



Implementation Dynamics Regarding TB Infection Prevention Strategies in Tshwane District Healthcare Facilities

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Abstract

Background: Tuberculosis infection prevention and control remain the priority in prevent the risk of spread tuberculosis in the healthcare facilities. It is not yet known whether tuberculosis prevention strategies are protecting healthcare practitioners against tuberculosis infection in the healthcare facilities.

Aim: To explore the implementation dynamics of the tuberculosis (TB) infection prevention strategies amongst healthcare practitioner in Tshwane district, Gauteng province of South Africa.

Settings: Tshwane district healthcare facilities (4 district hospitals, 5 Community Health Centre (CHC) and 8 clinics.) caring for suspected or confirmed TB infected patients.

Method: Used a qualitative, descriptive and interpretive phenomenology, an exploratory research design was used to explore the implementation dynamics regarding the TB infection prevention and control strategies in Tshwane district.

Findings: Lack of support and involvement of management to deal with challenges faced by healthcare service professional in the implementation of TB prevention strategies; shortage of qualified socialised practitioners in the healthcare facilities, poor facility infrastructural design.

Results: The findings revealed four themes namely: knowledge that limit the ability of healthcare practitioners to comply with TB prevention strategies; lack of managerial support and involvement to deal with challenges faced by healthcare practitioners in the implementation of TB prevention strategies, inadequate supply of correct PPE's especially the N95 respirator, shortage of human resources and poor facilities infrastructural designs.

Conclusion: The study could not be generalised in the entire South African regions; it concludes that new developed strategies could guide and assist healthcare practitioners to effectively implement infection prevention strategies in four district hospitals, Seven Community health centres (CHC) and four 12 hourly clinics of Tshwane district healthcare facilities for managing suspected or confirmed tuberculosis infected patients. The study suggests further research in the same field.

Keywords: Prevention; Strategy; Dynamics; Caring; Tuberculosis; Patients; Dynamics; Practitioners

Introduction

Tuberculosis infection prevention and control remain the priority in reducing the risk of spread TB amongst healthcare

practitioner in the healthcare facilities [1]. Study [2] in South Africa indicated that the reports by Medical Research Council in South Africa (MRC-SA) shows that South Africa is burdened by the manifestation of multi-drug resistant TB (MDR-TB) as well as

XDR-TB strain, the worst TB epidemic in the world. South Africa rated more than double of observed developing countries and up to 60 times higher than those currently seen in the USA or Western Europe [2]. The MRCSA estimated that unless effective infection prevention measures are achieved, the current trends in the epidemic will continue resulting in 3.5 million new cases of TB and at least 90 000 deaths over the next decade. The financial implications are serious given that more than US \$100 million is spent annually on TB in South Africa, and an excess of US \$3 billion would be required over the next 10 years if the current rate of TB can continue without appropriate interventions [2]. In addition, [3] reported poor TB Infection prevention and control (TB IPC) practices and the impact of the human immune-deficiency virus (HIV) epidemic, had the effect on the occurrences of MDR-TB, and the emergence of XDR-TB in the patients 'who had TB infection about TB transmission motivated the urgency to focus on TB IPC [3].

Since the increase of MDR-TB and XDR-TB infections in healthcare facilities, NDoH has enforced National infection prevention and control guideline for TB, MDR-TB and XDRTB as a policy to be followed by healthcare service providers in TB hospitals and other clinical areas where patients with diagnosed or suspected TB are managed. However, adherence and compliances by healthcare practitioners to these policies is still questionable [4]. As the results the reports by [5] has shown an increased number of HCWs in various healthcare facilities, who contracted TB, possibly during the care of TB patients. The healthcare practitioners are at risk of being exposed to TB infections in their healthcare settings [6]. In addition, reports by [6] indicated that world estimation has shown that more than 50% of HCWs have developed latent TB infection. Furthermore, [7] in study in South Arica reported that, the burden of active TB disease among HCWs was less documented between the years 2006 -2008, hence there was an increased TB infection amongst HCWs reported in the following years. [7] further indicated that South African high TB infection has created a risk of exposing healthcare practitioners to TB infection, therefore, several TB studies were conducted between 2006 and 2008 to detect rate of TB among healthcare practitioners working in healthcare facilities (PHC and hospitals) across the country.

World health Organisation has recommended unconditional implementation of threetuberculosis infection prevention and

control (TB IPC) measures in the healthcare facilities where suspected or confirmed TB infected patients are managed [8]. National TB-IPC guideline for MDR-TB and XDR-TB enforced that the following TB-IPC precautions are required to be in place in all healthcare facilities for proper management and reducing transmission of TB infection to healthcare practitioners while managing suspected or confirmed TB infected patients [4].

Administrative control measures are measures meant to prevent the risk of transmission of M TB in the healthcare facilities through implementation of infection prevention by healthcare workers [9].

Environmental control measures are measures that includes building infrastructural design, the use of mechanical and natural air changes to reduce the concentration of air particles containing mycobacterium TB particles in the building [4].

Respiratory protection refers to the use N95 respirator musk top protect the staff from inhaling TB and Covid19 airborne infection while managing suspected or confirmed TB and Covid19 infected patients [5].

To achieve the national strategic plan on TB infection prevention as recommended by WHO and enforced by South African Department of Health, requires the involvement of all stakeholders in the healthcare system to actively participate in the implementation of the strategy and allocation of essential resources e.g., finance and human resources [10]. Furthermore, [1] explain that TB IPC involve various level of management in the healthcare facilities, each management level has a role on the implementation of IPC measure to prevent the spread of TB infection to healthcare practitioners caring for suspected or confirmed TB infected patients. South African Department of Health has developed TB IPC guidelines aimed to curb the spread of TB infection at workplace, however TB incidences amongst HCWs are still highly documented and kept on posing serious life-threatening challenges [11].

Aims

To explore the implementation dynamics of the tuberculosis (TB) infection prevention amongst healthcare practitioner in Tshwane district, Gauteng province of South Africa.

Objectives

- To determine the implementation dynamics regarding TB infection prevention strategies.
- To explore and describe the challenges that the employees face in implementing the TB infection prevention strategies in Tshwane district.
- To review current strategies on the implementation dynamics regarding the TB infection prevention strategies in Tshwane district.
- To develop a modified strategy for the implementation dynamics regarding the TB infection prevention strategies in Tshwane district.

Method

Study design

This study was a qualitative, descriptive and interpretive phenomenology, the researcher used an exploratory research design to explore the implementation dynamics regarding the TB infection prevention and control strategies in Tshwane district.

Study settings

The study was conducted in the Tshwane district in four district hospitals, seven community health centres (CHC) and four 12 hourly clinics. District hospitals and CHC rendering 24 hours' healthcare services, whereas, 12 hourly clinics are rendering only 8-hour healthcare services, meaning that the facility operate from 7:00 to 16:00 and 7:00 to 12:00 on Saturday. District hospitals, CHC and clinic are healthcare institution, caring for suspected or confirmed TB infected patients.

Study population

The researcher in this study focussed healthcare practitioners employed and working in the Tshwane district healthcare facilities (CHC or hospital), directly in contact with suspected or confirmed TB infected patients and belong either to the following categories of staff: Nurses (all categories), physiotherapists, radiographers, and doctors.

The researcher in this study focussed healthcare practitioners (nurses (all categories), physiotherapists, radiographers, lab technicians and doctors) employed in a district hospital and PHC (CHC and 12hrly clinics) in Tshwane district caring for suspected or confirmed TB infected patients. For the relevance of the study,

only healthcare practitioners working in patient's waiting area, consulting room/ward and treatment room used by TB patients were invited to participate in the study. Estimated a sample size of 30 healthcare practitioners found to be adequate to determine the trustworthiness of the study. The sample size was determined by the saturation point reached.

Data collection

Data collection was done through a semi-structured, and unstructured open-ended, informal face to face interviewing. The researcher was the main instrument for data collection, conducted interviewed and collected information from participants. The researcher was able to interview 18 healthcare practitioners who met the inclusion criteria. Data collection method allowed flexibility and responsive for both interviewer and participants. As this naturalistic study used the phenomenological approach, the researcher ensured bracketing during data collection. [12] describes bracketing as a skill that assist the researcher to refrain from making personal views or preconceptions during the interviews. The researcher was consciously bracketing his own presuppositions to avoid inappropriate subjective judgements. This was the skill the researcher adopted in preparation for data collection and assisted in unbiased explicitation of data. Data collection refers to the tools, techniques or procedure used to generate data [13]. Data collection took place for a period of three [3] week from the 16th of April to 6th May 2019. The researcher explained this to the participants, and they scheduled time to sit and speak. The researcher contacted and invited participants personally to participate in the research study via invitation letters.

Invitation letters were hand delivered to the participants at their convenient places and time. Participants could choose date, time and venue that suited them to be interviewed. A grand tour question was used during the interviews. Grand tour question that was asked was as follows: What do you understand by TB infection prevention strategies?

Follow-up probing questions depended on the participants' responses and the study objectives. Possible probing questions included: "Are there challenges that you face with the implementation of the TB infection prevention guidelines?" Follow up questions on the grand tour were dependent on the participants' responses and the objectives of the study. Simultaneously with audio recording of interviewee during the interview the researched

listened carefully and used notes pads to take noted of every word said by participants. In addition to interviews, the researcher used observational skill to observe the characters and behaviour of participants during the process of interviews, and the way the participants answered and explained.

Data analysis

In qualitative study data analysis was done simultaneously with data collection using the seven steps of Colaizzi's phenomenological approach [14]. Data were analysed, categorized and organized into five themes and twenty-five sub-themes that emerged through coding processes. Each theme and sub-theme were discussed and supported by direct quotes from the transcripts. The quotes from the participants are indicated in italics in the discussion of themes and sub-themes. The following "seven steps in Colaizzi's phenomenological descriptive data explication were used [15].

Familiarisation

It is done by reading through the information gathered from the participants several times to familiarise himself with the research data [15]. For this study, the research read and listened repeatedly transcribed interviews to understand the subject. The researcher transcribed the interviews immediately after completion of the interview, by doing that it has allowed the researcher to start to identify and analysing he similarities and differences between interviewees' experiences. Verbatim excerpts of the participants were presented and relevant literature to support the findings were described

Identifying significant statements

All statements in the accounts that were of directly relevant to the phenomenon under investigation [15]. To identify significant statement, the researcher read and listened repeatedly to the transcribed interviews participants' information. Special attention was given to ascend of participants and sound quality of the audio tape and formulated statement pertaining to the experience implementation dynamics of B infection prevention strategies and extracted key words described healthcare practitioners, caring of suspected or confirmed TB infected patient and healthcare facilities. Face to face interview was conducted, statement made by participants were recorded and transcribed verbatim. Coding of data was done once all data was fully transcribed and analysed by the researcher himself.

Formulating meanings

The researcher identifies meanings relevant to the phenomenon that arise from a careful consideration of the significant statements [15].

The researcher must reflexively "bracket" his or her pre-suppositions to stick closely to the phenomenon as experienced, though Colaizzi recognises that complete bracketing is never possible [16].

Clustering themes

The researcher clusters the identified meanings into themes that are common across all accounts. Again, bracketing of pre-suppositions is crucial, especially to avoid any potential influence of existing theory [15]. In this study, the researcher explored and described experiences and challenges that the employees face in implementing the TB infection prevention and control strategies and to reviewed current strategies on the implementation dynamics regarding the TB infection prevention and control strategies in the healthcare facilities. The data saturation point was reached when all 20 participants were interviewed, and participants started to repeat same the information repeatedly when interview.

Developing an exhaustive description

The researcher writes a full and inclusive description of the phenomenon, incorporating all the themes produced at step 4 [15]. Researcher developed themes base on the information given by participants during interview, themes were named according to key words extracted and transcribed

Producing the fundamental structure

The researcher condenses the exhaustive description down to a short, dense statement that captures just those aspects deemed essential to the structure of the phenomenon [16]. In this study, the researcher collected information and transcribed it as a draft document and made comments, the data was filtered and preserved.

Seeking verification of the fundamental structure

The researcher returns the fundamental structure statement to all participants (or sometimes a subsample in larger studies) to ask whether it captures their experience [15]. He or she may go back and modify earlier steps in the explication in the light of

this feedback [15]. For this research, the researcher revisited the original transcripts, audio tapes and other transcripts to validate his findings

Data saturation was reached with all themes and sub-themes

Saturation was based on the verbatim excerpts from the transcriptions and voice recordings provided. Table below depicts the final themes and sub-themes which were agreed upon by the researcher and independent coder which serves as the findings of the study.

Ethical considerations

Prior to the commencement of the research study, an ethical clearance was obtained from Human Research Ethic Committee (HREC) of UNISA (annexure A: UNISA ethical clearance). Approval to access Tshwane healthcare facilities and study participants was obtained from Tshwane Health District Research Committee (annexure B: Tshwane research clearance certificate). The researcher complied and adhered to the following ethical principle, namely: Justice, respect, beneficence, non-maleficence and fidelity.

The researcher explained the purpose, objective and data collection method to participants. Informed consent was obtained from participants before the study is conducted. To ensure confidentiality and anonymity of the participants. Participants who responded and participated in the study were considered as having consented to participate in the study.

Participants were permitted to withdraw from the study without any penalty, should they wish to discontinue at any point. Participants were informed before the study was conducted that their participation in the research was on voluntary basis. Therefore, no cash benefits or any other incentives should be expected after participating the study.

Result

Development of themes and sub-themes and presentation

The following themes and sub-themes emerged from the data explication using Colaizzi (1978) seven steps of explication.

Themes	Subthemes
THEME 1: Paradoxical health care professionals’ knowledge related to implementation of TB infection prevention strategies	Sub-theme 1.1: Existing paradoxical and analogous understanding of the meaning of TB prevention strategies marked versus lack of knowledge and understanding related to TB prevention strategies and policies.
	Sub-theme 1.2: Lack of knowledge related to provision of relevant care to diagnosed TB infected patients
THEME 2: Challenges experienced during implementation of TB prevention strategies	Sub-theme 2.1: Inappropriate use of PPE observed among health care professionals
	Sub-theme 2.2: Availability versus lack of PPE during implementation of TB prevention strategies
	Sub-theme 2.3: Lack or minimal formalized consistent TB training viewed as contributing factor for health care professionals and community members being infected.
	Sub-theme 2.4: Rotation of staff from one unit to other blamed for poor implementation of TB prevention strategies
THEME 3: Patients’ knowledge and practices related to implementation of TB prevention strategies	Sub-theme 3.1: Existence versus lack of knowledge among TB patients related to implementation of TB prevention strategies
	Sub-theme 3.2: Lack versus existence of compliance by TB patients on health education instructions related to prevention strategies
THEME 4: Health care professionals’ experiences related to implementation of TB prevention strategies	Sub-theme 4.1: Consistent TB awareness campaigns geared towards educating healthcare practitioners, community engagement and addressing language barrier

	projects requested for eradication of TB infections.
	Sub-theme 4.2: Lack of material resources viewed as a painful experience during practice for proper implementation
	Sub-theme 4.3: Lack of proper infrastructure leads to frustrations experienced at multiple level of provision of care to TB patients and the implementation of TB prevention strategies
THEME 5: Suggestions by health care professionals in relation to proper implementation of TB prevention strategies	Sub-theme 5.1: A request for allocation of human resources which will allow quality implementation of TB prevention strategies made

Table 1: Themes and sub-themes.

Theme 1: Paradoxical health care professionals’ knowledge related to implementation of TB infection prevention strategies

The findings pointed out that there are paradoxical health care professionals’ knowledge related to implementation of TB infection prevention strategies. There were six sub-theme that have emerged from this theme, sub-themes are as follows.

Sub-theme 1.1: Existing paradoxical and analogous understanding of the meaning of TB prevention strategies marked versus lack of knowledge and understanding related to TB prevention strategies and policies.

The first and most important level of a TB infection control programme is the use of administrative measures e.g. (such as availability of TB policy guidelines, cough etiquette and TB training programme and routing baseline TB surveillance to HCWs) implemented to reduce the risk for exposure to persons who might have TB disease, the second level in the hierarchy is the use of environmental controls to prevent the spread and reduce the concentration of droplet nuclei and respiratory-protection control is the third level of a TB infection control program and consists of the use of protective equipment in situations that pose a high risk for exposure to TB disease [4].

The discussion with participants, participant: “2”: professional nurse “5”: professional nurse”, and “18”: professional nurse” pointed out that there is paradoxical and analogous understanding of the meaning of TB prevention strategy, this was evidenced by different explanation and opinions from participants regarding to the TB prevention strategies. When participants were asked about their understanding of TB infection prevention strategies.

Participant “18”: professional nurse” strongly verbalised TB prevention measure that are implemented at their healthcare facilities when caring for a suspected or confirmed TB infected patients, experience and knowledge, she verbalised that: TB prevention strategies are the strategies we are supposed to be used to prevent the spread of the TB bacilli. We assist patients one-by-one as they come in, and we offer them surgical mask and the staff uses N95 masks.

Supporting statements presented by participants, study conducted by [17] reported that healthcare practitioners s who are knowledgeable, sufficiently motivated, and in possession of the necessary behavioural skills, are most likely to maintain healthpromoting behaviours with positive outcomes

Sub-theme 1.2: Lack of knowledge related to provision of relevant care to diagnosed TB infected patients

Healthcare practitioners s who are in contact with TB patients are at more risk than those with no patient contact [18]. Finding in this study pointed out that lack of knowledge by healthcare professional when managing suspected or confirmed TB infected patient, this was confirmed by participant “11”: doctor” who said:

“The challenge also the healthcare workers you’ll find that they do work in direct contact with TB patients, but our healthcare workers they don’t even wear those masks (N95 respirators), which is a challenge because then they will end up contracting TB because they are not using the precautions that they’ve been given”.

On the other hand, healthcare practitioners found to have knowledge however shortages of trained TB health practitioner contribute negatively, that was confirmed by participant “15”: professional nurse” in her report she said:

“The other thing is we have only one TB sister so in other words if she is not there, we usually integrate the new TB patient into the line we don't have”.

Theme 2: Challenges experienced during implementation of TB prevention strategies

The study findings revealed that there are several challenges that the healthcare professionals come across when executing their duties related to preventing the spread of TB. The following nine subthemes emerged when during the exploration and description of the challenges experienced by the employees in implementing the TB infection prevention strategies in Tshwane district.

Sub-theme 2.1: Inappropriate use of PPE observed among health care professionals

Respiratory protection programme including the use of appropriate N95 respirator mask forms the third level of TB infection control strategy to protect healthcare practitioners s to airborne infections [19]. Furthermore, [19] expresses that PPE create a protective physical barrier between the user and micro-organisms. Participant “13”: professional nurse” alluded mixed feelings regarding the use of N95 respirator:

Sometimes we are experiencing shortage of N95 respirator mask, they are using surgical mask instead. Due to financial challenges, they order them, but when they are finished, they are not supplied with the new ones immediately, staff end up reusing the N95 respirator and using them for 3 days, some resort to use surgical mask”.

Lack and irregular supply of respirator mask especially N95 respirators mask to healthcare practitioners s exposes them to TB infections [20].

Sub-theme 2.2: Availability versus lack of PPE during implementation of TB prevention strategies

Participants confirmed that PPEs are available in their institution to be worn by healthcare practitioners when managing suspected or confirmed TB infected patients, confirmed by participant “1”: professional nurse”.

“The PPE are given to us. That one we don't have a problem with them we just order, and province are giving to us, but the how is supposed to be worn is a challenge”.

On the other hand, participant “13”: professional nurse” reported that shortage of respirators, especially of N95 mask in their facility, lead to non-compliance to the usage of respirators by healthcare practitioners when caring for suspected or confirmed TB infected patients:

“Sometimes we are experiencing shortage of N95 mask, they are using surgical mask instead. Financial implications, they order but when finished they are not supplied.

According [21] healthcare facilities should develop clearly written standard operating procedures to advise staff about safe use of respiratory protection PPE (N95 respirator masks).

Sub-theme 2.3: Lack or minimal formalized consistent TB training viewed as contributing factor for health care professionals and community members being infected

There is a need of well-trained nurses to manage, training courses like Nurse Initiated.

Drug Resistant TB (NIMDR-TB) participant “18” nursing manager echoed”:

“Me I'm trained how to manage, but I am not from Nurse Initiated Drug Resistant TB (NIMDR-TB) trained nurses, I was excluded”.

There is need for more in-service training regarding the implementations of TB strategies. Participant “14”: manager” mentioned:

“I think communication of the strategist. Regular in-service on the contents of these document I think it is very critical, could help you know in addressing improvement in their adherence to this strategy”.

Sub-theme 2.4: Rotation of staff from one unit to other blamed for poor implementation of TB prevention strategies

Basically, because there is no permanent staff member or dedicated areas for management of suspected or confirmed TB infected patients, as the results the implementation of TB prevention strategy become a serious problem [20]. “Participant 3”: professional nurse has mentioned”.

“TB shouldn't be a business for the TB Clinic only, it should be everybody's business, the operational manager, it should be their

business, occupational health should be their business, infection control should be their business, management as well support”.

Poor allocation of trained qualified staff and allocation of dedicated TB consulting room for management of suspected or confirmed TB infected patients, resulted to poor implementation of TB prevention strategies, participant “15”: professional” explained:

“Most of healthcare practitioners are not trained on TB, there is lot of mismanagement. Integration with TB is still a challenge. Most of professional nurses in our clinic are not adequately trained”.

Lack of training and knowledge among healthcare practitioners and inadequate infection control practices may lead to the increased risk of nosocomial TB transmission [20].

Theme 3: Patients’ knowledge and practices related to implementation of TB prevention strategies

Study conducted by [1] revealed that patients’ knowledge and practices related to implementation of the TB prevention strategies plays a major role which could contribute towards elimination of the TB infection spread. This has emerged from the following sub-themes of this theme.

Sub-theme 3.1: Existence versus lack of knowledge among TB patients related to implementation of TB prevention strategies

Participants “3”: professional nurse” interviewed revealed that there are patients who are still not knowledgeable regarding the implementation of TB strategies despite efforts taken by South African NDoH TB programmes initiatives.

“I think people they don’t understand policies (TB prevention strategies) and like I said, with the lack of Information or knowledge people still believe that once you have TB, that means you are HIV positive, they relate the two most of the time that’s why they don’t come for medical examinations and for diagnosis, I think sometimes is because of lack of knowledge, or ignorance”.

Study by, [21] confirm that there is a knowledge gap in terms of spread of TB and misconception therefor, stigma of being diagnosed TB and social consequence that follow, constitute a serious barrier to TB treatment.

Sub-theme 3.2: Lack versus existence of compliance by TB patients on health education instructions related to prevention strategies

Participant mentioned that patients were aware of their expectations in relation to TB prevention strategies. Participant “5”: professional nurse” respond indicate that:

“When patients are here in TB focal point, they are compliant, they will wear the surgical mask given to them, but when they go outside, let me say going to buy something at the cafeteria, because they feel stigma, they remove the masks and put them in their pockets”.

In support of the statement made by Participant “5”: professional nurse” study conducted [21] reported that lack of knowledge about TB infection is the main reason causing people contacting TB infections.

Theme 4: Health care professionals’ experiences related to implementation of TB prevention strategies

The theme elicited five sub-themes which review the current strategies on the implementation dynamics regarding the TB infection prevention and control.

Sub-theme 4.1: Consistent TB awareness campaigns geared towards educating healthcare practitioners, community engagement and addressing language barrier projects requested for eradication of TB infections

Findings pointed out that more education and awareness campaigns are needed to educate healthcare practitioners and communities [22]. Participant “1”: professional nurse” mentioned.

“I think there is a need for more education and awareness’ campaigns, healthcare promoters should go out there to the communities to embark on TB awareness campaigns. I think there is a need for more advertising on TV, explaining in a simple way and people’s own language the importance”.

Language barriers between patients and healthcare service provides has serious effects the quality of care, and negative influence towards the compliances and adherences to TB IPC measures and treatment [22]. Language plays the major role in the TB prevention strategies in the healthcare settings. Participant “3”: professional nurse mentioned:

“With us here in the hospital we’ve got people that are from outside of the country, language barrier, you can’t even communicate with them, even though”.

Sub-theme 4.2: Lack of material resources viewed as a painful experience during practice for proper implementation

Lack of supply of material (e.g., N95 mask) and human resources has a negative impact on the implementation of TB prevention strategies. Healthcare practitioners are forced to use other alternative measures that compromises their health due to shortages of N95 mask, this was confirmed by participant “13”: professional nurse” who said:

“Financial implications, they order but when finished they are not supplied, the end up putting the N95 mask aside when they go to lunch for later use. Some saying it must be used for 3 days”.

Study [17] found that lack of basic resources like mask and disposable respirators as well as human to be that main barriers preventing the implementation of appropriate TB infection controls strategies.

Sub-theme 4.3: Lack of proper infrastructure leads to frustrations experienced at multiple level of provision of care to TB patients and the implementation of TB prevention strategies

Healthcare practitioners are continuously exposed to TB infections, due poor facilities infrastructural designs, they are relatively small [9]. Furthermore [9] explained that lack of proper air changes, windows found not good enough to promote air changes or natural air circulation inside rooms, limited number of consulting rooms, no dedicated and separate TB consulting rooms. In addition, [17] in their findings identified that healthcare practitioners spend 8 to 12hrs working in areas which is proximity to patients who are suspected or confirmed TB infected patients, who are coughing and sneezing. Participant “5”: professional nurse, participant “10”: professional nurse and participant “12”: risk manager” described the situation in their healthcare facilities as not ideal for client assessment, which lack isolation waiting areas, lack of immunizations, no extraction fans, no ultraviolet lights, no ventilation.

Participants “5”: professional nurse” mentioned:

“Infrastructure is always a problem, as you can see where we are working now managing the MDR-TB in this place, the type of the windows that we are having, the area is not well ventilated”.

Participant “10”: professional nurse” mentioned:

“Our building is old; we can’t even put extract fan in the facilities that are newly build or maintenance plan are not in place to maintain those extractor fans”.

A study by [17] emphasises that TB prevention strategy can be improved by renovating healthcare facilities infrastructure and ensuring separation of coughing and waiting area for suspected or confirmed TB infected patients.

Theme 5: Suggestions by health care professionals in relation to proper implementation of TB prevention strategies

The following five sub-themes are suggestion made by healthcare practitioners to modify the implementation of the current TB infection prevention and control strategy in Tshwane district.

Sub-theme 5.1: A request for allocation of human resources which will allow quality implementation of TB prevention strategies made

Findings in this study pointed out that there should be a balance of allocation of human resources for effective and efficient implementation of TB prevention strategies. Shortage of human resource in the healthcare facilities is one of major contributors towards poor implementation of TB prevention strategies participant “18” manager and participant “15” professional nurse” uttered that:

“We are only four in TB focal point, if I count myself in. So, sometimes I am committed, there are meetings, there workshops I need to go and attend to date and leave them behind whereby they will be unable to go and assist in OPD, so got stuffing challenges”.

Participants alluded that shortages of human resource especially trained TB nurses compromises proper care of suspected or infected TB infected in the healthcare settings, participant “15” professional nurse” verbalised that:

“There is no proper screening of TB patients due to shortage of staff, sometimes we don’t have professional nurse who can screen

patients or assess patients who are on the line, because usually patients who are coughing are not supposed to be on the line for a long time”.

Discussion

Findings in this study pointed out that there are challenges preventing healthcare practitioners to implement TB infection control strategies in the Tshwane district hospitals and primary healthcare facilities (CHC and clinics)

- Lack of management support and involvement to deal with challenges faced by healthcare service professional in the implementation of TB prevention strategies;
- Lack of supply of adequate PPE
- Shortage of qualified socialised practitioners in the healthcare facilities
- Poor facility infrastructural design.

Development of enabling strategies

There are various types of strategies that different researchers use, such as predisposing strategies; enabling strategies; reinforcing strategies and multifaceted strategies. The researcher in this study chose to use enabling strategies, with the purpose of influencing the clinical practitioners' behaviour.

Enabling strategies

The concept enablement is an overall goal of enabling people to achieve their occupational potential to promote health and well-being [23]. Enabling strategies are based on the clinical practice guidelines. Hence, the researcher intended to influence existing clinical guidelines on infection control used by the practitioners in implementing of TB strategies. Developed enabling strategies will enable managers to be able identify risk and control weakness from healthcare practitioners towards the implementation of policy guidelines and ensure that all significant risks in the healthcare facilities are adequately managed at an acceptable manner. For this study, the researcher developed the following enabling strategy to enable health care practitioners to implement TB policies:

- Strengthening of administrative support including the provision adequate resources e.g. financial allocation, material and human.
- Including of all stakeholders in the implementation of infection prevention and control policies; and

- Persistent and constant monitoring of the implemented strategy.

Strengthening of administrative support including the provision adequate resources e.g. financial allocation, material and human

Enabling strategies are formulated to assist the administrative managers to be able to support healthcare facilities by enforcing compliance to the developed systems and strategies in a particular manner to enable personnel to act as resolvers and managers of conflicts. Tshwane Health district management should assist healthcare facility management by ensuring the following in place:

- Allocation of funding according to healthcare facility patient's utilisation rates as determined by district health system.
- Capacitation healthcare facility managers with powers to purchase day-to-day items required for running of the healthcare facility.
- Decentralisation of services e.g., supply chain management and finance at the clinics level.
- Approval the appointment of trained specialising nurses and doctors to provider for management of TB infected patients.
- Strengthening and support the developed system for effective screening, triaging, isolation and referral of suspected or confirmed TB infected patients; and · Implementations of staff retention strategy.

Inclusion of stakeholders in the implementation of infection prevention and control policies

For this study, stakeholders in the healthcare system are regarded as family members of the patient; patients; community leaders; hospital and clinic board members; healthcare practitioners who are directly or indirectly involved in management of patients suspected or confirmed TB infected in the healthcare facilities. Enabling strategy encourages senior managers to focus more on developing efficient feedback systems such as regular meetings, as well as the development of healthcare practitioners by using continuous quality improvement approach including the following:

- Facilitating training and support of healthcare practitioners on the current TB-IPC policies.
- Application of strategies for the implementation of finding identified.

- Establishing a multidisciplinary healthcare practitioners' team to evaluate and monitor the implementation of TB-IPC strategies in the healthcare facilities.
- Direct healthcare practitioners to develop systems of conducting routine assessment of healthcare facilities and development of quality improvement plan.
- Improvement and revitalisation of healthcare facilities' infrastructure to comply according to TB infection prevention and control policy guidelines.

Create an environment that promotes lifelong learning by an active staff development and encouraging healthcare practitioners to enrol for speciality training courses to improve by approving healthcare practitioners for study leave.

Persistent and constant monitoring of the implemented strategy

Lack of unique health system to identify and track TB patients who move between districts, additional strategies are required to achieve the national strategic plan to stop TB. The following TB-IPC enable strategies are recommended to be implemented in the healthcare facilities Nationally:

- Introduction of system to track and follow-up of TB infected patients (can be using patients Identity document numbers or other electronic data system).
- Early diagnosis of tuberculosis (TB) including universal drug-susceptibility testing, and systematic screening of contacts and high-risk groups.
- Treatment of all people with TB including drug-resistant TB, and patient support.
- Collaborative TB/HIV activities, and management of comorbidities.
- Preventive treatment of persons at high risk, and vaccination against TB.
- Monitor the implemented service level agreement for maintenances and servicing of UVGI lights and HEPA filters in the healthcare facilities for TB prevention and control.

The unique contribution of the study

The unique contribution of this study is to improve IPC strategies in the Tshwane Healthcare facilities. New enabling strategies

are developed to enable healthcare practitioners to effectively implement IPC strategies to improve the practices and compliances to IPC strategies when caring for confirmed or suspected. It creates an environment that allows the society to come forward and disclose their TB status without fear before they can develop complications. The study also creates an opportunity for the Tshwane community and healthcare practitioners to implement effective TB strategies and to protect the vulnerable community from contracting TB infection in the healthcare facilities.

The researcher developed strategies that will remain the assets for reference in the Tshwane Health district, GDoH and NDoH. It has also contributed to enhance the knowledge of healthcare service provers in the healthcare facilities managing suspected or confirmed TB infected.

Contribution towards development of healthcare practitioners

Based on the findings and the objective of the study, the contribution will encourage top management to focus more on developing efficient feedback systems such as regular meetings in the short time. The study also contributes toward the development of healthcare practitioners by using continuous quality approach including the following:

- Facilitating training and support of healthcare practitioners on the current TB IPC policies.
- Establishing a multidisciplinary healthcare practitioners' team to evaluate the implantation system of policies.
- Direct healthcare practitioners to develop systems of conducting routine assessment of healthcare facilities and development of quality improvement plan.
- Create an environment that promotes lifelong learning by an active staff development and encouraging healthcare practitioners to enrol for speciality training courses to improve by approving healthcare practitioners for study leave.

Contribution to management support

The research study contributes by encouraging district and facility managers to implement a genuine leadership style in all healthcare facilities. It advocates for a leadership that is visible, accessible and good communication to create a sustainable supportive practice environment among the healthcare

practitioners and the stakeholders in the healthcare facilities. According to [4], good governance that is transparent, accountable, efficient and upholding of the rule of law is critical for optimal implementation departmental policies. Active involvement of top management in monitoring the implementation of policy guidelines in the healthcare facilities promotes good governance and direct personnel to achieve the departmental goals. Top management should ensure that facilities have policy guidelines that are distributed to all healthcare facilities and, healthcare practitioners are implementing them and are familiar with their content.

The research study aimed to close the gap identified as the barriers limiting the ability of healthcare practitioners to implement TB infection prevention and control policies aimed effectively in the healthcare facilities. It also aimed to do the following:

- Facilitate participation of senior district management supporting support healthcare practitioners to implement effective practice in the healthcare facilities.
- Encourage monitoring compliances toward implementation of strategies to reduce the risk of transmission of TB infection.
- Involve healthcare practitioners in decision-making committees, by creating facilities-based committee champions.
- Improve staffing by developing and motivate for staffing norms that can be a benchmark for the department.

Contributions to other stakeholders

The research study sought to maintain effective and transparent communication by healthcare practitioners and community by creating a platform for patients and their families to make suggestion on the improvement of healthcare operational systems. It also encourages public participation in management and caring of TB infected patients through engagement of hospital and clinics board members.

Recommendations of the study

Development of policy guidelines

For this study, the researcher recommends that policy makers should focus on the following factors on the development of the policy guidelines:

- Guidelines in line with NDoH IPC policy document.
- Policy guidelines should be used as references tool for monitoring status TB infection control status in the healthcare facilities.
- Developed policy guidelines should be discussed with the entire Tshwane district including GDoH.
- Development of policy guidelines should address gaps identified when designing framework, legislature and developed IPC strategies.
- Selection of an advisory committee to contribute and assist the development of policy guidelines by:
- Reviewing existing policy guidelines
- Consulting with relevant policy makers experts, and other relevant stakeholders such as universities and research consultants
- Consulting with healthcare practitioners responsible for the implementation of the developed policy guideline in the healthcare facilities
- Conduct feedback session from research participants and healthcare service practitioners including other stakeholders such community board members should be more engaged and allowed to give their inputs in the drafting policy guidelines to support developed strategies.

Tshwane district, GDoH and NDoH should create enabling environment and encouraging healthcare practitioners to actively participate in the policy making decisions, that will improve ownership and sustainability.

GDoH and Tshwane district health services strategic management should support the development of policy guideline by allocation of financial, material and human resources.

Development of guidelines for health practitioners

The researcher recommends that the research on tuberculosis infection prevention and control (TB IPC) strategies should be continued. More importantly, findings and outcomes emanating from the research study should be used to improve tuberculosis (TB) infection prevention and control compliances in the Tshwane district healthcare facilities, and nationally.

- The research study report should be an inherent practice for healthcare practitioners managing suspected or confirmed TB infected patients in the Tshwane district healthcare facilities.
- The researcher again recommends that the research study should be used as a way of upgrading healthcare practitioners in their workplaces and be used to provide evidence base practice in the healthcare facilities.
- Experiences of healthcare practitioners participated in this research study could be used for the development of policy guidelines that could contribute to management of suspected or confirmed TB infected patients in the Tshwane district healthcare facilities.

Further research on larger scale

Based on the study limitations and findings identified, further research studies are recommended:

- Similar study to be conducted to further explore the role of health educational institution on the implementations of TB prevention strategies.
- Since the developed framework is based on the qualitative findings, there is a need for future researchers to broaden the scope of investigation to test the results quantitatively.
- The same research topic to be rolled out to other districts in Gauteng and nationally so that the findings could be compared with the findings of this research.

Limitations of the study

The study focused on exploring the implantation dynamics regarding to TB infection prevention and control in the Tshwane district healthcare facilities. The research study was limited to healthcare facilities in the Tshwane district in Gauteng province, which means that the results and finding cannot be generalised to all the healthcare facilities in the whole Gauteng province. Another limitation of the research study was the sample size, researcher could not reach the planned number of participants, as the participants has started to repeat same information time and again during the interview session. Only category nurses and a doctor participate on the interview session, the information might not be generalised to other categories of staff. Participants gave verbal consent to participate in the study and be interviewed, they did not

want to complete and sign formal consent form, as such consent forms were not used. Other limitations for the study were issues to do with the access of participants during data collection, delay in getting funds from the university.

Conclusion

Objective one was to determine the implementation dynamics regarding TB IPC strategies in Tshwane district. Objective 1 (one) aimed to identify constraints that can affect the success in the change strategy to be implemented. Objective 2 (two) was intended to explore and describe the challenges that the employees face in implementing the TB infection prevention strategies in Tshwane district. The objective was aimed at providing baseline understanding of the challenges that are faced by healthcare practitioners to implement TB infection prevention and control policies.

Objective 3 (three) sought to review current strategies on the implementation dynamics regarding the TB infection prevention strategies in Tshwane district. The researcher consulted international and South African literature review to evaluate the implementations of the current TB IPC polices in the Tshwane district healthcare facilities. The objective aimed at the development of the enabling strategies to enable healthcare practitioners to implement TB IPC strategies in the Tshwane district healthcare facilities. Objective 4 (four) was meant to develop modified strategies for the implementation of TB infection prevention and control in Tshwane district. The research findings are based on challenges that healthcare practitioners experienced when implementing TB infection and control strategies in the healthcare facilities.

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