

# The roles and needs of Community Health Workers in developing countries: an exploratory case study in South Africa.

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**Abstract**—extending the reach of primary health care is important as it is both a human rights issue as well as a developmental necessity. Necessarily, the UN Millennium Development Goals and 2030 South African Development Plan afforded some appreciation to this. To achieve extended reach, Community Health Workers are being deployed within rural communities to provide assistive health care at the community level. However, there is insufficient knowledge about the Community Health Workers in terms of their roles, skills and technological capabilities in a South African context. This is a barrier to unlocking the possibilities that technologies such as mobile phones can offer to facilitate and support the daily functions of these Community Health Workers. This paper articulates the findings of an initial exploratory study that was conducted in two communities in South Africa with a view of contributing to the understanding of the roles, needs and technological capabilities of Community Health Workers. The study found that most Community Health Workers work as volunteers who provide primary health care services in the community without the skills required for diagnosis. If diagnosis is required the patients are referred to health care facilities. The study also discovered that most Community Health Workers have access to, and are familiar with the basic use of a mobile phone - this creates an opportunity to implement technologies that will assist these Community Health Workers in their daily activities and thereby making positive impact in primary health care.

**Keywords**—health; community health worker; mobile phone;

## 1. Introduction

Extending the reach of health care, particularly the primary health care, is important as it is both a human rights issue as well as a developmental necessity. This is evident in its inclusion and significant emphasis put on it within the UN Millennium Development Goals (MDGs) that include reducing child mortality rates; improving maternal health as well as combating HIV/AIDS; malaria and other diseases[1][2].

In South Africa about 80% of the population relies on public health care. The majority of rural communities, however, are faced with issues of not having access to health facilities or

having to travel long distances to gain access to these health facilities [3] [4]. This undermines the country's intention and ability to deliver on the health related MDGs.

To address some of the health care service delivery challenges, the 2030 South African Development Plan recommends the deployment of Community Health Workers. The Development Plan further recommends that each household has access to a well-trained Community Health Worker [3]. The Community Health Workers are community members who volunteer to provide assistive care at community level and are commonly referred to as Community Care Givers. They perform various primary health care activities such as: home based care; educate communities; help orphans and vulnerable children; and; HIV counseling and testing. Community Health Workers play a significant role in primary health care provision to vulnerable communities[5][6].

Although the importance of Community Health Workers in the provision of primary health care to rural communities is acknowledged, limited effort has been put into understanding the Community Health Workers and the context in which they work. It is beneficial to understand what their *roles* are in the communities; what *skills* they possess; what their *needs are*; and; what *technologies* they have access to and are able to use effectively. Answers to these questions are critically important if appropriate technologies are to be exploited to facilitate and support the work of Community Health Workers. This paper articulates the findings of an exploratory study that was conducted in two communities in South Africa with a view of contributing to the understanding of the roles, needs and technological capabilities of Community Health Workers.

The paper is structured as follows: Section 2 discusses the methodological aspects of the study in terms of the research strategy and the data collection tools used in the study. The case study is discussed in more detail in Section 2.1. The findings are then presented and analyzed in Section 3. A discussion of the results is presented in section 4 and the paper is concluded in section 5.

## II. Research Method

This study adopted a multiple case study as a research method in which the researchers explored one phenomenon in different situations [7][8][9][10]. The study aimed at getting an in-depth understanding of the context within which Community Health Workers operate. Data was collected in two communities in South Africa; one case in Soweto; Gauteng Province and another case in Pietermaritzburg; Kwa-Zulu Natal Province. These two cases allowed researchers to understand the reality of Community Health Workers from two different perspectives; one being more rural (Pietermaritzburg) and the other slightly urbanized (Soweto). In terms of data collection, group interviews and questionnaires were used as data collection tools.

### 1) Selection of case studies

Case study was chosen as an appropriate approach as this study sought to explore the Health Care Worker phenomenon within a real-life context [9][8][11]. The two case studies were selected because of the relationship of trust that had been built between the department of health and the Council for Scientific and Industrial Research (CSIR). CSIR has been assigned by the National Department of Health as the ICT partner for NHI and there were other health initiatives taking place between the CSIR and the department. Therefore, this relationship made it easier to have access to the participants in both communities.

### 2) Selection of the participants

Purposive sampling was employed; the participants were purposely chosen based on their skills in the field. Two researchers from the CSIR visited the Community Health Workers in Soweto in March 2012. This visit had 60 Community Health Workers who were representing various Non-Government Organisations, Non-Profit Organisations and Faith Based Organisations. The Community Health Workers were split into 6 groups of 10 each. The researchers conducted *structured interviews* with each group to have a more detailed understanding of the work of a Community Healthcare Worker.

Semi structured interviews and observations were also conducted with the group of Community Health Workers in Kwa-Zulu Natal. Interviews were also conducted with the nurses that perform duties that are similar to Community Health Workers but the only difference is that they practice as health care professionals, these people are also known as staff nurses. In addition, an interview was conducted with the facility manager at the Swayimani rural community situated in Pietermaritzburg, Kwa-Zulu Natal at Gcumisa clinic. The purpose of the visit was to observe and interview Community Care Givers (CCG) as to how they gather data from the households and also to interact with the nurses at the facility.

The questions asked included:

- Brief personal background detailing who they are;

- Description of the roles they play in their communities;
- How they currently perform their activities/duties;
- Description of challenges and issues they encounter on daily basis as CHWs;
- Identification of any skills and training they may have;
- Description of what kind of technologies they use, if any;

In addition to the more structured interviews, semi-structured interviews were also conducted with leaders of the organisations. The aim was to understand from the leaders' point of view.

The questions that were asked to the organisation leaders sought to establish:

- How they organize CHW schedules;
- How they plan their visits; and
- How they travel to visit community members.

Furthermore, an interview was conducted with the representatives of the Expanded Programme on Immunization, outbreaks etc. from the City of Johannesburg's Health department to discuss the communication link between the health care facilities, the Department of Health (DoH) and the Community Health Workers. This was necessary in order to fully understand the context within which Community Health Workers operate and the kind of support and command structures they are working under.

The questions were articulated in order to obtain detail information of the participants in the following matters:

- Profile of the community health worker, roles the CHW currently plays
- The participant's education background, the specific skill and training required for one to become a community health worker.
- The participant's technology and computer literacy level.
- Communication: the language they use to communicate, if they use their own technology or it gets supplied.
- Their day to day activities, the process they follow and their coordination.
- Questions on the issues and challenges they encounter in their job and the perception on where the services can be improved and if they think technology can assist in improving the challenges.

The results from the case study are analysed and collated in Section 3; the results are then discussed in Section 4.

### III. FINDINGS OF RESEARCH

This section presents and discusses the initial findings from the exploratory study.

#### *a) Roles the CHW currently plays*

Community Health Workers are community members who work as volunteers in their respective organisations mostly non-governmental Organisations (NGO), but a few do get stipends from the Department of Health. They perform various primary health care activities such as: home based care; educate communities; help orphans and vulnerable children; and; HIV counseling and testing. Community Health Workers are people with no health qualifications but have done courses in line with their daily work and work closely with health care professionals. In response to the question if they do perform any diagnosis, Community Health Workers are not health care professionals. They do not perform any diagnosis and can only do referrals to the health care facilities (clinics). Their mission is to promote optimal health to the communities as an extension of the primary health care services.

#### *b) Day-to-day activities (Process that they follow)*

Community Health Workers sign in every morning with the organisation and identify patients to be visited that day. They perform door to door visits to households scheduled to be visited. In terms of schedules and planning, they do not have properly planned schedules, they prioritize their patients based on their conditions and the patients with severe conditions receive a high priority. They also refer to their patient's register. A visit to the household happens once a month and every week to those patients with critical conditions.

*Gathering of data:* Community Health Workers have patients register/book and prepare daily reports that they submit to their organisations on paper. The data recorded is filed and kept in the organisation and is used for future follow-ups. The kind of data they collect is Patient's personal information; patient's condition/medical information; and; household environment and concerns (if any). A minimum of three (3) household visits a day is usually a target, however in some instances it is difficult to reach the target due to the challenges encountered in the field.

The Community Health Workers do not only capture health related issues of a household but they capture any kind of issues related to a particular household such as crime issues, social welfare etc. These other issues are then discussed with the relevant departments during their monthly War Room meeting. War Room meeting is held every month with all the government departments in the province to discuss issues affecting the communities. In terms of management and monitoring of workers, the team leaders/ coordinators do monitor and supervise the workers and they report back to the organization manager.

#### *c) Training/Skills*

In terms of the specific skill or training required for one to become a community health worker. In Soweto, the result of the analysis shows that 81% of the participants did not receive any formal training but they can read and write and have experience in the field. Whilst 19% of the participants have attended courses in line with their daily activities such as Home based care; HIV/AIDS counseling; Capacity building etc. However, in the Kwa-Zulu Natal province, the Department of Health provides full support in skills development. A training manual for Community Health Workers has been developed by the Department. The responses also showed that Community Health Workers take responsibility in seeking training and they teach each other using different kinds of training material provided by the government.

*Computer literacy level:* Participants were asked if they can use a computer and their level of computer literacy. The results show that 75% of them have basic computer knowledge, though they do not have access to computers, only management (Community coordinators) has access.

#### *d) Communication*

According to participants regarding the language that they use in the field, 100% indicates that they communicate in African languages but use English when necessary. This has implications on the language which should be used in user interfaces of electronic applications developed to support CHWs.

*Technologies they have and how they use them:* The majority (87.5%) of the Community Health Workers own mobile phones and can use SMSs, WhatsApp and Mxit to communicate/chat amongst themselves and with families. This is currently only for private use.

#### *e) Day-to-day Challenges*

In their daily activities they encounter challenges such as:

- Gathering of data manually has implications on the accuracy of data (outdated records) and often results in loss of records.
- Shortage of resources is not restricted to shortage of skilled/trained Community Health Workers but also includes limited availability of/access to computers, lack of funding (sponsors), lack of transport facilities, and lack of adequate communication channels.
- Communication between Community Health Workers, health facilities and patients is not effective. This ineffective communication leads to challenges in patients' referrals; patient monitoring and evaluation; Scheduling and planning (No reminders for the next visit); and attendance of emergency situations.

- Monitoring and evaluation of patient's condition and inaccurate data from the health care facilities.
- Community Health Workers have to walk/travel long distances to visit households.
- Network coverage (poor cellphone coverage)

f) Health Workers reporting process/routine

Based on how the Community Health Workers described their day-to-day activities of gathering household data, the following data collection protocol emerges:

- Community Health Workers capture household data using a household registration form;
- If a patient's condition is critical and needs attention, they refer him/her to a Community nurse also known as a staff nurse;
- Community Health Workers compile monthly reports that they submit to an organisation that they work for;
- Referral letters to a health facility for emergencies and critical conditions are issued by a community nurse;
- Community nurse submits Community Health Worker's data collection form to a health facility (clinic).

Figure 1 illustrates the current reporting routine from the Community Health Worker to the clinic:

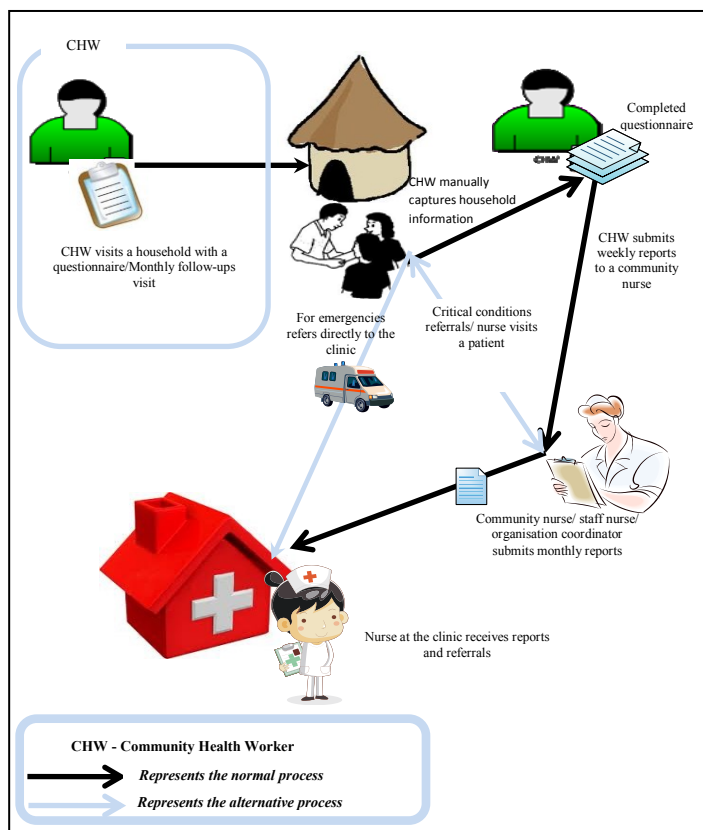


Figure 1: Health Workers reporting routine

This data collection protocol is a good candidate for mobile technology innovation; finding means to automate some or all aspects of the process, avoiding travelling to clinics, for instance.

## IV. Discussion

The understanding of the nature of the work that Community Health Workers do enables the researchers to begin to explore what technologies can be exploited to facilitate and support daily operations of CHWs. This understanding, for instance, informs what kinds of electronic applications and services should be developed to support the works of CHWs. In this study, the understanding of technological capabilities of Community Health Workers that all these Community Health Workers have access to, and are able to use mobile phones has informed the technology decision to develop a mobile service delivery platform.

Based on the observations and interviews conducted, the following needs of the Community Health Workers were identified.

*Training needs:* The literacy levels of Community Health Workers are varied and a need for consistent training towards the execution of their daily activities was articulated.

*Technology needs that were identified are:*

- Communication to emergency services is needed for emergency conditions;
- There is a need for a referral support when intervention is needed from other organisation in the community;
- The patient scheduling is a major challenge as it affects the coordination of patients' visits and Community Health Workers' availability. There is a need for a technology that will assist in scheduling and monitoring of patient visits to health facilities;
- A need to support for planning; managing and coordination of Community Health Worker activities.
- Standard mobile interfaces (e.g. SMS and USSD) should be utilised to capitalise on existing skills using these modalities;
- Support for daily reports;
- A need for a platform that will improve communication between Community Health Workers, health facilities and patients; and
- A need for a low cost automated data collection device, not conspicuous for safety reasons

The findings of this study have informed the decision by the research team to develop a mobile service delivery platform. However appreciating that these mobile phones are of different technological capabilities, the research team has developed a platform that follows an access-technology agnostic service access and delivery pattern [12].

## V. Conclusion

This paper has presented some insights into general profiles of Community Health Workers, their daily activities, their operating environment, and technological capabilities in terms of access and usage.

Community Health Workers provide primary health care services in the community without the skills required for diagnosis. If diagnosis is required the patients are referred to health care facilities. Community Health Workers have various levels of literacy and have basic computer skills. Courses are available towards the activities of Community Health Workers, but are not accessible to everyone.

The main needs articulated by Community Health Workers are support for (1) effective communication between Community Health Workers, health facilities and members of the community; (2) electronic data collection; and (3) access to relevant information in the field. Most Community Health Workers have access to mobile phones and are familiar with the basic modalities provided such as SMS and USSD. This creates a significant opportunity to positively impact the effectiveness of Community Health Workers through the application of technology.

Future research will include utilising the results of this investigation to conceptualise and implement technology interventions for Community Health Workers.

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