ENROLLED NURSES' EXPERIENCES OF CARING FOR MULTI DRUG RESISTANT TUBERCULOSIS PATIENTS IN THE KWA-ZULU NATAL PROVINCE OF SOUTH AFRICA

S.D. Arjun, MA (Health Studies)
Department of Health Studies
University of South Africa

M.C. Matlakala, D Litt et Phil
Department of Health Studies
University of South Africa
Corresponding author: matlamc@unisa.ac.za

T.R. Mavundla, PhD
Department of Health Studies
University of South Africa

ABSTRACT

Multi-drug resistant Tuberculosis (MDR TB) has increased healthcare practitioners' awareness of workplace hazards. Adherence to infection control measures is important but not foolproof in halting the spread of communicable diseases such as TB and MDR TB in hospital settings. Nurses are the frontline workers in providing direct care to patients and might be fearful of contracting communicable diseases.

The purpose of this study was to explore and describe the experiences of enrolled nurses while caring for patients infected with MDR TB in a TB hospital in the KwaZulu-Natal Province of South Africa. A qualitative exploratory, descriptive approach was followed. In-depth individual interviews were conducted with five purposively selected enrolled nurses who were caring for MDR TB patients. Data were analysed following Colaizzi's steps. The research findings revealed four themes: the working context, fear of contracting MDR TB, problems impacting on the quality of nursing care and enrolled nurses' needs. The findings of this study indicate that the enrolled nurses worked in a challenging environment and needed support whilst caring for MDR TB patients.

KEYWORDS: caring for MDR TB patients, enrolled nurse in South Africa, multi-drug resistant tuberculosis

INTRODUCTION AND BACKGROUND INFORMATION

Tuberculosis (TB) is an infectious, communicable disease caused by Mycobacterium Tuberculosis (MTB) which primarily affects the lung parenchyma, and spreads from person to person by airborne transmission (Smeltzer, Bare, Hinkle & Cheever, 2008:644). Multi drug resistant Tuberculosis (MDR TB) is a communicable disease and it occurs when its causative organism has developed resistance against first line TB drugs (WHO, 2006:1). It is estimated that 489 139 cases of TB emerged in 2006, and the global proportion of resistance among all incident TB cases was 4.8%. China and India are estimated to carry 50% of the global burden, with the Russian Federation carrying a further 7% (WHO, 2008:91). In the African region some countries have reported data on TB since 2002. Rwanda reported 3.9% and Senegal 2.1% MDR TB among new cases of TB. The population weighted mean of MDR TB cases is 5.8% among previously treated TB cases and 2.2% among combined cases (WHO, 2008:91). A lack of comprehensive national drug resistance survey data from many African countries poses a barrier to comprehending the magnitude of the prevalence and incidence of MDR TB in Sub Sahara Africa (SSA) (Amor, Nemser, Singh, Sankin & Schluger, 2008:1346).

Three provinces of South Africa reported approximately 1% MDR TB among newly diagnosed TB cases and 4% in previously treated TB patients (South Africa, 2007). This translates to about 2 000 new cases of MDR TB in South Africa every year. The first population-based data on MDR TB in the Kwa-Zulu Natal (KZN) Province in 1996 identified 1% of the TB patients' sputum specimens to be culture-positive for MDR TB in a rural district. The World Health Organization (WHO) Global Project on Anti-tuberculosis Drug Resistant Surveillance conducted 1999-2002 reported that in 2001 in KZN, mono-drug resistance in new TB patients was 4% and in previously treated patients was 8%, while MDR TB in new TB patients was 2% and in previously treated patients was 8% (Naidoo, Taylor & Jinabhai, 2007:46). In the Msinga sub-district of KZN, 221 cases of MDR TB were discovered among 1 539 patients (Naidoo et a.l, 2007:47).

Health care practitioners are at risk of infection because of frequent exposure to patients with infectious diseases such as TB (South Africa, 2007:6). Recent developments in workplace well-being have prompted a new philosophy that places a high value on nurses' own physical and psychological well-being (Joel, 2006:605). In order to determine how best to establish good infection control policies in healthcare settings, it is first necessary to determine the extent to which TB infection impacts on healthcare practitioners (Eshun-Wilson, Zeier, Barnes & Taljaard, 2008:17).

RESEARCH PROBLEM

In 2007, a MDR TB hospital was opened by the National Department of Health (DoH) to serve the province of KZN. In this hospital, the professional nurses, besides providing nursing care, are involved with managerial and administrative duties, whilst the enrolled nurses render direct nursing care only. During the first author's personal encounter with the nurses in the selected hospital, deterioration in all the categories of nurses' morale was observed. The nurses appeared to be uncomfortable, fearful, insecure and disinterested in working in this hospital. Nurses seemed also to be uncertain about their health status as MDR TB is an infectious and potentially deadly disease. At another hospital in the sub-district of Msinga in KZN, four health care practitioners died from MDR TB (Tuberculosis MDR/XDR, 2009:7). Enrolled nurses in the selected hospital worked in close contact with MDR TB patients as they provided direct patient care, and were at risk of contracting MDR TB themselves.

PURPOSE OF THE STUDY

The purpose of this study was to explore and describe the experiences of enrolled nurses while caring for patients infected with MDR TB in a TB hospital in the KZN Province of South Africa. This study aimed to contribute to an understanding of the world of enrolled nurses who work in a high risk environment for contracting MDR TB. This knowledge could be applied to design and implement more effective strategies to reduce these nurses' chances and fears of contracting MDR TB.

DEFINITIONS OF CONCEPTS

Caring for MDR TB patients refers to giving special attention (Potter & Perry, 2007:482) in a deliberate process that involves the nurse–patient relationship during the provision of nursing care to MDR TB patients.

An enrolled nurse in South Africa is a person who is registered as such in terms of section 31 of the Nursing Act 33 of 2005, and who is thus educated to practise basic nursing care in the manner and to the level prescribed in the Nursing Act no 50 of 2005 (South Africa, 2005:25).

Multidrug-resistant tuberculosis is an infectious lung disease caused by mycobacterium tuberculosis resistant in vitro to the effects of drugs commonly used to treat TB, such as isoniazid (INH) and rifampicin (WHO, 2006:1).

A MDR TB patient is a person who has been diagnosed with MDR TB and has been admitted for treatment and further management to the hospital where this study was conducted.

RESEARCH METHODS AND DESIGN

A qualitative, exploratory, descriptive study was conducted. This approach was relevant because the researchers sought to explore and describe the experiences of the enrolled nurses whilst caring for MDR TB patients.

Research setting and population

The setting was a selected MDR TB hospital in KZN. The hospital is situated in the Ethekwini health district, north of Durban in an urban area. This hospital has a capacity of 180 beds and admits only MDR TB and XDR-TB patients. There are 70 nurses, 18 are enrolled nurses, and the rest include operational managers, registered nurses and enrolled nursing assistants.

The population comprised enrolled nurses who had at least six months' experience of working in the selected MDR TB hospital. The enrolled nurses were purposively selected to be included in this study as they provided nursing care to MDR TB patients. The sample size comprised five enrolled nurses, after which data saturation was reached.

Data collection

Data were collected during the period May to July 2011, using unstructured in-depth individual interviews. The individual interview was relevant because the participants could respond freely in narrative form, using their own words to share their experiences of caring for MDR TB patients. The interviews were audio recorded and lasted approximately one hour at mutually acceptable venues, times and dates. The interview started with an opening statement that led to a central question. Probes were used to encourage participants to elaborate and clarify their responses. This resulted in gaining in-depth accounts about participants' experiences of caring for MDR TB patients.

Measures to ensure trustworthiness

For the credibility of the findings prolonged engagement was achieved when the researcher spent time with the participants to obtain detailed accounts of their experiences. Member checking was used to assess whether the participants accepted the findings to be true reflections of their experiences (Lincoln & Guba, 1985:314). The participants were contacted individually and the analysed information was shared with each one. Every enrolled nurse verified that the analysed data reflected her experiences and circumstances. The transcribed interviews and data analysis

processes were scrutinised by two independent reviewers, who were the supervisors of this study. It was ensured that the empirical phase of the study was conducted in accordance with the focus and boundaries set by the problem statement. Transferability was enhanced by providing thick descriptions of the phenomenon under scrutiny. This was possible because information-rich participants were included purposively in the sample. For dependability, by recording the data on audiotape, the researcher ensured that the participants' narratives were captured completely and in their original format. An audit trail was established by keeping the interview transcripts, data reduction and analysis products, notes from member checks and drafts of the research report (Lincoln & Guba, 1985:290; Polit & Beck, 2008:511) under lock and key for possible future re-analysis and scrutiny. Only the researcher, study supervisors and data coder had access to the raw data. No names were identifiable from any records. The raw data would be destroyed after the research report had been accepted.

Ethical considerations

Ethics clearance for the study was obtained from the Higher Degrees Committee of the Department of Health Studies, University of South Africa. Permission to conduct the study was obtained from the relevant authorities of the hospital and Department of Health, KZN province. Informed consent to participate in the study was signed by each participant following a thorough explanation of the purpose of the study and presentation of the ethical clearance certificate; together with letters of approval from the relevant authorities.

Participation in the study was voluntary and the participants were assured that they could withdraw from the study at any time without penalty, if they so wished. The participants were allowed to ask questions. It was also explained to them that there were no financial benefits and that the study findings would be disseminated in the form of a publication in an accredited journal. Confidentiality and privacy were ensured by using password-restricted access to computer documents; and anonymity was guaranteed by using interviewees' codes instead of names (Burns & Grove, 2007:180-181).

DATA ANALYSIS AND DISCUSSION OF THE RESULTS

Audio recorded interviews were transcribed verbatim using a word processor and the transcripts were then printed for manual analysis following Colaizzi's seven steps, as explained by Sanders (2003:292) and Wojnar and Swanson (2007:177). The participants were five, female, enrolled nurses. All of them had been working in the hospital since 2007. Four themes emerged from this study as shown in table 1:

Table 1: Themes and categories: enrolled nurses' experiences of nursing MDR TB patients

Themes	Categories
The working context	Physical environment Lack of positive practice environment
Fear of contracting the disease	Exposure to risks Contact with the patients Spread of MDR TB
Problems impacting on the quality of nursing care	Adherence to treatment Lack of equipment and supplies
Enrolled nurses' expressed needs	In-service education Support structures Appreciation

The working context

The working context included the physical environment in the unit and a lack of a congenial work environment. With regard to the physical environment, the internal layout and structure of the ward was considered unsuitable. The bacteria concentration was high, especially in the mornings. In order to reach the duty room to put on N95 masks they had to pass through the patients' ward. This exposed the enrolled nurses to MDR TB bacteria, exposing them to infection before putting on masks, as stated by one participant:

> *"When you go into the wards you have to via the patients, of which is not right. They are indoors so much…"*

The participants' descriptions of their physical environment concurred with the findings of a study by Smit (2005:26), who stated that nurses were concerned about their occupational environment. A concern was raised regarding poor protection and infection control measures as the hand wash basins and extractor fans were inadequate. Reportedly the national infection control guidelines were partly adhered to, although all new health care practitioners received training on the national infection prevention and control guidelines. It was expected that annual screening equipment for TB such as x-rays should exist. However, x-ray facilities were unavailable at this hospital and nurses had to be transported to another hospital for x-ray screening. Often transport was unavailable. Some participants said the following in relation to the physical environment of the ward:

> *"We asked for that um fans, more fans I think in the wards, they didn't get that …"*

> *"...like from the time the hospital is opened we've been saying we need hand wash basins, a simple infection control thing that is really important, but they don't have it"*

> *"I had to go with my own vehicle because I was actually tired of telling them that I need to go for my x-rays and then finally I said you know what give me the letter and on my day off I will go on my own to get it done"*

The participants' descriptions of the lack of a positive practice environment concurred with the findings from the studies by Chung, Wong, Suen and Chung (2004:514) and Smit (2005:26) who indicated more negative than positive experiences of nurses in the workplace environment. According to the national infection prevention and control guidelines document, if work practice or administrative controls are inadequate, environmental controls will not eliminate the risk of contracting the disease (South Africa, 2007:15).

Parsons (2004:1) indicated that the critical challenges faced in preventing nosocomial infections in health care facilities, are prioritising technical resources and balancing the need to provide health care workers with a safe work environment. According to Parsons (2004:4), employers must realise that the responsibility for maintaining a healthy work force is a shared one with employees. It remains the responsibility of the employer to ensure a safe and low risk environment in the workplace.

Fear of contracting the disease

Fear of contracting MDR TB included aspects related to exposure to risks, contact with the patients and spread of the disease. Fear was described as a core element during contact with the MDR TB patients. Being in close contact with these patients, while providing nursing care placed the nurses at risk of contracting MDR TB. The nurses who were afraid of contracting MDR TB spent less time with the patients. One participant said:

> *"But there is fear of getting this MDR TB. There are some nurses now; I mean who got TB in our institution. I think about five nurses who contracted TB."*

Poor protection and inadequate infection control measures increase nurses' exposure to risks. Nurses were at an increased risk of accidental exposure to HIV from needle stick injuries. At times patients would experience side effects from medication and become violent thereby increasing the risk of the nurses being assaulted by the patients. The participants indicated that they were extra careful when a patient was very ill as the risk of accidental exposure to bodily fluids was high therefore additional masks, gloves and aprons were used. The following quotes support these findings:

"Yah, 'cos we giving them injections every single day and can get needle stick injuries. These patients are sick and tired of injections, so when we give them the injections they are either jumpy or something"

"... so I use double masks and double gloves and double aprons and all this"

The participants' descriptions of accidental exposure to risks concurs with a study on South African nurses' experiences of caring for HIV/AIDS patients by De Villiers and Ndou (2008:12), who indicated that the gloves were very often torn, therefore nurses had to put on extra gloves for protection. Smit (2005:22) indicated that there were concerns about the low quality and sometimes infrequent availability of gloves, aprons, masks and incontinence aids which increased the risk of accidental exposure to HIV. Adherence to infection control measures is important but not foolproof in halting the spread of MDR TB in hospital settings, implying that nurses can contract TB despite adhering to precautionary measures (Aids Care Watch, 2008:2).

The participants raised concerns about the spread of MDR TB by patients being granted permission to leave the hospital (known as pass-out) for various reasons. Some patients were discharged prematurely or were allowed to leave the hospital with active MDr TB or positive smears. According to the MDR TB guidelines only patients with negative smear results may be allowed to leave the hospital. However, it was not the case at this hospital. This could put the patients' families and communities at risk of contracting MDR TB. The participants also feared that their own family members could contract MDR TB when they stated:

"... and when it comes to containing of this MDR and XDR it's not good you know, we send these patients out there, we give them masks, but they're not using the masks and go wherever they're going just spreading"

"The doctor says I'm only going to give patients who are negative pass-outs. But some patients are positive, he gives them, so they are not containing this disease, they're just sending the patients out there"

"I think this is not good at all because our families are at risk, because our family is in the shopping centre somewhere and these patients with their XDR and MDR in the shopping centre coughing in there."

"Before you go and greet your kid is to take off your uniform and go to the bathroom because you came in close. You are scared that your kid might get the infection since you are working in such an area"

It was also indicated that infection control measures were not adhered to by the patients, such as those who leave the sputum mugs open and those who refused

treatment. The participants were of the opinion that patients sometimes deliberately wanted to infect the nurses as indicated in the following quote:

> *"…his sputum mug was opened. Yoh, the way I was cross, I was mad. I told that patient 'who do you want to contract your MDR TB, you want me to get infected of your MDR TB, that's why you opened the sputum? cos when I get into the ward in the morning I opened the door that sputum bottle of yours was closed, now you opened it' … I decided to leave the patient".*

However, on a positive note, it was explained that some patients expressed concerns for the nurses especially when they were not using masks when entering the ward. The patients would then remind the nurses to put their masks on during interaction with them so as not to infect the nurses. The participants indicated that although N95 masks were provided, it was uncertain whether they were effective to use and if the masks would protect them from contracting MDR TB. In some instances it was indicated that when a nurse had flu, it was difficult to keep the mask on due to a running nose. The removal of the mask would then increase the risk of exposure to MDR TB, as the following quote indicates:

> *"I feel scared, 'cos even the masks and the protective clothes that we are using, more especially the mask they are not 100 % safe".*

Smit (2004:26) indicated that nurses did not fully understand the prevention benefits of wearing N95 masks. These N95 masks are called particulate respirators because they filter particles, such as droplets of respiratory secretions emitted by a person infected with tuberculosis. According to the WHO (2008:77) a certified N95 respirator is the mask of choice. However, in the absence of standard workplace and environmental controls, masks should not be relied upon to protect healthcare practitioners from inhaling MTB (South Africa, 2007:17). In a study by Yanai, Limpakarnjanarat, Uthaivoravit, Mastro, Mori and Tappero (2003:43) the reasons provided for not wearing masks included discomfort and interference with the wearing of nurses' caps or makeup.

Problems impacting on the quality of nursing care

The participants indicated that whilst patients were admitted to the hospital to receive medication and care to cure MDR TB, they did not adhere to their treatment regimens. The patients took their medications but they continued smoking and drinking alcohol which could affect treatment outcomes. One participant stated:

> *"… how selfish people can be cos the meds won't be working on them because the fact that they are consuming alcohol most of the time and the tablets won't be doing their work that it supposed to be doing in the body"*

Some of the patients were not available in the wards during medication times, thus skipping their medications. Some patients even absconded because they were afraid of the injections and others intentionally misbehaved so that they could get discharged. It was explained that patients were aware of disciplinary discharges and used it to their advantage:

> *"At times they won't take their medication; they just want the doctor to get fed up with them so that they'll get discharged"*

The participants indicated a lack of essential equipment and supplies in the hospital. There were inadequate supplies of N95 masks, which the nurses reported to be frequently out of stock. At some stage the nurses had to go on strike because there were no N95 masks.. The participants expressed concerns about using one mask for several days, because the effectiveness of the mask is unknown. The provision of good quality nursing care was also compromised when there were shortages of staff and equipment as indicated by the following quotes:

> *"We don't have the equipment; we don't have the ECG machine…"*

> *"At one point there was no mask, so we had to go on strike for a day or whatever half the day we didn't have masks"*

> *"I don't think a mask should be used one mask for three days. I don't think it's fair on us because we don't know how strong the mask is in the first place"*

> *"The problem is that there is a shortage of staff so we don't give the nursing care the way we want to…"*

When patients experienced medication side-effects, they displayed psychotic and aggressive behaviour. Participants acknowledged their lack of training in psychiatry, lack of knowledge of drugs for MDR TB and lack of knowledge of side effects of drugs which resulted in feelings of uncertainty. Concerns were expressed about the uncertainty of managing psychotic patients.

Enrolled nurses' expressed needs

The participants expressed the need for protective clothing, X-rays periodic assessments and prompt information about the results. They indicated that x-rays alone are inadequate, but sputum needs to be taken and immune boosters and flu vaccines should be provided..

> *"and up till today they didn't give me the results of the x-ray"*

> *"… but they don't encourage us to do sputums, there is not even a protocol anywhere that I have read. The only protocol I know of is the x-rays"*

> *"I think every morning by right they should give us like you know a centrum [vitamine pill] or something"*

> *"... where every morning a nurse comes to work and take the multivitamins which the hospital does provide"*

Training and knowledge was needed to assess and manage MDR TB patients. Participants indicated that they needed more information on how to nurse these patients effectively. They expressed a need to have more meetings with doctors to gain knowledge about the latest developments on MDR TB treatment, more in-service training on managing drugs' side-effects and psychotic patients:

> *"This (MDR TB) is something that we all don't understand about, we all got questions"*

> *"Nurses who work in the MDR institution should also be trained and be told about most of the side effects of the medication and also at least be trained on how to handle when the patient becomes aggressive ..."*

Nurses provide emotional support to their patients, but nurses also require support from both management and peers. The findings indicated that support from management was given only at times.

> *"... our OM's don't do that much. They're hardly with the patients... most of the nursing care is done either by the EN"*

The hospital failed to appoint a suitably qualified infection prevention and control coordinator to oversee the implementation of the guidelines, render in-service education and conduct regular inspections to ensure that infection control measures were adhered to:

> *"It is quite important for the staff to just know especially of the infection control, protocols of medication, all those kind of stuff"*

According to the national infection prevention and control guidelines document (South Africa, 2007:13) infection prevention and control measures are effective only if all staff members working in an institution understand the importance of the infection prevention and control policies and their role in implementing them.

The participants needed debriefing and counseling sessions whilst caring for MDR TB patients but no support was provided to nurses. A nurse, who had been assaulted by a violent patient whilst giving medication, reported that she received no support whatsoever by stating:

> *"Management didn't give me any emotional support or anything of that sort or tell me to take a day off. I had to work the same night… and the time I'm working now I cried the whole night, nobody gave me anything"*

Enrolled nurses expressed a need to feel appreciated by management and needed incentives:

> *"… so if we do have nurses that do a wonderful job but we don't get any praise for it, and then we have something called a nurses day but our hospital didn't even give us one cup of tea or a biscuit or anything to say we appreciate you"*

> *"… but we are aware that we are at risk in so much that we would like to have danger allowance because we know some of the staff they do get infected with TB"*

> *"… TB institutions … [should] … give us danger allowance"*

CONCLUSIONS

The enrolled nurses experienced fear of contracting MDR TB. The lack of equipment and supplies impacted negatively on providing quality nursing care. Although they sometimes received support from management, it was insufficient, but they received valuable support from their colleagues. The enrolled nurses also expressed their needs for in-service education and occupational compensation whilst working in the high risk MDR TB environment.

RECOMMENDATIONS

Sufficient extractor fans, hand wash basins and masks should be available. The hospital should purchase good quality gloves, masks and aprons and ensure their availability at all times.

Nursing education institutions should provide regular updates to all nurses. Health education should be given to patients, visitors and their relatives to prevent the spread of MDR TB.

Danger or Occupational Specific Dispensation (OSD) should be considered for nurses working in the MDR TB units. Adequate support should also be available to nurses.

LIMITATIONS OF THE STUDY

The study focused on one MDR TB hospital in KZN. Only five enrolled nurses participated in this study. If a larger sample of different categories of nurses was used it could have yielded different results. Triangulation of the findings could have been

done by using focus group interviews and interviews with other stakeholders such as managers of the hospital.

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