, which incorporates the core objectives, should be conducted among CHWs

and healthcare workers, in various cultures across South Africa, to encourage the frontline workers to maintain, or improve their own health behaviours that would allow them to become effective role models in society.

10.5.3. Policy Recommendations:

- Policy-makers should consider incorporating self-management objectives into policies relating to the current models of CHWs, to enhance their effectiveness, as well as facilitate a symbiotic relationship between the CHW workforce and the professional healthcare workforce, across the health platform.

10.6. Conclusion

In the final chapter, the researcher sought to extract the relevant findings of each phase of the four phases of this current study, and present it systematically. Subsequently, the researcher highlighted the limitations and implications of the study, and concluded with recommendations for future studies. Three of the most significant findings of the study are presented as follows. Firstly, a self-management intervention was adapted successfully, and presented to a group of urban and rural CHWs. Secondly, the CHWSM produced reports of significant positive changes in the health status of the CHWs, which were reported to be maintained long term (6 months). Thirdly, the impact of the CHWSM continued to yield results, with the CHWS crediting their coping abilities during Covid-19 to the CHWSM they received prior to the outbreak.

The significance of this current study is three-fold, as it influenced the individuals (CHWs), who, in turn, could empower the communities they serve, and ultimately the impact should be observed at a wider societal level, with the decreased prevalence of NCDs, and subsequently, the quadruple burden of disease. The Department of Health and policy makers could find the information gained from this current study, valuable and applicable, as they contemplate ways of deploying the CHWs workforce in the Primary Healthcare setting, and achieve the Healthcare Goals of 2030, with the national initiative of 'Health for all' in South Africa.

Additionally, these findings could add to the knowledge base, on a global level. Ultimately, all the objectives of this current study were met.

10.7. References

- Jonkman, N.H., Schuurmans, M.J., Jaarsma, T., Shortridge-Baggett, L.M., Hoes, A.W., & Trappenburg, J.C.A. (2016). Self-management interventions: Proposal and validation of a new operational definition. *Journal of Clinical Epidemiology*, 80, 34–42. <https://doi.org/10.1016/j.jclinepi.2016.08.001>



APPENDICES

Appendix 1: UWC Ethics approval letter



OFFICE OF THE DIRECTOR: RESEARCH RESEARCH AND INNOVATION DIVISION

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29 November 2017

Mrs L Johnson
Physiotherapy
Faculty of Community and Health Sciences

Ethics Reference Number: HS17/8/23

Project Title: Empowering community health workers to improve their health behaviour using a self-management approach.

Approval Period: 29 November 2017 – 29 November 2018

I hereby certify that the Humanities and Social Science Research Ethics Committee of the University of the Western Cape approved the 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.

A handwritten signature in black ink that reads 'Josias'.

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

PROVISIONAL REC NUMBER - 130416-049

Appendix 2: NGO permission request letter (English)



UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa
Tel: +27 219592542 Fax: 27 219591217
E-mail: levjohns@gmail.com

PERMISSION FOR COMMUNITY HEALTH WORKERS TO PARTICIPATE IN RESEARCH STUDY

I hereby request permission from you to allow the community health workers employed in your NGO to participate in this research study. Your permission to allow the community health workers in the NGO to participate in this study will be greatly appreciated.

Project Title: Empowering community health workers to improve health behaviours using a self-management approach.

What is this study about?

This is a research project being conducted by *Mrs Levona Johnson*, student number 9033822 at the University of the Western Cape. We are inviting you to participate in this research project because you are a Community Health Worker who works with people who have chronic health problems and unhealthy behaviours. The purpose of this research project is to present you with a self-management program that will empower you and help you to improve your own health and in return you will be better equipped to help the communities you serve improve their health and health behaviours.

What will the community health workers be asked to do if they agree to participate?

They will be asked to:

1. Attend a meeting where the study will be explained and where information and consent forms can be explained to them.
2. Complete questionnaires while the researcher (*Levona Johnson*) is present) to answer any questions they may have.
3. Attend a Self-management program which will be presented by the researcher over a 2-day period.
4. The self-management program will take place at a location convenient to the participants.
5. Complete questionnaires after they have completed the Self-management program.
6. They may be asked or they may volunteer to have a one-on-one interview with the researcher after the intervention.
7. The interview will be 30 minutes long.
8. The interview will be recorded on an audio recorder.
9. The interview will take place in a secure and private room at the participant's convenience.
10. Six months after the Self-management program they will be invited to do a follow up interview with the researcher and repeat selected questionnaires.

Would their participation in this study be kept confidential?

The researchers undertake to protect the identity and the nature of each participant's contribution. To ensure anonymity, the questionnaires are anonymous and will not contain information that may personally identify the participants.

(1) names will not be included on the surveys and other collected data including the interview script and the audio recording;

(2) a code will be placed on the survey and other collected data;

(3) through the use of an identification key, the researcher will be able to link the survey to the respective identity; and

(4) only the researcher will have access to the identification key.

To ensure confidentiality, the researcher undertakes to protect the identities and the information that is shared with her. All questionnaires will be completed by the participants and placed in a sealed box and collected by the researcher. Names or any information that can identify the participants will not be used when the study is written up in a report or an article. Names will not be used for coding information or any other data being collected. Only the researcher will have access to information which can link the information to the relevant data. To ensure their confidentiality, hard copy information will be stored in a lockable folder that can only be opened by the researcher. The researcher will use password-protected computer files. The information will only be shown to the two people who supervise the research but they will also not know the participants' real name as the code will be used.

If we write a report or article about this research project, each participant's identity will be protected. In accordance with legal requirements and/or professional standards, we will disclose to the appropriate individuals and/or authority's information that comes to our attention concerning child abuse or neglect or potential harm to you or others. *In this event, we will inform you that we have to break confidentiality to fulfil our legal responsibility to report to the designated authorities.*

Focus Groups. This study will use focus groups therefore the extent to which the identities will remain confidential is dependent on participants' in the Focus Group maintaining confidentiality.

What are the risks of this research?

There may be some risks from participating in this research study. All human interactions and talking about self or others carry some amount of risks. We will nevertheless minimise such risks and act promptly to assist the participants if you experience any discomfort, psychological or otherwise during the process of their participation in this study. Where necessary, an appropriate referral will be made to a suitable professional for further assistance or intervention.

What are the benefits of this research?

This research is designed to help the community health workers to personally be empowered and improve their own health behaviours. The results may help the investigator learn more about the health behaviours of community health workers & the communities they serve. We hope that,

in the future, the communities you serve might benefit from this study through improved understanding of healthier behavioural options and being empowered to take responsibility for their own health.

Ultimately we would like to see that the health of the country is positively changed as more community health workers and community members make better health behaviour choices

Do the community health workers have to be in this research and may they stop participating at any time?

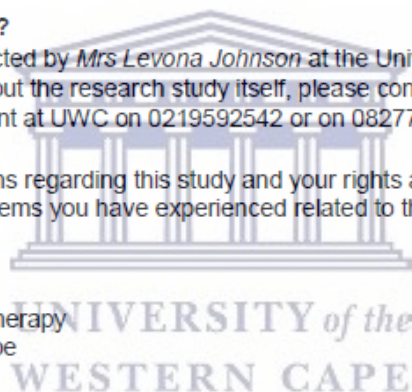
Their participation in this research is completely voluntary. They may choose not to take part at all. If they decide to participate in this research, they may stop participating at any time. If they decide not to participate in this study or if they stop participating at any time, they will not be penalized or lose any benefits to which they otherwise qualify.

What if you have questions?

This research is being conducted by *Mrs Levona Johnson* at the University of the Western Cape. If you have any questions about the research study itself, please contact Levona Johnson at: The Physiotherapy Department at UWC on 0219592542 or on 0827770336 or via email at levjohns@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:

Dr Nondwe Mlenzana
Head of Department: Physiotherapy
University of the Western Cape
Private Bag X17
Bellville 7535
nmlenzana@uwc.ac.za



Prof Anthea Rhoda
Acting Dean of the Faculty of Community and Health Sciences
University of the Western Cape
Private Bag X17
Bellville 7535
arhoda@uwc.ac.za

This research has been approved by the University of the Western Cape's **Humanities and Social Sciences Research Ethics Committee**

Appendix 3: NGO permission request letter (Afrikaans)



UNIVERSITEIT VAN WES-KAAP

Privaatsak X 17, Bellville 7535, Suid Afrika
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E-pos: levjohns@gmail.com

Aan: Nie-regeringsorganisasie (NRO)

Ek versoek hiermee toestemming van u om die gemeenskapsgesondheidswerkers in u NRO te laat deel neem aan hierdie navorsingstudie. U toestemming om die gemeenskapsgesondheidswerkers in die NRO te laat deelneem aan hierdie studie sal waardeer word.

Titel Van Navorsing: Bemagtiging van Gemeenskaps Gesondheidswerkers om gesondheidsgedrag te verbeter deur 'n selfbestuursbenadering te gebruik.

Waaroor gaan hierdie studie?

Hierdie is 'n navorsingsprojek wat deur Mev Levona Johnson, 'n student van die Universiteit Van Wes-Kaap, Student Nr 9033822, uitgevoer word. Ons nooi die Gemeenskaps Gesondheidswerkers uit om deel te neem aan hierdie navorsingsprojek. Gemeenskaps Gesondheidswerker werk met mense met chroniese gesondheidsprobleme en ongesonde gesondheidsgedrag. Die doel van hierdie navorsingsprojek is om 'n selfbestuursprogram aan te bied wat die Gemeenskaps Gesondheidswerkers sal bemagtig om hulle eie gesondheid te verbeter. Hulle sal beter toegerus wees om die gemeenskappe wat hulle dien te help om hul gesondheids en gesondheidsgedrag te verbeter.

Wat sal elke deelnemer gevra word om te doen as hulle meedoen om deel te neem?

Hulle sal gevra word om:

1. 'n Vergadering by te woon waar die studie verduidelik word en waar inligting en toestemmingsvorme aan hulle verduidelik sal word.
2. Vraelyste te voltooi terwyl die navorser (Mev Levona Johnson) teenwoordig is om enige vrae te beantwoord wat onduidelik mag wees..
3. 'n Selfbestuursprogram by te woon wat deur die navorser oor 'n tydperk van twee dae aangebied sal word.
4. Die Selfbestuursprogram sal plaasvind op 'n plek wat gerieflik is vir die deelnemers.
5. Vraelyste te voltooi nadat hulle die Selfbestuursprogram voltooi het.
6. Hulle kan gevra word of hulle mag vrywillig 'n een-tot-een-onderhoud met die navorser na die tussenkoms reël.
7. Die onderhoud sal 30 minute lank wees.
8. Die onderhoud sal op 'n klankopnemer opgeneem word.
9. Die onderhoud sal in 'n veilige en private kamer plaasvind waar die deelnemer gerieflik is.
10. Ses maande na die Selfbestuursprogram sal hulle genooi word om 'n opvolgonderhoud met die navorser te doen en herhaalde vraelyste te herhaal.

Sal hulle deelname aan hierdie studie vertroulik gehou word?

Die navorsers onderneem om elke deelnemer se identiteit en die aard van hul bydrae te beskerm. Om anonimiteit te verseker, is die vraelyste anoniem en bevat geen inligting wat die deelnemer persoonlik kan identifiseer nie.

1. Name sal nie op die opnames en ander versamelde data ingesluit word nie, insluitende die onderhoudskrip en die klankopname;
2. 'n Kode sal op die opname en ander versamelde data geplaas word;
3. Deur die gebruik van 'n identifikasie sleutel kan die navorser jou opname koppel aan jou identiteit; en
4. **Slegs** die navorser sal toegang hê tot die identifikasie sleutel.

Om vertroulikheid te verseker, ondemeem die navorser elke deelnemer se identiteit te beskerm en die inligting wat elkeen met haar deel. Alle vraelyste sal deur die deelnemer voltooi word en in 'n seëlkas geplaas word en deur die navorser versamel word.

Om vertroulikheid te verseker, sal hulle name of enige inligting wat hulle identifiseer nie gebruik word wanneer die studie in 'n verslag of 'n artikel geskryf is nie. Name sal nie gebruik word vir die kodering van inligting of enige ander data wat versamel word nie. Slegs die navorser sal toegang hê tot inligting wat hulle inligting kan koppel aan die relevante data.

Om hulle vertroulikheid te verseker, sal die kopie van hul inligting gestoor word in 'n afsluitbare gids wat slegs deur die navorser geopen kan word. Die navorser sal wagwoordbeskermdre rekenaarleërs gebruik. Die inligting sal slegs gewys word aan die twee persone wat toesig hou oor die navorsing en hulle sal ook nie enige inligting van die deelnemers hê nie, aangesien die kode gebruik sal word. As ons 'n verslag of artikel oor hierdie navorsingsprojek skryf, sal elke deelnemer se identiteit beskerm word.

In ooreenstemming met wetlike vereistes en / of professionele standaarde, sal ons bekend maak aan die toepaslike individue en / of gesag se inligting wat onder ons aandag kom oor kindermishandeling of verwaarloosing of potensiele skade aan hulle of ander

In hierdie geval sal ons die deelnemer inlig dat ons vertroulikheid moet breek om ons wettige verantwoordelikheid te vervul om aan die aangewese owerhede verslag te doen

Wat is die risiko's van hierdie navorsing?

Daar kan sekere risiko's wees om aan hierdie navorsingstudie deel te neem. Alle menslike interaksies en praat oor self of ander dra 'n mate van risiko's. Ons sal egter sulke risiko's verminder en dadelik optree om hulle te help as hulle enige ongemak, sielkundige of andersins ervaar tydens die proses van hul deelname aan hierdie studie. Waar benodig, sal 'n toepaslike verwysing na 'n geskikte professionele persoon vir verdere hulp of ingryping gedoen word.

Wat is die voordele van hierdie navorsing?

Hierdie navorsing is ontwerp om Gemeenskaps Gesondheidswerkers te help om bemagtig te word en hul eie gesondheidsgedrag te verbeter. Die resultate kan die ondersoeker help om meer te leer oor die gesondheidsgedrag van Gemeenskaps Gesondheidswerkers en die gemeenskappe wat hulle dien.

Ons vertrou dat die gemeenskappe wat hulle dien in die toekoms dalk voordeel trek uit hierdie studie deur beter begrip van gesonder gedragsopties te hê en om bemagtig te word om hul eie gesondheid te aanvaar. Uiteindelik wil ons graag sien dat die gesondheid van die land positief verander aangesien meer Gemeenskaps Gesondheidswerkers en gemeenskapslede beter gesondheids gedrag keuses maak.

Moet ek hierdie navorsing sessies bywoon en mag ek op enige stadium ophou deelneem?

Deelname aan hierdie navorsing is heeltemal vrywillig. Hulle mag kies om glad nie deel te neem nie. As hulle besluit om aan hierdie navorsing deel te neem, kan hulle enige tyd ophou deelneem. As hulle besluit om nie aan hierdie studie deel te neem nie, of as hulle op enige stadium ophou deelneem, sal hulle nie enige voordele wat hulle andersins voor kwalifiseer, benadeel of verloor nie.

Verderer vrae?

Hierdie navorsing word deur Mev Levona Johnson van die Universiteit van Wes-Kaap gedoen. As U vrae het oor die navorsingstudie self, kontak asseblief Levona Johnson by: Die Fisioterapie Departement by UWC by 0219592542 of by 0827770336 of per e-pos by levjohns@gmail.com. Indien U enige vrae rakende hierdie studie en U regte as 'n navorsingsdeelnemer het of as U enige probleme rakende die studie aangemeld wil hê, moet nie huiwer om kontak te maak deur die bogenoemde nommers of e-pos te maak nie.:

Dr Nondwe Mlenzana
Departementshoof: Fisioterapie
Universiteit van die Wes-Kaap
Privaatsak X17
Bellville 7535
nmlenzana@uwc.ac.za

Prof Anthea Rhoda
Dekaan van die Fakulteit Gemeenskaps- en Gesondheidswetenskappe
Universiteit van die Wes-Kaap
Privaatsak X17
Bellville 7535
arhoda@uwc.ac.za

Hierdie navorsing is goedgekeur deur die Universiteit van die Wes-Kaapse Navorsingsetiëkomitee vir Geesteswetenskappe en Sosiale Wetenskappe)

Appendix 4: Compassion in action: NGO permission request letter



UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 219592542 Fax: 27 219591217

To: Compassion in Action

26 March 2018

PERMISSION FOR COMMUNITY HEALTH WORKERS TO PARTICIPATE IN RESEARCH STUDY

I hereby request permission from you to allow the community health workers employed in your NGO to participate in this research study. Your permission to allow the community health workers in the NGO to participate in this study will be greatly appreciated.

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What will the community health workers be asked to do if they agree to participate?

They will be asked to:

1. Attend a meeting where the study will be explained and where information and consent forms can be explained to them. [L] [SEP]
2. Complete questionnaires while the researcher (LevonaJohnson) is present to answer any questions they may have. [L] [SEP]
3. Attend a Self-management program, which will be presented by the researcher over a 2- day period. [L] [SEP]
4. The self-management program will take place at a location convenient to the participants. [L] [SEP]
5. Complete questionnaires after they have completed the Self-management program. [L] [SEP]

6. They may be asked or they may volunteer to have a one-on-one interview with the researcher after the intervention. [SEP]
7. The interview will be 30minutes long. [SEP]
8. The interview will be recorded on an audio recorder. [SEP]
9. The interview will take place in a secure and private room at the participant's [SEP]convenience. [SEP]
10. Six months after the Self-management program they will be invited to do a follow up interview with the researcher and repeat selected questionnaires.

Would their participation in this study be kept confidential?

The researchers undertake to protect the identity and the nature of each participant's contribution. To ensure anonymity, the questionnaires will be anonymous, and will not contain information that may personally identify the participants, as 1), names will not be included on the surveys and other collected data including the interview script and the audio recording; (2), a code will be placed on the survey and other collected data; (3), through the use of an identification key, the researcher will be able to link the survey to the respective identity; and (4), only the researcher will have access to the identification key. To ensure confidentiality, the researcher undertakes to protect the identities and the information that is shared with her. All questionnaires will be completed by the participants, and placed in a sealed box that will be collected by the researcher. Names or any information that can identify the participants will not be used when the study is written up in a report or an article. Names will not be used for coding information or any other data being collected. Only the researcher will have access to information, which can link the information to the relevant data. To ensure their confidentiality, hard copy information will be stored in a lockable folder that can only be opened by the researcher. The researcher will use password-protected computer files. The information will only be shown to the two people who supervise the research but they will also not know the participants' real name as the code will be used.

If we write a report or article about this research project, each participant's identity will be protected. In accordance with legal requirements and/or professional standards, we will disclose to the appropriate individuals and/or authority's information that comes to our attention concerning child abuse or neglect or potential harm to you or others. *In this event, we will inform you that we have to break confidentiality to fulfil our legal responsibility to report to the designated authorities.*

Focus Groups. This study will use focus groups; therefore, the extent to which the identities will remain confidential is dependent on participants' in the focus group maintaining confidentiality.

What are the risks of this research?

There may be some risks from participating in this research study. All human interactions and talking about self or others carry some amount of risks. We will nevertheless minimise such risks and act promptly to assist the participants if you experience any discomfort, psychological or otherwise during the process of their participation in this study. Where necessary, an appropriate referral will be made to a suitable professional for further assistance or intervention.

What are the benefits of this research?

This research is designed to help the community health workers to be empowered personally, and improve their own health behaviours. The results may help the investigator learn more about the health behaviours of community health workers & the communities they serve. We hope that, in the future, the communities you serve might benefit from this study through improved understanding of healthier behavioural options and being empowered to take responsibility for their own health. Ultimately, we would like to see that the health of the country is positively changed as more community health workers and community members make better health behaviour choices

Do the community health workers have to be in this research and may they stop participating at any time?

Their participation in this research is completely voluntary. They may choose not to take part at all. If they decide to participate in this research, they may stop participating at any time. If they decide not to participate in this study or if they stop participating at any time, they will not be penalized or lose any benefits to which they otherwise qualify.

What if you have questions?

This research is being conducted by *Mrs Levona Johnson* at the University of the Western Cape. If you have any questions about the research study itself, please contact Levona Johnson at: The Physiotherapy Department at UWC on 0219592542 or on 0827770336 or via email at levjohns@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:

Dr Nondwe Mlenzana, Head of Department: Physiotherapy
University of the Western Cape
Private Bag X17
Bellville 7535
nmlenzana@uwc.ac.za

Prof Anthea Rhoda
Dean of the Faculty of Community and Health Sciences
University of the Western Cape
Private Bag X17
Bellville 7535
arhoda@uwc.ac.za

Appendix 5: Compassion in action: NGO Acceptance letter



COMPASSION IN ACTION

COMMUNITY BASED SERVICES

10 April 2018

Good day Levona

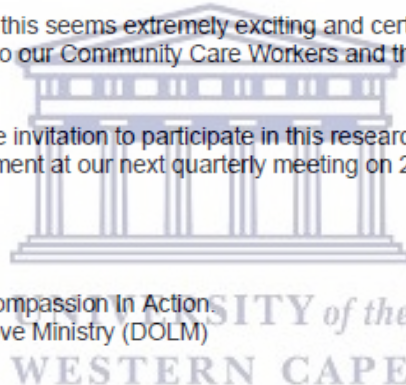
I have just received your email and attachment regarding the "Self-Management" CHW research/training opportunity.

Allow me to say that this seems extremely exciting and certainly could be of tremendous benefit to our Community Care Workers and their personal development.

We are accepting the invitation to participate in this research project. We will make the announcement at our next quarterly meeting on 24 April 2018.

Yours Sincerely
Errol C. Muller.

General Manager-Compassion In Action
Director Deeds of Love Ministry (DOLM)
063 556 6433



www.compassioninaction.co.za

E-mail: compassion@telkomsa.net
Tel: 021-705 5306/074 122 4507
Fax: 021-705 5470

205B 3rd Avenue
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7941

PO Box 31468
LOTUS RIVER
7888

NPO Number: 021-558-NPO

PBO No: 930034514

Appendix 6: Interview Schedule 1 – Chapter 5



UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 219592542 Fax: 27 219591217

Interview Schedule: Challenges and Motivation

Purpose of the in-depth interview is two-fold:

1. To explore the challenges experienced by community health workers in carrying out their duties
2. To explore their motivation to join a self-management program

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WESTERN CAPE

Questions for in-depth interviews (two central questions):

1. 'What are the challenges you experience personally and professionally in conducting your duties?
2. Why would you be interested to join a self-management program or what would be your motivation to join a self-management program?

Thank participants for taking the time to participate in the interview.

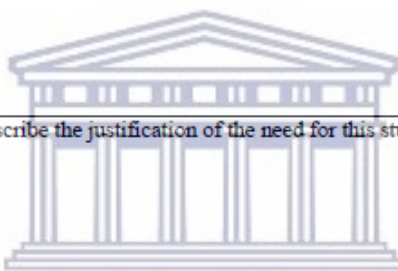
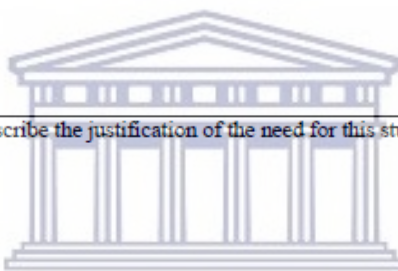
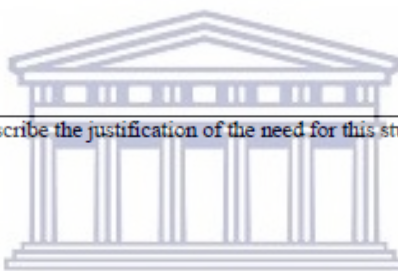
Appendix 7: McMaster's Critical Review Form – Quantitative Studies


Critical Review Form – Quantitative Studies
 ©Law, M., Stewart, D., Pollock, N., Letts, L. Bosch, J., & Westmorland, M.
McMaster University

- Adapted Word Version Used with Permission -

The EB Group would like to thank Dr. Craig Scanlan, University of Medicine and Dentistry of NJ, for providing this Word version of the quantitative review form.

Instructions: Use tab or arrow keys to move between fields, mouse or spacebar to check/uncheck boxes.

CITATION	Provide the full citation for this article in APA format:
STUDY PURPOSE Was the purpose stated clearly? <input type="checkbox"/> Yes <input type="checkbox"/> No	Outline the purpose of the study. How does the study apply to your research question? 
LITERATURE Was relevant background literature reviewed? <input type="checkbox"/> Yes <input type="checkbox"/> No	Describe the justification of the need for this study: 
DESIGN <input type="checkbox"/> Randomized (RCT) <input type="checkbox"/> cohort <input type="checkbox"/> single case design <input type="checkbox"/> before and after <input type="checkbox"/> case-control <input type="checkbox"/> cross-sectional <input type="checkbox"/> case study	Describe the study design. Was the design appropriate for the study question? (e.g., for knowledge level about this issue, outcomes, ethical issues, etc.):  Specify any biases that may have been operating and the direction of their influence on the results:
SAMPLE N = Was the sample described in detail? <input type="checkbox"/> Yes <input type="checkbox"/> No Was sample size justified? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Sampling (who; characteristics; how many; how was sampling done?) If more than one group, was there similarity between the groups?: Describe ethics procedures. Was informed consent obtained?:

<p>OUTCOMES</p> <p>Were the outcome measures reliable? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not addressed</p> <p>Were the outcome measures valid? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not addressed</p>	Specify the frequency of outcome measurement (i.e., pre, post, follow-up):	
<p>INTERVENTION</p> <p>Intervention was described in detail? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not addressed</p> <p>Contamination was avoided? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not addressed <input type="checkbox"/> N/A</p> <p>Cointervention was avoided? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not addressed <input type="checkbox"/> N/A</p>	Outcome areas:	List measures used:
<p>RESULTS</p> <p>Results were reported in terms of statistical significance? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/> Not addressed</p> <p>Were the analysis method(s) appropriate? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not addressed</p>	<p>Provide a short description of the intervention (focus, who delivered it, how often, setting). Could the intervention be replicated in practice?</p> <div style="text-align: center;">  <p>UNIVERSITY of the</p> </div> <p>What were the results? Were they statistically significant (i.e., $p < 0.05$)? If not statistically significant, was study big enough to show an important difference if it should occur? If there were multiple outcomes, was that taken into account for the statistical analysis?</p>	

<p>Clinical importance was reported?</p> <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not addressed	<p>What was the clinical importance of the results? Were differences between groups clinically meaningful? (if applicable)</p>
<p>Drop-outs were reported?</p> <input type="checkbox"/> Yes <input type="checkbox"/> No	<p>Did any participants drop out from the study? Why? (Were reasons given and were drop-outs handled appropriately?)</p>
<p>CONCLUSIONS AND IMPLICATIONS</p> <p>Conclusions were appropriate given study methods and results</p> <input type="checkbox"/> Yes <input type="checkbox"/> No	<p>What did the study conclude? What are the implications of these results for practice? What were the main limitations or biases in the study?</p>



Appendix 8: Evaluation tool for 'mixed methods' study design

Evaluative Tool for Mixed Method Studies

Evaluation Tool for 'Mixed Methods' Study Designs

The 'mixed method' evaluation tool was developed from the evaluation tools for 'quantitative' and 'qualitative' studies,¹ themselves created within the context of a project exploring the feasibility of undertaking systematic reviews of research literature on effectiveness and outcomes in social care. The 'mixed method' tool draws on appropriate questions from the quantitative and qualitative evaluation tools. It provides a template of key questions to assist in the critical appraisal of studies using more than one method.²

Review Area	Key Questions
(1) STUDY EVALUATIVE OVERVIEW	
Bibliographic Details	<ul style="list-style-type: none"> • Author, title, source (publisher and place of publication), year
Purpose	<ul style="list-style-type: none"> • What are the aims of this paper? • If the paper is part of a wider study, what are its aims?
Key Findings	<ul style="list-style-type: none"> • What are the key findings?
Evaluative Summary	<ul style="list-style-type: none"> • What are the strengths and weaknesses of the study and theory, policy and practice implications?
(2) STUDY AND CONTEXT (SETTING, SAMPLE AND OUTCOME MEASUREMENT)	
The Study	<ul style="list-style-type: none"> • What type of study is this? • What was the intervention? • What was the comparison intervention? • Is there sufficient detail given of the nature of the intervention and the comparison intervention? • What is the relationship of the study to the area of the topic review?
Context: (1) Setting	<ul style="list-style-type: none"> • Within what geographical and care setting is the study carried out? • What is the rationale for choosing this setting? • Is the setting appropriate and/or sufficiently specific for examination of the research question? • Is sufficient detail given about the setting? • Over what time period is the study conducted?
Context II: Sample	<ul style="list-style-type: none"> • What was the source population? • What were the inclusion criteria? • What were the exclusion criteria? • How was the sample (events, persons, times and settings) selected? (For example, theoretically informed, purposive, convenience, chosen to explore contrasts) • Is the sample (informants, settings and events) appropriate to the aims of the study? • If there was more than one group of subjects, how many groups were there, and how many people were in each group? • Is the achieved sample size sufficient for the study aims and to warrant the conclusions drawn? • What are the key characteristics of the sample (events, persons, times and settings)?
Context III: Outcome Measurement	<ul style="list-style-type: none"> • What outcome criteria were used in the study? • Whose perspectives are addressed (professional, service, user, carer)? • Is there sufficient breadth (e.g. contrast of two or more perspective) and depth (e.g. insight into a single perspective)?

1

Evaluative Tool for Mixed Method Studies
 Prof Andrew Long (2005), School of Healthcare, University of Leeds

Review Area	Key Questions
(3) ETHICS	
Ethics	<ul style="list-style-type: none"> • Was Ethical Committee approval obtained? • Was informed consent obtained from participants of the study? • How have ethical issues been adequately addressed?
(4) GROUP COMPARABILITY	
Comparable Groups	<ul style="list-style-type: none"> • If there was more than one group was analysed, were the groups comparable before the intervention? In what respects were they comparable and in what were they not? • How were important confounding variables controlled (e.g. matching, randomisation, or in the analysis stage)? • Was this control adequate to justify the author's conclusions? • Were there other important confounding variables controlled for in the study design or analyses and what were they? • Did the authors take these into account in their interpretation of the findings?
(5) QUALITATIVE DATA COLLECTION AND ANALYSIS	
Data Collection Methods	<ul style="list-style-type: none"> • What data collection methods were used in the study? (Provide insight into: data collected, appropriateness and availability for independent analysis) • Is the process of fieldwork adequately described? (For example, account of how the data were elicited; type and range of questions; interview guide; length and timing of observation work; note taking)
Data Analysis	<ul style="list-style-type: none"> • How were the data analysed? • How adequate is the description of the data analysis? (For example, to allow reproduction; steps taken to guard against selectivity) • Is adequate evidence provided to support the analysis? (For example, includes original / raw data extracts; evidence of iterative analysis; representative evidence presented; efforts to establish validity - searching for negative evidence, use of multiple sources, data triangulation); reliability / consistency (over researchers, time and settings; checking back with informants over interpretation) • Are the findings interpreted within the context of other studies and theory?
Researcher's Potential Bias	<ul style="list-style-type: none"> • What was the researcher's role? (For example, interviewer, participant observer) • Are the researcher's own position, assumptions and possible biases outlined? (Indicate how these could affect the study, in particular, the analysis and interpretation of the data)

Review Area	Key Questions
(6) POLICY AND PRACTICE IMPLICATIONS	
Implications	<ul style="list-style-type: none"> • To what setting are the study findings generalisable? (For example, is the setting typical or representative of care settings and in what respects? If the setting is atypical, will this present a stronger or weaker test of the hypothesis?) • To what population are the study's findings generalisable? • Is the conclusion justified given the conduct of the study (For example, sampling procedure; measures of outcome used and results achieved?) • What are the implications for policy? • What are the implications for service practice?
(7) OTHER COMMENTS	
Other comments	<ul style="list-style-type: none"> • What was the total number of references used in the study? • Are there any other noteworthy features of the study? • List other study references
Reviewer	<ul style="list-style-type: none"> • Name of reviewer • Review date

¹ Long AF, Godfrey M, Randall T, Brettle AJ and Grant MJ (2002) *Developing Evidence Based Social Care Policy and Practice. Part 3: Feasibility of Undertaking Systematic Reviews in Social Care*. Leeds: Nuffield Institute for Health.

ⁱⁱ This tool was developed while the lead author was at the Health Care Practice R&D Unit (HCPDRU) at the University of Salford. It has since been slightly modified.



Appendix 9: Chronic Disease Self-Management Program (CDSMP)

Chronic
Disease

Self-Management Programs

Help Your Patients Take Charge

Chronic Disease Self-Management Program (CDSMP)

What is it?

- CDSMP was developed by a team of researchers at Stanford University. It's a self-management education workshop attended by people with a variety of chronic health conditions. It aims to build participants' confidence in managing their health and keep them active and engaged in their lives.
- Participants attend a 2½-hour interactive workshop once a week for 6 weeks to learn problem-solving, decision-making, and other techniques for managing problems common to people with chronic diseases. In a typical workshop, participants set a realistic goal for the upcoming week and develop an action plan for meeting that goal. They report on their progress at the following workshop, and solicit feedback from the group to help address any challenges.
- Participants apply the techniques to concerns such as:
 - Addressing the physical and psychological effects of chronic disease (including fatigue, pain, depression, and frustration)
 - Exercising, getting proper nutrition, and using medications appropriately
 - Communicating effectively with family, friends, and health professionals
- Workshops meet in community settings such as senior centers, churches, and hospitals. They are facilitated by two trained leaders, one or both of whom are nonhealth professionals with a chronic disease. Organizations offering workshops must meet Stanford University licensing requirements.

Who is it for?

- CDSMP is for adults with chronic health conditions such as arthritis, diabetes, heart disease, lung disease, and other ongoing health problems.
- The program may be particularly beneficial for people who have more than one health condition, whose health problems have begun to interfere with their valued life activities, or who have had difficulty following your health recommendations.

What are the benefits?

- There is strong evidence from peer-reviewed publications and program evaluations that participation in CDSMP workshops can improve physical and psychosocial outcomes and quality of life for people with chronic health conditions. Benefits include:
 - Decreased pain and health distress
 - Increased energy and less fatigue
 - Increased physical activity
 - Decreased depression
 - Better communication with physicians
 - Decreased social role limitations
 - Increased confidence in managing chronic disease

National Center for Chronic Disease Prevention and Health Promotion
Division of Population Health



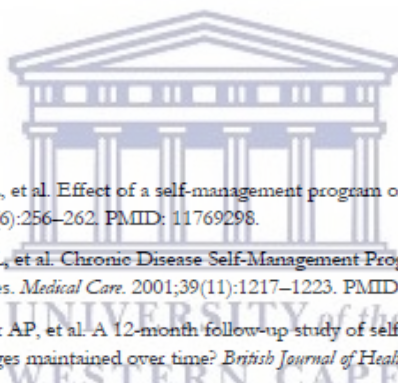
Chronic Disease Self-Management Program (CDSMP)

For More Information

- Stanford University Patient Education Research Center
patienteducation.stanford.edu/programs
- Centers for Disease Control and Prevention
www.cdc.gov/arthritis/interventions/self_manage.htm
- CDC Executive Summary of ASMP/CDSMP Meta-Analyses
www.cdc.gov/arthritis/docs/asmp-executive-summary.pdf

Contact

Selected References

- 
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- Kennedy A, Reeves D, Power P, et al. The effectiveness and cost effectiveness of a national lay-led self-care support programme for patients with long-term conditions: a pragmatic randomized controlled trial. *Journal of Epidemiology and Community Health*. 2007;61(3):254–261. PMID: 17325405.
- Gitlin LN, Chernett NL, Harris LF, et al. Harvest health: translation of the chronic disease self-management program for older African Americans in a senior setting. *The Gerontologist*. 2008;48(5):698–705. PMID: 18981286.
- Centers for Disease Control and Prevention. Sorting Through the Evidence for the Arthritis Self-Management Program and the Chronic Disease Self-Management Program: Executive Summary of ASMP/CDSMP Meta-Analyses. May 2011. Accessed at www.cdc.gov/arthritis/docs/ASMP-executive-summary.pdf on March 29, 2012.

Appendix 10: Act Healthy Programme

Act Healthy Course Outline

	Class & Week	Content
1	Orientation class	<ul style="list-style-type: none"> • Introductions • ACT Healthy overview • <i>Study design and overview</i> • <i>Complete pretest questionnaires</i>
2	Week 1 class	<ul style="list-style-type: none"> • Making changes: 'Old' Way and Self-management Way • Being an active group member • How healthy people act • Goals, action steps, action planning • Share health resources
3	Week 2 class	<ul style="list-style-type: none"> • 'Thermometer' handout: components of a successful Action Plan • Action Plan report, using Thermometer handout • Make new Action Plan • Share health resources
4	Weeks 3-5 classes	<ul style="list-style-type: none"> • Review 'Thermometer' handout • Action Plan report, using Thermometer handout • Make new Action Plan • Share health resources
5	Weeks 4-5 classes	<ul style="list-style-type: none"> • Review Making changes: 'Old' Way and Self-management Way (p.9) • Action Plan report, using Thermometer handout • Make new Action Plan • Share health resources
6	Week 6 class	<ul style="list-style-type: none"> • Action Plan report, using Thermometer handout • Make new Action Plan • Recap experience, comparing 'Old' Way to Self-management Way • <i>Complete posttest questionnaires</i>

Appendix 11: Interview Schedule 2 – Chapter 8

INTERVIEW SCHEDULE

SELF-MANAGEMENT TRAINING: EMPOWERING COMMUNITY HEALTH WORKERS IN SOUTH AFRICA

COMMUNITY HEALTH WORKERS

1. Please tell me more about yourself: how long you have lived in this community, what you do as a community health worker(CHW), and how long you have done that?
2. Thinking of the self-management training you had:
 - What are some of the important things you got from the training?
3. Looking ahead, do you think the skills you gained will help with your job? Explain how you see yourself using the skills you gained from the training.
 - Patients/clients
 - Self
 - Community (broader dissemination)
4. Do you feel empowered by this program? Explain
5. Is there anything else you would want to say about the program?

Thank you for participating in the interview.

Appendix 12: Consent form



UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa
Tel: +27 21-9592542 Fax: 27 21-9591217
E-mail: levjohns@gmail.com

CONSENT FORM

Title of Research Project: Empowering community health workers to improve health behaviours using a self-management approach

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.

Participant's name.....

Participant's signature.....

Date.....

Appendix 13: Information Sheet (English)



UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 219592542 Fax: 27 219591217

E-mail: levjohns@gmail.com

INFORMATION SHEET

Project Title:

Empowering community health workers to improve health behaviours using a self- management approach

What is this study about?

This is a research project being conducted by *Mrs Levona Johnson*, student number 9033822 at the University of the Western Cape. We are inviting you to participate in this research project because you are a Community Health Worker who works with people who have chronic health problems and unhealthy behaviours. The purpose of this research project is to present you with a self-management program that will empower you and help you to improve your own health and in return, you will be better equipped to help the communities you serve improve their health and health behaviours.

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

You will be asked to:

1. *Attend a meeting where the study will be explained and where information and consent forms can be explained to you.*
2. *Complete questionnaires while the researcher (Levona Johnson) is present) to answer any questions you may have.*
3. *Attend a self-management programme, which will be presented by the researcher over a 2-day period.*
4. *The self-management program will take place at a location convenient to the participants.*
5. *Complete questionnaires after you have completed the Self-management program.*
6. *You may be asked or you may volunteer to have a one-on-one interview with the researcher after the intervention.*

7. *The interview will be 30 minutes long.*
8. *The interview will be recorded on an audio recorder.*
9. *The interview will take place in a secure and private room at the participant's convenience.*
10. *Six months after the Self-management programme you will be invited to do a follow up interview with the researcher and repeat selected questionnaires.*

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 questionnaires will be anonymous, and will not contain information that will identify you personally.

- (1) Your name will not be included on the surveys and other collected data including the interview script and the audio recording;
- (2) A code will be placed on the survey and other collected data;
- (3) Through the use of an identification key, the researcher will be able to link your survey to your identity; and
- (4) Only, the researcher will have access to the identification key.

To ensure your confidentiality, the researcher undertakes to protect your identity and the information you share with her. All questionnaires will be completed by you, placed in a seal box, and collected by the researcher. Your name or any information that can identify you will not be used when the study is written up in a report or an article. Your name will not be used for coding information or any other data being collected. Only the researcher will have access to information, which can link your information to the relevant data. To ensure your confidentiality, hard copy information will be stored in a lockable folder that can only be opened by the researcher. The researcher will use password-protected computer files. The information will only be shown to the two people who supervise the research but they will also not know your real name, as the code will be used.

If we write a report or article about this research project, your identity will be protected.^[1]_[SEP]In accordance with legal requirements and/or professional standards, we will disclose to the appropriate individuals and/or authority's information that comes to our attention concerning child abuse or neglect or potential harm to you or others. *In this event, we will inform you that we have to break confidentiality to fulfil our legal responsibility to report to the designated authorities.*

[In the event that you are using focus groups] 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?

There may be some risks from participating in this research study. All human interactions and talking about self or others carry some amount of risks. We will nevertheless minimise such risks and act promptly to assist you if you experience any discomfort, psychological or otherwise during the process of your participation in this study. Where necessary, an appropriate referral will be made to a suitable professional for further assistance or intervention.

What are the benefits of this research?

This research is designed to help you personally, to be empowered and to improve your own health behaviours. The results may help the investigator learn more about the health behaviours of community health workers & the communities they serve. We hope that, in the future, the communities you serve might benefit from this study through improved understanding of healthier behavioural options and being empowered to take responsibility for their own health. Ultimately, we would like to see that the health of the country is positively changed as more community health workers and community members make better health behaviour choices

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

Your participation in this research is 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 penalized or lose any benefits to which you otherwise qualify.

What if I have questions?

This research is being conducted by *Mrs Levona Johnson* at the University of the Western Cape. If you have any questions about the research study itself, please contact Levona Johnson at: The Physiotherapy Department at UWC on 0219592542 or on 0827770336 or via email at levjohns@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:

Dr Nondwe Mlenzana
Head of Department: Physiotherapy
University of the Western Cape
Private Bag X17
Bellville 7535
nmlenzana@uwc.ac.za

Prof Anthea Rhoda
Acting Dean of the Faculty of Community and Health Sciences

University of the Western Cape
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This research has been approved by the University of the Western Cape's Humanities and Social Sciences Research Ethics Committee No HS17/8/23.



Appendix 14: Information Sheet (Afrikaans)



UNIVERSITEIT VAN WES-KAAP

Privaatsak X 17, Bellville 7535, Suid Afrika
Tel: +27 219592542 Faks: 27 219591217
E-pos: levjohns@gmail.com

INLIGTINGSBLAD

Titel Van Navorsing: Bemagtiging van gemeenskapsgesondheidswerkers om gesondheidsgedrag te verbeter deur 'n selfbestuursbenadering te gebruik.

Waaroor gaan hierdie studie?

Hierdie is 'n navorsingsprojek wat deur mev Levona Johnson uitgevoer word, student nommer 9033822 van die Universiteit Van Wes-Kaap. Ons nooi u uit om deel te neem aan hierdie navorsingsprojek omdat u 'n gemeenskapsgesondheidswerker is wat werk met mense met chroniese gesondheidsprobleme en ongesonde gesondheidsgedrag. Die doel van hierdie navorsingsprojek is om u 'n selfbestuursprogram aan te bied wat u sal bemagtig en u help om u eie gesondheid te verbeter. U sal beter toegerus wees om die gemeenskappe wat u dien, te help om hul gesondheids- en gesondheidsgedrag te verbeter.

Wat sal ek gevra word om te doen as ek meedoen om deel te neem?

U sal gevra word om:

- (1) 'N vergadering by te woon waar die studie verduidelik word en waar inligting en toestemmingsvorme aan u verduidelik kan word.
- (2) Vraelyste te voltooi terwyl die navorser (Levona Johnson) teenwoordig is om enige vrae te beantwoord wat u mag hê.
- (3) 'N selfbestuursprogram by te woon wat deur die navorser oor 'n tydperk van twee dae aangebied sal word.
- (4) Die selfbestuursprogram sal plaasvind op 'n plek wat gerieflik is vir die deelnemers.
- (5) Vraelyste te voltooi nadat u die Selfbestuursprogram voltooi het.
- (6) U kan gevra word of u mag vrywillig om 'n een-tot-een-onderhoud met die navorser na die tussenkoms te hê.
- (7) Die onderhoud sal 30 minute lank wees.
- (8) Die onderhoud sal op 'n klankopnemer aangeteken word.
- (9) Die onderhoud sal in 'n veilige en privaat kamer plaasvind by die deelnemer se gerief.
- (10) Ses maande na die Selfbestuursprogram sal u genooi word om 'n opvolgonderhoud met die navorser te doen en herhaalde vraelyste te herhaal.

Sal my deelname aan hierdie studie vertroulik gehou word?

Die navorsers onderneem om u identiteit en die aard van u bydrae te beskerm. Om u anonimiteit te verseker, is die vraelyste anoniem en bevat geen inligting wat u persoonlik kan identifiseer nie.

- (1) Jou naam sal nie op die opnames en ander versamelde data ingesluit word nie, insluitende die onderhoudskrip en die klankopname;

- (2) 'N kode sal op die opname en ander versamelde data geplaas word;
- (3) Deur die gebruik van 'n identifikasie sleutel kan die navorser jou opname koppel aan jou identiteit; en
- (4) Slegs die navorser sal toegang hê tot die identifikasie sleutel.

Om jou vertroulikheid te verseker, ondemeem die navorser om jou identiteit te beskerm en die inligting wat jy met haar deel. Alle vraelyste sal deur jou voltooi word en in 'n seëlkas geplaas word en deur die navorser versamel word.

Om u vertroulikheid te verseker, kan u naam of enige inligting wat u identifiseer nie gebruik word wanneer die studie in 'n verslag of 'n artikel geskryf is nie. Jou naam sal nie gebruik word vir die kodering van inligting of enige ander data wat versamel word nie. Slegs die navorser sal toegang hê tot inligting wat u inligting kan koppel aan die relevante data.

Om u vertroulikheid te verseker, sal u kopie inligting gestoor word in 'n afsluitbare gids wat slegs deur die navorser geopen kan word. Die navorser sal wagwoordbeskermdre rekenaarlêers gebruik. Die inligting sal slegs gewys word aan die twee persone wat toesig hou oor die navorsing, maar hulle sal ook nie u regte naam ken nie, aangesien die kode gebruik sal word. As ons 'n verslag of artikel oor hierdie navorsingsprojek skryf, sal u identiteit beskerm word. In ooreenstemming met wetlike vereistes en / of professionele standaarde, sal ons bekend maak aan die toepaslike individue en / of gesag se inligting wat onder ons aandag kom oor kindermishandeling of verwaarloosing of potensiële skade aan u of ander.

In hierdie geval sal ons u inlig dat ons vertroulikheid moet breek om ons wettige verantwoordelikheid te vervul om aan die aangewese owerhede verslag te doen

Wat is die risiko's van hierdie navorsing?

Daar kan sekere risiko's wees om aan hierdie navorsingstudie deel te neem. Alle menslike interaksies en praat oor self of ander dra 'n mate van risiko's. Ons sal egter sulke risiko's verminder en dadelik optree om u te help as u enige ongemak, sielkundige of andersins ervaar tydens die proses van u deelname aan hierdie studie. Waar nodig, sal 'n toepaslike verwysing na 'n geskikte professionele persoon vir verdere hulp of ingryping gedoen word.

Wat is die voordele van hierdie navorsing?

Hierdie navorsing is ontwerp om u te help om bemagtig te word en u eie gesondheidsgedrag te verbeter. Die resultate kan die ondersoeker help om meer te leer oor die gesondheidsgedrag van gemeenskapsgesondheidswerkers en die gemeenskappe wat hulle dien. Ons hoop dat die gemeenskappe wat u dien, in die toekoms dalk voordeel trek uit hierdie studie deur beter begrip van gesonder gedragsopsies te hê en om bemagtig te word om hul eie gesondheid te aanvaar. Uiteindelik wil ons graag sien dat die gesondheid van die land positief verander, aangesien meer gemeenskapsgesondheidswerkers en gemeenskapslede beter gesondheidsgedragskeuses maak.

Moet ek in hierdie navorsing wees en mag ek op enige stadium ophou deelneem? U deelname aan hierdie navorsing is heeltemal vrywillig. U mag kies om glad nie deel te neem nie. As u besluit om aan hierdie navorsing deel te neem, kan u enige tyd ophou deelneem. As u besluit om nie aan hierdie studie deel te neem nie, of as u op enige stadium ophou deelneem, sal u nie enige voordele wat u andersins kwalifiseer, benadeel of verloor nie.

Wat as ek vrae het?

Hierdie navorsing word deur mev Levona Johnson aan die Universiteit van Wes-Kaap gedoen. As u vrae het oor die navorsingstudie self, kontak asseblief Levona Johnson by: Die Fisioterapie Departement by UWC by 0219592542 of by 0827770336 of per e-pos by levjohns@gmail.com. Indien u enige vrae rakende hierdie studie en u regte as 'n navorsingsdeelnemer het of as u enige probleme rakende die studie aangemeld wil hê, kontak asseblief.

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Hierdie navorsing is goedgekeur deur die Universiteit van die Wes-Kaapse Navorsingsetiekkomitee vir Geesteswetenskappe en Sosiale Wetenskappe)

Original Research



Assessment of risk factors for Non-Communicable diseases among a cohort of community health workers in Western Cape, South Africa

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Introduction

Community Health Workers (CHWs) have been identified as the key health professionals to drive the agenda of the prevention of health risk behaviours, linked to non-communicable diseases (NCDs) in South Africa. They are regarded as the agents of change, who will provide impetus to the achievement of the health behaviour goals, set out by the South African National Department of Health¹. However, this cohort, may suffer from an array of NCDs. There are various risk factors that influence the health of individuals and contribute to NCDs, including modifiable and non-modifiable risk factors, which cannot be changed, or altered by an intervention, such as age, family history, gender and ethnicity^{2,3}. Modifiable risk factors have been classified as behavioural, physical, and biological⁴.

Globally, NCDs are responsible for 80% of premature deaths in LMICs^{5,6}. In response to the NCD pandemic, the World Health Organisation (WHO) set a global target in 2012, which was aimed at reducing premature deaths, caused by NCDs, by 25%, by the year 2025⁷. However, this goal will require drastic, immediate, and targeted approaches that address the root causes of NCDs. South Africa has followed the global trend, and evidence depicts an increase in NCDs⁸, with a 27% probability of dying between the ages of 30 and 70 years, as a result of cardiovascular diseases (CVDs), diabetes, cancers, or chronic respiratory conditions⁹. This is similar to other countries such as India (26%), Philippines (28%), Democratic People's Republic of Korea (27%), Mali (26%), Russian Federation (30%), Ukraine (28%), Tajikistan (29%), Fiji (31%), Afghanistan (31%) and Armenia (31%)⁹. In the Western Cape, the prevalence of chronic diseases of lifestyle raises major concerns about the communities' health risk behaviour. The Burden of Disease Survey for the Western Cape, which was released on 24 April 2017, reported that NCDs contributed to 61% of deaths in the Western Province¹⁰.

The top 6 leading risk factors contributing to the global burden of NCDs, are reported as high blood pressure (13%), tobacco use (9%), increased blood glucose levels (6%), physical inactivity (6%), harmful consumption of alcohol (5.9%) and obesity/overweight (5%)^{9,11}. In South Africa, the 4 top modifiable risk factors that influence the burden of disease are unhealthy diets, smoking, physical inactivity and the harmful use of alcohol, especially in citizens living in urban areas^{5,12}.

In addition, studies have revealed that the prevalence of NCDs, such as cardiovascular disease, diabetes, and hypertension, among healthcare workers are similar to the general population, and could be attributed to lifestyle choices^{13,14,15}. Evidently, health care workers do not *practice what they preach*, and instead have unhealthy health behaviours, such as smoking, physical inactivity, consumption of alcohol, eating junk food, obesity and sleeping erratically¹⁶. These behaviours clearly predispose them to NCDs. In addition to modifiable risk factors for NCDs, non-professional healthcare workers (those without formal and/or tertiary education) (20.3%) reported a higher HIV prevalence, than professional health care workers (13.7%)¹⁷. Current studies have also reported that asthma is more prevalent in health care workers, than in non-health care workers¹⁸. In addition, workplace exposure, which includes stress, physical exertion, exposure to disinfectants, aerosolised drugs, powered gloves, second-hand smoke & allergens could cause asthma in previously healthy individuals¹⁸.

Communities may lack the understanding about the impact of NCDs, especially regarding perceived susceptibility and perceived severity¹⁹. Since CHWs originate from the communities in which they work²⁰, it is assumed that they, consequently, will have similar misconceptions about the full impact of NCDs¹⁹ on their quality of life, and demonstrate similar health risk behaviours as these communities. It is perceived that, in order for health professionals to deliver accurate and effective service, they have to be good role models and understand their own health behaviours^{21,22}. Studies suggest that CHWs lack sufficient knowledge about NCDs and the risk factors²³, therefore, empowering the CHWs with this knowledge would help them to identify and address it in their own lives, and communicate this insight during their health engagements with the communities. As CHWs are afforded the means to improve their own healthcare, it is assumed that they would transfer the new skill sets and health behaviours to the communities, by modelling their newly-adopted lifestyles to them. Once communities are empowered, there could be an increase in the sense of self-determination and self-efficacy²⁴. The snowballing effect, or social persuasion effect, would promote healthy behaviours, and decrease the health risk behaviours in the communities, which could result in a continuum of the empowering process²⁵. In order to *train the trainer* in health care for self, and simultaneously equip him/her to transfer

these self-management skills to others, an understanding of their perceived risk factors is required. Therefore, this current study is aimed at assessing the risk factors of NCD prevalence among CHWs in urban and rural areas.

Methodology

This article forms part of a larger study that explored the empowering of CHWs, to improve their health behaviours, using a self-management approach. A quantitative survey design was employed for the aspect of the study that this article is based on. This method is useful when data on individuals' personal thoughts, behaviours, and feelings are sought²⁶, therefore, it was applicable to this current study that explored the perceptions of CHWs.

The study was conducted in two communities of the Western Cape province of South Africa, purposively selected, because of their need for active CHWs to work in the area. Genadendal and Greyton were selected for the rural area, while Lavender Hill and the Retreat area were considered for the urban area. Both the urban and rural areas are classified as low socio-economic and are inhabited by predominately persons racially profiled as 'coloured'. The Lavender Hill and Retreat areas are ridden with violence. Due to the scarcity of qualified tertiary-trained medical professionals the CHWs in Genadendal & Greyton act as first responders for these towns.

The population for this current study included, approximately, 3 400 CHWs. The study focused on those working in the selected areas which employs approximately 200 CHWs. All of them were targeted to participate in the study but only 154 agreed to participate.

In recent years there has been an increased political support for CHWs in South Africa. With the focus placed on re-engineering primary health care, it was determined that CHWs should be arranged into nurse-lead teams²⁷ and be employed by NGOs identified and funded by the provincial health departments²⁸. The roles of CHWs in South Africa are concentrated in the domains of prevention and promotion at both household and community levels. They are predominately lay health workers who have received informal job training and have no professional or tertiary training²¹.

By means of the convenient sampling technique, a sample of 154 CHWs, from four Non-governmental organisations (NGOs), were selected for this study. As this was a pre-test post-test design, generalisability of results is not the focus of the study but the effect on the group and thus the sample size was considered large enough. A questionnaire²⁹, was employed in the data collection process. The questionnaire was based on questions from various tools, namely, the *Short Form 12* (SF-12), the Health Promoting Lifestyle Profile 11 (HPLP-11), while an additional section, comprising health status and bio-demographics were included, as well. HPLP-II has 52 items, with responses including 1 = never, 2 = Sometimes, 3 = Often, and 4 = Routinely. The SF-12 has been used extensively in the general population³⁰, as well as in studies with disease groups³¹. In addition, the reliability of the tool was further tested across various cultures³². The HPLP-11 questionnaire is a 52-item, self-reported questionnaire that employs a 4-point Likert-type scale, to determine the frequency that respondents participate in health behaviours. It has been widely used in research on health behaviour, and has demonstrated high construct reliability, internal consistency, and test-retest reliability³³. The subscale total scores were derived by generating the mean of items within

those subscales (Health Responsibility, Physical Activity, Nutrition, Spiritual Growth, Interpersonal Relationships and Stress Management). The mean score can range from 1 (low participation) to 4 (high participation) for each subscale, with each subscale composed of different numbers of items. Total scores were used in the data analysis to minimize risk of Type I error, as analyses using individual variables would inflate the number of analyses and thereby risk reporting a significant relationship between variables where no such relationship exists.

The researcher (LJ) contacted the head of the NGOs and explained the purpose of the study. CHWs were then invited to a meeting, where the study was outlined, and all the CHWs were invited to participate in this current study. Those who were willing to participate in the study received an information sheet, and signed a consent form before completing the questionnaire. The questionnaires were available in both English and Afrikaans, which allowed the respondents to complete the questionnaires in their language of choice. The questionnaires were administered by the researcher (LJ), and was completed in the presence of the researcher (LJ), to allow the respondents to receive clarity to questions that might have arisen.

Data analyses were done in consultation with a statistics coach. Descriptive, as well as inferential statistics were conducted. Descriptive statistics were used to summarise the urban and rural information of the CHWs, in the form of means, standard deviations, ranges, and t-tests, to ascertain whether urban and rural CHWs differed on any of the measures of interest. The measure is not on a nominal scale, the responses are 1-4 (an interval scale) and verbal descriptor anchor points were added to the numeric scale for clarity. The SPSS was used to analyse the data. Fishers-exact test was used to examine possible associations between socio-demographic characteristics and behaviour status. A significance level of 0.05 (5%) was used for the test.

Ethical clearance was obtained from the Humanities and Social Science Research Ethics Committee of the University of the Western Cape (HS/17/8/23), and permission was received from the boards of the relevant NGOs that employed the CHWs. Written informed consent was obtained from all respondents and confidentiality was ensured.

Results

Demographics

Of the 154 respondents, 10 were male and 144, female, with a mean age of 42.2 years (SD=10.9). The socio-demographic status indicated that 90% had an education level below grade 12. In addition, the mean years of working experience was 4.5 years. The health status of the respondents in this current study are depicted in Table 1. The associations between the gender and medical conditions of the respondents were not statistically significant. The relatively small sample size, and the unevenness in the values within many of the variables (for instance, 93.6% of respondents were females), could be a reason that the associations between the respondents' gender and their medical conditions, were not statistically significant. Approximately 30% of the respondents smoked, had high blood pressure, and participated in less than 3 days of physical activity.

Based on the health need questionnaire, the behaviour of the respondents, and the risk factors that could contribute to NCDs, are described in Tables 2-7. The mean for each question was determined, as well as the mode. The overall mode for health responsibility was 3, for physical activity, it

Table 1: Health status of participants

VARIABLE	TOTAL	MALE	FEMALE	P-VALUE
Physical Activity				
Physically active for 30 minutes 1 3 days	52(33.8)	4(40.0)	48(33.3)	0.734
Physically active for 30 minutes 1 3 days	102(66.2)	6 (60.0)	96(66.7)	
Tobacco use				
- YES (Current use of tobacco products)	55(36.2)	3(30.0)	52(36.6)	1.000
- No (No tobacco products used)	97(63.8)	7(70.0)	90(63.4)	
High Blood Pressure				
YES	46(30.1)	3(30.0)	43(30.1)	1.000
NO	107(69.9)	7 (70.0)	100(69.9)	
High Cholesterol				
YES	17(11.0)	1(10.0)	16(11.1)	1.000
NO	137(89.0)	9(90.0)	128(88.9)	
Heart Attack				
YES	2(1.3)	1(10.0)	1(0.7)	0.126
NO	152(98.7)	9(90.0)	143(99.3)	
Diabetes				
YES	17 (11.4)	1(10.0)	16 (11.2)	1.000
NO	136 (89.9)	9(90.0)	127 (88.8)	
High Blood Sugar (Not on medication)				
YES	5(3.3)	0(0.0)	5(3.5)	1.000
NO	148(96.7)	10(100)	138(96.5)	
Depression				
YES	11(7.1)	1(10.0)	10(6.9)	1.000
NO	143(92.9)	9(90.0)	134(93.1)	
Heart Disease				
YES	3(1.9)	1(10.0)	2(1.4)	1.000
NO	151(98.1)	9(90.0)	142(98.6)	
Stroke				
YES	1(0.6)	0(0.0)	1(0.7)	1.000
NO	153(99.4)	10(100.0)	143(99.3)	
Arthritis				
YES	12(7.8)	0 (0.0)	12(8.3)	1.000
NO	142(92.2)	10(100.0)	132(91.7)	
Anxiety				
YES	7(4.5)	0(0.0)	7 (4.5)	1.000
NO	147(95.5)	10(100.0)	137 (95.1)	
Asthma				
YES	21(13.6)	0(0.0)	21(14.6)	0.359
NO	133 (86.4)	10(100.0)	123(85.4)	
Diagnosed other medical conditions				
YES	26(16.9)	4(40.0)	22(15.3)	0.066
NO	128(83.1)	6(60.0)	122(84.7)	

was 1, nutrition 3, spiritual growth 4, interpersonal relationships 3, and stress management 4.

It is noted that the mode (3) is high, and on average the results indicated that the respondents were neither reporting, nor discussing personal health challenges with health professionals, or pursuing information about improving health.

The mode for physical activity emerges as a 1; although, it is important to note that the respondents were participating in physical activity on a regular basis. However, they were not assessing the impact that the exercise had on their heart rates, nor were they, specifically, planning their activities. The mean for leisure time activity was low, which could be influenced by their definition of leisure time activity, or highlight their cultural differences in the type of activities this questionnaire presented.

On average, the respondents were not consuming the recommended allowance of fruit and vegetables each day, coupled with failing to limit sugar intake, and refusing to follow a prescribed diet plan. This could predispose them to certain health conditions, including obesity. This is an area that the respondents excelled in. In addition, it is important to note that this could be one option, which could be used to cope with the daily challenges experienced.

The mode reflected high for this section; however, the concern was whether the respondents were able to disclose their problems, and/or whether the relevant human resources were available to them to do so.

The mean for most of these items were reported as low; however, the concern existed that the respondents did not possess adequate stress management skills.

As depicted in figure 1, the majority of the respondents reported not having any medical conditions [60 (39%)], while 35.1% had one medical condition. Fewer respondents [40, (25.9%)] reported having more than one medical condition.

Discussion

It is important to determine the risk factors for NCDs in any population, when planning to implement

Table 2: Health responsibility responses

BEHAVIOUR	MEAN	MODE
How often do you report signs, or symptoms, to a doctor, or other health professional? (Report Signs)	2.27	3
How often do you read, or watch TV programmes about improving health? (TV)	2.86	3
How often do you ask health professionals, so that you can understand instructions? (Instruct)	3.33	4
How often do you get a second opinion, when unsure about your health care provider's advice? (sec. opinion)	3.07	3
How often do you discuss your health concerns with health professionals? (Concerns A)	2.88	3
How often do you check your body, at least monthly, for physical changes/danger signs? (Inspect)	2.73	3
How often do you ask for information from health professionals about how to take good care of yourself? (Ask)	2.90	3
How often do you attend programmes to learn about health care? (Ed Programmes)	2.65	3
How often do you ask for advice, or counselling when you need it? (Guidance)	3.09	3
TOTAL		3

Notes: HPLP-II has 52 items, with responses including 1 = never, 2 = Sometimes, 3 = Often, and 4 = Routinely.

Table 3: Physical activity participation

BEHAVIOUR	MEAN	MODE
How often do you follow a planned exercise programme? (programme)	2.08	1
How often do you exercise intensely for 20, or more minutes, at least 3x per week (such as fast walking, bicycling, dancing)? (Vigorous Exercise)	2.61	3
How often do you participate in light to medium physical activity (such as walking 30-40 minutes at a time 5 or more times a week)? (Take Part)	3.14	4
How often do you participate in leisure-time (recreational) physical activities (such as swimming, dancing, bicycling)? (Leisure)	2.15	1
How often do you perform stretching exercises at least 3x per week? (Stretch)	2.26	2
How often do you exercise during usual daily activities (such as walking during lunch, using stairs, walking)? (Daily Exercise)	3.18	4
How often do you check your pulse, when exercising? (Pulse)	2.14	1
How often do you reach your target heart rate, when exercising? (Target)	2.18	1
TOTAL		1

Notes: HPLP-II has 52 items, with responses including 1 = never, 2 = Sometimes, 3 = Often, and 4 = Routinely.

Table 4: Nutrition responses of participants

BEHAVIOUR	MEAN	MODE
How often do you choose a diet, recommended by my health provider? (Diet)	2.19	3
How often do you limit the use of sugars and food containing sugar? (sweets) (Sugar Use)	2.66	3
How often do you ask health professionals, so that you can understand instructions? (Instruct)	3.33	4
How often do you eat 4-5 servings of fruits each day? (Fruit)	2.38	2
How often do you eat 4-5 servings of vegetables each day? (Vegetables)	2.80	3
How often do you eat 2-3 servings of milk, yoghurt or cheese each day, or as directed by your healthcare provider? (Dairy)	2.44	3
How often do you eat, at least 6 or less servings of meat, poultry, fish, dried beans, eggs, nuts each day, or as directed by your health care provider? (Protein)	2.75	3
How often do you read food labels to understand nutrition in packaged food? (Labels)	3.07	4
How often do you eat breakfast? (Breakfast)	2.85	4
TOTAL		3

Notes: HPLP-II has 52 items, with responses including 1 = never, 2 = Sometimes, 3 = Often, and 4 = Routinely.

Table 5: Participants' responses to spiritual growth

BEHAVIOUR	MEAN	MODE
How often do you feel that you are growing and changing in positive ways? (Growing)	3.02	3
How often do you believe that your life has purpose? (Believe)	3.63	4
How often do you look forward to the future? (Future)	3.62	4
How often do you feel happy and at peace with yourself? (Peace)	3.33	4
How often do you work towards long-term goals in your life? (Long term goals)	3.30	4
How often do you find each day interesting and challenging? (Challenges)	3.25	4
How often are you aware of what is important to you in your life? (Important)	3.43	4
How often do you feel connected with some force greater than you? (Connected)	2.99	3
How often do you try new things? (Expose)	3.36	4
TOTAL		4

Notes: HPLP-II has 52 items, with responses including 1 = never, 2 = Sometimes, 3 = Often, and 4 = Routinely.

Table 6: Participants' responses to interpersonal relationships

BEHAVIOUR	MEAN	MODE
How often do you discuss problems and concerns with people close to you? (Concerns)	2.61	3
How often do you praise other people easily? (Praise)	3.44	4
How often do you maintain meaningful relationships with others? (Relationships)	3.53	4
How often do you spend time with close friends? (Friends)	2.99	3
How often do you touch, and are you touched by, people you care about? (Touch)	3.55	4
How often do you find ways to meet your needs for intimacy? (Intimacy)	2.66	3
How often do you get support from a group of people, who care about you? (Support)	2.98	3
How often do you settle conflicts through discussion, or give and take? (Conflicts)	2.99	3
TOTAL		3

Notes: HPLP-II has 52 items, with responses including 1 = never, 2 = Sometimes, 3 = Often, and 4 = Routinely.

Table 7: Participants' responses to managing stress

BEHAVIOUR	MEAN	MODE
How often do you get enough sleep? (Sleep)	2.83	3
How often do you take some time for relaxation each day? (Relax)	2.92	3
How often do you accept those things in your life that you cannot change? (Accept)	3.27	4
How often do you concentrate on pleasant thoughts at bedtime? (concentrate)	2.97	3
How often do you use specific methods to control your stress? (Stress)	2.55	3
How often do you balance time between work and play? (Balance)	2.74	3
How often do you practice relaxation, or meditation, for 15-20 minutes? (Meditation)	2.23	1
How often do you pace yourself, to ensure that you do not become too tired? (Pace)	2.66	3
TOTAL		3

Notes: HPLP-II has 52 items, with responses including 1 = never, 2 = Sometimes, 3 = Often, and 4 = Routinely.

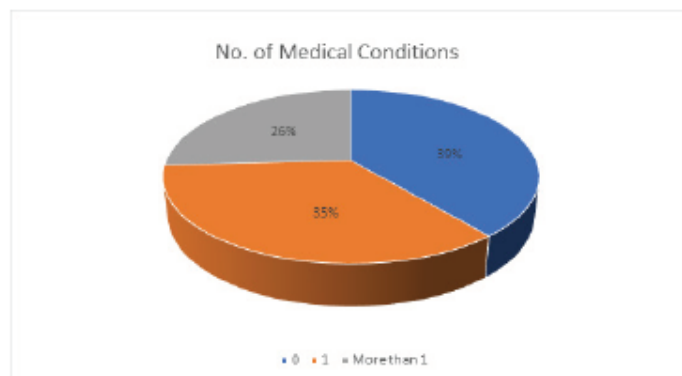


Figure 1: Number of medical conditions reported by participants

prevention programmes. More importantly, establishing the presence of NCDs in health workers is essential. This current study focused on determining the prevalence of risk factors for NCDs in CHWs. NCDs share common risk factors, such as poor nutrition, excessive use of alcohol, physical inactivity and smoking⁵.

In this current study more than 30% of the respondents reported hypertension, tobacco use, and physical inactivity. The results of this study are aligned with, and even higher than the findings of other studies. In one study, smoking rates of 11% among health workers were reported³⁴. Recent studies have reported an increase in the use of tobacco in LMICs³⁵, as well as the coloured population, where a 50% higher mortality rate for coloured smokers has been reported³⁶.

Participation in physical activity was observed to be beneficial for the majority of the respondents; however, they did not understand how to monitor the impact of exercise, as well as the health benefits thereof. The results also revealed that the respondents did not have good coping strategies to manage their stress, which highlighted the need for education. Spiritual growth emerged positively among the respondents, which could be perceived as their main coping strategy. However, there is a void in literature regarding the way in which spirituality and spiritual growth could assist CHWs to cope. Although, there is evidence to suggest that strong religious and spiritual affiliations, lead to positive physical and mental health outcomes, as well as improvement in coping skills^{37,38,39}.

The mean for the concept intimacy was also low, which could be attributed to their lack of understanding of the full concept of intimacy. This was one of the questions that the researcher had to explain, during the completion of the questionnaires, as the respondents were unclear about whether this question referred specially to physically pleasuring their bodies. This uncertainty about the term is understandable as it is referenced in different ways in varying cultures⁴⁰.

It has been reported that the CHWs' training and knowledge of risk factors for NCDs is limited and needs drastic improvement²³, to raise awareness and provide education around modifying lifestyle behaviours⁴¹. However, this group of respondents presented a low risk profile, in terms of risk factors for NCDs; consequently, it is logical to conclude that, should this group be provided with adequate training, they could be ideally positioned to lead the way in advocating the cessation of smoking³⁵, as well as the rehabilitation of other risk behaviours that predispose individuals to NCDs, to the wider society⁴². CHWs are engaged in health promotion and health education activities in communities, to facilitate behaviour change among community members. Therefore, as change agents in communities, CHWs are considered to be the advocates of the health of the general public,⁴³ and the role they fulfil in empowering communities with various health promoting activities, is duly acknowledged.⁴⁴

Future Directions

Future empirical work will be conducted to examine and validate possible cut-off scores for the dimensions of the HPLP-II with respect to health status and health outcomes. This could assist employees to guide the health of CHWs.

Conclusion

This current study reported that most of the respondents did not engage in health risk behaviours, or have co-morbidities. Their years of experience (mean=4,5 years) as CHWs, doing health promotions may have equipped them with knowledge, to understand the risks and consequently, they have been able to implement good health behaviours into their own lives. These characteristics in this cohort of CHWs match the profile of an effective CHW, making them good role models for future deployment, to transfer knowledge and educate communities about good health behaviour practices. Continuous training and health awareness programmes, however, are required to address the needs of those CHWs, who engage in health risk behaviours.

Study Limitations

Convenience sampling provides us the opportunity to collect data easily but it does not allow for all the findings to be generalised. This however, does not prevent the information to be used as a guide for practice. Another limitation was the inability of the CHWs to understand some questions/ concepts such as "intimacy", "leisure time activity". Furthermore, the sample size is small, raising concerns about the generalization of the findings. Based on the fact that the data were self-reports of prevalence of risk factors, it is subject to recall bias. Despite these limitations, the information can serve as a guide for countries which have a similar context.

Implications of the study

On an individual level this cohort of CHWs understand the gravity of managing their own health behaviours. This positive example will make them ideal role models to promote good health behaviours and minimise risky health behaviours among the communities they serve. In time these positive lifestyles will assist in eradicating the burden of disease. This information is also useful for the Department of Health who can utilize this data when deciding on the best implementation strategy of CHWs in the primary health care setting to achieve the 2030 healthcare goals and decrease the burden of disease.

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Appendix 16: Article 2

Norman Pietersen

From: Levona J Johnson
Sent: Sunday, 28 November 2021 22:09
To: Norman Pietersen
Subject: Fw: PHCFM External Review Decision 2911 - Accepted for publication

Good day Norman

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I will need it scanned and emailed to me please.

Regards,

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Sent: Thursday, 04 November 2021 19:25
To: Levona J Johnson <Levona.Johnson@westerncape.gov.za>
Cc: Laura H. Schopp <SchoppL@health.missouri.edu>; fwaggie@uwc.ac.za <fwaggie@uwc.ac.za>; Jose' M. Frantz <jfrantz@uwc.ac.za>
Subject: PHCFM External Review Decision 2911 - Accepted for publication

Ref. No.: 2911

Manuscript title: Challenges experienced by community health workers and their motivation to attend a self-management program
Journal: African Journal of Primary Health Care & Family Medicine
ISSN: 2071-2928, E-ISSN: 2071-2936

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Department of Family and Emergency Medicine, Faculty of Medicine and Health Sciences, Stellenbosch University, Cape Town



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Self-management skills may be key to helping Community Health Workers cope amid the COVID-19 pandemic

Levona J. Johnson, José M. Frantz



Self-management is a key skill that can be used by healthcare workers to manage the daily stress of work and the environment.



The aim

This chapter explores and describes how Community Health Workers have coped during the pandemic and whether the skills learnt in a self-management training programme assisted in managing themselves and others during the pandemic.



Key findings

Five themes emerged: during COVID-19, spirituality became a coping strategy that has been tapped into by many healthcare workers; communities of practice were deemed important when carrying out their duties; self-care for healthcare workers is important if they are to be maximally available for their job demands; taking action in their daily work tasks and demonstrating good adaptation skills were positively influenced by the self-management programme; and improved self-efficacy enabled healthcare workers to demonstrate better coping skills.



Recommendations

Self-management skills have proved to be very valuable in empowering Community Health Workers to cope during the pandemic by facilitating their professional and personal resourcefulness and resilience. Providing Community Health Workers with these skills should be promoted as they sustain their contribution to supporting the COVID-19 response.

8 December 2021

Click to navigate to Chapter 19



Appendix 18: Study Questionnaire – English

Date: _____

ACT HEALTHY SURVEY

ID: _____

Thank you for participating in the Act Healthy project. This survey includes basic questions about you and your health behaviors. Please take your time filling out the survey and answer each question.

(Gender) Gender: female male

(Age) How old are you? _____ years

How long have you worked in your current job?

less than one year or _____ years

(Hours of work)

How many hours do you work in a typical week at all of your jobs? (check one)

over 40 hours 30-40 hours 20-29 hours less than 20 hours

(phys. Activity) Think about the past week. How many days per week did you do physical activity for 30 minutes or more? Physical activity is any activity that increases your heart rate and makes you get out of breath some of the time (sports, playing with friends, or walking to school or work). (check one)

0 1 2 3 4 5 6 7

(Energy) In the past week have you had enough energy to do what you want during the day? (check one)

Always Usually Sometimes Rarely Never

(work life) In the past week, has your health interfered with your work life? (check one)

Always Usually Sometimes Rarely Never

(personal) In the past week, has your health interfered with your personal life? (check one)

Always usually Sometimes Rarely Never

(health stat) In general, would you say your health has been in the past week? (check one)

Excellent Very good Good Fair Poor

(Difficulties) Did you have any difficulties with your daily activities because of your health in the past week? (check one)

Always Usually Sometimes Rarely Never

8/14/2017

(Tob. Use) Do you use tobacco products?

- Yes No I used to smoke/use tobacco

(tob. Products) How many cigarettes did you smoke in a usual day during the past week?

_____ (number of cigarettes)

(smoke/year)(smoke/mo.) If you used to smoke, how long has it been since you last used tobacco?

_____ (number of years) _____ (number of months) _____ (number of days)

(act. Level) Please choose the item that best describes your level of activity at work over the past week.

- physically very light (the majority of the work day sitting)
 physically light (half of the work day sitting)
 physically intense (less than half of the work day sitting)
 physically demanding (active most of the work day)

Have you been diagnosed with any of the following medical conditions?

- | | | | |
|---|--|-----------------|--|
| High blood pressure | <input type="checkbox"/> Yes <input type="checkbox"/> No | Heart disease | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| High cholesterol | <input type="checkbox"/> Yes <input type="checkbox"/> No | Asthma | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Heart attack | <input type="checkbox"/> Yes <input type="checkbox"/> No | Stroke | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Type 1 diabetes
(usually diagnosed in childhood) | <input type="checkbox"/> Yes <input type="checkbox"/> No | Type 2 diabetes | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| High blood sugar | <input type="checkbox"/> Yes <input type="checkbox"/> No | Arthritis | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Depression | <input type="checkbox"/> Yes <input type="checkbox"/> No | Anxiety | <input type="checkbox"/> Yes <input type="checkbox"/> No |

(Diagnosed) Have you been diagnosed with any other medical condition? Yes No

If Yes, please record your medical conditions: _____

8/14/2017

(Ed/ Level) How many years of school have you had? _____ years

The next questions are about your way of life. Please respond to each question. For each question, think about how often you do each behavior. Please circle the number that best describes your response.

How often do I do this?	Never				Routinely (all the time)			
(concerns) Discuss problems and concerns with people close to me.	1	2	3	4	1	2	3	4
(diet) Choose a diet recommended by my health care provider.	1	2	3	4	1	2	3	4
(Report signs) Report unusual signs or symptoms to a doctor or other health professional.	1	2	3	4	1	2	3	4
(program) Follow a planned exercise program.	1	2	3	4	1	2	3	4
(sleep) Get enough sleep.	1	2	3	4	1	2	3	4
(growing) Feel I am growing and changing in positive ways.	1	2	3	4	1	2	3	4
(praise) Praise other people easily.	1	2	3	4	1	2	3	4
(sugar use) Limit use of sugars and food containing sugar (sweets).	1	2	3	4	1	2	3	4
(TV) Read or watch TV programs about improving health.	1	2	3	4	1	2	3	4
(vigorous exercise) Exercise hard for 20 or more minutes at least three times a week (such as fast walking, bicycling, dancing).	1	2	3	4	1	2	3	4
(relax) Take some time for relaxation each day.	1	2	3	4	1	2	3	4
(believe) Believe that my life has purpose.	1	2	3	4	1	2	3	4
(relationship) Maintain meaningful relationships with others.	1	2	3	4	1	2	3	4
(instruct) Ask health professionals so I can understand instructions.	1	2	3	4	1	2	3	4
(take part) Take part in light to medium physical activity (such as walking 30-40 minutes at a time 5 or more times a week).	1	2	3	4	1	2	3	4
(accept) Accept those things in my life which I cannot change.	1	2	3	4	1	2	3	4
(future) Look forward to the future.	1	2	3	4	1	2	3	4
(friends) Spend time with close friends.	1	2	3	4	1	2	3	4
(fruit) Eat 4-5 servings of fruits each day.	1	2	3	4	1	2	3	4
(sec. opinion) Get a second opinion when I am not sure about my health care provider's advice.	1	2	3	4	1	2	3	4

8/14/2017

<i>How often do I do this?</i>	<i>Routinely</i>			
	<i>Never</i>		<i>(all the time)</i>	
(leisure) Take part in leisure-time (recreational) physical activities (such as swimming, dancing, bicycling).	1	2	3	4
(concentrate) Concentrate on pleasant thoughts at bedtime.	1	2	3	4
(peace) Feel happy and at peace with myself.	1	2	3	4
(vegetables) Eat 4-5 servings of vegetables each day.	1	2	3	4
(concerns) Discuss my health concerns with health professionals.	1	2	3	4
(Stretch) Do stretching exercises at least 3 times per week.	1	2	3	4
(stress) Use specific methods to control my stress.	1	2	3	4
(long-term goal) Work toward long-term goals in my life.	1	2	3	4
(touch) Touch and am touched by people I care about.	1	2	3	4
(dairy) Eat 2-3 servings of milk, yogurt or cheese each day or as directed by my health care provider.	1	2	3	4
(inspect) Check my body at least monthly for physical changes/danger signs.	1	2	3	4
(daily exercise) Get exercise during usual daily activities (such as walking during lunch, using stairs, walking).	1	2	3	4
(Balance) Balance time between work and play.	1	2	3	4
(challenges) Find each day interesting and challenging.	1	2	3	4
(intimacy) Find ways to meet my needs for intimacy.	1	2	3	4
(protein) Eat 6 or less servings of meat, poultry, fish, dried beans, eggs, or nuts each day or as directed by my health care provider.	1	2	3	4
(ask) Ask for information from health professionals about how to take good care of myself.	1	2	3	4
(pulse) Check my pulse rate when exercising.	1	2	3	4
(meditation) Practice relaxation or meditation for 15-20 minutes daily.	1	2	3	4
(important) Am aware of what is important to me in life.	1	2	3	4
(support) Get support from a group of people who care about me.	1	2	3	4
(labels) Read food labels to understand nutrition in packaged food.	1	2	3	4
(ed. Programs) Go to programs to learn about my health care.	1	2	3	4
(target) Reach my target heart rate when exercising.	1	2	3	4
(pace) Pace myself to make sure I don't get too tired.	1	2	3	4
(connected) Feel connected with some force greater than me.	1	2	3	4
(conflicts) Settle conflicts through discussion and give-and-take.	1	2	3	4
(breakfast) Eat breakfast.	1	2	3	4
(guidance) Ask for advice or counseling when I need it.	1	2	3	4
(expose) Try new things.	1	2	3	4

8/14/2017

The next questions are about how confident you feel in doing things that are important to you.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Disagree
(achieve) I will be able to reach most of the goals that I have set for myself.	1	2	3	4	5
(difficult tasks) When facing hard things, I am sure I will be able to do them.	1	2	3	4	5
(outcome) In general, I think that I can get results that are important to me.	1	2	3	4	5
(succeed) I believe I can succeed at almost anything I set my mind to.	1	2	3	4	5
(overcome) I will be able to succeed when faced with many challenges.	1	2	3	4	5
(perform) I am confident that I can perform well on many different tasks.	1	2	3	4	5
(most tasks) Compared to other people, I can do most tasks very well.	1	2	3	4	5
(tough) Even when things are tough, I can do quite well.	1	2	3	4	5

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The next questions are about how much you have been bothered by things in the past week.

Over the <i>PAST WEEK</i> , how often have you been bothered by:	Not at All			Nearly Every Day
(little interest) Little interest or pleasure in doing things.	1	2	3	4
(depressed) Feeling down, depressed, or hopeless.	1	2	3	4
(falling asleep) Trouble falling or staying asleep, or sleeping too much.	1	2	3	4
(tired) Feeling tired or having little energy.	1	2	3	4
(overeating) Poor appetite or overeating.	1	2	3	4
(self-esteem) Feeling bad about yourself, or that you are a failure, or have let yourself or your family down.	1	2	3	4
(concentrating) Trouble concentrating on things, such as reading the newspaper or watching TV.	1	2	3	4
(slowly/fidgety) Moving or speaking so slowly that other people could have noticed. Or the opposite –being so restless that you have been moving around a lot more than usual.	1	2	3	4
(hurting) Thoughts that you would be better off dead, or of hurting yourself in some way.	1	2	3	4

What do you feel you do very well in your job? _____

What do you need to help you do your job even better? _____

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Appendix 19: Study Questionnaire – Afrikaans

Date: _____

WERK GESONDHEIDSOORSIG

ID: _____

Dankie dat u deelgeneem het aan die Wet Gesonde Projek. Hierdie opname bevat basiese vrae oor jou en jou gesondheidsgedrag. Neem asseblief u tyd om die opname te voltooi en beantwoord elke vraag.

(Geslag) geslag: vroulike manlik

(Ouderdom) Hoe oud is jy? _____ jaar

Hoe lank het jy gewerk in jou huidige werk?

minder as een jaar of _____ jaar

(Werksure)

Hoeveel ure werk jy in 'n tipiese week by al jou werk? (kies een)

meer as 40 ure 30-40 ure 20-29 ure minder as 20 ure

(fisiese aktiwiteit) Dink aan die afgelope week. Hoeveel dae per week het u fisiese aktiwiteit vir 30 minute of meer gedoen? Fisiese aktiwiteit is enige aktiwiteit wat jou hartklop verhoog en maak dat jy soms uit die asem kom (sport, speel met vriende, of skool toe gaan of werk). (kies een)

0 1 2 3 4 5 6 7

(Energie) Het u die afgelope week genoeg energie gehad om te doen wat u wil gedurende die dag? (kies een)

Altyd Gewoonlik Soms Selde Nooit

(werkslewe) Het u gesondheid in die afgelope week inmeng met u werkslewe? (kies een)

Altyd Gewoonlik Soms Selde Nooit

(persoonlike) Het u gesondheid in die afgelope week inmeng met u persoonlike lewe? (kies een)

Altyd Gewoonlik Soms Selde Nooit

(persoonlike) Het u gesondheid in die afgelope week inmeng met u persoonlike lewe? (kies een)

uitstekende Baie goed Goed Fair swak

(Moeilikhede) Het u enige probleme met u daaglikse aktiwiteite gehad as gevolg van u gesondheid in die afgelope week? (kies een)

Altyd Gewoonlik Soms Selde Nooit

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(Tabakgebruik) Gebruik jy tabaksprodukte?

Ja Nee Ek het rook gebruik / gebruik tabak

(Tabakgebruik) Hoeveel sigarette het jy die afgelope week op 'n gewone dag rook?

_____ (aantal sigarette)

(rook / jaar) (rook / ma.) As jy gebruik het om te rook, hoe lank was dit sedert jy laas gebruikte tabak gebruik het?

_____ (aantal jare) _____ (aantal maande) _____ (aantal dae)

(Aktiwiteitsvlak) Kies asseblief die item wat u aktiwiteitsvlak die afgelope week die beste beskryf.

- fisies baie lig (die meerderheid van die werksdag sit)
 fisies lig (die helfte van die werksdag sit)
 fisies intens (minder as die helfte van die werksdag sit)
 fisiek veeleisend (aktief meeste van die werksdag)

Is u met enige van die volgende mediese toestande gediagnoseer?

Hoë bloeddruk	<input type="checkbox"/> Ja <input type="checkbox"/> Nee	Hartsiekte	<input type="checkbox"/> Ja <input type="checkbox"/> Nee
Hoë cholesterol	<input type="checkbox"/> Ja <input type="checkbox"/> Nee	asma	<input type="checkbox"/> Ja <input type="checkbox"/> Nee
Hartaanval	<input type="checkbox"/> Ja <input type="checkbox"/> Nee	beroerte	<input type="checkbox"/> Ja <input type="checkbox"/> Nee
Tipe 1 diabetes (gewoonlik gediagnoseer in die kinderjare)	<input type="checkbox"/> Ja <input type="checkbox"/> Nee	Tipe 2 diabetes	<input type="checkbox"/> Ja <input type="checkbox"/> Nee
Hoë bloedsuiker	<input type="checkbox"/> Ja <input type="checkbox"/> Nee	Artritis	<input type="checkbox"/> Ja <input type="checkbox"/> Nee
Depressie	<input type="checkbox"/> Ja <input type="checkbox"/> Nee	angs	<input type="checkbox"/> Ja <input type="checkbox"/> Nee

(Diagnoseer) Is u met enige ander mediese toestand gediagnoseer? Ja Nee

Indien Ja, teken asseblief u mediese toestande op: _____

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(Opvoedkunde / Vlak) Hoeveel jaar van skool het jy gehad? _____ jaar

Die volgende vrae gaan oor jou manier van lewe. Reageer asseblief op elke vraag. Vir elke vraag, dink aan hoe gereeld jy elke gedrag doen. Omkring asseblief die nommer wat jou antwoord die beste beskryf.

Hoe gereeld doen ek dit?	gereeld (die hele tyd)				
	nooit	1	2	3	4
(bekommernisse) Bespreek probleme en bekommernisse met mense naby my.	1	2	3	4	
(dieet) Kies 'n dieet wat deur my gesondheidsorgverskaffer aanbeveel word.	1	2	3	4	
(Teken tekens) Rapporteer ongewone tekens of simptome aan 'n dokter of ander gesondheidswerker.	1	2	3	4	
(program) Volg 'n beplande oefenprogram.	1	2	3	4	
(slaap) Kry genoeg slaap.	1	2	3	4	
(groei) Voel ek groei positief en verander.	1	2	3	4	
(lof) Prys ander mense maklik.	1	2	3	4	
(suikergebruik) Beperk gebruik van suikers en voedsel wat suiker bevat (lekkergoed).	1	2	3	4	
(TV) Lees of kyk televisieprogramme oor die verbetering van gesondheid.	1	2	3	4	
(sterk oefening) Oefen hard vir 20 of meer minute ten minste drie keer per week (soos vinnig loop, fietsry, dans).	1	2	3	4	
(ontspan) Maak elke dag 'n bietjie ontspanning.	1	2	3	4	
(glo) Glo dat my lewe doel het.	1	2	3	4	
(verhouding) Handhaaf betekenisvolle verhoudings met ander.	1	2	3	4	
(instruksie) Vra gesondheidswerkers sodat ek instruksies kan verstaan.	1	2	3	4	
(neem deel) Neem deel aan lig tot medium fisiese aktiwiteit (soos om 30-40 minute op 'n slag 5 of meer keer per week te loop).	1	2	3	4	
(aanvaar) Aanvaar die dinge in my lewe wat ek nie kan verander nie.	1	2	3	4	
(toekoms) sien uit na die toekoms.	1	2	3	4	
(vriende) Spandeer tyd saam met goeie vriende.	1	2	3	4	
(vrugte) Eet elke dag 4-5 porsies vrugte.	1	2	3	4	

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(tweede opinie) Kry 'n tweede mening as ek nie seker is oor my gesondheidsorgverskaffer se advies nie.	1	2	3	4
Hoe gereeld doen ek dit?	nooit			gereeld (die hele tyd)
(vrye tyd) Neem deel aan vrye tyd (ontspannings) fisiese aktiwiteite (soos swem, dans, fietsry).	1	2	3	4
(konsentreer) Konsentreer op aangename gedagtes tydens slaapyd.	1	2	3	4
(vrede) Voel gelukkig en in vrede met myself.	1	2	3	4
(groente) Eet elke dag 4-5 porsies groente.	1	2	3	4
(bekommernisse) Bespreek my gesondheidsprobleme met gesondheidswerkers.	1	2	3	4
(Strek) Doen strek oefeninge ten minste 3 keer per week.	1	2	3	4
(stres) Gebruik spesifieke metodes om my stres te beheer.	1	2	3	4
(langtermyn doelwit) Werk vir langtermyn doelwitte in my lewe.	1	2	3	4
(raak) Raak en word aangeraak deur mense waaroor ek omgee.	1	2	3	4
(suiwel) Eet 2-3 porsies melk, jogurt of kaas elke dag of soos aangedui deur my gesondheidsorgverskaffer.	1	2	3	4
(inspekteer) Kontroleer my liggaam ten minste maandeliks vir fisiese veranderinge / gevaarstekens.	1	2	3	4
(daaglikse oefening) Kry oefening tydens gewone daaglikse aktiwiteite (soos stap tydens middagete, trap gebruik, loop).	1	2	3	4
(Saldo) Balansietyd tussen werk en spel.	1	2	3	4
(uitdagings) Vind elke dag interessant en uitdagend.	1	2	3	4
(intimiteit) Vind maniere om my behoeftes vir intimiteit te bevredig.	1	2	3	4
(proteïen) Eet 6 of minder porsies vleis, pluimvee, vis, gedroogde bone, eiers of neute elke dag of soos aangedui deur my gesondheidsorgverskaffer.	1	2	3	4
(vra) Vra vir inligting van gesondheidswerkers oor hoe om goed vir my te sorg.	1	2	3	4
(pols) Kontroleer my polsslag tydens oefening.	1	2	3	4
(meditasie) Oefen ontspanning of meditasie vir 15-20 minute per dag.	1	2	3	4
(belangrik) Is bewus van wat vir my belangrik is in die lewe.	1	2	3	4
(ondersteuning) Kry ondersteuning van 'n groep mense wat omgee vir my.	1	2	3	4
(etikette) Lees voedsel etikette om voeding in verpakte voedsel te verstaan.	1	2	3	4
(Ed. Programme) Gaan na programme om te leer oor my gesondheidsorg.	1	2	3	4
(teiken) Bereik my teiken hartklop wanneer ek oefen.	1	2	3	4

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(pas) Pas myself om seker te maak ek raak nie te moeg nie.	1	2	3	4
(verbind) voel verbind met 'n krag wat groter is as ek.	1	2	3	4
(konflik) Besleg konflikte deur bespreking en gee-en-neem.	1	2	3	4
(breakfast) Eat breakfast.	1	2	3	4
(leiding) Vra vir raad of berading wanneer ek dit nodig het.	1	2	3	4
(ontbloot) Probeer nuwe dinge.	1	2	3	4

Die volgende vrae gaan oor hoe selfversekerd jy voel om dinge te doen wat vir jou belangrik is.

	Sterk			Sterk	
	Verskil	Verskil	neutrale	Saamstem	Saamstem
(bereik) Ek sal die meeste van die doelwitte wat ek vir myself gestel het, kan bereik.	1	2	3	4	5
(moeilike take) As ek moeilike dinge ondervind, is ek seker dat ek dit kan doen.	1	2	3	4	5
(uitkoms) Oor die algemeen dink ek dat ek resultate kan kry wat vir my belangrik is.	1	2	3	4	5
(slaag) Ek glo ek kan slaag op byna enigiets waarvoor ek gedink het.	1	2	3	4	5
(oorkom) Ek sal in staat wees om suksesvol te wees wanneer ek met baie uitdagings gekonfronteer word.	1	2	3	4	5
(verrig) Ek is vol vertroue dat ek goed kan presteer op baie verskillende take.	1	2	3	4	5
(meeste take) In vergelyking met ander mense kan ek die meeste take baie goed doen.	1	2	3	4	5
(moeilik) Selfs wanneer dinge moeilik is, kan ek redelik goed doen.	1	2	3	4	5

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Die volgende vrae gaan oor hoeveel jy die afgelope week deur dinge geraak is.

Oor die afgelope week, hoe gereeld is jy gepla deur:	Glad Nie		Byna Elke Dag	
(min belangstelling) Min belangstelling of plesier om dinge te doen.	1	2	3	4
(depressief) Gevoel, depressief of hopeloos.	1	2	3	4
(aan die slaap geraak). Probleme om te val of te bly slaap of te veel slaap.	1	2	3	4
(moeg) Moeg voel of met min energie.	1	2	3	4
(ooreet) Swak eetlus of ooreet.	1	2	3	4
(selfbeeld) Sleg voel oor jouself, of dat jy 'n mislukking is, of jouself of jou gesin laat sak het.	1	2	3	4
(konsentreer) Probleme konsentreer op dinge, soos om die koerant te lees of TV te kyk.	1	2	3	4
(stadig / fidgety) beweeg of praat so stadig dat ander mense kon opgemerk het. Of die teenoorgestelde - so so onrustig dat jy baie meer as gewoonlik rondbeweeg.	1	2	3	4
(seer) Gedagtes dat jy beter dood sou wees, of om jouself op een of ander manier seer te maak.	1	2	3	4

Wat voel jy doen jy baie goed in jou werk? _____

Wat het jy nodig om jou te help om jou werk nog beter te doen?

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Appendix 20: Chapter 9 – Interview Schedule



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Private Bag X 17, Bellville 7535, South Africa

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Interview Schedule

Please your answers via WhatsApp.

There are two ways to send your answers via WhatsApp:

1. Send a voice recording with your responses (maximum 10 minutes long)📞
2. Type out your responses in a WhatsApp message and send it.

Your response should include answers to the following:

1. The impact/influence/effect that Covid-19 had on your existing job & the programmers you were involved in.
2. What did you have to change in your work during Covid-19. Was it challenging or stressful for you? Talk about ways you coped & things you did to make your life easier at work (and home).
3. What lessons have you learnt along the way?
4. Has the Self-management training you received help you during Covid-19? If so, how? If not, explain.
5. Was it easy or difficult to do your work during this period? Explain what & how you did it?
6. What resources/support was available to you? Explain.
7. What are 2-3 positives and 2-3 negatives about working under the lockdown and a Covid-19 regulations?
8. What health behaviour changes did you make during this time explain. Talk about any health goals you worked on (old & new).
9. What has your confidence been like during this period? Explain.
10. How would you do your work in the future (going forward) now that you experienced the pandemic? Would it be the same as before Covid-19 or different?

Bonus question: Do you think further Self-Management training will be useful to do as you are working through this period? Explain your answer.

Thank you for taking the time to participate

Appendix 21: Editorial Certificate

09 December 2021

To whom it may concern

Dear Sir/Madam

RE: Editorial certificate

This letter serves to prove that the thesis listed below was language edited for proper English, grammar, punctuation, spelling, as well as overall layout and style by myself, publisher/proprietor of Aquarian Publications, a native English speaking editor.

Thesis title

EMPOWERING COMMUNITY HEALTH WORKERS TO IMPROVE
THEIR HEALTH BEHAVIOURS USING A SELF-MANAGEMENT
APPROACH

Author

Levona Johnson

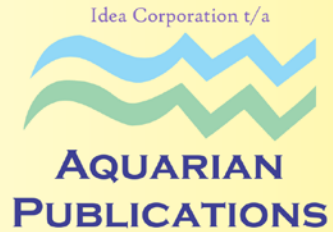
The research content, or the author's intentions, were not altered in any way during the editing process, and the author has the authority to accept, or reject my suggestions and changes.

Should you have any questions or concerns about this edited document, I can be contacted at the listed telephone and fax numbers or e-mail addresses.

Yours truly



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