

**EXPLORING STUDENT NURSES' RISK PERCEPTIONS OF CONTRACTING
TUBERCULOSIS DURING CLINICAL PLACEMENT IN A SELECTED KWAZULU-NATAL
COLLEGE OF NURSING CAMPUS**

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By

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DECLARATION

This dissertation represents the original work of the author and it has never been submitted before for any other degree in any other institution. All sources that I have used or quoted have been indicated and acknowledged by means of referencing.

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Date

This dissertation has been read and approved for submission.

Supervisor: Dr Z.Z. Nkosi

Date

DEDICATION

I dedicate this work to my husband Mbuyiseni, for his love and endless support.

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I thank God for giving me wisdom and strength to complete this study. I wish to extend my sincere thanks and appreciation to the following people who contributed to this dissertation.

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ABSTRACT

The World Health Organization (WHO) declared Tuberculosis (TB) to be a global emergency (Baral, Karki & Newell, 2007). In KwaZulu-Natal 5 704 TB cases were registered in 2009 (KwaZulu-Natal Uthukela Health District report, 2009). According to Mak, Mo, Cheung and Woo (2006) pulmonary tuberculosis (PTB) has the longest history compared to other two types of infectious diseases which are HIV/AIDS and Severe Acute Respiratory Syndrome (SARS).

The purpose of this study was to explore student nurses' risk perceptions of contracting tuberculosis (TB) during their clinical placement in a selected KwaZulu-Natal College of Nursing campus.

The researcher used quantitative descriptive exploratory design. A questionnaire with closed and open ended questions was used to collect data from the respondents. Data was analysed using the Statistical Package for Social Sciences (SPSS) version 15.

One hundred and thirty- two respondents participated in the study, 66 (50%) were first year students and 66 (50%) were second year students. The majority of the respondents were females $n = 93$ (70, 5%).

The findings of the study indicated that student nurses perceived TB as a serious disease and they perceived themselves to be susceptible to contracting the disease during clinical placement. They also displayed good knowledge of preventive measures of risk perceptions, the highest mean score was 3, 79. The Fisher's exact test was performed to establish a relationship between the variables, and it showed that there was a relationship between age and perceived barriers, p -value was 0,039.

In conclusion, the respondents displayed relevant knowledge on TB preventive measures and positive perceptions of contracting TB, which will be the predisposing factors for behavioural change.

LIST OF ABBREVIATIONS

AIDS:	Acquired Immuno-deficiency Syndrome
COID:	Compensation for Occupational Injuries and Disease
DOTS:	Directly Observed Treatment Short Course
DPSA:	Department of Public Service and Administration
HBM:	Health Belief Model
HCW:	Health Care Worker
HIV:	Human Immuno-deficiency Virus
KZN:	Kwazulu-Natal
KZNCN:	KwaZulu-Natal College of Nursing
MDR TB:	Multi- Drug resistant Tuberculosis
OHS:	Occupational Health and Safety
PTB:	Pulmonary Tuberculosis
SANC:	South African Nursing Council
SARS:	Severe Acute Respiratory Syndrome
TB:	Tuberculosis
TST:	Tuberculin Skin Test
UKZN:	University of KwaZulu-Natal
WHO:	World Health Organization
XDR TB:	Extensively Drug Resistant Tuberculosis

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CHAPTER 1

INTRODUCTION TO THE STUDY

1.1 INTRODUCTION

Tuberculosis (TB) remains a leading cause of death in developed countries as well as developing countries (Mehtar, 2008). The statistics have revealed that the TB incidence per 100 000 population in the UK is 14, 5 in the USA and in South Africa it is 600 (Mehtar, 2008). Although TB is curable, it is still a threat to public health. One-third of the people worldwide are infected with TB (Chung & Hung, 2006).

The literature consulted revealed that globally, the incidence of TB among health care workers is still high. It is suggested by Harris, Nicolai, Canada & Virginia (2010) that little is known about compliance with universal precautions or occupational exposure to infectious diseases. However, Mehtar (2008) reported that there are TB prevention and control guidelines which were developed by the South African government to prevent the spread of TB infection in the workplace.

TB has become an occupational hazard to nurses and other workers because of the re-emergence of an extensively drug resistant (XDR) TB (Benkert, Resnick, Brackley & Shield, 2009). XDR and MDR TB incidence in South Africa is closely associated with HIV epidemics (Gandhi, Moll, Sturm & Pamiaski, 2006). Gandhi et al reported a high MDR & XDR TB prevalence in rural areas in KwaZulu-Natal, South Africa (Gandhi et al., 2006). Most of the health care facilities in developing countries do not have adequate resources to prevent TB, therefore health care workers are exposed to TB infection (Joshi, Reingold, Menzies & Pai, 2006).

Student nurses are also exposed to infectious diseases during clinical placements, as they are required to work in the wards and community clinics during the course of their training

just like any other health care worker (South African Nursing Council Regulation, R425).

This is congruent with the findings of the study conducted by Al-Jabri et al (2006) where they conducted a study among medical professionals and university students because the medical professionals were exposed to TB infection.

1.2 BACKGROUND

The World Health Organization (WHO, 2006) declared Tuberculosis (TB) a global emergency (Baral, Karki & Newell , 2007). Recent statistics has revealed that 14, 6 million people were reported to have the active TB disease and that 1.7 million people die of TB each year in Kathmandu, Nepal (Baral et al., 2007). WHO (2009) reported that the TB incidence rate globally is 139 per 100 000, whereas in America it is 31 (3%) per 100 000, and in Africa it is 2,529 (27%).

According to Mak, Mo, Cheung and Woo (2006), pulmonary tuberculosis (PTB) has the longest history compared to the other two types of infectious diseases which are HIV/AIDS and SARS. These authors reported the highest incidence of TB in South-East Asia (33%), and that TB is the leading cause of death (95%) among notifiable diseases in Hong Kong. Russia has also been reported to hold position number eleven among the countries with a high TB prevalence rate (WHO's Global Tuberculosis Control Report, 2009). In 2007, the TB incidence rate was 110 new cases per 100 000 population, and between 1998 and 2007 282,850 people died from TB (WHO's Global Tuberculosis Control Report, 2009). Russia has been ranked as having the third highest incidence of multi-drug resistant (MDR) TB in 2007 (WHO's Global Tuberculosis Control Report, 2009).

In Brazil, 90 000 new cases of TB and more than 5 000 deaths per year have been reported by Maciel, Viana, Zeitoune & Dietze (2005), following their study which was conducted at the Federal University of Espirito Santo to evaluate the incidence of TB infection among student

nurses, and also to determine the impact of knowledge of protective measures against the disease in relation to their practice. The research findings revealed that Tuberculin conversion was found to be higher (10, 5 %) among student nurses per year in Federal University of Espirito Santo compared to Brazil which was 0,5 % per year (Maciel et al., 2005). These results indicated that student nurses were at risk of TB infection.

A study by Saranchuk et al (2008) revealed that a high TB incidence rate is still a major problem in Lesotho, Southern Africa, and this is due to the high rates of HIV, TB-HIV co-infection. Two million people have been reported to have died from TB every year (Saranchuk et al, 2008). These authors also stated that there is a relationship between TB and HIV.

Although literature always refers to TB as Pulmonary Tuberculosis, (PTB) is said to be the most common, most easily spread, deadly, yet easy to cure type of TB (Murphy, Borus & Joshi, 2000). In support of this statement, several studies revealed that after the decline of communicable diseases, the PTB incidence rate began to rise in 1985. Quite a number of contributing factors have been identified as the cause of the PTB increase. One of these factors is the HIV epidemic. Murphy et al (2000) conducted a study in New York City where the PTB cases rose to 36 per 100 000 in comparison with national rates of 10 per 100 000. Corbett et al (2007, p317) reported that “in Zimbabwe the prevalence of HIV infection has been greater than 10% since the mid- 90s and the number of PTB cases has increased 10 fold since the 1980s”.

South Africa has a high TB incidence rate compared to other developing countries (Suri, Gan, & Carpenter, 2007). In South Africa, 461 new cases are reported per year, of which 336 are HIV positive (WHO report, 2009). In KwaZulu-Natal, 5 704 TB cases were registered in 2009 (KZN Uthukela Health District report, 2009).

KwaZulu-Natal (KZN) province has specifically been reported to be the worst affected province, with a TB prevalence rate of 1.6 % and a cure rate of only 42.3% (Suri et al., 2007). One major contributing factor to this increased incidence of TB in KZN is the development of a Multi-Drug resistant (MDR) TB which is difficult and expensive to treat (South African Department of Health, 1997). In support of this argument, Suri et al (2007) also argued that MDR and extensively drug resistant (XDR) TB were contributing factors that reduced positive treatment outcomes, which could result in an increase in the mortality rate among people receiving ARV's in KwaZulu-Natal (40 %). In 2006 alone, 17 cases were confirmed to have XDR TB in one of the KwaZulu-Natal Hospitals (Church of Scotland Hospital statistics (COSH), 2006). These findings implied that there was a high TB incidence rate in KZN compared to other provinces in South Africa.

According to The White Paper for the transformation of Health Systems (1997), "South Africa has more than 8, 2 million workers who spend 8 hours a day in formal employment. The health of these workers has been affected by biological agents resulting in occupational diseases and one of which is Tuberculosis". It has therefore been argued that "occupational health programs should focus on providing services, conducting research and disseminating information to improve workers health status" (White paper, 1997, p.92).

The Department of Public Service and Administration (DPSA) has proposed the implementation of an employee health and wellness strategic framework which applies to all government employees who are appointed in terms of the Public Service Act 1994, the Correctional Services Act 1998, and the Employment of Educators Act (Employee Health and Wellness Strategic Framework, 2009).

. The Minister of Public Service and Administration (MPSA) has indicated that it is the responsibility of a head of Department to provide and maintain a conducive, safe and healthy

work environment for all people employed by the department (Employee Health and Wellness Strategic Framework, 2009).

Based on the Occupational Health and Safety Act, 1993, health hazards should be controlled in the workplace, by improving occupational health and safety (Employee Health and Wellness Strategic Framework, 2009). The literature on TB among health care workers (HCWs) revealed consistent evidence of occupational exposure. This is confirmed in the study by Joshi et al (2006) where a systematic review was done in low and middle income countries among HCWs to summarise the evidence on the incidence and prevalence of latent TB infection. The results showed that the TB incidence rate among HCWs ranged from 25 to 5,361 cases per 100, 000 people per year.

The high TB infection rate may be associated with work placement, for example, TB facilities; laboratories and emergency facilities expose workers to greater risks compared to other departments (Joshi et al., 2006). HCWs more susceptible to risk are nurses, ward attendants, radiology technicians and paramedics (Joshi et al., 2006 & Maciel et al., 2005).

Student nurses, like other health care workers are exposed to TB infection. According to statistics obtained from a Pietermaritzburg-based hospital, nurses working in medical wards have more chances of becoming infected with TB than any other nurses (Hospital A 2008-2009 statistics). This was confirmed by Joshi et al (2006) in their study conducted in Uganda to determine the incidence rate and prevalence of latent TB among health care workers. The findings of this study revealed that TB infection seemed to be higher among HCWs working in medical wards than those in surgical wards and theatre departments. Also, nurses working in public sectors are more likely to become infected with TB than nurses in the private sector, because private hospitals have adequate treatment facilities compared to

public hospitals. To support this statement, fewer patients are admitted to private hospitals and therefore there are adequate facilities, for example, N95 masks and isolation facilities. Several studies have been conducted in other countries on risk perceptions related to communicable diseases including TB, HIV/AIDS and SARS among health care workers (HCW), (Zwart et al.,2009; Oyeyemi et al.,2006 and Dellobello, Rawlinson, Ntuli and Depoorter,2009).

Nurses may be exposed to TB and may not realise their risk of becoming infected even if it is not expressed verbally. The risk of TB exposure among nurses was confirmed by Corbett et al (2006) in their study conducted in Zimbabwe, where student nurses were compared with polytechnic school students in tuberculin skin testing (TST). The findings of this study revealed a 19, 3 TST conversion among student nurses, whereas polytechnic students experienced a 6, 0 TST conversion which implied high occupational exposure to TB infection. Similarly, the findings of a study conducted by Al-Jabri, Dorvlo, Rahbi and Al-Adawi (2006) in Oman to investigate the knowledge and perceived risk of TB infection among medics and non-medics revealed that medics had a better knowledge of TB, and a higher concern regarding their risk of contracting TB compared to the non-medics. They further reported that TB is regarded as one of the highest burden communicable diseases in the world compared to HIV/AIDS and Severe Acute Respiratory Syndrome (SARS). Presently, there has been no study conducted in KZN to determine student nurses' perceptions of their risk of contracting TB in the workplace. The researcher therefore felt that it was imperative to conduct such a study in KZN where TB is a leading cause of death.

1.3 PROBLEM STATEMENT

The risk of TB infection among HCWs is still a major problem worldwide. The HCWs still become infected with TB despite precautionary measures being in place in their workplaces. High risk perceptions of contracting TB have been noted among HCWs, including student

nurses in Zimbabwe (Corbett et al, 2006). However, these studies have been conducted elsewhere, and not in South Africa as yet. South Africa has the highest TB related death rate. Several studies have revealed that although student nurses displayed some knowledge about TB, the rate of TB infection is higher among them compared to that of other students (non-medics) (Joshi et al., 2006). A study which was conducted in South Africa, KwaZulu-Natal, regarding nurse perceptions of TB infection focused mainly on qualified nursing staff (Suri, Gan & Carpenter, 2007). In 2008, out of 88 nurses working in medical wards, eleven (12,5%) were diagnosed with the TB disease, and four (4,5 %) passed away as a result (KZN Hospital A, 2008-2009 statistics). Relevant statistics show that there is an increase in the numbers of nurses affected by TB since in 2009, 19 nurses (21,5 %) were diagnosed with TB and seven (8%) passed away (KZN Hospital A, 2008 – 2009 statistics).

There have been a number of student nurses diagnosed with TB during the course of their training (KZN CN Campus A reports, 2005-2009). Student nurses, like all other qualified nurses are placed in the wards and clinics in order to meet the stipulated clinical hours in the identified clinical setting. For example, student nurses who are registered for a four year diploma course are expected to work 640 hours in medical wards, and 400 hours in Community health clinics as per the South African Nursing Council (SANC) requirement (Regulation R425).

Even though strategies have been put in place to protect employees from contracting TB and to compensate those who have been infected, it is still not clear if employees, especially those in the health profession perceive themselves to be at risk of contracting TB. With KwaZulu-Natal being the hardest hit province in so far as TB deaths are concerned, it is important to target people in all settings, including workplaces, to determine their knowledge and perceptions regarding their risk of contracting this disease. The researcher therefore

deemed it imperative to conduct a study focusing on health care workers who are still in training, in order to contribute to the TB prevention strategies.

1.4 PURPOSE OF THE STUDY

The purpose of the study was to explore student nurses' risk perceptions of contracting TB during their clinical placements in a selected KwaZulu-Natal College of Nursing campus.

1.5 RESEARCH OBJECTIVES

1. To determine the student nurses' risk perceptions of their likelihood of contracting TB during the course of their clinical placements.
2. To describe student nurses' knowledge of preventive measures of risk perceptions while in the clinical setting.
3. To compare the differences between the first and second year students' knowledge of risk perceptions.

1.6 RESEARCH QUESTIONS

1. What are student nurses' risk perceptions of contracting TB during clinical placements?
2. What is the student nurses' knowledge of preventive measures of risk perceptions while in the clinical setting?
3. What are the differences between first- and second-year students' knowledge of risk perception?

1.7 SIGNIFICANCE OF THE STUDY

1.7.1 Practice

It is envisaged that the findings of the study will be used to reinforce precautionary measures to prevent TB infection because risks still exist. The number of nurses who are being

infected with TB is increasing despite precautionary measures and prevention guidelines in place. The findings will also help the managers to introduce pre-employment examinations, including screening for TB infection, so that students who are infected are treated and placed according to their health needs. Student nurses who are infected with TB may not be placed in medical wards while they are still on anti-TB treatment. Annual screening programs for the TB infection such as X-rays will be introduced so as to reduce the amount of time between developing symptoms and diagnosis. Chung & Hung (2006, p.79) confirmed that “high risk populations take TB screening based on perceptions of personal susceptibility to TB, the degree of disease severity and potential screening benefits and barriers to the implementation of the related screening exam”. Student nurses with latent TB will benefit from these programs because they may be protected from developing the TB disease.

1.7.2 Education

The findings will be utilised during curriculum development and review to ascertain whether the TB content is adequate and relevant to the students' level of study.

1.7.3 Research

The research findings will form a baseline for further research to be utilised by the nurse researchers in order to implement this information and also to identify gaps.

1.8 OPERATIONAL DEFINITIONS

Student nurse

In this study, a student nurse will be a person who is enrolled in the KZNCN campus for a four year course (SANC regulation R425) leading to registration as a professional nurse.

Perception

Perception is an action by which the mind understands and interprets information that has been presented to the senses (Fowler, 1984). In this study, perceptions refer to the process by which student nurses understand and interpret the tuberculosis disease.

Tuberculosis (TB)

In this study tuberculosis will mean an infectious disease that mainly affects the lungs (Pulmonary TB) and spreads when an infected person coughs or sneezes into the air.

Risk perception

This means the likelihood of exposure to TB infection in the clinical setting.

Clinical placement

Clinical placement refers to the period when student nurses are placed in the wards or clinics for correlation of theory with practice.

1.9 CONCLUSION

This chapter examined the prevalence of TB and the relevant statistics. It also covered the background of the study and the problem statement. The aims of the study, objectives and research questions were also presented. The significance of the study, which included nursing practice, nursing education and research, and operational definitions were also mentioned in this chapter.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

The researcher has reviewed some literature regarding risk perceptions of contracting TB among health care workers including student nurses in South Africa and other countries. The researcher obtained the information from books and electronic databases, namely, Science Direct, Ebscohost, Pubmed, Cinahl and Annals of Medicine. The researcher also identified and reviewed similar studies from different journals.

Keywords used were 'student nurses', 'tuberculosis', 'risk perceptions' and 'clinical placement'.

Topics covered in the literature review are:

- Types of TB
- TB knowledge and risk perceptions
- TB among health workers globally
- TB in South Africa
- Why TB is a problem in all health care settings
- An infection prevention and control plan
- Legislation
- TB infection control policy
- Conceptual framework

2.2 TYPES OF TB

TB may be divided into two types: The first type is Pulmonary TB (PTB) which primarily affects the lungs and may also be transmitted to other parts of the body including the bones, pleura and lymph nodes (Swierzewski, 2007). The second type is extra pulmonary TB which is more common in immuno-compromised patients. Extra pulmonary TB includes: TB peritonitis which involves the lining of the abdominal organs, renal TB which involves the

kidneys, TB meninges surrounding the brain, and TB pericarditis surrounding the heart (Swierzewski, 2007). HIV positive patients run a high risk of developing MDR-TB which may require a longer course of treatment (more than six months). This statement concurs with Saranchuk et al (2008) who reported that there is a relationship between TB and HIV, however this does not imply that all TB positive patients are HIV positive. TB is caused by an organism called *Mycobacterium tuberculosis*.

2.3 TB KNOWLEDGE AND RISK PERCEPTIONS

Mak, Mo, Cheung and Woo (2006) reported that TB has the longest history compared to the other two types of infectious diseases which are HIV/AIDS and SARS. Findings reported the highest incidence to be in South-East Asia (33%) and that it is the leading cause of death (95%) among notifiable diseases in Hong Kong, which is confirmed in a study conducted by Al-Jabri et al (2006) to determine the knowledge of TB among medical professionals and university students in Oman. This study revealed that globally, one third of the population is already infected with TB, and that medical students displayed a high level of knowledge which included general knowledge about TB, knowledge about risk factors and knowledge about the diagnosis of TB compared to the knowledge levels of non-medical students. (Al-Jabri et al (2006).

Studies exploring knowledge, attitudes and perceptions of nurses about HIV/AIDS and TB have been conducted in South Africa, Limpopo (De Villiers, 2007 and Dolobelle et al., 2009). A quantitative research design was applied. The findings revealed that nurses experienced negative emotions due to their perceived risk of contracting TB and HIV. Ncama and Uys (2003) conducted a study of a similar nature among registered nurses working in trauma units at selected hospitals in KwaZulu-Natal. Results indicated that nurses perceived themselves to be at high risk of contracting a disease due to their occupational exposure despite precautionary measures (Ncama and Uys, 2003).

Perceived vulnerability, together with perceived severity is equal to perceived threat. Student nurses will have the highest perceived threat of TB if they think that TB infection will result in serious complications. Based on the Protection Motivation Theory, when student nurses believe that the available protective measures (for example, N95 masks) against TB are effective (response efficacy), and when they believe themselves to be able to engage in those protective actions (self-efficacy), these are two other key predictors of protection motivation (Zwart et al., 2009).

According to Gibson et al (2005) relevant knowledge and positive perceptions are predisposing factors for behavioural change, therefore a lack of knowledge about TB will limit student nurses' ability to prevent its spread and to seek early treatment. Ailinger, Lasus and Dear (2003) conducted a study to determine Americans' knowledge and perceived risk of TB among the general population, so as to be aware of the seriousness of TB (perceived threat). Findings revealed that they demonstrated some generated knowledge of TB, several misconceptions, and were concerned with the risk of contracting TB although this was not high (Ailinger et al, 2003). This confirms that TB infection is a threat, even to the non-medical population. It was reported that older people displayed more knowledge than younger people (Ailinger et al, 2003). This necessitates TB education being incorporated in school health programs so that knowledge is imparted to the children in order to improve their levels of TB awareness (Ailinger et al, 2003). The community also needs to become knowledgeable about TB, because relevant knowledge is one of the predisposing factors for behavioural change (Gibson et al, 2005). This leads the researcher to the conclusion that if people are knowledgeable, they will be aware of the seriousness and the consequences of TB infection (perceived severity) (Kitazawa, 1995; Nyamathi et al., 2004).

Following the Severe Acute Respiratory Syndrome (SARS) outbreak in 2003 in Hong Kong, studies have been conducted to explore SARS' related risk perceptions, and knowledge in the Netherlands where there were no cases reported. Questionnaires were used to collect data, and the results revealed a high risk perception indicating that people were quite aware of the outbreak (Brug et al., 2004). A study of a similar nature was conducted by Zwart et al (2009). This was an international study which was conducted in Asian countries, China, Canada and the USA. Asian countries were reported to have low risk perceptions compared to the USA, but similar to those reported in the Netherlands. Both studies applied quantitative designs.

One year after the SARS outbreak, a follow-up study was conducted among health care workers in two Hong Kong Hospitals where the immediate and sustained psychological health was assessed since they had been exposed during the SARS outbreak (McAlonan, Lee & Cheung, 2007). Questionnaires were considered to be the most appropriate instruments to collect data, because the researcher had no close contact with the respondents, the reason being that they were in isolation wards. The results showed that "they had elevated levels of stress, they reported fatigue, poor sleep, worry about health and fear of social contact despite their confidence in infection control measures" (McAlonan et al., 2007, p.241).

2.4 TB AMONG HEALTH CARE WORKERS (CHWS) GLOBALLY

The literature on TB among HCWs revealed consistent evidence of occupational exposure. This is in line with a study by Joshi et.al (2006), where a systematic review was done in low and middle income countries among HCWs to summarise the evidence on incidence and prevalence of latent TB infection. TB incidence was associated with work placement, for example, TB facilities; laboratories and emergency facilities are exposed to greater risk than other departments Joshi et.al (2006). They also highlighted that in high income countries

such as the United States, “guidelines are in place to reduce the risk of transmission from patients to HCWs which are:

- Administrative controls (standard treatment plans for people with suspected or confirmed TB).
- Environmental controls (special isolation rooms)
- Respiratory protection controls which seem to be effective since there is a reduction in the incidence of TB in HCWs” (Joshi et.al (2006, p.4).

When comparing South Africa (as a middle income country) with the U.S., South Africa has the same guidelines in place, (The Draft National Infection Prevention and Control Guidelines for TB, MDRTB and XDRTB, 2007) but the incidence rate of TB is still high due to the HIV/AIDS epidemic. The findings revealed a high TB incidence in low income countries which is 69-5,780 per 100 000, considerably more than in high income countries where the incidence is 2-55 per 100 000 (Joshi et al., 2006). This is confirmed by a study conducted in Zimbabwe (a low income country) where it was reported that African Hospitals are not well equipped to prevent institutional transmission (Corbett et al., 2007).

TB among student nurses

Other studies have been conducted to determine the difference between the risk of exposure of nursing/medical students and non-nursing students (Benkert et al., 2009 & Chung et al., 2007). Tuberculin skin testing was carried out on nursing students and polytechnic students in Zimbabwe. A cohort study of TST conversion was done at 6, 12 and 18 months of training. At the beginning of their training, the results were negative with an induration diameter of less than 9mm (Benkert et al., 2009). Results showed that nursing students experienced 19,3TST conversion compared to polytechnic students who experienced 6, 0 TST conversion (Benkert et al., 2009). Nursing students had a high TST conversion due to the fact that they nursed patients with TB. This is in accordance with a study by Quqeshi and Crook (2008) where Manchester university students were scared of contracting TB. The

results indicated that twenty-five students tested positive, while five were carriers. It was also stated that, it is a general rule that one can not easily contract TB as it is not easy to spread from person to person, to be at risk, one has to spend long time in close contact with someone who has the active disease, is infectious and is coughing (Quqeshi and Crook, 2008). That is why nursing students in a Zimbabwean study experienced high TST conversion, because they spent more hours with TB-infected patients compared to polytechnic students (Corbett et al., 2007).

2.5 TB IN SOUTH AFRICA

South Africa has a high TB incidence rate compared to other developing countries (Suri, Gan, & Carpenter, 2007). Fourie & Donald (2006) said the high TB incidence rate in South Africa is associated with MDR strains. They also reported that MDR TB is low in Southern Africa compared to other countries in Africa and Asia. Africa has been reported to have 216 per 100 00 cases and the situation is aggravated by HIV infection, which comprises about 69% of TB cases (Fourie & Donald 2006). They also reported South Africa to be the worst country with regard to TB epidemics compared to other developing countries, and as having 60 times more epidemics than Western Europe, the reason being ascribed to poor management systems. Fourie & Donald (2006) said this is confirmed by the cure rate of 54 %. Reuters (2006) also confirmed that 74 people have died from XDR in South Africa, of whom 62 (84%) were HIV positive. KwaZulu-Natal, Mpumalanga and Gauteng are the leading provinces in terms of the TB rates.

TB in KwaZulu-Natal

KwaZulu-Natal (KZN) province has specifically been reported to be the worst affected province, with a TB prevalence rate of 1.6 % and a cure rate of only 42.3% (Suri et al, 2007). One major contributing factor to this increased incidence of TB in KZN is the development of Multi-Drug resistance (MDR) TB, which is difficult and expensive to treat (South African Department of Health, 1997). In support of this argument, Suri, Gan, &

Carpenter (2007) also argued that MDR and extensively drug resistance (XDR) TB were the contributing factors that reduced positive treatment outcomes which can result in an increase in the mortality rate among people receiving ARV's in KwaZulu-Natal (40 %). In 2006 alone, 17 cases were confirmed to have XDR TB in one of the KwaZulu-Natal Hospitals (COSH statistics, 2006). Gandhi et al (2006) also conducted a study on MDR & XDR TB, where they reported a high prevalence in rural areas (KZN). These findings implied that there was a high TB incidence rate in KZN compared to that in other provinces.

Alvarez et al (2004) conducted a retrospective cohort study in one of the district hospitals in Pietermaritzburg to describe the demographic and clinical characteristics of hospitalized TB cases. Findings revealed that out of 760 patients admitted to medical wards, 215 (28%) had active PTB. XDR first emerged in the KwaZulu-Natal province and thereafter in Gauteng.

Tuberculosis was declared a top health priority by the Department of Health in November 1996 which led to the implementation of DOTS strategy of the World Health Organisation (WHO, 2006).

2.6 WHY TB IS A PROBLEM IN ALL HEALTH CARE SETTINGS

According to the Draft National Infection Prevention and Control Guidelines for TB (2007,p.6), "Persons with undiagnosed, untreated and potentially contagious TB are also seen in all health care settings. TB is the most opportunistic disease and is a leading cause of death in persons with HIV & AIDS (People living with HIV/AIDS (PALWHA). In high TB burden settings, surveys have shown that up to 10% of persons with HIV infection may have previously undiagnosed TB at the time of HIV voluntary counselling and testing (VCT). (The Draft National infection control guidelines for TB, 2007). Health care workers and other staff are also at particular high risk of infection with TB because of frequent exposure to patients with the TB disease. Health care workers and staff may themselves be immuno-

suppressed due to HIV infection and may be at higher risk of developing the TB disease” (The Draft National infection control guidelines for TB, 2007; Saranchuk et al., 2008). This is also in line with the findings of a study conducted by Chanda, Davina & Gasnell (2006) in Zambia, where they stated that nurses have been affected by a high mortality of nurses with TB.

“Work practice and administrative control measures have the greatest impact on preventing TB transmission within health care facilities. They serve as the first line of defence for preventing the spread of TB in health care settings. Their goals are : to reduce the spread of infection by ensuring rapid and recommended diagnostic investigations and treatment for patients and staff suspected or known to have TB, and to prevent TB exposure to staff and patients. This can be accomplished through the prompt recognition, separation, provision of services, and referral of persons with potentially infectious TB disease” (The Draft National Infection Control Guidelines for TB, 2007, p.9).

2.7 AN INFECTION PREVENTION AND CONTROL PLAN

“Each facility should have a written TB infection prevention and control plan that outlines a protocol for the prompt recognition, separation, provision of services, investigation for TB and referral of patients with suspected or confirmed TB disease. TB suspects should promptly be investigated for TB following the national protocol”.

(The Draft National Infection Prevention and Control Guidelines for TB, 2007, p.10).

Mehtar (2008) also looked at the guidelines for the prevention and control of TB infection that are in place in the health care facilities.

Administrative support:

- “Each health care facility should establish a multidisciplinary infection prevention and Control committee where appropriate. This committee should comprise of at least the officer in charge of infection prevention and control in the facility, a microbiologist, a pharmacist and the hospital manager”

(The Draft National Infection Prevention and Control Guidelines for TB, 2007,p.13).

- **Training of staff**

“Infection prevention and control is only effective if all staff working in a facility understand the importance of the infection prevention and control policies and their role in implementing them. As part of training, each health care worker and staff member, including any lay workers, should receive job category-specific instructions. Training should be conducted before initial assignment and continuing education should be provided to all employees and volunteers annually”.

(The Draft National Infection Prevention and Control Guidelines for TB, 2007, p.13).

This is in accordance with a study conducted by Gibson et al (2007) who stated that relevant knowledge is a predisposing factor for behavioural change. Therefore, when health care workers have adequate knowledge of the prevention of the TB infection, they can prevent the spread of infection in a clinical setting.

Environmental control measures

“Environmental controls are the second line of defence for preventing the spread of TB in health care settings. It is important to recognise that if work practice or administrative controls are inadequate, environmental controls will not eliminate the risk”

(The Draft National Infection Prevention and Control Guidelines for TB, 2007, p. 15).

The above guidelines were developed to assist HCWs to reduce the risk of TB transmission which may be due to the high rate of TB infection.

2.8 LEGISLATION

In order to try and address the problem of TB in the workplace, the South African government has introduced a number of strategies and legislation that focus specifically on health and safety in the workplace. These are:

- Compensation for Occupational Injuries and Disease (COID), Act No. 130 of 1993
- Occupational Health and Safety (OHS), Act No. 85 of 1993
- The Draft National Infection Prevention and Control guidelines for TB

According to the COID Act, Section 65 (1) (a) occupational disease means “any disease mentioned in the first column of schedule 3 arising out of and contracted in the course of an employee’s employment”. Hattingh and Acutt (2003) define occupational disease as “a disease that is caused principally by factors that are peculiar to the working environment, and therefore arise out of and during work”. PTB is one of the diseases mentioned in schedule 3 of the COID Act (Hattingh and Acutt, 2003).

Student nurses are also protected by the COID Act because they hold the dual status of a student and an employee. Although this Act aims to assist employees who contract PTB to gain compensation, one of the challenges is that, in some cases, employees may not easily prove that their TB infection was due to occupational exposure, or that the infection was not contracted outside the workplace or before the commencement of employment. Similarly, student nurses are sometimes unable to prove that the disease was contracted during their course of training, since pre-employment examinations are not carried out (COID Act, 1933; KZNCN report, 2009).

The OHS Act on the other hand is a preventive Act which emphasises maintaining a healthy and safe environment for the employee. Under this Act, the employees are also expected to take full responsibility of their health by taking precautionary measures against infectious diseases (OHSA, 1993).

2.9 TB INFECTION CONTROL POLICY

The South African government has developed some guidelines to prevent the spread of the TB infection in the workplace, together with health care settings which are in line with the US Centers for Disease Control and Prevention (CDC) guidelines (Mehtar, 2007). These are:

- Policy on training and staff support.
- Patients infected with MDR and XDR TB are isolated from other patients to prevent the spread of the disease.
- N95 masks are available to protect health care workers from contracting MDR and XDR TB
- TB infected patients are given surgical masks or use a handkerchief to cover the nose and mouth when coughing, to prevent them from spreading TB. (The Draft National Infection Prevention and Control Guidelines for TB, 2007).
- An open window system is practised because of the unavailability of exhaust fans.
- Cough rooms for sputum sampling are available for mobile inpatients, but for immobile patients, the bed curtains are used.
- Because of a high load of TB cases it is not possible to provide a single room for each patient (Mehtar, 2007).

2.10 CONCEPTUAL FRAMEWORK

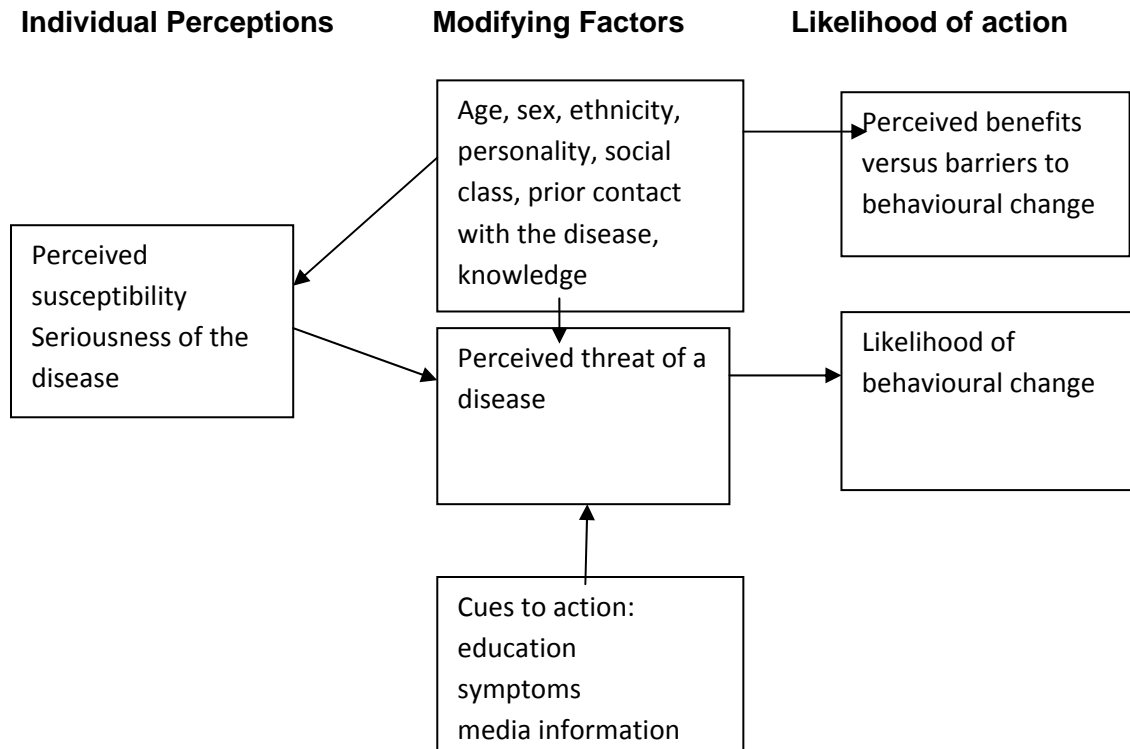


Figure 2.1 Components of Health Belief Model (Source: Glanz et al, 2002)

Health Belief Model

This study was guided by the Health Belief Model (HBM), which was developed to give an understanding why some people take specific preventive actions to avoid illness, whereas others could not protect themselves from getting a disease (Salazar, 1991). This model was also developed because people were not motivated to undergo TB screening, to get immunization or to take some preventive measures that were not paid for (Salazar, 1991). Rosenstock (1996) predicted which individuals would or would not use preventive measures such as screening for early detection of cancer. Becker (1974) modified the HBM to include individual perceptions, modifying factors and variables likely to affect initiating action. The HBM stipulates that "health seeking behaviour is influenced by a person's perceptions of a

threat posed by a health problem and the value associated with actions aimed at reducing the threat” (Polit & Beck, 2004, p.129).

HBM is based on the following constructs:

- Perceived susceptibility/vulnerability which means perceptions about the chances of contracting a disease.
 - In this study, it means the perceptions that student nurses have of their chances of contracting TB.
- Perceived severity which means perceptions about the seriousness of a disease and its consequences.
 - In this study, it means student nurses’ perceptions of the seriousness of the TB disease and its potential consequences.
- Perceived benefits which means perceptions about the effectiveness of taking precautionary measures to reduce the risk or severity of the disease.
 - In this study, it means student nurses’ perceptions regarding the benefits of TB prevention (Glanz et al, 2002).
- Perceived barriers means perceptions of the influences that facilitate or discourage adoption of the promoted behaviour.
 - In this study, it means the student nurses’ influences which may discourage the adoption of promoted behaviour.
- Perceived susceptibility and perceived seriousness may lead to perceived threat.
- Cues to action means factors activating readiness to change, e.g. mass media campaigns or advice from others.

Several researchers have applied the HBM in their studies to explain the knowledge and attitudes about TB, HIV/AIDS on risk-related behaviour (Chang et al.(2006) and Roden (2004) in his study to validate the revised HBM for young families, and Daddario (2007), in

his study to review the use of HBM for weight management. Chang et al (2007) also applied the HBM to analyse intentions to participate in preventive pulmonary tuberculosis chest X-ray examinations among indigenous nursing students in Taiwan.

Based on HBM, the researcher explored student nurses' risk perceptions of contracting TB, as well as the knowledge of prevention of those risks during clinical placements. It was envisaged that when student nurses perceive TB as a serious disease, and when they perceive themselves to be susceptible to TB infection, they can be motivated to adopt preventive measures.

2.11 CONCLUSION

This chapter focused on TB in KwaZulu-Natal, South Africa, and other countries worldwide. This chapter also referred to other literature on types of TB, TB among Health care workers and student nurses, infection prevention and control plans as well as legislation. The conceptual framework that guided this study was also described in this chapter. The components of the Health Belief Models, together with the studies that applied this model were presented.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 INTRODUCTION

The focus of this study was how student nurses perceive contracting TB during their clinical placements. This chapter discusses the paradigm underpinning the study, population and sampling, the research methods used to collect data, and the rationale explaining why those methods were chosen, how data was analysed, validity and reliability, and the ethical consideration involved in the study.

3.2 RESEARCH DESIGN

A research design is defined as the researcher's overall plan for obtaining answers to questions (Polit and Hungler, 2001). In order to understand the student nurses' risk perceptions of contracting TB, a quantitative, exploratory, descriptive design was adopted. The study adopted this design because there was no intervention and the phenomenon was studied as it occurred (Polit and Hungler, 2001).

Burns and Grove (2003, p.195) define quantitative research as "a formal, objective, systematic process in which numerical data are used to describe variables, examine the relationship between them and thus obtain information about the world". The researcher has chosen this approach because numerical data was collected using structured procedures and formal instruments to collect data.

The advantage of the quantitative design studies is that they avoid researcher influence and the results are based on objectivity (Polit and Hungler, 2001). The disadvantage is that they usually require extensive statistical analysis which may be difficult, because most researchers are not statisticians (Polit and Hungler, 2001).

According to Polit and Hungler (2001, p. 296), “exploratory studies are designed to explore the dimensions of a phenomenon or to develop or refine hypotheses about the relationships between phenomena.” This study explored the risk perceptions of contracting TB, and the knowledge of preventive measures to deal with perceived risks. Descriptive designs are concerned with representative samples of the population, the researcher only searches accurate information about the characteristics of the sample, subjects or groups (Burns and Grove, 2003). Information was gathered from student nurses to explore their knowledge and risk perceptions regarding contracting TB.

3.3 RESEARCH PARADIGM.

A research paradigm adopted in this study was positivism. According to Gephart (1999), positivism focuses on experimental and quantitative methods, and its goal is to uncover truth and facts as quantitatively specified relations among variables. It searches for contextual and organisational actions (Gephart, 1999). The reality was viewed as fixed, orderly and objective, because it was independent of the researcher since the researcher was using a questionnaire (Polit and Beck, 2004). Positivists believe that phenomena are not random events, but rather have causes (Polit & Beck, 2004). In this study, the researcher aimed to determine the student nurses’ perceptions of contracting TB.

3.4 RESEARCH SETTING

Data was collected from a sample of student nurses at a selected KwaZulu-Natal College of Nursing (KZNCN) campus. This campus is located in Pietermaritzburg, 29A Havelock Road, UMgungundlovu District (Refer to Figure 3.1). KwaZulu-Natal is one of the nine provinces in South Africa. UMgungundlovu District is in KZN. It offers three programs, namely, a four year program leading to registration as a professional nurse (SANC regulation R425), a one year midwifery program (SANC regulation R254), and a bridging course from enrolled nurse to registered nurse (SANC regulation R683). This campus was convenient because the

respondents were accessed while they were at a campus. This prevented contamination of data because they filled in the questionnaires at the same time.

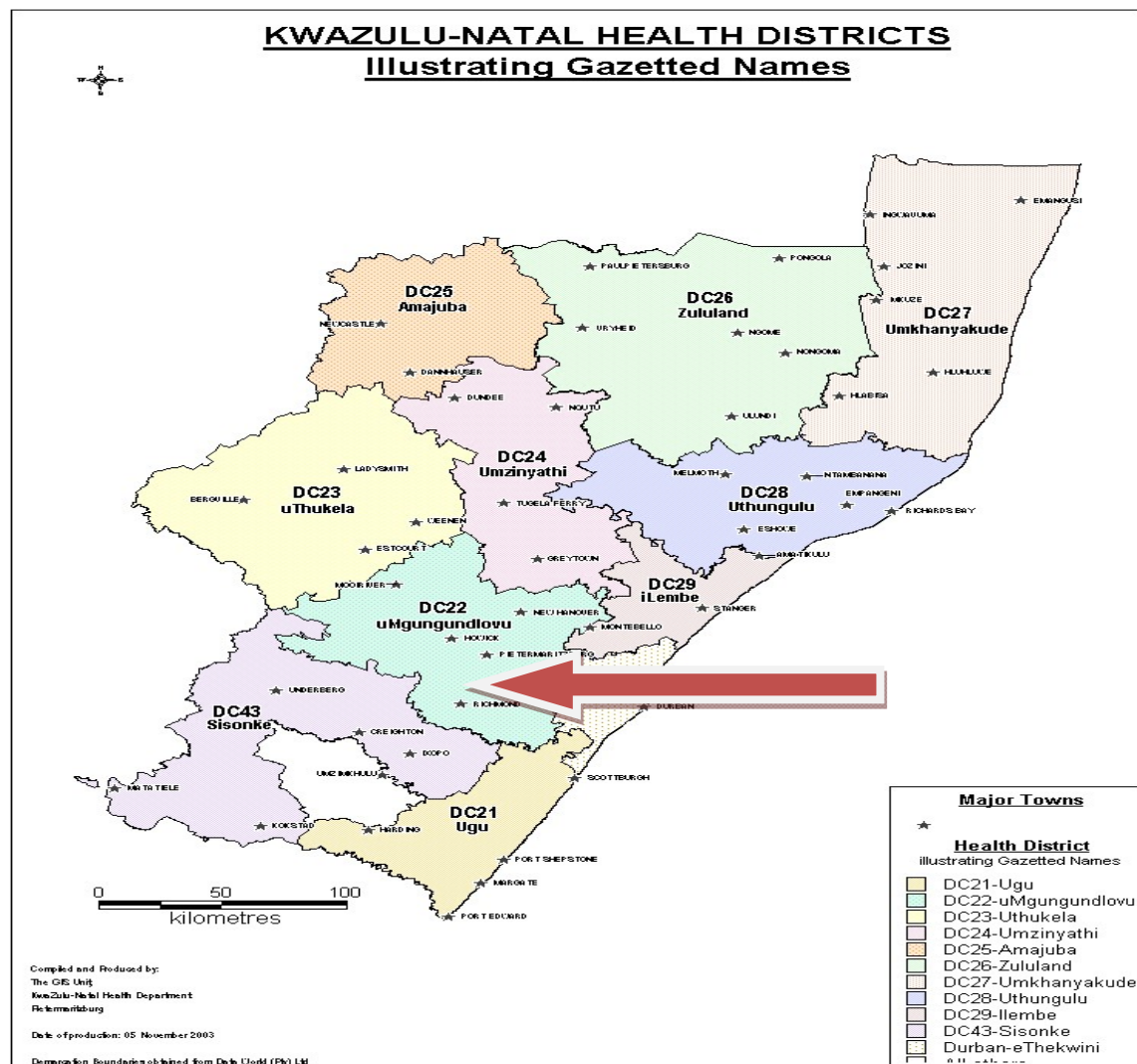


Figure 3.1 Map showing the KZN Health Districts

3.5 POPULATION

Brink (2006, p.123) define a population as “the entire group of persons or objects that is of interest to the researcher and that meet the criteria which the researcher is interested in studying”. The population comprised all 200 student nurses in the first and second year of study who were enrolled for a four year program (SANC regulation, R425). This population seemed to meet the criteria, since they were allocated to medical wards and community

clinics during their first and second year of training as per SANC requirements. Third and fourth year students were excluded because they were allocated to maternity and psychiatric units.

3.6 SAMPLE AND SAMPLING

Sampling “refers to the researcher’s process of selecting the sample from a population in order to obtain information regarding a phenomenon in a way that represents the population of interest” (Brink, 2006, p.124). For a quantitative study, it is believed that a large sample is of essence since the findings will be generalised. A representative sample was selected from both levels (first and second year level).

3.6.1 Sample size

A sample size was determined by the size of the population. The Raosoft sample size calculator was used to calculate the sample size (See Table 3.1)

3.6.2 Sampling technique

Probability, systematic sampling technique was adopted for this study. The researcher used a sampling frame (class registers were used as a sampling frame) to draw the names of a sample to participate in the study. There was a first year list and a second year list.

According to Polit & Beck (2004), systematic sampling means the selection of every k th case from a list, such as every 5th or 10th person in a list. Since a sample of 66 respondents was drawn, the researcher calculated which element on the sampling frame was to be selected (Polit & Beck, 2004).

If a selected student refused to participate, the researcher intended selecting the next student on the sampling frame and following the same technique. This technique was used

to avoid bias, and allowed all members of the population to have an equal chance of being selected.

Table 3.1 Raosoft Sample size calculator

What margin of error can you accept? 5% is a common choice	5%	The margin of error is the amount of error that you can tolerate. If 90% of respondents answer <i>yes</i> , while 10% answer <i>no</i> , you may be able to tolerate a larger number amount of error than if the respondents are split 50-50 or 45-55. Lower margin of error requires a large sample size.
What confidence level do you need? Typical choices are 90 %, 95%, or 99%	95%	The confidence level is the amount of uncertainty you can tolerate. Suppose you have 20 <i>yes-no</i> questions in your survey, with a confidence level of 95%, you would expect that for one of the questions (1in20). The percentage of people who answer <i>yes</i> would be more than the margin of error away from the true answer. The true answer is the percentage you would get if you exhaustively interviewed everyone. Higher confidence level requires a larger sample size.
What is the population size? If you don't know, use 20000	200	How many people are there to choose your random sample from? The sample size doesn't change much for a larger population than 20,000.
What is the response distribution? Leave this as 50%	50%	For each question, what do you expect the results will be? If the sample is skewed highly one way or the other, the population probably is too. If you don't know, use 50%, which gives the largest sample size. See below under More information if this is confusing.
Your recommended sample size is	132	This is the minimum recommended size of your survey. If you create a sample of this many people and get responses from everyone, you're more likely to get a correct answer than you would from a large sample where only a small percentage of the sample responds to your survey.

Source: <http://www.raosoft.com/samplesize.html>

For 200 student nurses, which was a population size (N), (100 students from each level of study), a margin error (E) of 5%, the fraction of responses that is of interest, (r) of 50% (yields the largest sample size) and Z (c/100) as the critical value for the confidence level c (95%). The recommended sample size was 132. Therefore 66 respondents were selected from each level.

3.7 DATA COLLECTION

Permission was sought from the Principal of the selected Campus and the date for data collection was set. A classroom was used as the venue for data collection. Quantitative data was collected from student nurses using the questionnaire. The questionnaires were administered by the senior students to the individual respondents during their spare time which comprised tea break and lunch time, to eliminate bias. The researcher was on hand to explain and clarify questions and to answer respondents' queries (Polit and Hungler, 2001). The purpose of the study was explained to the respondents and they signed the completed informed consent forms. The completed questionnaires were collected and placed in a box for security reasons. Codes and numbers were used to ensure confidentiality (Burns and Grove, 2003).

3.8 RESEARCH INSTRUMENT

A questionnaire was selected as the most appropriate instrument to collect data because it is:

- The quick way of obtaining data from a large group of people.
- Less expensive in terms of time and money.
- One of the easiest research instruments to test validity.
- The format is standard for all objects and is not dependent on the mood of interviewer (Brink, 2006, p.147).

The researcher developed a questionnaire guided by the conceptual framework and the literature. The instrument was in simple and clear English, which was easier for respondents to complete (Burns and Grove, 2003). The instrument was checked by experts from the School of Nursing.

The questionnaire was divided into three sections which contained open- and close-ended questions.

- Section A covered the participants' demographic information with four items.
- Section B covered the risk perceptions and the knowledge of prevention of risk perception (Perceived susceptibility/vulnerability, perceived seriousness/severity, perceived benefits and perceived barriers). These perceptions were measured based on the Health Belief Model.
- In Section C, two open-ended questions were asked based on knowledge and screening for TB infection.

A four-point likert scale was used to rate the responses. According to Brink (2006, p.153) a likert scale "is an example of a summated rating scale which is frequently used to test attitudes or feelings". The researcher used a likert scale to collect data about the student nurses' risk perceptions of contracting TB. The likert scale that was used for this study had four alternatives which were : strongly disagree, disagree, agree, and strongly agree. Very unlikely, likely, very likely were also used as alternatives.

3.9 VALIDITY AND RELIABILITY

3.9.1 Validity

Validity refers to whether an instrument measures what it is supposed to measure (Brink, 2006).

3.9.2 Content validity

Content validity was used as a means of ensuring the validity of the data collection instrument (questionnaire) so as “to assess how well the instrument represents all the components of the variable to be measured” (Brink, 2006, p.160). Polit and Hungler (2001) also stated that validity refers to the ability of the research instrument to measure the phenomenon that it is supposed to measure.

Table 3.2 Content validity

Research objectives	Conceptual Framework	Instrument
1. To determine the student nurses' risk perceptions of them contracting TB during the course of their clinical placements	Perceived severity/ seriousness	Section B 1.1 – 1.5
	Perceived susceptibility/ vulnerability	Section B 2.1-2.5
	Perceived benefits	Section B 3.1-3.5
	Perceived barriers	Section B 4.1-4.6
2. To describe student nurses' knowledge of prevention measures of risk perceptions in the clinical setting	Modifying factors : Knowledge of prevention measures of risk perceptions	Section B 5.1-5.7 Section C1

3.9.3 Reliability

Gerish & Lacey (2006, p.539) define reliability as “a measure of the consistency and accuracy of data collection”. In this study, reliability was measured using Cronbach's Alpha coefficient which is a method to evaluate the internal consistency of the instrument (Polit & Beck, 2004). The higher values reflect a higher internal consistency. Polit & Beck (2004) indicated 0,7 to be an acceptable reliability coefficient. The reliability of the instrument was 0,63 which is below 0,7.

3.9.4 Pilot study

A pilot study was conducted at a similar campus, whereby a representative sample was selected from both levels (first and second year level) to develop and refine a data collection instrument or data collection process, and to check the reliability and validity of the research tool (Burns and Grove, 2003). The representatives of each level were given a questionnaire to complete. Five student nurses completed the questionnaire and the data collected was analysed. These students were excluded from the main study. A pilot study was also conducted to test the instrument and identify problems (Cormack, 2000). The researcher was able to test the use of the instrument and to assess whether the questions were understood. The findings reflected that the questionnaire was easy to understand. Technical errors were identified in the instrument, and these were corrected before the main study was conducted.

3.10 ETHICAL CONSIDERATIONS

The ethics of nursing research are governed by the key principles (Gerish & Lacey, 2006). The following principles were considered; permission, informed consent, the right to self-determination and the right to privacy.

3.10.1 Permission to conduct a study

Before conducting the study, permission was obtained from the University of KwaZulu-Natal's ethics committee, the Department of Health KZN Province Research ethics committee, the Principal of the KwaZulu-Natal College of Nursing, and the Principal of the selected Campus (Annexure 4, 5, 8 & 9). The researcher also obtained permission from the respondents by means of a letter which explained the purpose of the study and a written informed consent form.

3.10.2 Informed consent

The participants were informed of the purpose of the study, data collection method, duration and participation needed from the information sheet (Annexure 2). Respondents were asked not to use their names on the questionnaires. Codes were used to ensure confidentiality. Before the questionnaires were distributed, each respondent signed an informed consent form (Annexure 3).

3.10.3 The right to self-determination

The participants have a right to participate in research voluntarily, and also have a right to withdraw from a study at any time (Burns and Grove, 2003). The researcher explained to the respondents that their participation was voluntary before the questionnaires were administered.

3.10.4 The right to privacy

Privacy was maintained throughout the study. Confidentiality was also maintained by using codes instead of students' names in the questionnaires. The campus at which the study was conducted was referred to as a selected campus.

3.11 DATA ANALYSIS

The Statistical Package for Social Science (SPSS) computer program, Version 15 was used to analyse data. The data was coded and analysed quantitatively. Tables, bar and pie charts were used. Descriptive statistics using frequencies were analysed. Scores of risk perceptions and knowledge were calculated. Cross-tabulation was performed to determine the relationship between the variables. The Fisher's exact test was used to explore the relationship, and a p-value of 0,039 resulted which is statistically significant. The Fisher's exact test is defined as a statistical test of independence much used in medical research, which tests the independence of rows and columns in a 2 x 2 contingency table (Davies,

2007). The Mann-Whitney U and the Wilcoxon W test were used to identify the differences between the first year and second year respondents' knowledge of perceived risks. The p-value was 0,001 which is statistically significant because it is lower than 0,05. The Mann-Whitney U test is defined as a test used in non-parametric statistics to determine whether the means of two populations are equal and can be used when the assumptions underlying the t-test are not met (Gerish & Lacey, 2006). The Wilcoxon W test enables the comparison of outcomes that employ rating scales based on ordinal levels of measurements (Davies, 2007).

3.12 DATA MANAGEMENT

Data documents were kept under lock and key to maintain confidentiality. The researcher used a computer with a login code known only to the researcher and the analysed data was saved in computer files. Data will be destroyed after 5 years.

3.13 DATA DISSEMINATION

- The researcher will submit one hard copy thesis to UKZN (Faculty of Health Sciences) and send two copies to the UKZN library.
- One copy will be sent to KZNCN and one to a selected Campus.
- A date will be arranged for feedback to the respondents.
- Findings will be published in an accredited academic journal.

3.14 CONCLUSION

This chapter covered the research approach, design, research setting, study population and sampling. The research instrument, validity and reliability of the instrument, data collection process, data analysis and ethical considerations were also explained. Data management and dissemination were also covered in this chapter.

CHAPTER 4

DATA ANALYSIS

4.1 INTRODUCTION

This chapter presents the analysis and findings of a study which aimed at exploring the student nurses' perceptions of contracting TB during their clinical placements. This chapter discusses the data gathered from the questionnaire, as well as the major themes that emerged from the open-ended questions. It also covers the respondents' demographic data and the results on student nurses' perceptions of contracting TB and their knowledge of preventive measures. Data were analysed using the Statistical Package for Social Science (SPSS) Version 15, 00 for Windows. During the analysis, frequency distributions, mean, cross-tabulations and Cronbach's Alpha were carried out. The findings are presented in the form of tables, pie charts and bar charts. The responses "unlikely" and "very unlikely" were grouped into "unlikely", while "strongly disagree" and "disagree" were grouped into "disagree". The responses "likely" and "very likely" were grouped into "likely"; and "strongly agree" and "agree" were grouped into "agree".

One hundred and thirty-two questionnaires were distributed among the first and second year student nurses from a selected campus. All 132 questionnaires were returned, which represented a 100% return rate.

The objectives of the study were:

- To determine the student nurses' risk perceptions of contracting TB during the course of their clinical placements.
- To describe the student nurses' knowledge of preventive measures of risk perceptions while in the clinical setting.

- To compare the differences between first and second year students' knowledge of risk perceptions.

4.2 FINDINGS

4.2.1 RESPONDENTS' DEMOGRAPHIC PROFILE

4.2.1.1 Gender

The respondents' gender profile is presented in Figure 4.1. All 132 respondents provided their gender. The majority of the respondents were females (n =93) 70, 5% and males (n= 39) 29, 5 %.

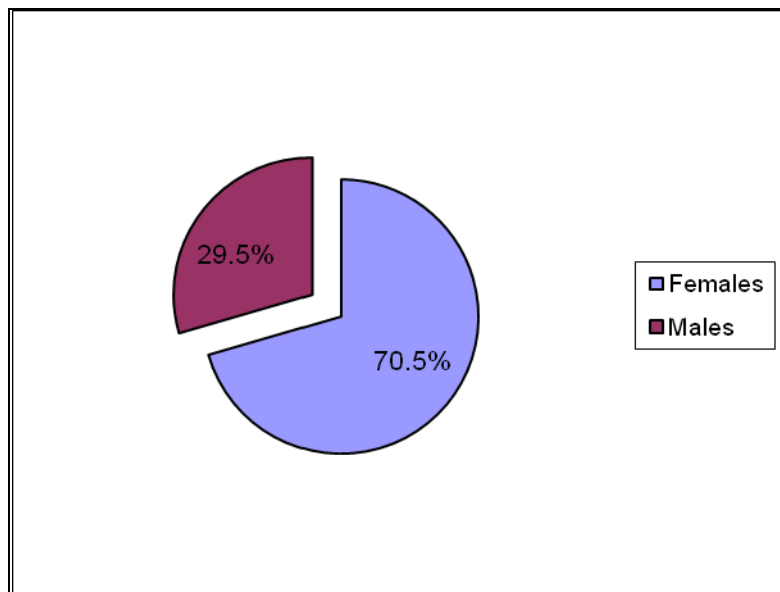


Figure 4.1 Respondents' gender profile N = 132

4.2.1.2 Race distribution

Of the respondents, n= 117 (88,6 %) were Black, n=7 (5,3%) were Indian, n=8 (6,1%) were Coloured. Table 4.1 illustrates the race distribution.

Table 4.1 Respondents' race distribution N = 132

Race	Frequency	Percentage
Black	117	88,6
Indian	7	5,3
Coloured	8	6,1
Total	132	100

4.2.1.3 Age

Figure 4.2 presents the average age of the respondents. The majority of the respondents were 22 - 25 years old (34.1 %), followed by 18 - 21 years (31,8%). The minimum age of the respondents was 18 years and the maximum was 49 years.

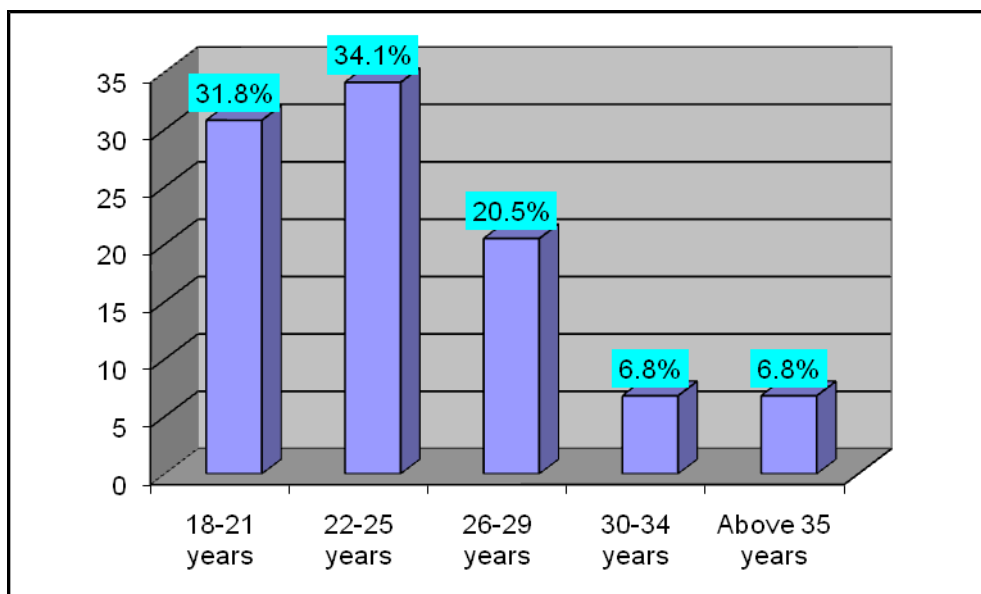


Figure 4.2 Respondents' age distribution N = 132

4.2.1.4 Year of study

Table 4.2 indicates the level of study. One hundred and thirty-two respondents from the R425 program participated in this study. Sixty-six (50 %) were from the first year level, and n=66 (50 %) were from the second year level

Table 4.2 Year of study

Year of study	Frequency	Percentage
First year	66	50
Second year	66	50
Total	132	100

Table 4.3 Summary of respondents' demographic profile

Demographic variables	Variable attribute	Frequency	Percentage
Gender	Female	93	70,5
	Male	39	29,5
	Total	132	
Race	Black	117	88,6
	Indian	7	5,3
	Coloured	8	6,1
	Total	132	100
Age group	18-21 years	42	31,8
	22-25 years	45	34,1
	26-29 years	27	20,5
	30-34 years	9	6,8
	Above 35 years	9	6,8
	Total	132	100
Year of study	First year	66	50
	Second year	66	50
	Total	132	100

4.3 RISK PERCEPTIONS

4.3.1 Perceived Severity/seriousness

Table 4.4 Respondents' responses to severity/seriousness (N=132)

Statements	Not serious/ unlikely		Serious/likely		Total
How serious would it be for you to to contract TB ?	7	5,3%	124	93,9%	131 99,2%
How serious would it be for you if you are in direct contact with a person who has untreated TB ?	5	3,8%	127	96,2%	132 100%
How likely do you think it is that somebody with TB can develop MDR if s/he is not taking treatment as prescribed?	6	4,5%	126	95,5%	132 100%
How likely do you think it is that you will contract TB during the course of your training?	26	19,7%	105	79,5%	131 99,2%
How likely do you think it is that you will contract TB this year, compared to non-nursing students, for example, fashion-design students?	24	18,2%	108	81,8%	132 100%

Respondents were asked five questions to indicate how serious and how likely it would be for them to contract TB during their course of training. The responses are reflected in Table 4.4. One hundred and twenty-four respondents (93%) agreed that it would be serious for them to contract TB. The majority of the respondents, n=127 (96,2%) reported that it would be serious for them to be in direct contact with a person who has untreated TB. N= 126 (95,5%) agreed that it is likely that one could develop MDR TB if s/he was not taking

treatment as prescribed. The least reported response was that they would contract TB during the course of their training which was n= 105 (79%).

4.3.2 Perceived Susceptibility/vulnerability

Table 4.5. Respondents' responses to perceived susceptibility (N=132)

Statements	Disagree		Agree		Total
You are at risk of contracting TB if you :					
Have direct contact with TB infected patients	10	7,6 %	122	92,4%	132 (100%)
Have diabetes or HIV/AIDS	25	18,9%	106	80,3%	131 (99,2%)
Hav poor nutritional status	28	21,2%	102	77,3%	130 (98,5%)
Partake of an excessive amount of alcohol	57	43,2%	73	55,3%	130 (98,5%)
Suffer from stress	68	51,5%	49	37,1%	117 (88,6%)

Respondents were asked to indicate their perceptions about their chances of contracting TB. These perceptions were explored using statements which were scored as displayed in Table 4.5. The findings indicate that the majority of the respondents reported that they would be susceptible if they had direct contact with TB infected patients, n= 122 (92,4%), if they had HIV/AIDS n= 106 (80,3%), if they had poor nutritional status n= 102 (77%), and partook of an excessive amount of alcohol, n= 73 (55,3%).

However, there were mixed feelings about the statement that they stood a chance of contracting TB when suffering from stress. This is shown by the score which was below 50%, n=19 (37,1%). Fifteen respondents (114%) did not respond to this statement. (See Figure 4.3)

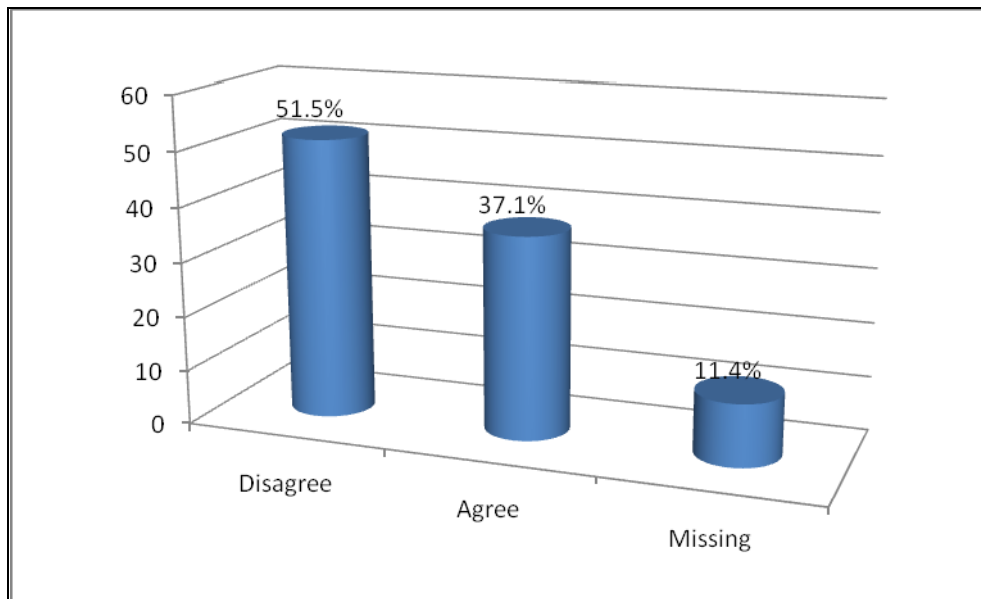


Figure 4.3 Responses to the statement “suffer from stress”

4.3.3 Perceived benefits

Table 4.6 shows the frequencies and percentages of the respondents' responses to perceived benefits.

Table 4.6 Respondents' responses to perceived benefits (N=132)

Statements	Disagree		Agree		Total
N95 mask can protect me against MDR TB	39	29,5%	90	68,2%	129 97,7%
A surgical mask can protect me from contracting TB	85	64,4%	46	34,9%	131 99,2%
A TB diagnostic test should be done immediately to prevent a delay in diagnosing	2	1,5%	130	98,5%	132 100%
An early TB diagnosis can reduce complications of the disease	2	1.5%	130	98,5%	132 100%
Early TB detection is the most significant benefit that will motivate me to take preventive action	5	3,8%	127	96,2%	132 100%

The respondents displayed knowledge about the effectiveness of taking precautionary measures to reduce the risk of contracting TB. The highly reported responses were: a TB diagnostic test should be done immediately to prevent a delay in diagnosing n=130 (98, 5%), and that early diagnosis can reduce the complications of the disease n=130 (98,5%), followed by n=127 (96,2%) who mentioned that early TB detection is the most significant benefit that would motivate them to take preventive action. N= 90 (60%) reported that an N95 mask could protect them against MDR TB. The least reported statement was that a surgical mask could protect them from contracting TB n=46 (34%). (See Table 4.6)

4.3.4 Perceived Barriers

Table 4.7 Respondents' responses to perceived barriers (N=132)

Statements:	Disagree		Agree		Total
I am reluctant to undergo a TB test because:					
I am worried about the findings	45	34,1%	87	65,9%	132 (100%)
I don't have time to go to the doctor	25	18,9%	105	79,6%	130 (98,4%)
I am worried about the potential side effects of TB drugs	42	31,8%	90	68,2%	132 (100%)
The TB clinic is isolated from other clinics	36	27,2%	95	71,9%	131 (99,2%)
A nurse who is responsible for TB results is my neighbour	16	12,1%	116	87,9%	132 (100%)
There is always a long queue at the TB clinic	28	21,2%	104	78,8%	132 (100%)

The respondents were asked to indicate whether the statements in Table 4.7 were perceived as barriers that could prevent them from undergoing testing for TB. The results indicate that the respondents did not perceive these statements as barriers to TB testing. All the disagreeing responses scored higher than 50%. (Refer to Figure 4.4)

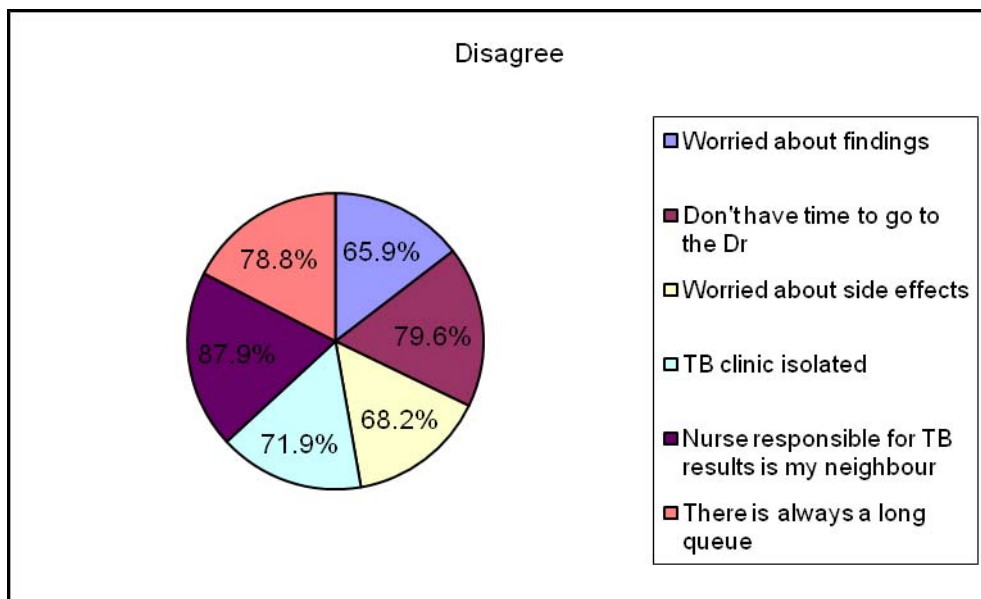


Figure 4.4 displays the respondents' disagreeing responses to the perceived barriers.

4.4 KNOWLEDGE OF PREVENTION MEASURES AGAINST RISK PERCEPTIONS

Table 4.8 indicates that the respondents displayed good knowledge of prevention measures of perceived risks. One hundred and eleven (84, 1%) respondents reported that they take precautionary measures in respect of all HIV positive patients who show signs of TB. One hundred and nineteen respondents (90, 2%) mentioned that adequate ventilation in a crowded ward can reduce the risk of TB transmission, while n=121 (91, 7 %) reported that the immediate screening of patients for prolonged cough in the outpatient department can prevent the spread of TB. One hundred and twenty-two (92, 4%) believed that TB suspects should be considered infectious until a diagnostic investigation is complete. The highly reported preventive measure was that it is necessary to have TB prevention and control policies in all TB facilities. This comprised n=128 (96, 9%).

Table 4.8 Knowledge of prevention measures against risk perceptions (N=132)

Statement	Disagree		Agree		Total
I take precautionary measures in respect of all HIV positive patients who show signs of TB even if TB results are negative	20	15,1%	111	84,1%	131 99,2%
Adequate ventilation in a crowded ward can reduce the risk of TB transmission	13	9,8%	119	90,2%	132 100%
Immediate screening of patients for prolonged cough in the outpatient department can prevent the spread of TB	11	8,3%	121	91,7%	132 100%
A TB suspect should be considered infectious until a diagnostic investigation is completed	10	7,6%	122	92,4%	132 100%
TB suspects should be provided with a surgical mask to cover their mouths	16	12,2%	116	87,8%	132 100%
Triaging symptomatic patients can help reduce the amount of time that others are exposed to the infection	13	9,8%	118	89,4%	131 99,2%
It is necessary to have TB prevention and control policies in all TB facilities	4	3,1%	128	96,9%	132 100%

4.5 MEAN SCORES OF RISK PERCEPTIONS

The mean is defined by Brink (2006, p.177) as “the arithmetical average of all scores in a distribution and is considered the most suitable measure of central tendency”. According to Gorard (2001,p. 185), the mean “gives the reader an idea of the central or most representative value of a set of measurements”. In this study, mean score that is: $x < 2$ is regarded as low. Mean score from 2 – 3 is regarded as median, and $x > 3$ is regarded as high.

4.5.1 Mean scores of perceived benefits

Table 4.9 Mean scores of perceived benefits

Statements	Mean	Std deviation
N95 mask can protect me against MDR TB	2.79	0.757
A surgical mask can protect me from contracting TB	2.18	0.932
TB diagnostic test should be done immediately to prevent a delay in diagnosing	3.70	0.520
Early TB diagnosis will reduce complications of the disease	3.74	0.472
Early TB detection is the most significant benefit that will motivate me to take preventive action	3.58	0.618

From Table 4.9, the statements, “TB diagnostic test should be done immediately to prevent a delay in diagnosing (3, 70), early TB diagnosis will reduce complications of the disease (3, 74) and early TB detection is the most significant benefit that will motivate me to take preventive action (3, 58)” had the highest scores of more than 3. This shows that the respondents had knowledge of the effectiveness of taking precautionary measures to reduce the risk of contracting TB. Figure 4.5 also displays the mean scores of perceived benefits.

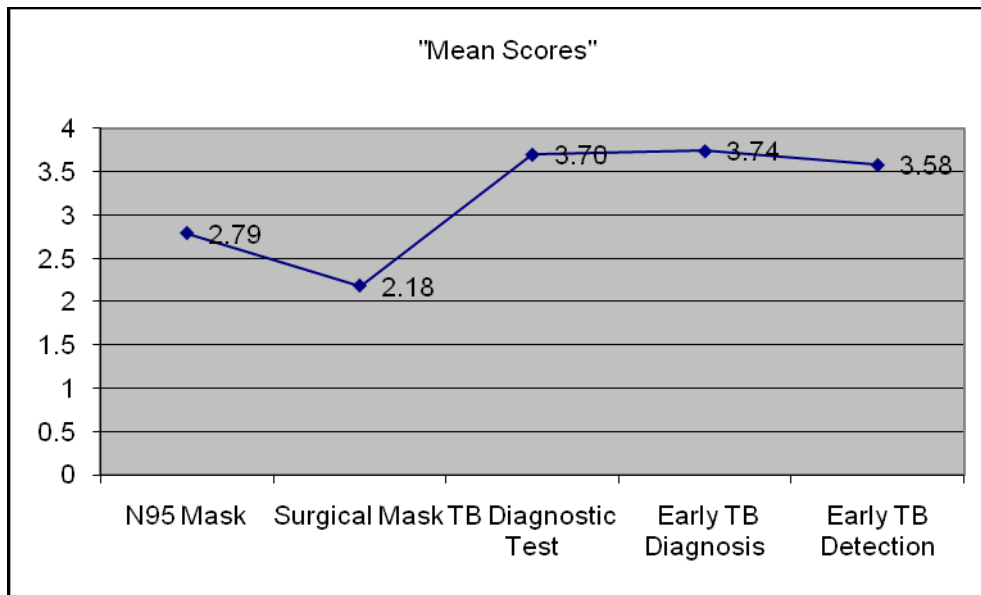


Figure 4.5 displaying the mean scores of perceived benefits

4.5.2 Mean scores of perceived barriers

Table 4.10 Mean scores on perceived barriers

Statements	Mean	Std deviation
I am reluctant to do undergo aTB test because:		
I am worried about the findings	2,04	0,976
I don't have time to go to the doctor or clinic	1,82	0,811
I am worried about the potential side-effects of the TB drugs	2,13	0,911
The TB clinic is isolated from other clinics	1.98	0,903
A nurse who is responsible for TB results is my neighbour	1,69	0,802
There is always a long queue at the TB clinic	1,96	0,894

Table 4.10 indicates that most of the statements had lower scores of less than 2 which shows that the respondents did not perceive these statements as barriers to undergoing a

TB test. Thus, statements, “I don’t have time to go to the doctor or clinic (1, 82); the TB clinic is isolated from other clinics (1, 98); a nurse who is responsible for TB results is my neighbour (1, 69); and there is always a long queue at the TB clinic (1, 96)”.

The knowledge of preventive measures was explored using statements which are presented in Table 4.11. All statements scored more than 3. The highest mean score was for the statement “It is necessary to have TB prevention and control policies in all TB facilities”, which was 3, 79. These high scores indicate that the respondents had adequate knowledge of prevention of perceived risks.

4.5.3 Mean scores of knowledge of preventive measures against risk perceptions

Table 4.11 Mean scores of knowledge of TB preventive measures

Statements	Mean	Std deviation
I take precautionary measures in respect of all HIV positive patients who show signs of TB even if TB results are negative	3,20	0,808
Adequate ventilation in a crowded ward can reduce the risk of TB transmission	3,38	0,747
Immediate screening of patients for prolonged cough in the outpatient department can prevent the spread of TB	3,40	0,708
A TB suspect should be considered infectious until a diagnostic investigation is completed	3,39	0,695
A TB suspect should be provided with a surgical mask to cover his/her mouth	3,35	0,751
Triaging symptomatic patients can help reduce the amount of time that others are exposed to the infection	3,23	0,663
It is necessary to have TB prevention and control policies in all TB facilities	3,79	0,539

4.6 CROSS-TABULATIONS

4.6.1 Relationship between age and severity of contracting TB

In order to establish the relationship between the age and the severity of contracting TB, the Fisher's exact test was conducted to compare age and seriousness of contracting TB when someone is in direct contact with a TB infected person. The results showed that the p-value was 0,220. Therefore, there was no relationship between the two variables (Refer to Table 4.12)

Table 4.12 Cross-tabulations of age and severity of contracting TB when one is in direct contact with an untreated person

	Seriousness of contracting TB if one is in direct contact with an untreated person					
Age	Extremely not serious	Not serious	Serious	Extremely serious	Total	Fisher's exact test p-value
18-21 years	0	0	9	33	42	0,220
22-25 years	1	2	18	24	45	
26-29 years	0	1	6	20	27	
30-34 yeas	0	0	3	6	9	
Above 35 years	0	1	1	7	9	
Total	1	4	37	90	132	

4.6.2 Relationship between age and susceptibility of student nurses to contracting TB

The Fisher's exact test was carried out to test the relationship between age and susceptibility to contracting TB when suffering from stress. The results indicated that the p-value was 0,185. Therefore there was no statistical significant relationship between age and susceptibility to contracting TB when student nurses suffered from stress (Table 4.13).

Table 4.13 Cross-tabulations of age and susceptibility of student nurses to contracting TB when suffering from stress

	Susceptibility to contracting TB when suffering from stress					
Age	Strongly disagree	Disagree	Agree	Strongly agree	Total	Fisher's exact test p-value
18-21years	15	10	11	1	37	0,185
22-25 years	9	12	15	6	42	
26-29 years	8	7	5	3	23	
30-34 years	0	4	2	1	7	
Above 35 years	0	3	4	1	8	
Total	32	36	37	12	117	

4.6.3 Relationship between age and perceived benefits

The Fisher's exact test was conducted to test the relationship between age and the variable that early TB diagnosis will reduce complications. The results showed that the p-value was 0,101. Therefore, there was no relationship between the two variables (Table 4.14).

Table 4.14 Cross-tabulations of age and perceived benefits “early TB diagnosis will reduce complications of the disease”

	Early TB diagnosis will reduce complications					
Age	Strongly disagree	Disagree	Agree	Strongly agree	Total	Fisher's exact test p-value
18-21 years	0	1	16	25	42	0,101
22-25 years	0	1	5	39	45	
26- 29 years	0	0	6	21	27	
30-34 years	0	0	1	8	9	
Above 35 years	0	0	2	7	9	
Total	0	2	30	100	132	

4.6.4 Relationship between age and perceived barriers

In order to establish the relationship between age and a variable that a nurse who is responsible for TB results is my neighbour, the Fisher's exact test was carried out. The results revealed that the p-value was 0,039 which is less than 0,05. Therefore, there was a relationship between the two variables. (See Table 4.15 & Figure 4.6)

Table 4.15 Cross-tabulations between age and the variable that a nurse who is responsible for TB results is my neighbour (Barriers)

	A nurse who is responsible for TB results is my neighbour					
Age	Strongly disagree	Disagree	Agree	Strongly agree	Total	Fisher's exact test p-value
18-21 years	19	19	0	4	42	0,039
22-25 years	23	20	2	0	45	
26-29 years	13	9	4	1	27	
30-34 years	4	2	3	0	9	
Above 35 years	4	3	1	1	9	
Total	63	53	10	6	132	

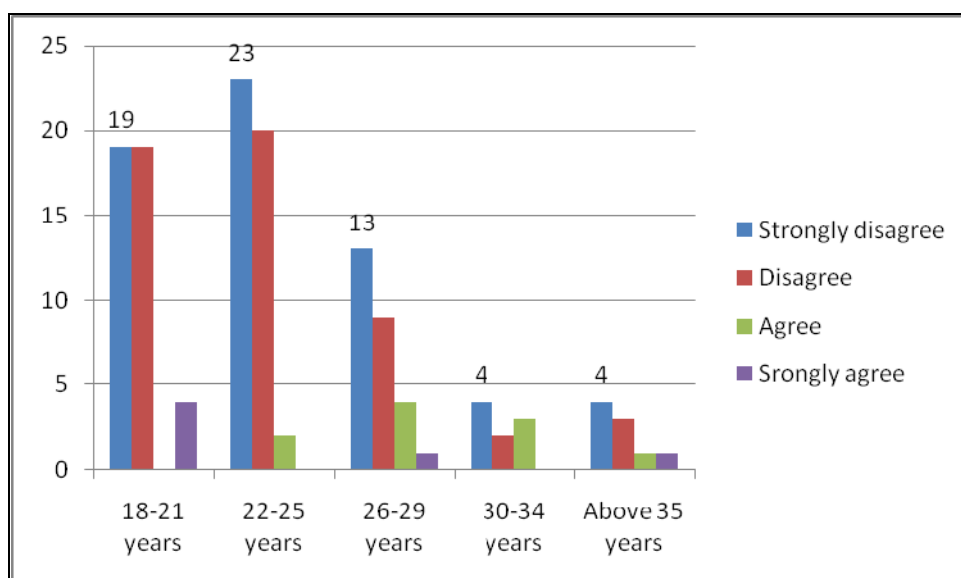


Figure 4.6 illustrating cross-tabulations between age and the variable that a nurse who is responsible for TB results is my neighbour (Barriers)

4.6.5 Relationship between age and knowledge

The Fisher's exact test was conducted to test the relationship between age and knowledge. Cross-tabulations between age and the taking of precautionary measures in respect of all HIV positive patients who show signs of TB was performed. The results showed that the p-value was 0,076. Since the p-value was greater than 0.05, there was no relationship between age and the taking of precautionary measures (Table 4.16).

Table 4.16 Cross-tabulation between age and the taking of precautionary measures in respect of all HIV positive patients who show signs of TB (Knowledge of preventive measures)

	I take precautionary measures in respect of all HIV positive patients who show signs of TB					
Age	Strongly disagree	Disagree	Agree	Strongly Agree	Total	Fisher's exact test p-value
18-21 years	2	7	17	15	41	0,076
22-25 years	3	3	17	22	45	
26-29 years	0	1	15	11	27	
30-34 years	1	3	5	0	9	
Above 35 years	0	0	5	4	9	
Total	6	14	59	52	131	

4.7 Differences between first and second year student nurses' knowledge of perceived risks

In order to assess the differences between first and second year students, mean rank and sum of ranks were calculated. A very slight difference was noted regarding the knowledge,

severity, susceptibility and barriers, but a noticeable difference was seen in benefits, where the mean rank for first year students was 55, 28 and for the second year students was 74, 01. (Table 4.17)

4.7.1 Non-parametric tests

In order to assess the differences between first and second year student nurses' knowledge and perceptions, non-parametric tests were performed (Mann-Whitney U and Wilcoxon W test). The p-value for the knowledge was 0.964, severity 0, 785, susceptibility 0,491and Barriers 0,868. These p-values were not statistically significant. Only the p- value for the benefits (0,001) was statistically significant. (Table 4.18)

Table 4.17 Mean and sum ranks for first and second year level

	Year of study	N	TOTAL	Mean Rank	Sum of Ranks
Knowledge	1	64	130	65.63	4200.50
	2	66		65.37	4314.50
Severity	1	65	130	66.25	4306.00
	2	65		64.75	4209.00
Susceptibility	1	58	112	58.48	3392.00
	2	54		54.37	2936.00
Benefits	1	65	128	55.28	3593.50
	2	63		74.01	4662.50
Barriers	1	65	129	64.29	4191.00
	2	64		65.53	4194.00

Table 4.18 Non-parametric tests

Test	Knowledge	Severity	Susceptibility	Benefits	Barriers
Mann- Whitney U	2103.500	2064.000	1451.000	1448.500	2046.000
Wilcoxon W	4314.500	4209.000	2936.000	3593.500	4191.000
Z	-.045	-.273	-.689	-3.233	-.166
Asymp. Sig.(2-tailed)	.964	.785	.491	.001	.868

4.7.2 The median scores

The median is defined by Davies (2007,p.125) as the “middle score in the frequency distribution, which divides the sample into equal parts”. The median scores were calculated to indicate the observed differences between first and second year students. The difference was noted in the perceived benefits where the second year students scored higher (5.0000) than first year students (4.0000). (Table 4.19 & Figure 4.7)

Table 4.19 showing the median scores between first and second year students

Year of study	Knowledge	Severity	Susceptibility	Benefits	Barriers
1 N	64	65	58	65	65
Median	7.0000	5.0000	4.0000	4.0000	1.0000
2 N	66	65	54	63	64
Median	7.0000	5.0000	4.0000	5.0000	1.0000
Total N	130	130	112	128	129
Median	7.0000	5.0000	4.0000	4.0000	1.0000

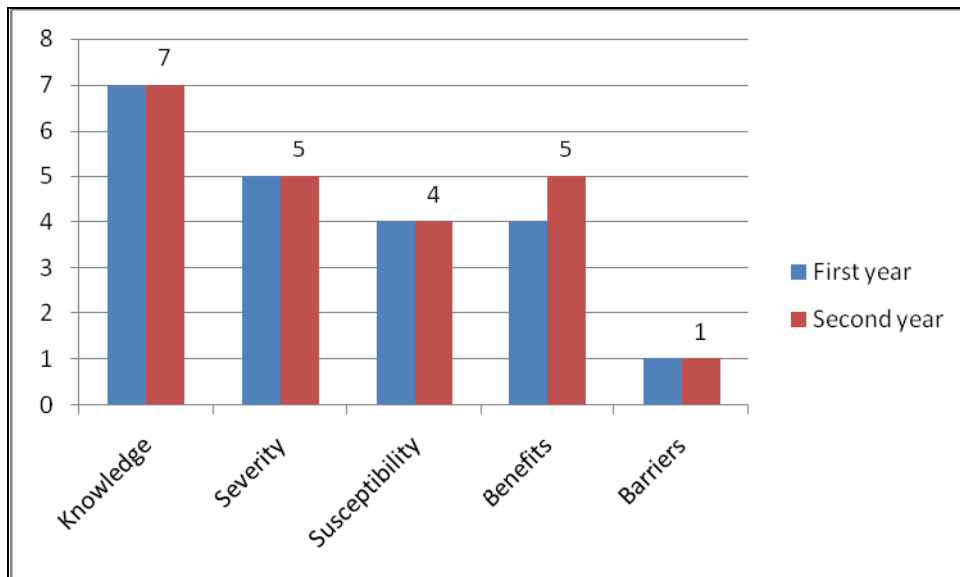


Figure 4.7 Median scores between first and second year students

4. 8 CRONBACH'S ALPHA

Brink (2006, p.164) defines Cronbach's Alpha as "a special statistical test that has been developed to provide measures of internal consistency for questionnaires". According to Polit & Beck (2004) the accepted level is 0, 7 and the high values reflect a higher internal consistency.

4.8.1 The item analysis for " Risk perception – Severity" is presented in Table 4.20

Perceived severity, as exhibited in Table 4.20 shows a low internal reliability with a Cronbach's Alpha coefficient of 0,528 which was below the accepted level of 0,7 as stated by Polit and Beck (2004).

Table 4.20 Item analysis for “Perceived Severity”

Item description	Alpha
How serious would it be for you to contract TB?	0,557
How serious would it be for you if you are in direct contact with a person who has untreated TB?	0,481
How likely do you think it is that somebody with TB can develop MDR if he is not taking treatment as prescribed?	0,469
How likely do you think it is that you will contract TB during the course of your training?	0,378
How likely do you think it is that you will contract TB this year compared to non-nursing students, for example, fashion-design students?	0,445
Cronbach’s Alpha coefficient for the scale = 0,528	

4.8.2 The item analysis for “ Risk perception – Susceptibility”

Table 4.21 Item analysis for “Perceived susceptibility”

Item description	Alpha
Have direct contact with TB infected patients	0,763
Have diabetes or HIV/AIDS	0,690
Have poor nutritional status	0.582
Partake of an excessive amount of alcohol	0.605
Suffer from stress	0.690
Cronbach’s Alpha coefficient for the scale = 0,722	

The sub-items relating to “have direct contact with TB infected patients” showed a high internal correlation with a Cronbach’s Alpha coefficient of 0.763, and the sub-item, “Have poor nutritional status” showed the lowest internal consistency of 0,582. The Cronbach’s alpha coefficient for the scale was 0,722 which is close to the accepted level of 0.7 and can be considered reliable. (Table 4.21)

4.8.3 Item analysis for “Perceived barriers”

Table 4.22 displays the Cronbach’s Alpha coefficient for statements that can prevent the respondents from testing for TB infection. All sub –items showed a high internal consistency of more than 0.70. The sub-item “there is a long queue at the TB clinic” revealed a higher internal consistency of 0.766, followed by the sub-item “a nurse responsible for TB results is my neighbour” with internal consistency of 0.758.

Table 4.22 Item analysis for “Perceived barriers”

Item description	Alpha
I am reluctant to undergo a TB test because:	
I am worried about the findings	0.738
I don’t have time to go to the doctor	0.755
I am worried about the potential side-effects of TB drugs	0.748
The TB clinic is isolated from other clinics	0.734
A nurse responsible for TB results is my neighbour	0.758
There is a long queue at the TB clinic	0.766
Cronbach’s Alpha coefficient for the scale : 0.783	

Table 4.23 item analysis for “Knowledge of preventive measures”

Item description	Alpha
I take precautionary measures in respect of all HIV positive patients who shows signs of TB even if TB results are negative	0,796
Adequate ventilation in a crowded ward can reduce the risk of TB transmission	0,749
Immediate screening of patients for prolonged cough in the outpatient department can prevent the spread of TB	0,749
A TB suspect should be considered infectious until a diagnostic investigation is completed	0,744
A TB suspect should be provided with a surgical mask to cover his/her mouth	0,761
Triaging symptomatic patients can help reduce the amount of time that others are exposed to the infection	0,782
It is necessary to have TB prevention and control policies in all TB facilities	0,776
Cronbach’s alpha coefficient for the scale = 0,793	

4.8.4 Item analysis for “Knowledge of preventive measures”

The sub-items displayed in Table 4.23 show a higher Cronbach's Alpha coefficient of 0,793 which reflects a high internal reliability. (Table 4.23)

4.8.5 The table showing the summary of Cronbach's Alpha coefficient

Table 4.24 Summary of Cronbach's Alpha

Aspect	Cronbach's Alpha	Number of Items
Perceived severity	0,528	5
Perceived susceptibility	0,722	5
Perceived benefits	0,371	5
Perceived barriers	0,783	6
Knowledge	0,793	7

4. 9 What are the protective measures which you think are most effective in the prevention of TB infection?

Table 4.25 presents the responses, grouped into themes, for the open-ended item of “what are the protective measures which you think are most effective in the prevention of TB”.

More than one response was coded from the respondents' responses. At first year level, 65 (98,5%) respondents answered this question, although others lacked knowledge: n=59 (89 %) understood the question, and n= 7 (11%) did not understand. At second year level, all 66 (100) respondents answered this item. Fifty-two respondents (79 %) displayed some knowledge of TB prevention, and 14 respondents (21 %) lacked knowledge. Other responses were irrelevant.

Table 4.25 also indicates that fewer respondents in the first year knew that avoiding overcrowding n=2 (3%), proper disposal of tissues and sputum n=4 (6%), and that BCG immunisation of newborn babies, n= 3 (5%), can prevent TB infection. Nothing was mentioned by the first year students regarding the tracing of TB contacts and early TB

detection, whereas second year respondents n= 3 (5%) reported that tracing of TB contacts and early TB detection n= 21 (32%) can prevent TB infection.

4.10 What do you understand about screening for TB?

At first year level, out of 66 respondents, 62 (94 %) answered this question. Forty-four (67 %) understood the question, and n= 22 (33 %) did not understand. At second year level, all n=66 answered this question. Second year respondents displayed more knowledge compared to first years, except for the theme “testing for TB with or without signs and symptoms” where first year students scored more than second year students. First year respondents did not know that the Tine test can be carried out on children to screen for TB, while n=7 (11%) second year students reported awareness of the Tine test. (Table 4.26 & Figure 4.8)

Table 4.25 “what are the protective measures most effective in the prevention of TB infection?”

	First year		Second year	
Theme	Frequency	Percentage	Frequency	Percentage
Isolate infected patients	17	26	8	12
Use of N95 mask	18	27	30	45
Adequate ventilation	15	23	33	50
Avoid overcrowding	2	3	19	29
Proper disposal of sputum	4	6	6	9
Cover the mouth when coughing	23	35	24	36
Use of a surgical mask by patients	13	20	6	9
BCG immunisation at birth	3	5	5	8
Trace TB contacts	0	0	3	5
Early TB detection	0	0	21	32

Table 4.26 Responses to “What do you understand about screening for TB?”

	First year		Second year	
Theme	Frequency	Percentage	Frequency	Percentage
Testing for TB with or without signs and symptoms	30	45	21	32
Taking of sputum for investigation	15	33	37	56
Taking chest X-ray	15	23	31	47
Tine test in children	0	0	7	11

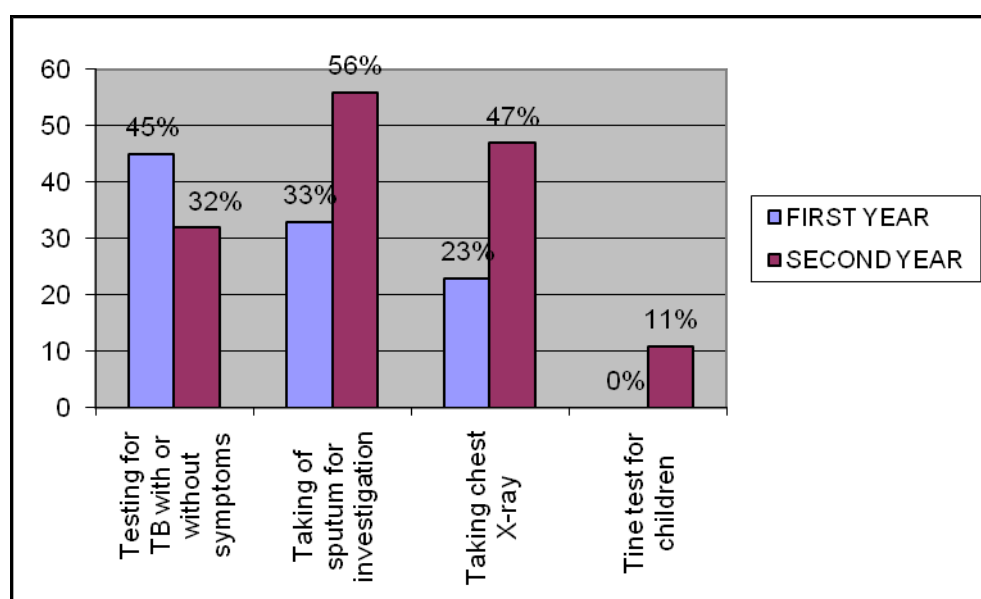


Figure 4.8 showing first and second year responses to screening for TB

4.11 CONCLUSION

Data was presented and analysed. The description of perceived severity, perceived susceptibility, perceived benefits and perceived barriers was done. The students' knowledge of preventive measures against risk perception was also assessed. The mean scores, cross tabulation of variables and Cronbach's Alpha were looked at. The findings revealed positive perceptions and adequate knowledge.

CHAPTER 5

DISCUSSION OF FINDINGS, RECOMMENDATIONS AND LIMITATIONS

5.1 INTRODUCTION

This chapter presents a discussion of the findings and the interpretation of the findings, as well as the recommendations and the limitations of the study. The aim of the study was to explore student nurses' risk perceptions of contracting TB during clinical placements at a selected KZNCN Campus. The objectives of the study and the conceptual framework guided the discussion.

5.2 DISCUSSION OF THE FINDINGS

The discussion focuses on demographic data, student nurses' perceptions of contracting TB during clinical placements (perceived severity, perceived susceptibility, perceived barriers and perceived benefits). Knowledge of preventive measures against contracting TB is also discussed. The objectives of the study were:

- To determine the student nurses' risk perceptions of contracting TB during the course of their clinical placements.
- To describe student nurses' knowledge of preventive measures of risk perceptions while in the clinical setting.
- To compare differences between first and second year students' knowledge of risk perceptions.

5.2.1 Respondents' demographic profile

The majority of the respondents were females. This high percentage was expected, because globally, the nursing profession is female dominated. Since the majority of the student nurses in the selected campus are black (Campus statistics, 2010), a high

percentage of black respondents was expected. Most of the respondents were between 22-25 years of age, followed by those in the age group 18-21 years. This corresponds with the school leaving age which is 18 years. The age of the respondents did not seem to bear any relationship to the risk perception and knowledge. The respondents were sampled from the R425 program and they seemed to be the appropriate population due to being placed in the medical wards and community clinics (SANC requirements) during their first and second year of study. This is in agreement with the findings of the previous studies by Chanda, Davina & Gasnell (2006) and Joshi et al., (2006) that nurses working in medical wards were found to be more at risk of contracting TB.

5.2.2 Risk perceptions

Risk perceptions were explored using the four constructs of the Health Belief Model (HBM) which are: Perceived severity, perceived susceptibility, perceived benefits and perceived barriers.

5.2.2.1 Perceived Severity

The higher percentage of perceived severity suggests that the respondents believed that TB is a serious disease, and that it was likely that they could contract TB during the course of their training. The findings of this study are congruent with the findings of the study by Corbett et al (2007) which revealed that the number of TB cases has increased tenfold since the 1980's. The severity of the TB disease is also confirmed by Chanda, Davina & Gasnell (2006) in their study conducted in Zambia, where they reported that nurses had been greatly affected by the rise in morbidity and mortality of nurses with TB. These findings also concur with Corbett et al (2007) who reported that student nurses had a higher TST conversion rate compared to polytechnic school students in Zimbabwe. This study also revealed that somebody who is infected with TB can develop MDR if s/he is not taking treatment as prescribed.

5.2.2.2 Perceived susceptibility

The higher scores of susceptibility indicate that the respondents perceived themselves to be susceptible to contracting TB. This is similar to the findings in previous studies by Alinger et al (2004) and Nyamathi (2004) which revealed elevated risk of TB infection to the population at risk, like nurses. The high mean score on susceptibility confirmed that the student nurses perceive that one is susceptible to contracting TB when s/he has diabetes or is HIV positive. This is in accordance with the findings reported by Murphy, Borus & Joshi (2000); Benkert & Resnick (2009) and Corbett et al (2007) where they indicated that when one is HIV positive, s/he represents a population at risk for developing TB. Suri, Gan & Capenter (2007) reported high vulnerability to TB/HIV coinfection in KwaZulu-Natal. Therefore, student nurses, like all other health care workers are susceptible to contracting TB, the contributing factor being a high TB prevalence, and the spread of MDR TB amongst the patients under their care. This is supported by Alberto, Massimo, Elisabetta, Roberta (2000).

5.2.2.3 Perceived Benefits

The findings of this study indicate that the majority of the respondents had knowledge about the effectiveness of taking precautionary measures to reduce the risk of contracting TB. They reported that the TB diagnostic test should be done immediately to prevent a delay in diagnosis, because early diagnosis can reduce the complications of the disease. This is similar to the findings by Baral (2007) who reported that when people delay in seeking care, they may develop serious complications. Norton (2000) stated that in the United States, the newly enrolled student nurses were screened for TB and 35% had a positive tuberculin test whereafter prevention therapy commenced. In this study, early TB detection was reported to be the most significant benefit perceived by the respondents. This will motivate them to take preventive action, which is in line with guidelines for tuberculosis preventive therapy among HIV-infected individuals (2010). In this study, the median scores, mean ranks and sum

ranks revealed that there was a significant difference between the first year and second year students.

5.2.2.4 Perceived Barriers

The majority of the respondents disagreed that they were reluctant to undergo a TB test because they did not have time to go to the clinic or doctor. The issue of being concerned about the TB results was not perceived as a barrier which would prevent them from undergoing testing for TB. This is shown by a low mean score of perceived barriers. Because of the lower perceptions of barriers, student nurses will be motivated to screen for TB and to take TB treatment. Unlike in other previous studies, where it was reported that people find it more difficult to seek care because of the public nature of TB diagnostic processes and the stigma attached to being infected with the disease, and the perceived lack of confidentiality (Baral, 2007; Suri, Gan & Carpenter, 2007); in this study, the student nurses did not perceive lack of confidentiality as a barrier, since they felt that even if a nurse responsible for their TB results was their neighbour, this would not prevent them from undergoing a TB test. There was a relationship between age and this statement. Another barrier that was highlighted in the study conducted by Suri et al (2007) is that people could not go to the clinics because they could not afford the bus fare.

5.2.3 Knowledge on Prevention Measures of Risk Perceptions

The respondents displayed good knowledge of TB prevention measures. This is evidenced by the high scores on knowledge items. The high score on knowledge was associated with perceived benefits, because adequate knowledge can reduce the risk of TB infection. Gibson et al (2005) stated that relevant knowledge and positive perceptions are predisposing factors for behavioural change. The highly reported item was, "it is necessary to have TB prevention and control policies in all TB facilities". This is congruent with the guidelines for tuberculosis preventive therapy (2010); CDC guidelines (2007). The student

nurses agreed that triaging symptomatic patients can help reduce the amount of time that others are exposed to. The respondents further reported that immediate screening of patients for prolonged cough can prevent the spread of TB. Regarding the use of N95 masks and surgical masks, the respondents knew that surgical masks should be used where TB patients are cared for, and that the N95 mask should be used by health care workers when caring for MDR-XDR TB patients. This concurs with Mehtar (2008) in his study on the prevention and control of TB in South Africa, KwaZulu-Natal. The student nurses further stated that they take precautionary measures in respect of all HIV positive patients who show signs of the TB disease. This is consistent with the universal precautions outlined in the guidelines for TB infection and prevention control (2007) and by Haris & Nicolai (2010).

5.3 What are the protective measures which you think are most effective in the prevention of TB infection?

First year students had a moderately low understanding of TB content compared to second year students. This is confirmed by the low percentage of the first year respondents who reported that avoiding overcrowding can prevent TB infection. The reason for this may be that there are a limited number of lectures on TB content which they would receive at first year level, because they are taught only the basic concepts, not the entire content relating to TB. Only a few respondents from both levels stated that BCG immunisation of newborn babies can prevent TB.

The majority of the students believed that when TB-infected patients cover their mouths when coughing, other people can be protected from getting TB infection. This was also reported by Mehtar (2008).

5.4 What do you understand about screening for TB?

The findings indicate that the second year respondents had more knowledge than the first year respondents, except for the theme “testing for TB infection with or without signs and symptoms”, where the first year respondents displayed more knowledge than the second year respondents. The highly reported theme was that screening for TB means “taking of sputum for investigation”. Norton (2000) reported that the newly enrolled nurses should be screened for TB infection.

5.5 RECOMMENDATIONS

Findings in this study revealed that student nurses perceived themselves at risk of contracting TB during clinical placement. The researcher made some recommendations with regard to nursing practice, nursing education and nursing research.

5.5.1 Nursing practice

- Policy-makers should be informed and should utilise these findings when compiling health policies.
- Pre-employment examinations, including screening for the TB infection should be introduced so that students who are infected with TB are treated and placed according to their health needs.
- There should be annual screening programs for the TB infection such as X-rays, in order to reduce the amount of time between developing symptoms and diagnosis.

5.5.2 Nursing education

- Policies on TB infection prevention and control should be accessible to student nurses in the Nursing campuses before they are placed in clinical settings.

- The curriculum should be reviewed, and more content should be added to the first year level.
- The severity of the TB disease should be stressed to newly employed student nurses before they are allocated to clinical facilities.

5.5.3 Nursing research

- Studies of a similar nature should be conducted in future, which should adopt a qualitative method to provide a more holistic understanding of the risk perceptions of contracting TB in the clinical area.
- Further research should be conducted on student nurses' experiences in nursing patients with the TB disease.
- This will form a baseline study for a more extensive study to be conducted among all student nurses on the campus.

5.6 LIMITATIONS

- The study was conducted on one campus only, yet there are 11 campuses and 9 sub-campus in the KwaZulu-Natal province. Therefore, the results will not be generalised to other campuses.
- The population was limited to student nurses in the first and second year of training, since the third and fourth year students are placed in maternity and psychiatric wards where there is a low risk of contracting TB compared to medical wards.
- Time constraints. Due to the limited time, only a quantitative approach was adopted to explore student nurses' perceptions of contracting TB.

5.7 CONCLUSION

This conclusion emanated from the study, and was formulated based on the findings. The study was conducted on first and second year students at a selected KZN CN campus. The respondents were predominately black, and most were females, which is in line with the gender composition for the nursing profession. The respondents at both first year and second year level indicated that they perceived themselves to be at risk of contracting TB during clinical placements. The respondents agreed that TB is a serious disease; this is shown by the higher percentage of the respondents' responses. The respondents believed that, when taking preventive measures against TB infection, they could protect themselves from contracting TB, and they would be motivated to seek medical treatment.

Chang, Hung, Chow & Ling (2007) concluded that, based on the Health belief Model (HBM), concepts of susceptibility, seriousness, and benefits are positively associated with screening behaviour, therefore the researcher has recommended that screening for TB should be introduced.

The respondents displayed relevant knowledge of TB preventive measures and positive perceptions which will be the predisposing factors for behavioural change (HBM). Second year respondents had greater knowledge compared to first year respondents.

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ANNEXURE 1

Title: Exploring student nurses' risk perceptions of contracting Tuberculosis (TB) during clinical placements in a selected KwaZulu-Natal College of Nursing (KZN CN) campus.

STUDENT QUESTIONNAIRE

Questionnaire No.	
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Please complete the questionnaire by indicating with a cross (X) in the box that corresponds with your choice.

SECTION A: DEMOGRAPHIC DATA

1. Gender

Male		Female	
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2. Race

White		Black		Indian		Coloured	
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3. Age

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4. Year of study

First year		Second year	
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SECTION B

1. Items 1.1 – 1.5 Risk Perception – Severity / seriousness

		Extremely not serious	Not serious	Serious	Extremely serious
1.1	How serious would it be for you to contract TB?				
1.2	How serious would it be for you if you are in direct contact with a person who has untreated TB?				

		Very unlikely	Unlikely	Likely	Very likely
1.3	How likely do you think it is that somebody with TB can develop MDR if s/he is not taking treatment as it is prescribed?				
1.4	How likely do you think it is that you will contract TB during the course of your training?				
1.5	How likely do you think it is that you will contract TB this year compared to non-nursing students, for example, fashion-design students?				

2. Items 2.1 – 2.5: Risk Perception – Susceptibility/Vulnerability

	If you are one of the following persons, you are at risk of contracting TB	Strongly disagree	Disagree	Agree	Strongly agree
2.1	Have direct contact with TB-infected patients				
2.2	Have diabetes or HIV/AIDS				
2.3	Have poor nutritional status				
2.4	Partake of an excessive amount of alcohol				
2.5	Suffer from stress				

3. Items 3.1 – 3.5 : Risk Perception- Perceived benefits

		Strongly disagree	Disagree	Agree	Strongly agree
3.1	N95 mask can protect me against MDR TB				
3.2	A surgical mask can protect me from contracting MDR TB				
3.3	A TB diagnostic test should be done immediately to prevent a delay in diagnosing				
3.4	Early TB diagnosis will reduce complications of the disease				
3.5	Early TB detection is the most significant benefit that will motivate me to take preventive action				

4. Items 4.1- 4.6 : Risk Perception – Perceived barriers

	I am reluctant to undergo a TB test because:	Strongly disagree	Disagree	Agree	Strongly agree
4.1	I am worried about the findings				
4.2	I don't have time to go to the doctor or clinic				
4.3	I am worried about the potential side-effects of the TB drugs				
4.4	The TB clinic is isolated from other clinics				
4.5	A nurse who is responsible for TB results is my neighbour				
4.6	There is always a long queue at the TB clinic				

5. Items 5.1 – 5.7: Knowledge of prevention measures against risk perceptions

		Strongly disagree	Disagree	Agree	Strongly agree
5.1	I take precautionary measures in respect of all HIV positive patients who show signs of TB even if TB results are negative				
5.2	Adequate ventilation in a crowded ward can reduce the risk of TB transmission				
5.3	Immediate screening of patients for prolonged cough in the outpatient department can prevent the spread of TB				
5.4	A TB suspect should be considered infectious until a diagnostic investigation is completed				
5.5	TB suspects should be provided with surgical masks to cover their mouths				
5.6	Triaging symptomatic patients can help reduce the amount of time that others are exposed to the infection				
5.7	It is necessary to have TB prevention and control policies in all TB facilities				

SECTION C

1. What are the protective measures which you think are most effective in the prevention of TB infection?

2. What do you understand about screening for TB?

THANK YOU FOR PARTICIPATING IN THIS RESEARCH

ANNEXURE 2

INFORMATION SHEET

Title: Exploring student nurses' risk perceptions of contracting tuberculosis (TB) during clinical placements in a selected KwaZulu-Natal College of Nursing (KZNCN) campus.

I am a Master's student at the University of KwaZulu-Natal. As part of my Master's Degree in Nursing, I am required to conduct a research project in an area of interest.

The purpose of this study is to explore student nurses' knowledge and risk perceptions of contracting tuberculosis during their clinical placements in one of the selected KZNCN campuses in Pietermaritzburg.

Your participation is requested because you meet the criteria for people to participate in this study. As part of the research process, you will be required to complete a questionnaire which will take about 20- 25 minutes of your time.

Please note that your identity and information will be treated with confidentiality. Please feel free to ask if there is anything that is not clear or if you would like more information.

Please note that:

- You are free to participate or not to participate.
- You are free to withdraw at any time without giving a reason.
- There will be no risks attached to your participation
- The findings of this study will be made available to you on completion.

Thank you

Researcher : Winile Cele

Student number : 209521223

Contact number : 0839782067

Research supervisor: Dr Z.Z. Nkosi

Contact number : 031- 2602901

Email - nkosizz@ukzn.ac.za

University of KwaZulu-Natal, Durban 4041

Date:

ANNEXURE 3

INFORMED CONSENT FORM

Title: Exploring student nurses' risk perceptions of contracting tuberculosis (TB) during clinical placements in a selected KwaZulu-Natal College of Nursing (KZN CN) campus.

Researcher : Winile Cele

Student number: 209521223

Research Supervisor: Dr Z.Z. Nkosi

Contact number: 0839782067

Contact number : 031-2602901

Email 209521223@ukzn.ac.za

Email nkosizz@ukzn.ac.za

Declaration

I.....(Full names of participant) hereby confirm that I understand the contents of this document and the nature of the research project, and I consent to participating in the research project.

I understand I am at liberty to withdraw from the project at any time, should I so desire.

Signature of participant

Name of Witness

Signature

ANNEXURE 4



22 June 2010

Mrs W D Cele
P O Box 8746
CUMBERWOOD
3235

Dear Mrs Cele

PROTOCOL: Exploring student nurses' risk perceptions of contracting tuberculosis during clinical placement in a selected KwaZulu-Natal college of nursing Campus
ETHICAL APPROVAL NUMBER: HSS/0377/2010 M: Faculty of Health Sciences

In response to your application dated 04 June 2010, Student Number: **209521223** the Humanities & Social Sciences Ethics Committee has considered the abovementioned application and the protocol has been given **FULL APPROVAL**.

PLEASE NOTE: Research data should be securely stored in the school/department for a period of 5 years.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully

Professor Steve Collings (Chair)
HUMANITIES & SOCIAL SCIENCES ETHICS COMMITTEE

SC/sn

cc: Dr. Z Z Nkosi (Supervisor)
cc: Mr. S Reddy

ANNEXURE 5

Reference : HRKM 107/10
Enquiries : Mr X Xaba
Telephone : 033-395 2805

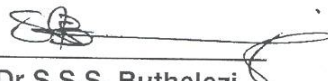
Dear Mrs WD Cele

Subject: Approval of a Research Proposal

1. The research proposal titled 'Exploring student nurses risk perceptions of contracting Tuberculosis during clinical placement in a selected KwaZulu Natal College of Nursing' was reviewed by the KwaZulu-Natal Department of Health. The study is hereby **approved** for research to be undertaken at Edendale Campus, KZN College of Nursing.
2. You are requested to take note of the following:
 - a. Make the necessary arrangement with the identified facility before commencing with your research project.
 - b. Provide an interim progress report and final report (electronic and hard copies) when your research is complete.
3. Your final report must be posted to **HEALTH RESEARCH AND KNOWLEDGE MANAGEMENT, 10-102, PRIVATE BAG X9051, PIETERMARITZBURG, 3200** and e-mail an electronic copy to hrkm@kznhealth.gov.za

For any additional information please contact Mr X Xaba on 033-3952805.

Yours Sincerely



Dr S.S.S. Buthelezi
Date: 08/07/2010

Chairperson, Health Research Committee
KwaZulu-Natal Department of Health



ANNEXURE 6



Dr. L. Nkondo-Mtembu
KZN College of Nursing
211 Pietermaritzburg Street
Pietermaritzburg
3200



Dear Dr. Nkondo-Mtembu

RE: PERMISSION TO COLLECT DATA AT EDENDALE CAMPUS

May I inform you that I am a Master's student at the School of Nursing, UKZN. I obtained my ethical clearance to conduct the research titled: "*Exploring student nurse's risk perceptions of contracting tuberculosis during clinical placement in a selected KwaZulu-Natal College of Nursing*".

May I have permission to collect data from first and second year student nurses who are studying toward a Diploma in General Nursing (R425). Data will be collected during their lunch break. Informed consent will be obtained prior to data collection. The findings will be shared with the participants, campus principal and the college principal. The name of the campus will not appear in any publication.

Enclosed are the following:

- Research proposal
- Informed consent
- Information document
- Instrument
- UKZN ethical clearance

Yours faithfully

Mrs. W. Cele
Researcher
033-3927587(tel)

Dr. Z.Z. Nkosi
Supervisor
031-2602901(tel)



30 June 2010

University of KwaZulu-Natal

Mrs. N.C. Majola
Edendale Campus
29 A Havelock Road
Pietermaritzburg
3200

ANNEXURE 7



UNIVERSITY OF
KWAZULU-NATAL

Dear Mrs.N.C.Majola

RE: PERMISSION TO COLLECT DATA AT EDENDALE CAMPUS

Thank you very much for supporting me as I am studying towards a Master's Degree at the School of Nursing, UKZN. I obtained my ethical clearance to conduct the research titled: "*Exploring student nurse's risk perceptions of contracting tuberculosis during clinical placement in a selected KwaZulu-Natal College of Nursing*".

May I have permission to collect data from first and second year student nurses who are studying toward a Diploma in General Nursing (R425). Data will be collected during their lunch break. Informed consent will be obtained prior to data collection. The findings will be shared with the participants, campus principal and the college principal. The name of the campus will not appear in any publication.

Enclosed are the following:

- Research proposal
- Informed consent
- Information document
- Instrument
- UKZN ethical clearance

Yours faithfully

Mrs. W. Cele
Researcher
033-3927587(tel)

Dr. Z.Z. Nkosi
Supervisor
031-2602901(tel)

School of Nursing, Howard College Campus

Postal Address: Durban, 4041, South Africa

ne: +27 (0)31 260 2499

Facsimile: +27 (0)31 260 1543

Email:

Website: www.ukzn.ac.za



KWAZULU- NATAL COLLEGE OF NURSING
P/Bag X9089, Pietermaritzburg, 3200
Tel.: (033) 264 7800, Fax: (033) 394 7238
e-mail: lulama.mthembu@kznhealth.gov.za
www.kznhealth.gov.za

ANNEXURE 8

Enquiries: Mrs. S. Maharaj
Telephone: 033 – 264 7806
Date: 13 July 2010

Principal Investigator:
Mrs. W Cele (209521223)
School of Nursing
University of KwaZulu-Natal

Dear Sir/Madam

RE: PERMISSION TO CONDUCT RESEARCH AT EDENDALE CAMPUS

I have pleasure in informing you that permission has been granted to you by the Principal of the KwaZulu-Natal College of Nursing to conduct research on the "Title of the research study". ***Exploring student's risk perception of contracting tuberculosis during clinical placement in a selected KwaZulu-Natal College of Nursing.***

Please note the following:

- 1) Please ensure that you adhere to all policies, procedures, protocols and guidelines of the Department of Health with regards to this research.
- 2) This Research will only commence once this office has received confirmation from the Provincial Health Research Committee in the KZN Department of Health.
- 3) Please ensure this office is informed before you commence your research.
- 4) The KwaZulu-Natal College (Edendale Campus) will not provide any resources for this research.
- 5) You will be expected to provide feedback on your findings to the Principal of the KwaZulu-Natal College of Nursing.

Thanking You.
Sincerely

Dr. LL. Nkonzo-Mtembu
Principal: KwaZulu-Natal College of Nursing



DEPARTMENT OF HEALTH
PROVINCE OF KWAZULU-NATAL
KWAZULU NATAL COLLEGE OF NURSING
EDENDALE NURSING CAMPUS

29 Havelock Road, Pietermaritzburg, 3201
Private Bag X9099, Pietermaritzburg, 3200
Tel: 033-3456810/3927566 Fax: 033-3459477 Fax 2 Email: 0865743522
e-mail address: ntombizakhona.majola@kznhealth.gov.za
www.kznhealth.gov.za

DATE: 01 JULY 2010

TO: Mrs W.D. Cele

SUBJECT: REQUEST FOR PERMISSION TO CONDUCT A NURSING RESEARCH-
EXPLORING STUDENT NURSES RISK PERCEPTIONS OF CONTRACTING
TUBERCULOSIS DURING CLINICAL PLACEMENT IN A SELECTED KWAZULU
NATAL COLLEGE OF NURSING CAMPUS- EDENDALE NURSING CAMPUS

Permission is hereby granted that the study, as stated above, be conducted on site
using nursing students as participants.

Please ensure that the participants give an individual informed consent.

The campus will welcome the report once all the study processes have been closed,
so as to access the findings and recommendations for student support in this area.

You are wished well in your studies.

Thank You

SIGNED: N.C. MAJOLA (MRS)
EDENDALE NURSING CAMPUS PRINCIPAL

Umyango Wezempilo. Departement van gesondheid
Silwa Nezifo, Silwa Nobubha, Sinika Ithemba
Fighting Disease, Fighting Poverty, Giving Hope



