KNOWLEDGE, BELIEFS AND FEELINGS ABOUT TUBERCULOSIS AMONG HOSPITALISED PATIENTS AT DR MACHUPE MPHAHLELE MEMORIAL HOSPITAL IN THE LIMPOPO PROVINCE OF SOUTH AFRICA

BY

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DECLARATION

I declare that this research project for a Masters Degree in Clinical Psychology at the University of the North hereby submitted has not been previously submitted by me for a degree at this or any other university, that it is my own work in design and execution and that all materials contained herein have been duly acknowledged.

Signed : *BBorokgoosi*

Date : 21/11/02

DEDICATION

This research project is dedicated to my children Lesedi and Kagiso. Also to my husband, Makgoane, for his support and understanding during my studies.

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ABSTRACT

The aim of this study was to ascertain base-line information on knowledge, beliefs and feelings about tuberculosis among hospitalized tuberculosis patients. The study was conducted at Dr Machupe Mphahlele Memorial Hospital in the Limpopo Province of South Africa. A sample of 40 tuberculosis patients, 21 males (52,55%) and 19 women (47,5%), was interviewed. From the sample of 40, 22 patients (55%) took part in the focus group discussions. Fourteen members of the community, who are relatives of those patients who took part in the study, were also included in the focus group discussions. The focus group discussions were aimed at better understanding of both the community and the patients' beliefs and perceptions of tuberculosis.

The study revealed that the participants studied had a reasonably good knowledge of tuberculosis. However, there was some confusion regarding causative and risk factors of tuberculosis and some misconceptions thereof. The study has also found that traditional beliefs tend to impact on the patient's health seeking behaviour, treatment and the overall understanding of the disease. Tuberculosis treatment is still perceived by the majority of participants to being long, agonizing and cumbersome and there are still some doubts as to whether tuberculosis is curable.

Participants believed that tuberculosis carries social stigma and thus patients feel isolated in their communities. The results also suggested that education does play a role in the perception of the disease. Participants who had tertiary and secondary education were found to be more knowledgeable on symptoms and health beliefs of tuberculosis than those participants who had primary education, and those who did not have education at all. Factors such as age and gender did not appear to have any influence on the knowledge and feelings of patients on tuberculosis. Therefore, based on the findings, culturally sensitive health education and consideration of the patients' educational level are important variables when dealing with tuberculosis patients.

TABLE OF CONTENTS

LITERATURE REVIEW: PART TWO

CHAPTER 3: METHODOLOGY

CHAPTER 4: RESULTS

CHAPTER 5: DISCUSSION

LIST OF TABLES

CHAPTER 1

1   INTRODUCTION

Tuberculosis (TB) continues to plague mankind, seeding itself within communities and focusing its deadly attack on individuals whose immunity is reduced by poverty, overcrowding, malnutrition and other immunosuppressive diseases (Young, 2000). South Africa has one of the highest recorded incidence rates of tuberculosis in the world. Despite domestic spending on treatment sufficient to combat tuberculosis across the whole of South African region, the epidemic is becoming worse rather than better. Recognizing these challenges, South Africa has recently declared tuberculosis to be the country's top health priority (TB Annual Report, 1997).

According to the World Health Organisation (WHO), tuberculosis kills 2 million people each year. The global epidemic is growing and becoming dangerous. The breakdown in health services, the spread of HIV/AIDS and the emergence of multidrug-resistant TB are contributing to the worsening impact of the disease.

Tuberculosis, one of the oldest diseases known to affect humans, is caused by bacteria belonging to the mycobacterium tuberculosis complex. The disease usually affects the lungs, although in up to one third of cases other organs are involved (Harrisons, 2001). If properly treated, tuberculosis caused by drug-susceptible strains is curable in virtually all cases. However, if untreated, the disease may be fatal within five years in more than half of the cases.

Tuberculosis transmission usually takes place through the airborne spread of droplet nuclei produced by patients with infectious pulmonary tuberculosis. According to Fourie (2000), South Africa is burdened by one of the worst tuberculosis epidemics in the world, with

disease rates more than double those observed in other developing countries and up to sixty times higher than those currently seen in the United States of America or Western Europe.

According to the Medical Research Council National Tuberculosis programme (2000), the country had an estimated 180 507 cases reported in 1997. Of these, 32,8% (73679 cases) were probably infected with HIV. The impact of HIV/AIDS in our country cannot be underestimated nor can we overlook the devasting effects of the TB/HIV co-epidemic. In the attempt to turn the tide of TB/HIV/AIDS co-infection, the Department of Health has established TB/HIV/AIDS pilot districts which will allow the department to look at the implementation and evaluation of a comprehensive HIV/AIDS and TB prevention, care and support programmes. Further, the department has established guidelines to empower health workers and professionals to provide effective treatment of TB to patients with HIV/AIDS.

However, despite all measures which are being taken, the Ministry and the Department of Health continue to regard TB as a health priority (MRC National TB Research Programme, South Africa, 2000).

1.1   STATEMENT OF THE PROBLEM

In the 100 years since Koch discovered the tubercule bacillus, highly effective drugs have been developed, but tuberculosis still remains a major problem world wide (Wilcox, 1995). The tuberculosis epidemic is one of the most virulent dangers to our society, more so, because of the attitudes people have towards the disease.

Although tuberculosis has been declared the number one killer by the Department of Health in South Africa, according to research done on knowledge and attitudes of patients,

2

Westaway (1995) reported that it is still clear that tuberculosis is of little relevance to respondents and their families. Westaway argues that possibly the defence mechanisms are in operation in stating that there is little or no chance of contracting tuberculosis, and also people do not consider themselves at high risks. This statement was supported by Wolmarans (1996), when he argued that many South Africans know that tuberculosis exists, and it is infectious, but still they deny the fact that they could be infected.

Tuberculosis is perceived as highly infectious. It is associated with social stigma, dirt and poor nutrition, and therefore, because of the stigma attached to it, patients often delay in seeking medical attention (Becker, 1988). According to Davies (1995), people in other African countries share similar beliefs, for example, Kenyan people perceive tuberculosis as a contagious, sensitive disease, difficult to treat and diagnose. Treatment is perceived as long, agonising and cumbersome, hence many people prefer traditional treatment rather than medical treatment. Farmer (1997) stated that in most cases health providers often have an understanding different from those they treat. The different interpretations may result in misunderstandings or conflict between providers and clients and can lead to inadequate treatment of the illness. According to Farmer, low literacy levels have been regarded as a major factor in the lack of knowledge concerning tuberculosis treatment.

According to Westaway and Wolmarans (1994), patient compliance on treatment involves complex behaviour that depends upon symptom recognition and evaluation, cultural and social influences, and enabling factors such as time, money, skills and appropriate/accessible health services. In many cultures, the largely unremarked social stigma of tuberculosis contributes to abandonment of treatment and lengthy delays in seeking professional help (Grange, 1999).

It is well known that improving knowledge and attitudes does not necessarily lead to changes in attitudes, but provides baseline information for planners of health education

programmes (Westaway, 1989). In turn, the effectiveness of such programmes for improving and correcting misconceptions, and reinforcing or changing attitudes and behaviour can then be evaluated. According to Westaway (1989), many tuberculosis patients only seek help when their disease is well advanced. In South Africa, tuberculosis health education programmes have been designed to try and counteract this state of affairs, but unfortunately, most patients still seem to lack knowledge about the disease (Seager, 1986). However, most studies which have been done in South Africa focused more on the clinical aspects of the disease. Issues such as "health culture", the role of beliefs and the disease's connection with behavioural factors have lagged behind. Those factors are a reality to most Africans and they do not need to be ignored any longer (Rubel & Garro, 1992).

Therefore, the aims of the study are to understand the patients and their relatives' beliefs on knowledge about the causation, symptomatology and transmission of tuberculosis, to assess attitudes towards the disease and the afflicted patient, and also to evaluate the usefulness of the concept of illness behaviours and social stigma in understanding attitudes towards tuberculosis. Characteristics such as age, gender and educational level of patients will be assessed to ascertain they have any influence on the patients' knowledge and beliefs about the disease. Findings would therefore enable the regional TB authorities to design and implement a health education programme relevant to the perception of tuberculosis in the community.

CHAPTER 2

LITERATURE REVIEW : PART ONE

This chapter of the literature will focus on the historical and medical aspects of Tuberculosis

2.1   HISTORICAL BACKGROUND OF TUBERCULOSIS IN SOUTH AFRICA

Tuberculosis is one of the oldest diseases known to man. Evidence of the disease has been found in skeletons of stone age man and in Egyptian mummies (Glatthaar, 1993). According to Glatthaar (1993), a dramatic increase in the disease occurred as a result of the poverty and overcrowding associated with the industrial revolution in Europe and North America. In South Africa in the 18th century, doctors noted that the indigenous people seemed remarkably free from tuberculosis. Here the epidemic was probably initiated to a large extent by infected European settlers and travellers coming into the Eastern Cape in the 19th century.

The large congregations of people attracted to the diamond and gold mines and the migrant labour system then caused wide amplification of the epidemic which probably only reached its peak in the mid-twentieth century (Glatthaar, 1993; Seaton & Seaton, 1989).

According to Harrisons (2001), over many centuries of exposure to tuberculosis, the white man has acquired a resistance to the disease. The black population did not have this resistance and the result was that the disease spread very rapidly. With industrialisation, social services always lag behind, resulting in overcrowding and malnutrition, which are conditions ideal for the transmission of tuberculosis. According to Harrisons (2001), the magnitude of the present tuberculosis problem in South Africa is therefore to a large

extent a historical legacy.

2.2   THE CHANGING GLOBAL SITUATION

According to Harrisons (2001), in Western countries notifications for tuberculosis have increased during the ten years period to 1993. In the United Kingdom tuberculosis is associated with poverty, unemployment, immigration and homelessness. In the United States, the principal causes are identified as human immune deficiency virus (HIV) together with earlier reductions in resources for tuberculosis control programmes, and are concentrated in major cities, particularly New York and San Francisco.

In the 1980s and 1990s the reverse in the previously established decline of tuberculosis has led the World Health Organisation to declare a global emergency. The earlier fall in the tuberculosis incidence in the nineteenth and twentieth centuries was attributed to improvements in socio-economic conditions and the isolation of infected cases. However, according to Willcox (1997), the pattern of disease control in this century now describes the U-shaped curve in the seriousness and complexity of the disease which is much greater in the second limb of the U. These current trends are, according to Willcox, complicated through-out the world by the growing problem of double infection by tuberculosis and HIV.

2.3   THE SIZE OF THE PROBLEM OF TUBERCULOSIS IN SOUTH AFRICA

According to Fourie (2000), estimates by the Medical Research Council National tuberculosis programme indicate that current trends in the epidemic will continue unless effective control is achieved, resulting in 3,5 million new cases of tuberculosis over the next decade and at least 90 000 patients dying. Actual registration reports according to the

National Department of Health indicated smear positive rates per province (per 100 000 of the total population) of 285 for the Western Cape, 300 for Eastern Cape, and 328 for Northern Cape. All other provinces had rates below 200. The overall rate for South Africa was 163 for smear positive and 310 for all pulmonary tuberculosis cases. Therefore, this suggests that the country might be in a slightly better situation than what had been estimated as the worst scenario.

2.4   THE SIZE OF PROGRAMME OF TUBERCULOSIS

According to the Department of National Health and Population Development (Directorate Infectious Disease, 2000), the annual case load (i.e. number of TB cases cared for annually) is over 90 000 people. Two hundred and twenty thousand suspects and contacts are investigated. The budgetted cost of the TB programme was R155 million in 1998. According to the Health Department this enables free treatment to be given to patients once they are part of the system.

2.5   THE AIM OF THE NATIONAL TUBERCULOSIS POLICY

The aim of the policy is to progressively reduce the risk of TB in the community by breaking the chain of transmission of the infection; to reduce the pool of infected persons, e.g. those in high risk groups; to relieve the suffering caused by TB, and to try as far as possible to keep patients part of their family and community by curing their disease, preserving their work capacity and so maintaining their socio-economic position.

2.6   DIAGNOSIS OF TUBERCULOSIS

The clinical manifestations of tuberculosis are by no means specific, but the disease should be borne in mind when there is vague ill-health, particularly if there is a history of contact

with an infectious case of tuberculosis (Grange, 1999). According to Glatthaar (1993), any patient presenting with symptoms and signs suggestive of tuberculosis (i.e. cough which is productive and non-stop, haemoptysis and night sweats) should be investigated. Demonstration of tubercle bacilli in any specimen obtained from a patient provides definitive proof of diagnosis. Tubercle bacilli can be detected in sputum, pleural and menigeal fluid and also in urine. Whenever possible, an X-ray or radiological examination of the chest should also be done of any person with symptoms suggestive of tuberculosis (Harrisons, 2001).

2.6.1 Case-finding

Case finding implies the investigation of persons with symptoms and signs suggestive of TB (Glatthaar, 1993). With case finding, the following bacteriological investigations should be done:

— In situations with sufficient laboratory facilities, one sputum specimen for both direct microscopy and culture;

— In areas with limited laboratory facilities and long distances, one sputum specimen for culture. If a rapid diagnosis is required in patients presenting with symptoms and signs clinically strongly suggestive of TB, microscopy should also be requested (Harrisons, 2001).

2.6.2 Tuberculin Test

According to Meers and Sedgwick, (1995), a positive tuberculin test indicates contact with mycrobacteria only. In the 0 - 5 years age group, a positive test should be considered significant and indicating an active infection.

In any other age group a strongly positive test of tubercullin, (especially scholars and contacts) would indicate viable bacilli somewhere in the body but not necessary active disease.

2.7   PREDISPOSING FACTORS OF TUBERCULOSIS

According to Glatthaar (1993), tuberculosis is truly a disease directly influenced by socio-economic conditions. The following factors, according to Glatthaar, are predisposing factors of tuberculosis:

— Poor housing
— Overcrowding
— Malnutrition
— Lack of hygiene
— Emotional or physical stress
— Long hours of work
— Loss of sleep
— Lowered body resistance

However, given the predisposing factors among those who do become infected, most (90%) will never become ill with tuberculosis unless their immunity is seriously compromised, for example, by malnutrition, stress, HIV, cancer and diabetis. The micro-organisms remain dormant within the body and their presence is indicated only by a significant size of induration in reaction to a tuberculin skin test.

2.8   MODE OF TRANSMISSION ACCORDING TO GLATTHAAR (1993)

2.8.1 Inhalation

Transmission is predominantly via inhalation as follows:

9

- **Droplet infection**: Tubercule bacilli are transported in the fine droplets from the infection in the lungs into the air when a sufferer coughs and are then inhaled into the lungs of previously uninfected persons.
- **Infected dust**: Expectorated bacilli may remain viable in dust for six months if protected from direct sunlight. The infected dust may be inhaled if disturbed by sweeping, wind, or children playing on the ground.

2.8.2 Ingestion

- Drinking unpasteurised milk from an infected animal.
- Swallowing infected dust or particles mainly by children playing on the infected ground.
- Licking, sucking, swallowing infected formites, again mainly by children.

2.8.3 Inoculation

Accidental inoculation through the skin may occur especially during postmortem examinations.

2.9 SIGNS AND SYMPTOMS OF TUBERCULOSIS ACCORDING TO THE SOUTH AFRICAN TUBERCULOSIS CONTROL PROGRAMME PRACTICAL GUIDELINES, (2002)

2.9.1 Non-specific Symptoms

- A feeling of tiredness
- Loss of appetite
- Night sweats
- General body malaise

- Irritability
- Loss of weight
- Difficulty in concentrating

2.9.2 Respiratory symptoms

- Cough, often with sputum (mucoid, purulent or blood stained)
- Chest pains/pleuretic chest pains may also occur
- Breathlessness
- Wheeze
- Recurrent colds/flues

2.9.3 Physical signs

- There may be none.
- Paleness, thinness and weight loss
- Sometimes fever and a rapid pulse

2.10 RISK FACTORS OF TUBERCULOSIS

According to the South African National Tuberculosis Association (SANTA, 2000), the fact that certain contributory factors will render individuals susceptible to tuberculosis does not negate the fact that tuberculosis is infectious and can therefore be passed to any person. However, an infected person need never develop the disease provided that the person has necessary bodily resistance to the germs.

According to SANTA, factors leading to progression of primary infection include age and many other risk factors such as alcoholism, drug addiction, diabetics and other immunosuppresive diseases.

The very young have little resistance to invasion by tubercle bacilli, the causative organisms of tuberculosis, and disease progression is frequent. Also according to SANTA, during adolescence hormonal changes may cause reactivation and the elderly may also have an increased tendency for reactivation. Also, tuberculous disease may be precipitated at any stage after infection by malnutrition, a number of other diseases such as measles, cancer or HIV infection, immunosuppressive drugs such as corticosteroids, and stress of any form (Masiphile, 1997).

2.11   TREATMENT OF TUBERCULOSIS

The most suitable treatment regimen(s) must be selected carefully to suit the patient and the local needs. Factors such as distance from clinic, place of employment, home situation, available funds and infrastructure must be taken into account (Glatthaar, 1993).

There are three main properties of anti-TB drugs, **bactericidal, sterilizing** and the **ability to prevent resistance**. The anti-TB drugs possess these properties to different extents. Isoniazid and Rifampicin are the most powerful bacterial drugs, active against all populations of TB bacilli. Pyrazinamide and streptomycin are also bactericidal against certain populations of TB bacilli. Pyrazimide is active in an acid environment against TB bacilli inside Macrophages. Streptomycin is active against rapidly multiplying axtracellular bacilli (Harrisons, 2001).

The treatment regimen of choice for virtually all forms of tuberculosis in both adults and children consists of a two month initial phase of isoniazid, rifampicin and pyrazinamide, followed by a four month continuation phase of isoniazid and rifampicin. Except for patients who seem unlikely on epidemiologic grounds to be initially infected with a drug-resistant strain, ethambutol or streptomycin should be included in the regimen for the first two months, or until the results of drug susceptibility testing become available (Harrisons, 2001).

Treatment may be given daily throughout three times weekly following the course or twice weekly following an initial phase of daily therapy. According to Harrisons, a continuation phase of once-weekly rifampicin and isoniazid appears to be effective for patients who have adhered to the initial - phase treatment and have negative sputum cultures at two months. Intermittent treatment is said to be especially useful for patients whose therapy is being directly observ0ed. According to Harrisons, (2001), for patients with sputum culture-negative pulmonary tuberculosis, the duration of treatment may be reduced to a total of four months.

Lack of adherence to treatment regimes is recognized worldwide as the most important impediment to cure. Moreover, the mycobacterial strains infecting patients who do not adhere to the prescribed regimen are especially likely to develop acquired drug resistance (Harrisons, 2001).

According to Glatthaar (1993), both patient and provider-related factors may affect compliance. Patient related factors may include a lack of belief that the illness is significant and/or that treatment will have a beneficial effect, lack of social support and poverty. Provider-related factors that may promote compliance include the education and encouragement of patients, the offering of convenient clinic hours and the provision of incentives such as a buses for transportation.

In addition to specific measures addressing non-compliance, two other strategic approaches are used, Direct Observation of Treatment (DOTS), and provision of drugs in combined formulations (Donald, 1995).

2.11.1 Monitoring the Response to Treatment

According to Harrisons, (2001), it is important for patients with tuberculosis to have their sputum examined monthly until cultures become negative. It is said that with the

recommended six months regimen, more than 80% of patients will have negative sputum cultures at the end of the second month of treatment. Also, at the completion of treatment, a sputum specimen should be collected to document cure.

2.11.2 The Directly Observed Treatment Strategy (DOTS)

DOTS is the only globally recognised strategy for effective TB control. DOTS ensures that infectious TB patients are identified and cured using standardized drug combinations. Treatment supporters observe patients as they swallow their drugs daily (The South African Tuberculosis Control Programme Practical Guidelines, 2000). The implementation of DOTS ensures that every TB patient should have the support of another person to ensure that they swallow their medications daily.

The treatment supporter does not have to be a professional health worker, but can be any responsible member of the community. The DOTS supporter should be able to identify the signs and symptoms of TB, side effects of TB drugs and the importance of taking medication regularly for the patient. The supporters should also motivate and empower patients and their families and provide them with a better understanding of TB and the importance of cure (DOTS TB Cure for all, 2001).

According to Peltzer (2000), the DOT strategy has been shown to be more cost effective than conventionally delivered treatment for the treatment and for the management of new cases of tuberculosis in adults in South Africa. However, the implementation of the DOT strategy in the Limpopo Province has been slow.

Observed therapy is of no avail without the necessary drugs free at the point of delivery and government commitment to the establishment and maintenance of effective tuberculosis control programmes. Therefore, DOTS calls for government commitment to national tuberculosis programmes, regular supplies of drugs, effective diagnostic

microscapy services and audit of the efficacy of the strategy (Grange, 1999).

2.11.3   The Management of Contacts

According to Glatthaar (1997), the following procedure should be followed in treating the contacts:

(a)   A case finding by chest x-rays examinations and also bacteriological investigations should be done.

(b)   Chemoprophylaxis

(1)   Child contacts (i.e. up to 16 years of age). Give one of the following to all child-contacts for 3 months: Isoniazid and ethambutol - daily for 3 months.

(2)   Adults-Although chemoprophylaxis may be given to adults, this is not recommended as a routine.

2.12   TUBERCULOSIS AND HIV INFECTION

This year, 2002, the Department of Health in South Africa has sent a message to inform people that contracting tuberculosis if one is HIV positive is not inevitable. Similarly, it does not follow that one will become HIV positive if one has contracted TB (City Press, 31-03-02). Because tuberculosis is an opportunistic disease manifesting itself when resistance levels regulated by the body's immune system are low, and HIV/AIDS destroys the body's immune system, positive people become increasingly susceptible to tuberculosis. Therefore, HIV and TB form a lethal combination, each speeding the other's progress.

Someone who is HIV positive and infected with TB is many times more likely to become sick with TB than someone infected with TB who is HIV negative (Barker, 2002). According to WHO, a total of 4.7 million South Africans are HIV positive, of which 1.6 million will contract TB. It is estimated that 50 percent of TB patients are co-infected with

15

HIV (City Press, 31 - 03 - 02).

With HIV/AIDS still seen as a great shame, persuading TB patients to let themselves be tested for HIV is as difficult a task as it is vital. The social stigmatisation of both TB and HIV infection remains a problem for efforts to combat both diseases (Dorrington, 2002).

LITERATURE REVIEW: PART-TWO

This section of the literature review will focus on the description of knowledge and beliefs, theoretical models relevant to the study, cross-cultural perspectives about the aetiology of tuberculosis and how those perceptions impact on tuberculosis treatment, and lastly, tuberculosis and social stigma.

2.13.1 Knowledge and beliefs: definitions and description

According to Pelto and Pelto (1997), 'knowledge' points to people's engagement with the world through action. However, Pelto further argues that what people say about a matter does not necessarily correspond with the actual behaviour, and knowledge and beliefs may change in accordance with changing circumstances. The idea that what people say they will do is a prediction of future behaviour is not taken for granted, but regarded as an indicator of possible behaviour, 'Beliefs' and 'knowledge' are, strictly speaking, not contrasting terms, but are regarded as coexisting equivalent (Herselman, 2000). According to Herselman (2000), 'knowledge' includes intuitive ideas which may elude discussion. For example, someone may know that tuberculosis is infectious, but not be able to explain, how contagion occurs. In contrast, 'beliefs' are generally regarded as conscious and can be verbalized.

Lindenbaum and Lock, (1993) see 'knowledge' as referring to what people know about biomedical phenomena such as methods of tuberculosis contagion, or the significance of symptoms such as coughing, weight loss and night sweats in diagnosis. 'Knowledge' is based on the assumptions that details may be empirically sound, standardized and are the product of a particular time, place and a set of circumstances.

According to de Villiers (1993), patients come to hospital with knowledge of their condition and then acquire more thorough informative strategies in the hospital. The

doctor's diagnosis contributes to the development of 'knowledge', but it is not necessarily a key factor in the construction of explanations and may either be integrated in illness explanations or seen as an adjunct to them. de Villers (1993) argues that, by implication, a patient's knowledge about his/her condition can be superficial or vague.

According to Herselman (2000), 'beliefs' is used primarily for ideas about for instance, causation and coping strategies of a more traditional kind, but also for lay information acquired through experience or from other persons. Purcell (1998) states that 'beliefs' can also be regarded as 'folk' or local knowledge referring to the body of socio-culturally determined or emic information incorporated in the patterns of people's lives and utilized to adapt to particular circumstances. Purcell (1998) argues that such ideas do not change easily, nor are they automatically replaced by a doctor's explanations. Instead they may be reinterpreted and integrated in the circumstances of a patient's life, and hence in pre-existing beliefs, to understand an incidence of ill-health and its treatment within the context in which they are experienced (Purcell, 1998).

According to Pelto and Pelto (1997), people use their belief systems when their minds cannot cope with the irrationality of the situation and when empirical statements no longer make sense. Pelto et al. (1997), further state that belief statements are used to provide security and to justify actions that are largely unjustifiable. 'Beliefs' have, however, also been used for ideas which are bio-medically erroneous and hence contribute obstacles to proper health-seeking behaviour such as failure to comply with bio-medically prescribed treatment (Herselman, 2000).

2.13.2 Sources of knowledge and beliefs

According to Hunt, Jordan and Irwin (1989), people draw on various resources in constructing explanation of their conditions. These resources can be classified in terms of three categories of factors which are the following:

- **Macro-level factors**, including pre-existing and present ideas associated with patients' sociocultural orientation, aspects of the environment and their daily lives;

- **Intermediate factors** arising from the medical system, including information obtained from a doctor, and an understanding of physiology and psychology; and

- **Micro level factors** which include a patient's physical and psychological traits, access to popular literature and the media, and from the advice and experience of members of the social group with whom people discuss their symptoms before consulting a doctor.

According to Hunt et al. (1989), the resources from which people draw to construct understanding of their health thus extend beyond their medical histories and experiences to include the experiences and views of others. Again, people attempt to make sense of their illness in ways which can easily be understood, and are consistent with their experiences and conceptions of health and illness.

2.14 THEORETICAL MODELS RELEVANT TO THE STUDY

"Sick people use their health culture to interpret their symptoms, give them meaning, assign them severity, organise them into named syndrome, decide with whom to consult, and for how long to remain in treatment" (Rubel & Garro, 1992). According to Rubel and Garro (1992), health culture is the information and understanding that people have learned from family, friends and neighbours as to the nature of a health problem, its cause and its implications. However, the models that will be discussed in this study are widely used to counteract the state of health culture and its impingement on modern medicine.

2.14.1 Health Believe Model (HBM)

According to Steyn and Viljoen, (1990), the Health Believe Model (HBM) was originally developed in the early fifties by Rosenstock, Hochbaum and Kegeles in order to identify

factors which affect an individual's health behaviour. The basic suppositions of the HBM is that an individual will take steps to prevent illness if two health perceptions are held. Firstly, the person must believe that he is susceptible to an illness. Secondly, he must believe that the illness will have a reasonably serious impact on his life. According to this model, if these two conditions prevail in the mind of a person, then that person must also believe that the benefits of a specific health oriented action would outweigh the obstacles which stand in the way of action (Steyn & Viljoen, 1990).

Rubel and Garro, (1992) further state that in HBM, the probability that an individual will take the necessary steps is further influenced by a set of factors. For instance, demographic variables such as sex and age, socio psychological variables such as reference group, and structural variables such as knowledge of the illness and previous experience thereof are also influential.

In 1982 the original model was adapted by Pender who included two further health perceptions, namely, a perception of the importance of health and a perception of control over health (Steyn & Viljoen, 1990). According to Rubel and Garro (1992), the relevance of HBM to tuberculosis care is apparent, although few students have sought to assess what triggers a person to take and when; which is on important issue in efforts to curtail the transmission of tuberculosis.

2.14.2 The Pathway Model

This is the model of health seeking behaviour which was proposed by Chrisman in 1977 (Jaramillo, 1998). According to Jaramilo, this model has five different stages which are:

— **Symptoms definition stage** which deals with how patients perceive the physical changes produced by the disease;

— **Illness-related shifts in the role behaviour stage,** which refers to the way in which the evolution of symptoms influence how patients relate to their peers;

- **Treatment actions stage** which refers to the activities undertaken by patients to attenuate the burden of the illness;
- **The lay consultation stage** which refers to the exploring of the peers' opinion about patient's symptoms and suggestions for dealing with them; and
- **The adherence stage** meaning those activities taken by patients for following treatment and medical advice.

2.15   CROSS-CULTURAL PERSPECTIVES ON THE AETIOLOGY OF TUBERCULOSIS

According to Poss (1998), explanatory models about tuberculosis are different across cultures, that is, the meanings ascribed to a particular disease, differ from culture to culture. The ascribed etiology of tuberculosis varies by culture. In a study done in Kenya, patients reported that tuberculosis can be caused by the desires of their ancestors, excessive physical exertion and witchcraft (Ndeti, 1972). Similarly, a study was done by Barnhoorn and Andriaanse (1992) in India about TB treatment compliance, and it was found that non-compliant patients were more likely to believe that witchcraft or past sins were causes of tuberculosis. A study of tuberculosis patients in Pakistan revealed that most participants believed that tuberculosis was an infectious disease spread by sputum, but others thought it was caused by previous injuries to the lungs, taking cold baths or prior sins (Liefooghe, 1995).

Nichter's (1994) study of illness semantics in the Phillippines revealed that participants believed tuberculosis could result from germs, fatique, poverty, exposure to cold or wind, or any factor that seriously weakened or shocked the body. In South Africa, factors named as causes of TB in the study done by Metcalf et al. (1990), were cold weather, smoking and malnutrition. According to Metcalf et al. (1990), 85% of South Africans however believed that tuberculosis was infectious and could be spread through the air. In the study done by de Villiers (1991), in the provincial hospital in the Eastern Cape of South Africa

regarding perceptions of tuberculosis as influenced by diverse socio-cultural factors, amongst Xhosa speaking patients it was found that patients believed that tuberculosis was caused by witchcraft, specifically by *impundulu*, meaning *"lightning bird"*). It was also found that others believed that tuberculosis was caused by some form of misfortune. Others believed that tubeculosis was associated with supernational powers like the ancestors' spirits, such that it becomes impossible for "white" doctors to understand the disease clearly.

Another study which was done in Botswana by Mozonde et al. (1999), looking into health seeking behaviour among the Batswana with pulmonary tuberculosis, revealed that according to Tswana people, TB was perceived as a Tswana disease" e.g. *thibamo*, depending on the circumstances surrounding the patient and the healer. TB may also be given names depending on the assumed cause, like TB *ya maina* (TB from mines), TB *ya boloi* (witchcraft), or TB *ya sejeso* (witchcraft poison).

2.16 HEALTH SEEKING BEHAVIOUR OF TUBERCULOSIS PATIENTS

Health seeking behaviour largely depends on the health beliefs of a particular person. Health belief is concerned with the perceived severity of the disease, expectations towards treatment and cure, health motivation, benefits of treatment regimes and the personal advantage of continuing treatment given competing events (Liefooghe, 1995).

Health seeking behaviour as rooted in the health belief model is based on the assumption that, the person must first believe that he is susceptible to an illness and secondly, that the illness will have a reasonably serious impact on his life (Steyn & Viljoen, 1990). Steyn and Viljoen (1990) further stated that the probability that the individual will take the necessary steps is further influenced by a set of modifying factors. For instance, demographic variables such as age, sex, structural variables such as knowledge of the illness and previous experience thereof. Studies which have been done on health seeking behaviour of TB

22

patients show a paradigm shift.

According to Mazonde and Steen (1999), most TB patients seem to utilize medical health facilities. However, some patients prefer using both health care facilities and traditional medicine. In the study done by Mazonde and Steen (1999), in Botswana in 1999 it was found that some patients had visited a traditional doctor or a faith healer as their first step of treatment. However, in certain instances, patients utilized both facilities. The explanation given by some patients was based on the belief that modern medicine was used as a "quick fix" for their disease. Traditional healing was therefore used for providing answers to the ultimate questions that may be asked about the meaning of the misfortune, and to deal with the "real causes of their illness" (Mazonde & Steen, 1999).

2.17 THE IMPORTANCE OF SYMPTOM RECOGNITION IN TB PATIENTS

According to Mata (1985), the most recognized symptoms of tuberculosis in the study that was done in Honduras were coughing and expectoration. However, there seem to be a certain degree of confusion about the difference between "symptoms" and disease. Mata (1985) further states that a person with a persistent cough rarely considers tuberculosis to be a likely cause of his problem, rather that the symptom is generally considered to be the disease itself. Therefore, some remedies for the cough, like cough syrups, will be sought in order to treat the symptom. The population only recognizes the disease in its advanced stage, when primary symptoms are accompanied by others that seriously affect the normal life of the patient (Mata, 1985).

According to Rubel and Garro (1992), there is a large body of clear documentation on how cultural understandings, sometimes explicitly, sometimes more subtly, influence people's initial acknowledgement of changes in their physical or mental well-being. Those important understandings are, according to Rubel and Garro (1992), linked to the decision

as to when, and from whom do patience seek assistance.

According to Rubel and Garro (1992), a study which was focused on socio-cultural factors in the control of tuberculosis was performed both in Texas and California, and it was found that in each of those locations, there were lengthy delays before the symptoms were brought to the physicians. It is said that in Texas, delays were attributed to diagnoses by laymen of the symptoms of the "folk" illness (*Susto*); a condition not considered susceptible to the ministration of physicians. Symptoms were rather attributed to more benign conditions. Although those patients did not consider the possibility that tuberculosis was the cause of their symptoms, all had eventually sought help from medical doctors (Rubel & Garro, 1992). According to Mata (1985), Hondurans recognized symptoms of tuberculosis as cough and expectoration, but then a person with a cough often considered this symptom to be the disease itself and consequently did not seek treatment.

In the Phillipines, study participants most often named back and chest pain, weight loss, poor appetite, weakness, cough and fever as symptoms, and participants in the majority felt that tuberculosis could be cured by doctors using medications (Poss, 1998). In the study done by Steen and Mazonde (1999) in Botswana, it was found that there was a delay of about twelve weeks before patients could visit medical doctors. About 52% of the subjects during the symptomatic phase would rather use alterative treatments. In South Africa, Metcalf (1990) found that over 90% of respondents mentioned cough, weight loss and night sweats as symptoms of tuberculosis. A small number mentioned that blindness, rash and loss of hair were also symptoms of tuberculosis. Respondents considered tuberculosis to be treatable by medications administered by physicians. In his study Metcalf et al. (1990) did not indicate if ever there was a delay after symptom recognition for patients to visit doctors.

In the study done by Peltzer (2000), patients waited two to seven months after the onset of symptoms. However, after modern treatment started, the use of alternative treatment modalities dropped. Symptom recognition plays an important role in the life of a tuberculosis patient. Better still, how a particular patient interprets his/her symptoms will determine treatment compliance.

2.18 IMPLICATIONS OF PERCEPTIONS OF TUBERCULOSIS FOR TREATMENT

The most important implications of perceptions of tuberculosis is probably the tendency for patients to default on their medications (de Villiers, 1991). According to de Villiers (1991), the available data suggest that patients take medications, but when their symptoms abate they believe that they have been cured and then default on the remainder. Secondly, patients fail to return regularly or not at all, for repeat prescriptions. In some instances, patients return for treatment only when their symptoms recur.

Because tuberculosis treatment is prolonged, patients often believe that they are not being helped by the doctor's medicine, or that their medication did not cure them immediately, and often they compare modern medicine with that of a traditional healer which they believe has the ability to act quickly (de Villiers, 1991).

According to Liefooghe et al. (1995), in Pakistan among female focus group discussions, the belief that pregnancy and tuberculosis treatment are not compatible, is widespread. Pregnant tuberculosis patients are often advised by their relatives to stop their treatment, this in spite of the fact that treatment regimes used during pregnancy have no adverse effects on mother and foetus. According to Rubel and Garro (1992), the cultural perception of tuberculosis tends to interfere with the care of those affected by the disease. In their research in the Phillipines, it was found that parents attributed their children's respiratory symptoms to the "folk" illness, *piang*, rather than to tuberculosis. Parents

25

would then go to the extent of removing their tubercular children from hospitals against medical advice and seek traditional healer's help. In so far as perceptions of patients go, according to de Villiers (1991), those patients who hold different views from their practitioners should not be discouraged from consulting their traditional healers, but at the same time, should be encouraged to consult a medical doctor. If the treatment that a patient is getting from his/her traditional healer does not interfere with that of medical doctors, there is no reason why he/she should not consult both practitioners.

2.19 TUBERCULOSIS AND SOCIAL STIGMA

According to Poss (1998), studies in many cultures suggest that tuberculosis is a socially stigmatized illness. Poss further stated that in studies which were done in Peurto Rico on infected persons, it was revealed that patients often conceal their diagnosis or attribute symptoms to less-stigmatized pulmonary problems like pneumonia or asthma.

Ndeti (1972) found that patients in Kenya rarely discussed their diagnosis with others. Young TB patients fear that if they discuss their disease with others they may be rejected or have difficulty finding a partner; engagements may also be broken. In addition, patients may therefore be reluctant to send their children, especially girls of marriage age, for treatment. Research in the Phillipines also revealed that persons affected with tuberculosis are stigmatized. Some patients in the Phillipines confused tuberculosis with a condition known to them as *Mahina ang baga* ("weak lungs"). It was also noted that when physicians in the Phillipines diagnose tuberculosis, they may use the term ("weak lungs") because it carries less stigma for patients (Nichter, 1994). According to Rubel and Garro (1992), in some cultures, the largely unremarked social stigma of tuberculosis contributes to abandonment of treatment and lengthy delays in seeking professional care. Rubel and Garro (1992) further stated that some patients go to the extent of not mentioning the disease to those they live with, others curtailed contact with families and friends with whom they had enjoyed extensive relationships, and still others expressed fear that a

26

spouse would discover the illness, refuse to eat or sleep with them, and even sever the relationship.

Tuberculosis is a problem not only to the affected person. The diagnosis has implications for the whole family. The family often suffers from social stigmatization. Once a family member is known to have tuberculosis, the whole family might be shunned (Liefooghe et al., 1995).

As tuberculosis becomes increasingly associated with HIV, similar stigma and its consequence may apply to patients with tuberculosis. Patients often resort to staying without treatment for fear of being stigmatized due to the relationship between tuberculosis and HIV (Hudelson, 1996). On a positive note concerning tuberculosis and stigmatization, in the study done by Peltzer (2000) in the Limpopo Province of South Africa, the stigmatization experienced by participants because of tuberculosis was limited. Perhaps, as more people become well informed about the disease the less stigmatized they will feel. As stated by Jaramillo (1999), the provision of information about mechanisms of tuberculosis transmission produces a significant reduction in the levels of prejudice against people with tuberculosis.

CHAPTER 3

3 METHODOLOGY

This section of the study consists of description of the research design, data collection, TB ward, sampling, sample size, procedure, measures and data analysis methods.

3.1 RESEARCH DESIGN

The study followed both qualitative and quantitative research approaches. Quantitative research methodology was used to enable the researcher to provide descriptive and generalisable data. The qualitative methodology was used with focus groups in order for the participants to give clarity and meaning concerning the topic discussed.

According to Pos (1998), qualitative methodology aims at understanding reality by discovering the meanings attached by people to the settings. Also, what is important about the qualitative research is that, the researcher does not see herself detached from the object studied, but is subjectively involved in the interaction with the subjects. Qualitative research is dialectical and interpretive. The researcher is continually in interaction with participants. The participants' world is discovered with continued interpretation (Neuman, 1997).

3.2 DATA COLLECTION

The data in this study were collected at Dr Machupe Mphahlele Memorial Hospital in the Limpopo Province of South Africa. The data were collected in the TB ward from patients who were willing to participate in the study. Also, the data were collected from relatives of those patients who took part in the study. The data were collected over a period of two weeks due to the fact that patients were allocated only one hour to partake in the interview

due to the nature of their illness and the tendency to tire easily.

3.3 DESCRIPTION OF DR MACHUPE MPHAHLELE MEMORIAL HOSPITAL TB WARD

Dr Machupe Mphahlele Memorial Hospital is situated 55km from Pietersburg in the Limpopo Province. It was previously known as Groothoek Missionary Hospital.

3.3.1 Consultation and bed capacity

The TB ward has a bed capacity of 44 patients. The ward admits patients from neighbouring villages and townships for TB treatment. Local clinics refer patients and some of the patients come on their own will. Initially, patients are placed in the medical ward while awaiting sputum results. If sputum results come out positive then the patient is transferred to the TB ward. A patient can stay for a period of approximately six to eight weeks depending on the patient's responses to TB treatment, and when the sputum results are negative.

3.3.2 Health Education and application of Direct Observed Treatment Strategy (DOTS)

A patient will be notified about the diagnosis by a doctor and a TB nursing sister. Every Thursday a doctor comes for ward rounds and on that particular day, doctors together with nurses talk to patients about TB and its treatment. Health education is done on continuous basis. Every Saturday patients and their relatives, together with TB nurses, hold group discussions concerning the disease.

Upon discharge from the hospital, a community health nurse will take the patient home. This will make it easier to trace the patient. Patients are then allocated DOT supporters

in the community. In every village there are two or more DOT supporters that are responsible for supervising patients' medications. From time to time, the DOT coordinator visits the DOT supporters to get the progress of the patients. However, due to the escalating numbers of TB cases, as well as due to shortage of manpower and also transportation problems, DOT supporters often find themselves unable to run the service efficiently. Thus, some patients remain unsupervised and thus default on treatment, leading to relapses.

3.4 SAMPLE SIZE

The sample comprised 40 (forty) patients who were admitted in the TB ward at Dr Machupe Mphahlele Memorial Hospital. There were 21 males (52,5%) and 19 women (47,5%). From the sample, a total number of 22 (55%) patients volunteered to take part in the focus group discussion. Twelve (54,5%) were males and 10 (45,5%) were females. Fourteen members of the community (relatives of those patients who took part in the study), were conveniently sampled to take part in the focus group discussions. From the 14 members, 9 (64,3%) were females, and 5 (35,7%) were males. All participants were above 20 years of age.

Four focus groups were formed; two groups each for both patients and relatives. For patients, each group consisted of eleven members; both male and female patients. For relatives of patients, because of a smaller number, each group consisted of seven participants, both males and females. The relatives of patients were approached as they came to visit the patients, and through the help of the matron in-charge of the TB ward. The importance and the meaning of the study were explained to them, and those who were willing to participate were then interviewed. The focus group discussion sessions were conducted over a period of two weeks, sessions running for one hour, three times a week.

Twenty-two (55%) patients from the initial sample of 40 patients volunteered to take part in focus group discussion. Twenty patients (i.e, half of the sample) declined to be interviewed giving different reasons, for example, lack of interest in the interview, uneasiness about the disease itself, fear that the information they were going to provide will be published; also the issue of HIV/AIDS was also taken into account by the researcher because of its sensitivity. Since AIDS was not investigated and because of the sensitivity of the matter, patients were assured that HIV/AIDS would not be discussed except if they volunteered information.

With the quantitative data all patients who were admitted in the ward between February and March 2002 took part in the study except for four patients; three males and one female patient, who were too sick to participate.

3.5   DATA COLLECTION MEASURES

The following data collection measures were used:

−   **The Illness Perception Questionnaire** (IPQ) designed by Leventhal, Nerenz and Steele, (1984) and Leventhal and Diefenbach, (1991) was used. According to Weinman, Petrie, Moss-Morris and Horne (1996), the IPQ is a theoretically derived measure comprising five scales that provide information about the five components that have been found to underlie the cognitive representation of illness. The five scales assess the following: identity, i.e. the symptoms the patient associates with the illness; cause, i.e. personal ideas about aetiology; time-line, i.e. the perceived duration of the illness, consequences, expected effects and outcome and cure control, i.e. how one controls or recovers from the illness (See Appendix A).

−   **A causative belief questionnaire** (which comprises 18 items common in South Africa) rated on a scale from 1 = strongly agree, to 5 = strongly disagree designed by Metcalf et al., (1990) and Steen & Mazonde, (1999).

- **A 21 item questionnaire on the Health Belief Model** developed by Barnhoorn and Adriaanse (1992) was also used. The Health Belief Model has been fully described in the literature review. The Health Belief Model includes items such as the following:

    (1) Health Motivation (5 items) for example, utilized the primary health care facility at nearby village.

    (2) Perceived susceptibility (4 items), for example; TB is infectious.

    (3) Perceived severity (4 items), for example; TB is life threatening.

    (4) Perceived benefits (4 item), for example; TB is curable by taking drugs regularly.

    (5) Perceived costs (4 items), for example; the family has to spend more money. All the items of the Health Belief Model are rated from 1 = strong agree to 5 = strongly disagree (See Appendix A).

- **A nine item knowledge questionnaire** on when to stop treatment developed by Metcalf et al., (1990) and rated from 1 = strongly agree, to 5 = strongly disagree, was used (See Appendix A).

- **22 items on socio-demographic variables** concerning gender marital status, age, type and size of family, and the place of residence were used. Also, two measures of income levels were assessed, the monthly income of a patient and his family, and a patient's occupation. Also, data regarding the type of fuel used, the type of house, the ascribed religion, any knowledge of a family or community member with tuberculosis, any usage of alcohol/drugs, and usage of tobacco were included in the socio-demographic data. All those variables, are according to Barnhoorn and Adriaanse (1992), important indicators of social class and may play a role in the perception of tuberculosis.

- For the focus group interview, a question guide developed by Liefooghe, Baliddawa, Kipruto, Vermeire, and De Munynck (1997) was used (See Appendix B). The focus groups were conducted in Northern Sotho and were tape recorded with due permission from the participants. All questionnaires used for the study

32

were translated from English to Northern Sotho and back translated into English according to scientific procedures.

3.6 PROCEDURE

Permission to conduct the study was obtained from the ethics committee, University of the North, the Department of Health and Welfare of the Limpopo Province and also the chief nursing director of Dr Machupe Mphahlele Memorial Hospital. Before the interview, the researcher visited the participants to familiarize them with the study. The researcher explained to the participants what the study was all about and the importance of the study results. Before the interview, the participants were asked for formal consent. The content of the consent form was fully explained to participants (See Appendix C). All patients, except for the four (4) who were too sick to participate, agreed to sign the consent form. The usage of the audio tape during in-depth interviews was also explained and that the information was collected and used for the research purpose. Participants were assured of confidentiality.

3.7 DATA ANALYSIS

The SPSS package was used to facilitate the analysis. Descriptive statistics were used for biographical data and part of the qualitative data. The T-test and one-way analysis of variance (ANOVA) were also used to compare the means and to test for any significance in the results.

The qualitative data were transcribed in Northen Sotho and translated into English according to scientific procedures. The data was coded, analysed and, through reading and re-reading of the responses to the open questions, it was grouped into themes (Neuman, 1997). The help of an independent rater (a research psychologist) was also sought and enlisted for validation purposes. Each researcher analysed the content and separately

formulated her conclusions. The findings were compared and checked for consistency.

CHAPTER 4
RESULTS

4   DEMOGRAPHIC DETAILS

4.1   SAMPLE FROM QUANTITATIVE DATA

The sample comprised forty (40) patients who were admitted in the TB ward at Dr Machupe Mphahlele Memorial Hospital. All the patients who took part were positively diagnosed with TB and had been in the TB Ward for a period of one month and more. There were 21 males (52,5%) and 19 women (47,5%). Their ages ranged from 18 to 50 years and above, Forty seven percent of the patients were between the ages of 30-49 years, 22,5% were 50 years and above, and 30,0% were between 18 - 29 years. Arrange ages logically from young to old. Distribution by ethnicity showed that 92,5% were Northern Sotho speaking and 7,5% were Tsongas. Thirty six (90,0%) of the patients were from village background, whereas only 4 (10%) were from township background.

From the sample, 33,3% of males did not receive any education, 47,6% had primary education and 19,0% received secondary education. None of the males who participated had tertiary education. Of the females, 10,5% had no education at all, 26,3% received primary education, 42,1% had secondary education and 21,1% received tertiary education. From the sample, a total of 22,5% men and women, did not receive education at all. (See Table 1 and Table 2).

Table 1:   **Demographic details of TB patients (N = 40) in the ward**

		Gender		Total
		Male	Female	
		N (%)	N(%)	N(%)
Age group	18 - 29 yrs	6 (28.6%)	6 (31.6%)	12 (30.0%)
	30 - 49 yrs	8 (38.1%)	11 (57.9%)	19 (47.5%)
	50 + yrs	7 (33.3%)	2 (10.5%)	9 (22.5%)
Religion	Christian	2 (9.5%)	2 (10.5%)	4 (10.0%)
	Catholic		1 (5.3%)	1 (2.5%)
	Apostolic	1 (4.8%)	5 (26.3%)	6 (15.0%)
	ZCC	5 (23.8%)	5 (26.3%)	10 (25.0%)
	Born-again		1 (5.3%)	1 (2.5%)
	Other	8 (38.1%)	3 (15.8%)	11 (27.5%)
	None	5 (23.8%)	2 (10.5%)	7 (17.5%)
Marital Status	Married	13 (61.9%)	11 (57.9%)	24 (60.0%)
	Single	8 (38.1%)	7 (36.8%)	15 (37.5%)
	Widow		1 (5.3%)	1 (2.5%)
Language	N.Sotho	20 (95.2%)	17 (89.5%)	37 (92.5%)
	Xitsonga	1 (4.8%)	2 (10.5%)	3 (7.5%)

Table 2:   Socio-Demographic Characteristics of TB patients in the ward

		Gender				Total	
		Male		Female			
		N	%	N	%	N	%
Occupation	None	6	28.6%	3	15.8%	9	22.5%
	Housewife			4	21.1%	4	10.0%
	Labour/domestic	11	52.4%	4	21.1%	15	37.5%
	Security	2	9.5%	1	5.3%	3	7.5%
	Teacher			1	5.3%	1	2.5%
	Student			1	5.3%	1	2.5%
	Other	2	9.5%	5	26.3%	7	17.5%
Occupation of head of family	None	9	42.9%	7	36.8%	16	40.0%
	Housewife			1	5.3%	1	2.5%
	Labour/domestic	10	47.6%	6	31.6%	16	40.0%
	Security			2	10.5%	2	5.0%
	Police			1	5.3%	1	2.5%
	Other	2	9.5%	2	10.5%	4	10.0%
Family	Nuclear	11	52.4%	15	78.9%	26	65.0%
	Joint	10	47.6%	4	21.1%	14	35.0%
Relation to head of family	Wife			9	47.4%	9	22.5%
	Daughter			6	31.6%	6	15.0%
	Son	10	47.6%	1	5.3%	11	27.5%
	Other	11	52.4%	3	15.8%	14	35.0%
Education	None	7	33.3%	2	10.5%	9	22.5%
	Primary	10	47.6%	5	26.3%	15	37.5%
	Secondary	4	19.0%	8	42.1%	12	30.0%
	Tertiary			4	21.1%	4	10.0%

		Gender				Total	
		Male		Female			
		N	%	N	%	N	%
Residence	Village	20	95.2%	16	84.2%	36	90.0%
	Township	1	4.8%	3	15.8%	4	10.0%
Income-mother	None	11	52.4%	11	57.9%	22	55.0%
	R1 - 999	5	23.8%	1	5.3%	6	15.0%
	R1000 - 2999	4	19.0%	3	15.8%	7	17.5%
	R3000 - 6999	1	4.8%	4	21.1%	5	12.5%
Income - Father None		5	23.8%	8	42.1%	13	32.5%
	R1 - 999	9	42.9%	4	21.1%	13	32.5%
	R1000 - 2999	6	28.6%	3	15.8%	9	22.5%
	R3000 - 6999	1	4.8%	4	21.1%	5	12.5%
House	Zozo (tin house)	1	4.8%			1	2.5%
	Thatched mud	1	4.8%	2	10.5%	3	7.5%
	Thatched brick	1	4.8%	1	5.3%	2	5.0%
	Mud			1	5.3%	1	2.5%
	Brick	18	85.7%	14	73.7%	32	80.0%
	Tile			1	5.3%	1	2.5%
Fuel	Wood	11	52.4%	9	47.4%	20	50.0%
	Paraffin	3	14.3%	1	5.3%	4	10.0%
	Electricity	7	33.3%	9	47.4%	16	40.0%
Health (self-rated)	Fair	15	71.4%	11	57.9%	26	65.0%
	Poor	2	9.5%	2	10.5%	4	10.0%
	Good	4	19.0%	6	31.5%	10	25.0%

| | | Gender | | | | Total | |
| | | Male | | Female | | | |
		N	Col %	N	Col %	N	Col %
Church attendance	Never	12	57.1%	4	21.1%	16	40.0%
	1 < 1 year	1	4.8%	1	5.3%	2	5.0%
	2 + /year	7	33.3%	12	63.2%	19	47.5%
	1 + /week	1	4.85	2	10.5%	3	7.5%
Pray	Never	12	57.1%	2	10.5%	14	35.0%
	1/day	2	9.5%	4	21.1%	6	15.0%
	1/few days	4	19.0%	10	52.6%	14	35.0%
	1/week	1	4.8%			1	2.5%
	</1 week	2	9.5%	3	15.8%	5	12.5%

In this study, typically, the tuberculosis patient is a middle aged male or female, married, lives in the rural area, comes from a nuclear or joint family, works as a labourer or domestic, lives in a brick house with corrugated iron, uses firewood or electricity as fuel and has a monthly income. However, 22,5% of participants did not have any income at all. Forty percent of patients did not attend church, 47,5% stated that they attended church once a year, 5,0% less than once a year and 7,5% attended church once a week. Women in this study tended to pray more than their male counterparts; for example, 57,1% of males stated that they never pray as compared to 10,5% of females.

Table 3:   **Past six months alcohol and tobacco use by patients and history of TB in the family and community**

	Gender		Total
	Male	Female	
	N (%)	N (%)	N (%)
In the last six months have used alcohol or other drugs such as wine, hard liquor etc.	11 (52.4%)		11 (27.5%)
In the last six months have used tobacco, such as cigarettes, snuff, etc.	15 (71.4%)	1 (5.3%)	16 (40.0%)
Has any family members ever had TB	6 (28.6%)	11 (57.9%)	17 (42.5%)
Has any member in your community had TB	16 (76.2%)	13 (68.4%)	29 (72.5%)

In this table alcohol and tobacco use appeared to be higher among males, with a total of 52,4% taking alcohol, and 71,4% using tobacco. In contrast, only 5,3% of women used tobacco and none reported the usage of alcohol. Family history of TB occurred in 42,5% of patients and 72,5% knew someone who had TB in the community.

Table 4: **Knowledge about causative beliefs of TB from a causative believe questionnaire**

Variables	Gender			
	Male (N= 21)	Female (N = 19)	Total = 40	t-test
	M (SD)	M (SD)	M (SD)	
1. Baccili	1.8 (1.0)	1.8 (1.2)	1.8 (1.1)	.939
2. Poverty	2.1 (.92)	2.1 (1.1)	2.1 (.97)	.854
3. Hard work	2.6 (1.0)	2.6 (.90)	2.6 (.98)	.981
4. Malnutrition	1.6 (.60)	2.4 (1.5)	2.0 (1.2)	.041*
5. Witchcraft	3.6 (1.5)	3.4 (1.6)	3.5 (1.6)	.699
6. Sins	3.7 (1.3)	4.2 (1.4)	3.9 (1.4)	.271
7. Cold weather	2.0 (.89)	2.2 (.97)	2.1 (.92)	.481
8. Wet weather	2.0 (.86)	2.5 (1.2)	2.3 (1.1)	.227
9. Smoking	1.5 (.60)	1.3 (.56)	1.4 (.58)	.256
10. Poor eating habits	1.7 (.57)	2.1 (1.2)	1.8 (.97)	.235
11. Over crowding	1.7 (.48)	1.8 (1.0)	1.7 (.80)	.517
12. Alcohol	1.6 (.58)	1.4 (6.9)	1.5 (.64)	.335
13. Neglect	2.1 (.72)	2.3 (1.0)	2.2 (.88)	.673
14 Infection/Germs	1.5 (.60)	1.6 (.83)	1.6 (.71)	.499
15. Poor housing	1.8 (.60)	1.7 (.65)	1.8 (.61)	.716
16. Dusty work/mine work	1.7 (.57)	1.4 (.60)	1.6 (.59)	.198
17. From other TB patient	1.4 (.92)	1.3 (.93)	1.4 (.92)	.577
18. Poisoning	3.0 (1.3)	3.0 (1.6)	3.0 (5.0)	.945

In this table most participants strongly believed that tuberculosis is caused by both interaction with other TB patients and smoking. Also, participants attributed bacilli, poverty, malnutrition, hard work, cold and wet weather, alcohol, poor eating habits, neglect, poor housing and dusty mine work as causative beliefs of TB. Participants disagreed with the fact that witchcraft and sins were causative beliefs of TB. Both males

41

and females were neutral about poisoning as a causative belief of TB. There was, however, a significant difference between males and females regarding malnutrition as a causative belief of TB. Male patients tended to agree more than female patients did.

Table 5(a):   Knowledge about symptoms of TB from the Illness Perception Questionnaire

Variables	Gender			
	Male N = 21	Female N = 19	Total N =40	
	M (SD)	M (SD)	M (SD)	t-test
1. Cough with expectoration	2.0 (.60)	1.2 (.37)	1.3 (.53)	.026*
2. Chest pain	2.0 (.74)	2.0 (.96)	2.0 (.84)	.869
3. Low grade fever	2.1 (.72)	2.0 (.61)	2.0 (.7.0)	.130
4. Haemoptysis (cough with blood)	2.2 (.88)	2.1 (.73)	2.0 (.80)	.521
5. Loss of appetite	2.0 (.73)	1.2 (.45)	1.5 (.64)	.045*
6. Loss of weight	1.6 (.60)	1.1 (.37)	1.3 (.52)	.05
7. Night sweat	2.0 (.70)	2.0 (.61)	2.0 (.70)	.267
8. Skin problem	3.0 (1.0)	3.4 (1.3)	3.2 (1.1)	.264
9. Hair loss	3.2 (1.2)	3.7 (1.3)	3.5 (1.2)	.272
10. Blindness	4.2 (1.3)	5.0 (.53)	4.4 (1.0)	.068

Table 5(a) indicates means, standard deviations and significance tests of symptoms of TB by gender, rated from 1 = strongly agree to 5 = strongly disagree. Most participants strongly agreed with loss of weight as a symptom of TB. Cough with expectoration also came out strongly as a symptom of TB. With significant gender differences, female patients appeared to have stronger ratings on cough with expectoration as a symptom of TB. Other symptoms like chest pains, low grade fever, haemoptysis, loss of appetite, and night sweats also were seen by most participants as signs and symptoms of TB. Both males and females disagreed with the variable of blindness as a symptom of TB, and female patients actually strongly disagreed. Most participants also disagreed about hair loss

as a symptom of TB, however, male patients on their own were neutral about hair loss as a symptom of TB. There was a significant difference between males and females with regard to loss of appetite. Females agree more strongly than males that loss of appetite is a symptom of TB.

Table 5(b₁)   Knowledge on symptoms of TB by Education

Items	Educational Level				Total	
	None	Primary	Secondary	Tertiary	Total	
	N = 9	N = 15	N = 12	N = 4	N = 40	f-value
	M(SD)	M(SD)	M(SD)	M(SD)	M(SD)	
1. Cough with expectoration	1.4(.52)	1.3(.61)	1.4(.51)	1.0(.00)	1.4(.53)	.547
2. Chest pains	1.6(.52)	1.6(.82)	1.7(1.1)	1.0(.00)	1.6(.84)	.595
3. Low grade fever	1.9(.60)	1.9(.74)	1.6(.66)	1.0(.00)	1.7(.68)	.104
4. Haemoptysis	1.9(.60)	2.0(.96)	1.8(.75)	1.0(.00)	1.8(.81)	.129
5. Loss of appetite	1.7(.50)	1.5(.83)	1.4(.51)	1.0(.00)	1.5(.64)	.368
6. Loss of weight	1.7(.50)	1.3(.61)	1.2(.38)	1.0(.00)	1.3(.52)	.087
7. Night sweat	2.1(.60)	1.51(.63)	1.7(.65)	1.0(.00)	1.7(.66)	.027*
8. Skin problem	3.3(.86)	3.2(.94)	3(1.4)	3.5(1.7)	3.2(1.2)	.872
9. Hair loss	3.4(1.3)	3.5(1.1)	3.4(1.6)	3.6(1.5)	3.5(1.3)	.975
10. Blindness	4.9(.33)	4.5(.83)	4.2(1.5)	4.5(1.0)	4.5(1.1)	.513

***P<001, **P,.01, *P<.05

43

Table 5(b₂) One way ANOVA of education categories on knowledge of TB symptoms

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.811	3	1.270	3.441	.027
Within Groups	13.289	36	.369		
Total	17.100	39			

Table 5(b₃) Post hoc test of education categories on knowledge of TB symptoms

Education	N	Subset for alpha = .05	
		1	2
Tertiary	4	1.0000	
Primary	15	1.5333	1.5333
Secondary	12		1.6667
None	9		2.1111
Sig		.091	.083

Tertiary ≠ Secondary

Tertiary ≠ None

Table (5b₁) indicates means, standard deviations and significance tests of symptoms of TB by education, rated from 1 = strongly agree, to 5 = strongly disagree. The results indicate that most patients are knowledgeable about the symptoms of tuberculosis. However education seems to have an influence in the knowledge of TB symptoms. On item (7) night sweat, there was a significant difference between different education categories. Patients with tertiary education strongly that night sweat was a symptom of TB more than the other groups. Table 5(b₃), post hoc test indicates the difference between different education categories.

Table 5(c₁)   Knowledge on symptoms of TB by age group

Items	Age Group			Total	
	18 - 29 yrs	30 - 49 yrs	50 yrs +	Total	F-Value
	N = 12	N = 19	N = 9	N = 40	
	M(SD)	M(SD)	M(SD)	M(SD)	F-Value
1. Cough with expectoration	1.3(.49)	1.4(.60)	1.2(.44)	1.4(.53)	.660
2. Chest pains	1.6(1.2)	1.5(.77)	1.4(.52)	1.6(.84)	.833
3. Low grade fever	1.5(.52)	1.7(.08)	1.9(.60)	1.7(.68)	.427
4. Haemopthysis	1.7(.49)	1.9(1.1)	1.8(.44)	1.8(.81)	.644
5. Loss of weight	1.4(.51)	1.5(.77)	1.4(.52)	1.5(.64)	.891
6. Loss of appetite	1.3(.45)	1.3(.58)	1.4(.52)	1.3(.52)	.710
7. Night sweat	1.9(.66)	1.4(.49)	1.9(.78)	1.7(.66)	.033*
8. Skin problem	3.3(1.4)	3.2(1.9)	3.0(.50)	3.2(1.5)	.815
9. Hair loss	3.5(1.5)	3.4(1.3)	3.0(1.0)	3.5(1.2)	.595
10. Blindness	4(1.5)	4.7(.65)	4.5(.72)	4.5(1.0)	.166

*$P<.05$

Table 5(c₂)   One way ANOVA of age categories on knowledge of TB symptoms

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.873	2	1.437	3.737	0.33
Within Groups	14.227	37	.385		
Total	17.100	39			

45

Table 5(c₃) post hoc test of age categories on knowledge of TB symptoms

Age categories	N	Subset for alpha = .05	
		1	2
30 - 49	19	1.3684	
50+	9		1.8889
18 - 29	12		1.9167
Sig.		1.000	.913

(30 - 49) ≠ 50+

(30 - 490 ≠ (18 - 29)

Table 5(c₁) indicates the knowledge of symptoms of TB by age group. Only item (7) night sweat indicated a significant difference between age groups. Patients in middle adulthood between 30 - 49 years scored higher than the others. The results also indicated that patients disagreed with item (9) hair loss and item (10) blindness, as symptoms of TB, but were unsure about item (8) skin problem. The post hoc test in table 5(5c₃) further indicates the differences between different age categories.

46

Table 6 (a):   Knowledge about transmission of TB [taken from the Illness Perception Questionnaire (IPQ)]

GENDER	MALE	FEMALE	TOTAL	
	M (SD)	M (SD)	M (SD)	t-test
1. Sputum (including standing on the sputum)	1.4 (.67)	2.0 (1.0)	1.5(.84)	.594
2. Air borne (breathing, cough and droplet spread)	1.4 (.58)	2 .0(1.3)	1.5(.10)	.333
3. Sharing toilet, bath, towels or clothes	1.3 (.60)	2 .0(1.3)	3.0(1.2)	.386
4. Sharing cigarettes, food or drinks	2.0 (1.1)	2.0(.94)	2.0(1.0)	.489
5. Sexually transmitted	3.0 (1.6)	3.1(1.5)	3.1(1.5)	.746
6. Contact with someone with TB	2.0 (1.0)	2 .0(1.0)	2.0(1.0)	.981

Table 6(a) shows means, standard deviations and significance tests on knowledge of TB transmission by gender rated from 1 = strongly agree to 5 = strongly disagree. In this table, knowledge on transmission of tuberculosis can generally be considered high regarding sputum, airborne (breathing, cough and droplet spread), and contact with someone with TB. However, participants were neutral about falsely sharing toilet, bath, towels or clothes. Also, the majority of patients were neutral about the variable of sexual transmission.   There was no significant difference in gender regarding knowledge about the transmission of TB.

Table 6(b)   Knowledge about transmission of TB by Educational Standard

Items	Educational Level				Total	f-value
	None	Primary	Seconda ry	Tertiar y		
	N = 9	N = 15	N = 12	N = 14	N = 40	
	M(SD)	M(SD)	M(SD)	M(SD)	M(SD)	
1. Sputum (including standing on the sputum	1.5(.72)	1.3(.61)	1.5(1.2)	1.3(.50)	1.5(.84)	.765
2. Air borne (breathing, cough & droplet spread	1.3(.50)	1.4(.63)	1.8(1.52)	1.0(.00)	1.5(.96)	.496
3. Sharing toilet, bath, or towels clothes	3.0(1.0)	2.8(1.1)	2.8(1.5)	4.0(1.1)	3.0(1.2)	.723
4. Sharing cigarettes, food or drinks	1.6(.70)	1.8(1.3)	1.5(7.9)	2.5(1.0)	1.8(1.0)	.902
5. Sexually transmitted	3.2(1.5)	3.2(1.2)	2.8(1.6)	3.0(2.3)	3.0(1.5)	.376
6. Contact with someone with TB	1.9(1.3)	1.3(.48)	1.7(1.2)	1.5(1.0)	1.6(.98)	.797

The above results are a continuation of Table (6a) except that the variable education was included to see if it does influence the knowledge and beliefs of patients. These results indicate that there was no significant difference between the educational groups mentioned above.

Table 6(c₁)   Knowledge about transmission of TB by age-group

Items	Age Group				
	18 - 29 yrs	30 - 49 yrs	50 yrs +	Total	
	N = 12	N = 19	N = 9	N = 40	F-value
	M(SD)	M(SD)	M(SD)	M(SD)	
1. Sputum (including standing on the sputum)	1.2(.62)	1.6(1.06)	1.3(.50)	1.4(.84)	.435
2. Air borne (breathing, cough & droplet spread	1.4(1.16)	1.5(1.0)	1.4(.52)	1.4(96)	.950
3. Sharing toilet, bath, towels or clothes	2.6(1.3)	3.2(1.2)	2.7(1.1)	2.9(1.2)	.385
4. Sharing cigarettes, food & drinks	1.4(.79)	2.2(1.1)	1.2(.44)	1.7(1.0)	.011*
5. Sexually transmitted	2.7(1.7)	3.4(1.5)	2.7(1.2)	3.0(1.0)	.396
6. Contact with someone with TB	1.6(1.3)	1.6(.94)	1.2(.44)	1.5(.98)	.485

***P<001, **P,.01, *P<.05

Table 6(c₂)   One way ANOVA of age categories on knowledge of TB transmission

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	8.819	2	4.409	5.073	.011
With Groups	32.156	37	.869		
Total	40.975	39			

Table 6(c₃)   Post hoc test of age categories on knowledge of TB transmission

Age categories	N	Subset for alpha = .05	
		1	2
50+	9	1.2222	
18 - 29	12	1.4167	
30 - 49	19		2.2632
Sig.		.610	1.000

$(50+) \neq (30 - 49)$

$(18 - 29) \neq (30 - 49)$

Table (6c₁) indicates means, standard deviations and significance test of transmission of TB by age group rated from 1 = strongly agree to 5 = disagree. Results in this table indicate that age does play a role in the influence of patient's knowledge about the transmission of TB. There was a significant difference between different age groups with regard to item (4) sharing toilet, bath, towels or clothes between different age groups. Patients who were 50 years or more strongly agreed, and also those between ages 18 - 29 years, more than those between 30 - 49 years. The post hoc test in table (6c₃) indicates the significant difference between different age groups.

Table 7(a):   Knowledge on when to stop TB treatment by gender

Variables	Gender			
	Male (N = 21)	Female (N = 19)	Total N = 40	t test
	M (SD)	M (SD)	M (SD)	
1. When feeling well	4.1(1.6)	4.0 (1.7)	4.0(1.6)	.394
2. After a period less than six months	4.0(1.7)	4.1(1.4)	4.2(1.6)	.693
3. When side effects are experienced	4.1(1.4)	4.0(1.3)	4.2(1.4)	.368
4. Depends on how bad it is	4.0(1.1)	4.0(1.1)	4.0(1.2)	.949
5. On discharge by the doctor	1.5(.77)	1.5(.77)	2.0(.98)	.09
6. When treatment is finished	2.0(1.2)	2.0(1.2)	2.0(.98)	.944
7. After a period of six months or more (Reversed scoring)	4.3(.49)	5.0(.76)	4.4 (.64)	.335
8. Once radiograph is clear	2.0(.81)	1.5 (.77)	2.0(.78)	.699
9. Once disease is cured	2.0(.74)	1.2 (.41)	1.4 (.63)	.065

Table 7(a) indicates means, standard deviations and significance tests on when to stop treatment by gender. Most patients agreed to stopping treatment after a period of six months or more. Patients disagreed on stopping treatment when feeling well, after a period of less than six months, when side effects are experienced and depending on how bad it is. Also, patients strongly agreed that treatment should be stopped once the disease is cured, and also agreed to stop treatment once the radiograph is clear. There were no significant differences regarding gender on when to stop treatment. Generally, a total number of 29 patients (96.7%), 16 males (100%), and 13 females (92.9%), all believed that treatment should be stopped after a period of six months or more. However, results indicate that patients still lack knowledge about when to stop their treatment.

Table 7(b)   Knowledge on when to stop treatment by age group

Items	Age Group				
	18 - 29 yrs	30 - 49 yrs	50 yrs+	Total	F-Value
	N = 12	N = 19	N = 9	N = 40	
	M(SD)	M(SD)	M(SD)	M(SD)	F
1. When feeling well	3.6(1.9)	4.2(1.5)	4.0(1.7)	3.9(1.7)	.601
2. After a period less than six months	4.0(1.7)	4.0(1.6)	4.7(.70)	4.2(1.4)	.544
3. When side effects are experienced	3.3(1.2)	4.0(1.2)	3.6(1.6)	3.8(1.2)	.191
4. Depends on how bad it is	3.6(1.1)	3.8(1.2)	3.8(.83)	3.8(1.0)	.870
5. On discharge by the doctor	1.9(1.5)	1.7(.74)	1.7(.50)	1.8(.98)	.789
6. When treatment is finished	1.9(1.2)	1.8(1.2)	1.3(.50)	1.8(1.1)	.441
7. After a period of six months or more (Reversed scoring)	4.6(.66)	4.4(.69)	4.4(.52)	4.5(.64)	.788
8. Once radiograph is clear	1.6(.99)	1.5(.77)	1.6(.52)	1.5(.78)	.926
9. Once disease is cured	1.4(.90)	1.3(.45)	1.7(.50)	1.4(.63)	.294

Table (7b) indicates means, standard deviation and the F-values of one way analysis of variance by different age groups on when to stop treatment rated from 1 = strongly agree to 5 = strongly disagree. Item (7) after a period of six months or more, which is considered to be the correct one, scoring was reversed. In general, results indicate that patients are knowledgeable about when to stop treatment. The majority disagreed with stopping treatment when feeling well, after a period less than six months, when side effects are experienced and also depending on how bad it is. There was no significant difference between different age groups.

Table 7(c)   Knowledge on when to stop treatment by education

Items	Educational Level					
	None	Primary	Secondary	Tertiary	Total	f-value
	N = 9	N = 15	N = 12	N = 4	N = 40	
	M(SD)	M(SD)	M(SD)	M(SD)	M(SD)	
1. When feeling well	4.1(1.8)	4.0(1.6)	3.5(1.9)	5.0(.00)	3.9(1.7)	.760
2. After a period less than six months	4.6(1.8)	4.4(1.2)	3.4(1.8)	5.0(.00)	4.2(1.7)	.195
3. When side effects are experienced	4.4(.88)	3.6(1.5)	3.2(1.2)	4.5(1.0)	3.8(1.3)	.402
4. Depends on how bad it is	3.8(1.0)	3.4(1.1)	3.6(1.1)	5.0(.00)	3.7(1.1)	.318
5. On discharge by the doctor	2.1(1.2)	1.5(.51)	1.8(1.1)	1.8(1.5)	1.8(.98)	.747
6. When treatment is finished	1.6(.72)	1.5(.51)	1.8(1.2)	3(2.3)	1.8(1.1)	.140
7. After a period of six months or more (Reversed scoring)	4.4(.52)	4.5(.51)	4.3(.86)	5.0(.00)	4.5(.64)	.787
8. Once radiograph is clear	1.9(.92)	1.2(.41)	1.5(.79)	2.(1.2)	1.5(.78)	.517
9. Once disease is cured	1.9(.92)	1.3(.48)	1.3(.45)	1.(.00)	1.4(.63)	.055

Table (7c) indicates means, standard deviations and significance tests of when to stop TB treatment by educational level. The results of this Table (7c) indicate that there was no significant difference between different educational groups concerning the knowledge of patients on when to stop TB treatment. Taking item (7) after a period of six months or more which was reversed, all patients demonstrated sufficient knowledge on when to stop TB treatment.

Table 8(a): Health Belief Model subscales taken from the Health Belief Model Questionnaire (HBM 21 item questionnaire)

Variables	Gender			
	Male No = 21	Female No = 19	Total No = 40	
	M (SD)	M (SD)	M (SD)	t-test
Health motivation 1. Utilized the primary health care facility nearby village	1.7 (.64)	1.7 (6.0)	1.7 (.60)	.878
2. Coped by practicing isolation	2.4(1.2)	2.4(1.0)	2.4(1.1)	.768
3. Coped by praying to God	3.5(1.4)	3.0(1.4)	3.2(1.4)	.253
4. Coped by cleaning the body	3.5(1.2)	2.9(1.3)	3.2(1.3)	.176
5. Coped by eating good food	1.5(.67)	1.7(.93)	1.6(.80)	.522
Perceived susceptibility 6. Suffered from TB in the past	2.5(1.6)	2.1(1.5)	2.3(1.5)	.357
7. TB is infectious	1.8(1.1)	1.2(.41)	1.3(.66)	.198
8. The whole family needs to go for check-up	2.0(1.0)	1.7 (.67)	1.8(.89)	.270
9. Can contract TB more than once	1.8(1.1)	1.8(1.1)	1.8(1.10)	.927
Perceived severity 10. TB is life threatening	1.2 (.71)	1.9(1.3)	1.6(1.1)	.074
11. TB reduces one's working capacity	1.8(.67)	1.9(1.2)	1.9(.96)	658
12. Isolation by friends	2.0(.89)	1.8(1.1)	1.9(1.0)	.632
13. Not totally well after treatment	3.1(1.3)	2.9 (1.3)	3.0(1.3)	.479
Perceived benefits 14. Curable by taking drugs regularly (Reversed scoring)	4.3(.92)	4.9 (.31)	4.6(.74)	.024*
15. Taking drugs prevents hospitalization (Reversed scoring)	4.2(.78)	4.4(4.3)	4.3(.80)	.601
16. Treatment takes only 6 months (Reversed scoring)	4.4(.60)	4.2(1.1)	4.3(.89)	.354

54

17. Treatment prevents social stigma (Reversed scoring)	3.3(1.5)	3.2(1.4)	3.2(1.4)	.795
Perceived costs 18. Regularity in taking treatment is important	1.4(.60)	1.1(.37)	1.3(.52)	.092
19. The family has to spend more money	2.6 (1.1)	2.7 (1.2)	2.6(1.1)	769
20. A social stigma is attached to TB	1.9(1.3)	2.1(1.5)	2.0(1.4)	.648
21. Difficulty to explain that one has to take medicine	1.9(1.3)	2.1(1.5)	2.0(1.4)	.576

Table 8(a) indicates means, standard deviations and significance tests of the components of the Health Belief Model by gender, rated from 1 = strongly agree to 5 = strongly disagree. Both male and female patients rated tuberculosis as a severe disease which is life threatening and reduces someone's capacity to work. Patients felt somehow susceptible towards tuberculosis, such that there was a strong motivation to take treatment and eat good food.

Also, both males and females agreed that there is a tendency to be isolated by friends. There were, however, significant differences between male and female patients regarding the statement that TB is curable by taking drugs regularly. Females were more likely to strongly agree with the statement that TB is curable by taking drugs regularly more than their male counterparts.

Table 8(b) Health Belief Model Subscales by educational level

Items	Educational Levels		t - test
	None/Primary	**Secondary/Tertiary**	
	N = 24	N = 16	
	M(SD)	**M(SD)**	
Health motivation 1. Utilized the primary health care facility nearby village	1.9(.53)	1.4(.62)	.024*
2. Coped by practicing isolation	2.4(.92)	2.4(1.4)	.959
3. Coped by praying to God	3.2(1.2)	3.3(1.7)	.901
4. Coped by cleaning the body	3.3(1.2)	3.1(1.5)	.635
5. Coped by eating good food	1.7(.63)	1.6(1.0)	.875
Perceived Susceptibility 6. Suffered from TB in the past	2.2(1.4)	2.6(1.9)	.521
7. TB is infectious	1.5(.78)	1.1(.34)	.046*
8. The whole family needs to go for check-up	2(.99)	1.6(.62)	.097
9. Can contract TB more than once	2(1.1)	1.6(1.0)	.225
Perceived Severity 10. TB is life threatening	1.5(1.1)	1.7(1.1)	.694
11. TB reduces one's capacity to work	1.8(.72)	2(1.3)	.511
12. Isolation by friends	2(.77)	1.5(1.2)	.030*
13. Not totally well after treatment	3(1.1)	2.5(1.5)	.049*
Perceived Benefits 14. Curable by taking drugs regularly (Reversed scoring)	4.4(.88)	4.9(2.5)	.011*
15. Taking drugs prevents hospitalization (Reversed scoring)	4.2(.75)	4.4(.89)	.580
16. Treatment taken only six months (Reversed scoring)	4.5(.50)	4(1.2)	.084
17. Treatment prevents social stigma (Reversed scoring)	3.4(1.3)	3(1.6)	.462

Perceived Costs			
18. Regularity in taking treatment is important	1.3(.56)	1.3(.44)	.623
19. The family has to spend more money	2.4(.97)	2.8(1.4)	.325
20. A social stigma is attached to TB	2(1.3)	2(1.5)	.785
21. Difficulty to explain that one has to take medicine	1.7(1.0)	2.5(1.7)	.114

*P<.05

The results in table 8(b) indicate that there were statistically significant group difference on 5 out of 21 items. The patients who had both secondary and tertiary education were more likely to utilize the primary health care facility in the nearby village, had a strong belief that TB was infectious, and that they would be isolated by friends more than the patients who had no education and those who attended primary schooling only. There were also significant differences on the variables "not totally well after treatment" and "curable by taking drugs regularly". Those patients with none/primary education were neutral about the variable not totally well after treatment whereas those with secondary/tertiary education were more likely to agree that one is not totally well after treatment. All groups agreed with the fact that TB could be curable by taking drugs regularly. However those with secondary/tertiary education tended to strongly agree with that statement more than with those with no/primary education.

Table 9: The locus of control, time-line and control/cure sections of the illness perception of the questionnaire item

Items	Gender			
	Male	Female	Total	
	M(SD)	M(SD)	M (SD)	t-test
Time Line 1. My TB will last a short time	4.0(1.0)	4.0(1.5)	4.0(1.2)	.357
2. My TB is likely to be permanent rather than temporary	4.0(1.2)	4.0(.97)	4.0(1.1)	.232
3. My TB will last a long time	4.0(1.2)	3.4(1.5)	4.0(1.3)	.371
Control / Cure 1. My TB will improve over time	2.0(.73)	2.0(.77)	2.0(.75)	.422
2. There is a lot I can do to control my symptoms of TB	2.0(.57)	1.4(.50)	2.0(.59)	.007*
3. There is very little that can be done to improve my TB	4.0(1.2)	2.0(1.2)	2.0(1.1)	.952
4. My treatment will be effective in curing my TB	2.0(.62)	2.0(.51)	2.0(.59)	.080
5. Recovery from my TB is largely dependent on chance or fate	2.4(1.1)	2.4(1.0)	2.4(1.0)	.872
6. What I do can determine whether my TB gets better or worse	2.0(.96)	2.0(.70)	2.0(.85)	.225

*** P<.001, **P<.01,*P<.05

The results in Table (9) indicate that most patients believed that their tuberculosis was going to last a short time and disagreed that it was going to last a long time. In contrast, female patients were unsure as to whether their tuberculosis was going to take long or short time. Female patients, however, disagreed with the fact that their tuberculosis was likely to be permanent rather than temporary. There was however a significant difference with regard to the item, there is a lot I can do to control my symptoms of TB. Female patients strongly agreed more than their male counterparts. On the positive note was that both male and female patients believed that treatment and recovery was their own responsibility.

4.2 RESULTS OF QUALITATIVE DATA PARTICIPANTS (TB PATIENTS)

A total number of 22 patients, 12 males and 10 females, participated in the focus group discussion.

Results from the interviews with patients are divided into the following themes:

(i)   Knowledge about tuberculosis;

(ii)   TB cause;

(iii)   TB cure;

(iv)   Reaction of other people about the patient's TB diagnosis; and

(v)   Reaction of community members as perceived by patients.

4.2.1 KNOWLEDGE ABOUT TB

Most patients knew that they were admitted for TB treatment, i.e. twenty patients, which forms 90% of the sample. Only two patients (9.0%) were unsure about their diagnosis, however, they still shared same feelings about the knowledge of TB. Most participants perceived TB as a major health problem and a very dangerous disease. They believed that TB is contagious and is caused by a germ. Many believed that the TB germ is found in the sputum of infected people, and that sometimes careless people just spit sputum all over the place and innocent people get infected. For example, one of the male patients said ....

"some people just spit sputum all over the place, e.g. like here in hospital, we tend to relax outside on the grass/lawn, most of the time we find sputum all over the lawn. So, even if one came to hospital not having TB, one may get it from those sputa." (male 25 years).

Others knew that they were admitted for TB, however, they mentioned the fact that they got TB from hospital because they were put with other TB patients who were infectious. Some patients were concerned about the fact that they came from their homes with

different conditions, before all sputum results could be back, they are being sent to the TB ward where they are put together with other patients who are already very sick.

..... *"When I came to hospital, I was only complaining about painful joints. I was not coughing at all. I was having occasional chest pains and fatigue. Suddenly I was told that my sputum was positive and I was sent to the TB ward. Ever since I was admitted in the TB ward, I am more sicker than I was before, I cough all the time and I am feeling very weak. Obviously I was infected by other patients in the ward."* (male 25 years).

Other patients knew that they were admitted for TB, though they mentioned the fact that it was not only TB, it was also exacerbated by the fact that they had been bewitched, they had been given *sejeso* (witchcraft poison), such that it became difficult for medical doctors to treat them successfully. For treatment to be effective and quick, it needed to be combined with African herbs.

..... *"Before I came to hospital, my husband took to me to a traditional healer who told me that I was bewitched. I was given brown bread which was poisoned, and the bread was lodged in my chest, such that it interfered with my breathing. The traditional healer gave me some emetics, and I vomited that poisoned bread out. However the traditional healer referred me to hospital for further treatment."* (female 45 years).

.... *"Africans use complicated methods of poisoning people. Myself the traditional doctor told me that the witches let me step on poisoned blood during my sleep, such that my legs started swelling and I was experiencing difficulty with breathing, but here at the hospital they claim that I have contracted TB. I still do not believe the medical doctors."* (male 37 years).

4.2.2 TB CAUSE

Most of the patients did not know how the condition came about. Some mentioned that maybe they got it from other infected people, while others mentioned that they just did not know still, some mentioned that their relatives had the disease, possibly it could be from them. Others mentioned that they have been bewitched, and some mentioned their place of work.

.... *"I have been helping my family as the sole breadwinner. I am the only one in the family who went up to matric. Due to jealousy, my neighbours bewitched me and I ended up with TB."* (male 28years).

.... *"I was working at the hair salon for ten years. We use strong chemicals and we do not wear masks, so I believe those chemicals were strong for my lungs. So obviously I got TB from work."*
(female 33 years).

.... *"There is a lot of competition at my place of work. I am working as a tea lady and sometimes I help my boss in the office. So my colleagues were jealous of me because they can only work outside in the yard. I certainly think that one of them poisoned me".* (female 32 years).

Participants also perceived TB as the disease that runs in families, such that if one member gets it, the whole family is at risk of getting infected. However, on a positive note was that those patients who saw their relatives getting better on treatment were positive about the outcome of their own diseases.

.... *"I definitely think that one day I will be cured from TB. My brother had TB some years ago, and he is now cured and he is working."* (female 25 years).

....“What keeps me motivated to get treatment is the fact that I saw my father dying from TB and we were told that he was refusing to take his treatment, so I think I must complete the treatment and not pass the disease to my family and other people”. (male 30 years).

4.2.3   TB CURE

The majority of patients believed that their illness was going to be cured completely and it could take a period of six months as long as they take their treatment as required. Others were not knowledgeable about TB treatment and its duration. In fact they stated that they depend on doctors and nursing sisters to tell them how long they will be on treatment. One of the participants mentioned the fact that sometimes people are put on treatment for about a year and still they do not get cured. According to this particular participant, once one has been diagnosed with TB, then a person is going to have the disease for life.

.... “I know people who come to this hospital almost every year because they do not get completely cured. Others die, others get old with the disease”. (female 40 years).

... “I have heard others saying that if one does not complete the treatment course (duration), then the germ gets stronger and treatment often fails to cure the disease”. (male 25 years).

....“Treatment depends on whether God is on your side or not. If one believes that God is going to cure him/her, then that person will be cured. After all, God is the one that gives doctors some wisdom to cure people”. (male 22 years).

4.2.4   REACTION ABOUT TB DIAGNOSIS

The diagnosis of TB generally causes distress among the members of a patient's family and the patient himself. Most patients are deeply shocked when the diagnosis is disclosed and

have serious difficulties in accepting it. Some when diagnosed at the hospital are already so sick such that they do not even question the diagnoses, all they need is to be told that they will be cured.

.... *"When I was told about the diagnosis, I did not say anything. I was so sick I could barely talk. Deep in my heart I told myself that only if I could be cured, I do not have to worry about anything."* (male 40 years).

.... *I reacted positively because I have been to many doctors and traditional healers, and finally I was told about the diagnosis and also the treatment. For me it was a relief. I knew that I finally went to the right place."* (female 25 years).

Also, participants revealed that sometimes the diagnosis is hard to accept. Some had feelings of anger and distress, which sometimes resulted in rejection of treatment. Some patients mentioned instances of complete denial of the diagnosis.

The denial seemed to be based on the diagnostic "label" and the stigma attached to the disease. Patients fear adverse responses from others and also from their family members.

..... *"I did not believe doctors; even now I still do not accept the diagnosis. I question the knowledge of those doctors who diagnosed me. Why all of a sudden there is TB even in children and young adults. TB is the disease of very old people who abuse alcohol and who smoke tobacco, also old men who used to work in the mines. I do not drink nor smoke, I have never worked in the mines, so where on earth did I get TB from."* (male 30 years).

.... *"My family is still shocked. They asked themselves where I got TB from because it is not there in the family. In fact, even now whilst I am in hospital, my family is still going from one traditional healer to the other to get to know my correct diagnosis."* (male 30 years).

In as much as some patients indicated that they have accepted their diagnosis, their main worry was the reaction of their friends and other community members upon discharge from the hospital.

.... *"Here at the hospital is nice. I have the support of nurses and other fellow patients. But at home when I am alone, what is going to happen? I see myself losing my job by virtue of my diagnosis, and also feeling depressed by being sidelined by friends."* (female 35 years).

One member of the focus group mentioned that ever since his family brought him to hospital, they have never come to visit, they do not phone to hear about his well being, and yet he is the only child at home, and the family stays just a stone throw from the hospital. He stated ...*"I am the child of the hospital. I do not have parents anymore. This is a clear message from my parents that because of TB, I am no longer their child. It pains me a lot."* (male 22 years).

4.2.5 REACTION OF COMMUNITY MEMBERS AS PERCEIVED BY PATIENTS

TB patients often perceive their neighbours and other community members as being negative towards them. TB patients felt they are feared and that contact with them is avoided at all costs. There was a feeling that neighbours and community members do not seem to be aware that TB is no longer contagious after a few weeks of treatment. The belief that even after a complete course of treatment a TB patient remains very contagious, seems to be widespread. Some patients were of the idea that perhaps it is better not to disclose their illness to anyone for fear of being stigmatized.

...*"Under normal circumstances, nobody with a right mind would want to associate himself/herself with a TB patient. This disease is dangerous and dirty. So if people do not want to associate with us, we must not blame them. It is their choice and it is good for them."* (female 25 years).

64

However, not all participants believed that the community and neighbours would sideline them. Others mentioned that if community members are being given continuous health education about TB and its treatment, they would be well informed and the myths surrounding TB would be removed.

.... *"TB is not receiving the publicity it is supposed to get. Only HIV/AIDS is largely being talked about. If health workers were educating people about TB, people were going to show support and love for TB sufferers."* (male 29 years).

4.3 CONTINUATION OF QUALITATIVE DATA RESULTS. PARTICIPANTS: RELATIVES OF PATIENTS WHO TOOK PART IN THE STUDY

SAMPLE

A total number of 14 relatives were conveniently sampled to take part in the focus group discussions. They were 9 females (64,3%) and 5 males (35,7%). The participants were close relatives (either living or not living in the same household with the patient).

Results from the interviews with relatives were divided into the following themes:

(i)   TB knowledge;

(ii)   Sources of information;

(iii)   Other names for TB;

(iv)   Attitudes of community members towards TB patients; and

(v)   TB cure.

4.3.1 TB KNOWLEDGE

Participants perceived TB as an infectious disease which is dangerous. Some considered it to be caused by a germ, whilst others believed that one gets TB by being bewitched. A typical example, *"Black people can cause one to have TB, especially the witches. It is very common these days to put "sejeśo" in someone's food. That sejeśo is made to move up and down the chest, causing the lungs not to work properly, and can even cause coughing and bleeding. So white doctors think it is TB."* (female 50 years).

Some mentioned that TB is a family disease and can be passed from one family member to the other if treatment is not sought. However the focus group expressed the hope that

the disease could be cured as long as patients comply with treatment.

The group also mentioned the signs and symptoms of TB as they see from sufferers of TB. For example, the group mentioned that most patients with TB cough non-stop, there is loss of weight and others cough blood.

... *"TB people are easy to recognize. They almost look like those suffering from HIV/AIDS except that those with TB cough a lot. TB people are too thin, they really do not look well. Maybe TB is like AIDS."* (male 30 years).

Some participants also considered different causes. Smoking, drinking of alcohol, especially "spirits" poor living conditions and dusty roads were also attributed as contributory factors. One male community member mentioned the fact that his relative contracted TB from the dusty polluted air at the mine where he used to work.... *"My uncle worked for a long time in the mines. Unfortunately his payment was sick health (TB). Doctors told him that his lungs were completely destroyed due to the polluted dust from the mines."* (male 48 years).

4.3.2 SOURCES OF INFORMATION

Most participants mentioned that they have heard about TB from a radio, others mentioned clinics and also hospitals. Participants were of the opinion that TB is not being given much attention like HIV-AIDS.

.... *"People with TB are these days not taken seriously. HIV/AIDS is probably "the in thing". TB is actually more dangerous than AIDS because even if you do not sleep around you can be infected."* (male 25 years).

Other participants mentioned that they got the information from their relatives who are already suffering from TB. They mentioned that they knew the name TB and that it was

67

contagious but they did not know most of the details about the disease. One family member mentioned that ... *"I like visiting my daughter because every time I pay her a visit, I learn more and more about the disease."* (female 50 years).

Some participants stressed the fact that the Health Department should do more to enlighten people about the disease and its consequences.

4.3.3 OTHER NAMES FOR TB

Traditional beliefs in different types of TB appear to still be in existence, more especially in older people. From the 14 members, only 2 people considered TB as a medical disease which is contagious. Some participants mentioned that TB is *Leabela*; the disease that is hereditary in nature. According to that belief system, one gets TB from older generations who have then died. This kind of TB is handed down from parents through the blood of the family. Also the belief was that with that type of TB, certain rituals should be performed in the family for the ancestors so that the patient could be cured. For example, slaughtering of a goat and a cleansing ceremony. If one has such type of TB, it is not necessary for that person to go for medical treatment. .....*"Certain diseases are African diseases and they should be treated by African traditional doctors."* (female 45 years).

Also TB was known as *bolwetši bja mafahla*; a chest disease, which means that somebody has contracted some lung infection, maybe by being exposed to the cold weather whilst still very young or by not wearing warm clothes when it is cold.

..... *"When a baby is born, it is vital to keep it in the house for a month without strangers and people who are sick getting access to the house where the baby is kept. Otherwise, the baby can get TB and meningitis when it is older."* (female 50 years).

68

Others called TB *sejeŝo*, meaning that someone has been poisoned or bewitched. The group mentioned the fact that it is common in the community to put *sejeŝo* in other people's food or drinks, and that *sejeŝo* or poison could cause diseases like TB and cancer depending on where it lodges. If the *sejeŝo* lodges in the chest, most of the time the result would be TB. Only two participants viewed TB as a medically oriented illness. The two did not agree with the group about *sejeŝo*. What was interesting was that, the two members were laughed at by other members of the focus group saying the two are pretending to be white.

..... *"It is ironic for a black person to say TB is a medical disease and nothing else. Everybody in the community knows that TB is caused by sejeŝo and white doctors give it a different name."* (female 35 years).

4.3.4   ATTITUDES OF COMMUNITY MEMBERS TOWARDS TB PATIENTS

Most participants revealed that because tuberculosis was an infectious disease, people in the community are scared of coming into contact with those who have been diagnosed as being sick. They also expressed the concern that not only the TB patients are being feared, but also their whole families is being isolated by community members. Patients are perceived as dirty, infectious and also coming from very poor families. Some members mentioned the fact that sometimes even close relatives start to distance themselves from both those who are sick and their immediate family members.

The focus group raised concerns that because of the discrimination patients get from other community members, patients in turn start to isolate themselves, and others just stay at home not even going to the shops because of the stigma. Participants believed that perhaps the community members fears are justified because people think that a TB patient is infectious even when he/she is on treatment.

Some stated that the community seem not to be aware that TB is no longer contagious after two weeks of treatment. The belief that even after a complete course of treatment a TB patient remains very contagious seems to be widespread. *"Considering all these attitudes and stigmatisation, it is understandable that patients sometimes decide to keep their diagnosis a secret to such an extent that they even hide it to their relatives."* (female 58 years).

.... *"People look down on the patient; they are scared of even talking to him/her as before. It is unfair. I personally think social workers should punish those who discriminate against TB sufferers."* (male 50 years).

One member of the focus group mentioned that because relatives of those who have been diagnosed as having TB are secretive about the diagnosis, could in itself contribute to the fears that others have towards TB sufferers. This member further stated that ... *"maybe we the relatives of the TB sufferers should educate others about TB, especially the fact that when patients have been on treatment for more than two weeks they are no longer contagious."* (female 45 years).

4.3.5   TB CURE/TREATMENT

The focus group members revealed that TB was curable. Others mentioned the fact that both traditional and western treatments should be used, ... *"because most of the time TB goes hand in hand with bewitchment, a patient should be treated by the traditional healer and the medical doctors."* (female 40 years).

The duration of treatment for tuberculosis was variously given as for about a month and two months. However, the majority mentioned six months as they were told by hospital sisters and doctors. The focus group were of the view that treatment needs to be supervised by experienced people, especially if patients stay alone some also believed that if patients do not complete the duration of treatment, they will get sick again. ...*"If patients do not drink their pills properly, or they skip their doses, they do not get cured, they can even be sick for*

the whole year." (female 25 years).

Some participants mentioned that people who do not take treatment properly will eventually die because their lungs will just give in. Others mentioned that it was also important for TB sufferers to stop drinking and smoking, because if they smoke or drink while on treatment, the treatment will take long to be effective or will not work at all. One member revealed that he became reassured and convinced that medical treatment does work ....*"because when I brought my child at the hospital, he was very sick, we thought he was actually going to die, but now since he is being on TB treatment, he is much better, he has even gained some weight."* (male 50 years).

Some members mentioned the fact that they only knew that TB was curable when they were told at the hospital by doctors and sisters. Otherwise they also believed that it was incurable. However, it was the wish of the focus group that perhaps more health education on tuberculosis should be done, especially in rural areas because people were not knowledgeable about TB. *"The government should take it upon itself to educate the nation about TB, because TB is as dangerous as HIV/AIDS."*(female 30 years).

4.4 COMPARISON OF QUANTITATIVE AND QUALITATIVE DATA (BOTH FOR PATIENTS AND RELATIVES)

The comparison of the results will be according to the following themes:

— TB knowledge/causative beliefs and symptoms;

— TB cure; and

— TB and social stigma.

4.4.1 Similarities (causative beliefs and symptoms of tuberculosis)

All participants in this study shared similar feelings concerning causative beliefs of tuberculosis. Both patients and relatives viewed the germ or bacilli as causing tuberculosis. Interaction with other tuberculosis patients, poor living conditions, dusty areas: like working in the mines, were also mentioned by both participants. All participants perceived tuberculosis as a dangerous and contagious disease which needs to be taken seriously. Symptoms mentioned by both participants were cough, loss of weight, haemoptysis, chest pains, fever and night sweat.

4.4.2 Differences (causative beliefs and symptoms of tuberculosis)

In the focus group discussions, witchcraft and poisoning emerged strongly as causative beliefs of tuberculosis, whereas in the quantitative interview participants were neutral about poisoning and disagreed with witchcraft as causative beliefs of tuberculosis.

4.4.3 Similarities (Tuberculosis cure)

Both patients and relatives believed that tuberculosis was curable and treatment could take up to six months or more. Some mentioned that medical treatment should be used in conjunction with traditional medicines. Also what emerged from both patients and

relatives was that if patients do not take treatment properly they could die or will not be cured. There were no differences concerning tuberculosis' cure; however, in the quantitative data patients also agreed on stopping treatment when the radiograph was clear.

4.4.4 Similarities (Tuberculosis and social stigma)

Both patients and relatives stated that tuberculosis patients are perceived as dirty, infectious and also coming from very poor families. Participants believed that tuberculosis patients are being discriminated against by community members by virtue of their disease. Also the quantitative data results revealed that patients believed that they were isolated by their friends, and that social stigma is attached to tuberculosis. There were no differences between patients and relatives concerning tuberculosis and social stigma.

CHAPTER 5

DISCUSSION

5.1   DISCUSSION OF QUALITATIVE DATA

This study used both qualitative and quantitative methods to provide specific information on the knowledge, feelings and beliefs of patients about tuberculosis.

The focus group methodology in this study provided a richness of information, a holistic picture of the real social world of patients and their own meanings, and interpretations of tuberculosis. The information provided could not come out in the quantitative methodology, perhaps because of structured inflexible manner of questions which gives participants fewer options, to agree or to disagree (Liefooge et al., 1997). Issues of witchcraft and social stigma, which stand out in the qualitative methodology, were not so apparent in the quantitative methodology. According to Farmer (1997), health providers often have understandings different from those they treat such that those different interpretations may often result in misunderstandings or conflict between providers and clients and can lead to inadequate treatment of the illness. This understanding was obvious in this study, because irrespective of the duration of their stay in hospital, patients still maintained their belief systems about the disease. The belief system they have is the health culture they learned from their communities and significant others.

5.1.1   Knowledge   and   beliefs   about   the   causation,   transmission and symptomatology of tuberculosis.

Both patients and their relatives perceived tuberculosis as a dangerous and contagious disease which is caused by a germ and also by coming into contact with infected people. The causation of tuberculosis was not only explained bio-medically; participants also used their explanatory models. For example, both participants (patients and relatives) viewed

witchcraft and poisoning (*sejeŝo*) as causative factors of tuberculosis. Hereditary factors were seen as causative factors although participants could not explain how. Other risk factors of tuberculosis such as smoking, drinking of alcohol and poor living conditions were also mentioned as causative beliefs of tuberculosis. These findings are consistent with the studies by of Liefooghe et al. (1997) on a Kenyan community's perception on tuberculosis, and Liefooghe et al. (1995) on perceptions and social consequences of tuberculosis in Pakistan.

Participants seemed to have knowledge about the symptomatology of tuberculosis except that symptoms mentioned were those appearing at a later stage of the disease, for example, haemoptysis, severe loss of weight, and persistent non-stop cough. However, hyemoptysis was seen as a core symptom. With this kind of perception, it is understandable that patients will only seek help when their disease is far advanced. In the study done by Mata (1985), similar beliefs about symptomatology were found. According to Mata (1985), a patient with persistent cough rarely considers tuberculosis to be a likely cause of his problem. The population recognises the disease only in its advanced stage. This finding is supported by Liefooghe et al. (1997) and Rubel and Garro (1992).

5.1.2 TB Cure

Both patients and relatives believed that tuberculosis was curable although treatment was often prolonged. The same feelings were shared by Kenyan people in the study done by Liefooghe et al. (1997), Liefooghe et al. (1995) in Pakistan, and also in the study done by Metcalf et al. (1990) in Cape Town, South Africa.

Participants believed that traditional medicines should be incorporated into the tuberculosis treatment regimen. They believed that if tuberculosis was caused by witchcraft, then western medicine would fail in treating the disease. Similar beliefs were shared in the studies by Ndeti (1972) in Kenya, and Steen and Mazonde (1999) in

Botswana.

5.1.3   Reaction of community members towards TB patients

Both patients and relatives attributed social stigma to being diagnosed with tuberculosis such that at times patients were unable to disclose the nature of their illness due to fear of being stigmatized. Some participants went to the extent of rejecting their diagnosis for fear of stigmatization by friends and family members. Some reject the diagnosis and seek traditional help in order to shy away from hospital where they are exposed to multitudes of people. Stigmatization of tuberculosis patients has been reported in other parts of the world, such as America (Rubel & Garro, 1992), Kenya (Ndeti, 1972) and Colombia (Jaramillo, 1998). However, some of the participants were of the opinion that if the community is well conversant with tuberculosis, the social stigma will then be reduced, since unjustified fears will be removed.

5.1.4   Other names for Tuberculosis

It was evident in this study that traditional beliefs do play a significant role in the perception of tuberculosis and its treatment: Eighty six percent participants in the focus group labelled tuberculosis according to their belief system. Local names used described tuberculosis as hereditary in nature (*leabela*) meaning hereditary, *sejeso* meaning witchcraft poisoning , and also *bolwetši bja mafahla*, meaning a chest disease.

Given all those names, the implication is that, rather than seeking help from the hospital when they have contracted the disease, patients would consult their traditional healers and perform rituals, thus delay in seeking medical help. These findings agree with research in Vietnam done by Hoang long, Johanson, Diwan and Winkvist (1999), where tuberculosis was given traditional names like *190 trugen* (hereditary) and *190 tam* (mental tuberculosis), and affected tuberculosis control programmes negatively.

What is a matter of concern about the traditional meanings attributed to tuberculosis by participants is the fact that medical treatment was considered to have little effect as compared to traditional medicines. Research in Kenya has shown that due to traditional beliefs and limited understanding of the disease, patients delay tuberculosis diagnosed and treatment (Liefooghe et al., 1997). Thus, the observation, that participants seemed to resort to traditional beliefs once affected by the disease, is worrying and warrants further attention.

5.1.5   Sources of information on Tuberculosis

This study found that apart from health care institutions, the predominant sources of information were relatives and the media. However, the main concern was that tuberculosis was not given much publicity like HIV/AIDS. Similar findings concerning sources of information, were found by Westaway and Wolmarans (1994) among black urban South Africans.

5.2   DISCUSSION OF QUANTITATIVE DATA RESULTS

5.2.1   Knowledge and beliefs on causation of tuberculosis

The overall knowledge about tuberculosis in this group of patients can be said to be good, however, taking into consideration the fact that this group of patients has been in hospital for more than a month, assuming that they have been given health education and counselling every Thursday of the week, one would have expected the knowledge to have been even better. Bacilli was known to be a causative factor of tuberculosis in 76,7% of patients. However, patients strongly attributed risk factors such as interaction with other TB patients, smoking, poverty, malnutrition, hard work, cold and wet weather, as causative beliefs. Similar beliefs were found in the study done by Metcalf, Bradshaw and Stindt, (1990), and also Steen and Mazonde (1999) in their study in Botswana. Looking at gender

differences, female patients tended to believe that malnutrition was a causative factor more than their male counter-parts.

5.2.2 Knowledge and beliefs on symptoms, transmission and when to stop treatment

The respondents' knowledge about symptoms of tuberculosis was generally good, which is an indication of a good identity component of their illness. Once patients are able to identify symptoms of the disease, the likelihood that they may seek help is guaranteed. All most all (96%) of the patients, knew when to stop treatment, and 93% knew the mode of transmission of tuberculosis. In some instances, for example, knowledge about symptoms appeared to have an influence in the better knowledge and understanding of the disease, implying that when health personnel give health education to patients, educational background should also be considered. This finding is supported by Herselman (2000) and de Villiers (1993).

5.2.3 Health Beliefs

Health beliefs which include items such as health motivation, perceived severity, perceived benefits, susceptibility and costs, are based on the Health Belief Model, were partially confirmed. Patients rated tuberculosis as a severe disease which is life threatening. Patients felt somehow susceptible. There was a strong motivation to take treatment and eat good food. From motivation factors, patients were likely to use primary health facilities and eat good food. These findings are similar to those found by Barnhoorn and Adriaanse (1992).

The majority of patients agreed with items curable by taking drugs regularly (reversed scoring), taking drugs prevents hospitalization (reversed scoring) and treatment taken only six months (reversed scoring), and those are regarded as the determinants of compliance.

78

Similar finding were found in the study done by Peltzer (2001) in the Limpopo Province of South Africa and by Liefooghe et al. (1995) in Pakistan.

A total of 30 (100%) patients, believed that tuberculosis carries social stigma and that there is a tendency to be isolated by friends, which could in fact influence treatment compliance and health seeking behaviour. When patients feel stigmatized, they may isolate themselves and not disclose their illness, and that could impact negatively on prevention of the spreading of the disease. These findings are similar to those found by Juvekar, Morankar, Dalal, Rangan, Khanvilkar, Va Dair, Upiekar and Deshpande (1995) in Bombay.

Liefooge et al. (1995) indicated that the contribution of social stigma to defaulting and rejection of the diagnosis is often overlooked, even though it does exist in several other cultural settings. There was statistical evidence that education does appear to play a role in certain health beliefs. Those with secondary and tertiary education tend to be more optimistic about the outcome of their disease than those with primary and no education. The influence on health beliefs by education was also reported by Herselman (2000) in her study on knowledge concerning multidrug-resistant tuberculosis among hospitalised patients in South Africa.

5.3   SUMMARY AND CONCLUSION

The population studied has a reasonably good knowledge of tuberculosis. Although there is some confusion regarding causative and risk factors in tuberculosis, this knowledge can form a basis on which to build health education programmes. This study has also indicated the impact of traditional beliefs on health-seeking behaviour, treatment and the overall understanding of the disease.

Treatment is still perceived by the majority of participants as long, agonising and cumbersome, and there is still some doubts as to whether tuberculosis is curable. Patients

had strong beliefs that tuberculosis carries social stigma and therefore health providers should look into this factor. There were also strong traditional beliefs and misconceptions concerning the causation of tuberculosis. For example, factors like witchcraft and other traditional types of tuberculosis which were mentioned in the focus group discussion, indeed need to be looked at, and given much attention. In this study, education does appear to a certain extent to have an influence on a patient's perceptions and therefore needs to be researched further. Gender and age did not appear to have great influence on the knowledge about tuberculosis.

5.4   RECOMMENDATIONS

Having identified some important factors which tend to influence the knowledge of patient about tuberculosis, the following recommendations are suggested:

—   Health care providers should take into consideration traditional and cultural beliefs in the planning of TB health care programmes;

—   Traditional healers should/may be incorporated in the TB health programmes as DOT supporters;

—   Patients should not be discouraged to consult their healers, but at the same time, should emphasize the importance of taking their medical treatment;

—   The avoidance of technical or medical jargon when giving health education to patients and consideration of educational level as it has shown to have influence in their knowledge and understanding about TB;

—   Finally, the psychological and social implications of TB diagnosis and treatment to patients and their relatives merit special attention.

In this study it was clear that some patients and their significant others do go through some emotional pains. This is due, for example, to the stigma attached to TB. Because patients are shunned by friends, undergo prolonged TB treatment and have to cope with the disease itself, counselling is recommended for TB patients.

5.5   LIMITATION OF THE STUDY

This study covered only two ethnic groups in one hospital. The main target population was only hospitalised patients who already had some knowledge of tuberculosis. Despite the smallness of the sample, which could be said to be small to warrant generalisability, the wealth of information obtained from the sample gave the study considerable value and richness, given the uniqueness of each individual. Issues raised and themes identified in the present study can be used to generate hypothesis for future research on tuberculosis.

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APPENDIX A

TB QUESTIONNAIRE, DEPARTMENT OF PSYCHOLOGY, UNIVERSITY OF THE NORTH

Name of the patient: _____ Date: ___/___/___

Demographic and socioeconomic data

1. Age _____ years

2. Gender: 1 = Male   2 = Female

3. Religious denomination: 1 = African/traditional religion 2 = Christian (Protestant like Methodist, Lutheran, Anglican etc.) 3 = Christian (Catholic)   4 = Apostolic   5 = Zion Christian Church/Zionist 6 = Born Again Christian   7 = Other, Specify _____ 8 = No religion

4. Marital status: 1 = married/living with a partner   2 = single   3 = widowed   4 = divorced   5 = other, specify _____

5. Home language: 1 = Sepedi   2 = Xitsonga   3 = Tshivenda   4 = Isizulu   5 = Isiswati   6 = Setswana   7 = Other, specify _____

6. Occupation of respondent: O = None   1 = Housewife   2 = Gardener/Labourer   3 = Security officer, driver, mechanic   4 = Police officer   5 = Teacher   6 = Lecturer, businessman, manager   7 = Doctor, lawyer, professor   8 = other, specify _____

7. Occupation of head of the family: 0 = None   1 = Housewife   2 = Gardener/Labourer   3 = Security officer, driver, mechanic   4 = police officer   5 = Teacher   6 = Lecturer, businessman, manager   7 = Doctor, lawyer, professor   8 = other, specify _____

8. Family type   0 = Nuclear   2 = Joint

9. Family size _____ (total family members sharing same roof)

10.	Relation to head of the family: 1 = wife 2 = daughter 3 = son 4 = other, specify _____

11.	Education: 0 = None 1 = primary 2 = secondary 3 = tertiary

12.	Place of residence: 1 = village 2 = township/town

13.	Mother's monthly income: 0 = none 2 = R1-R999 3 = R1000-R2999 4 = R3000-R6999 5 = R7000 and above

14.	Father's monthly income: 0 = none 2 = R1-R999 3 = R1000-R2999 4 = R3000-R6999 5 = R7000 and above

15.	Type of house: 1 = Mukhukhu/zozo 2 = Thatched mud house 3 = Thatched brick house 4 = Mud house with corrugated iron 5 = Brick house with corrugated iron 6 = Brick house with tiles

16.	Type of fuel: 1 = firewood 2 = paraffin 3 = gas 4 = electricity

17.	How would you rate your health at the moment: 1 = fair 2 = poor 3 = good 4 = excellent

18.	How often do you attend church: 0 = never 1 = less than once a year 2 = about once a year 3 = several times a year 4 = about once a month 5 = 2-3 times a month 6 = once a week 7 = more than once a week

19.	How often do you usually pray: 1 = once a day 2 = once every few days 3 = about once a week 4 = less than once a week 5 = never

20.	In the last 6 months have you used alcohol or other drugs (such as wine, hard liquor, etc)? 1 = Yes 2 = No

21.	In the last 6 months have you used tobacco (such cigarettes, snuff, etc)? 1 = Yes 2 = No

22.	Has any of your family members ever had TB? 1 = Yes 0 = No

23.	Has any member in your community ever had TB? 1 = Yes 0 = No

**Causative belief	(1 = strongly agree and 5 = Strongly disagree)**

1.	Bacilli	1	2	3	4	5

2.	Poverty	1	2	3	4	5

3.	Hardwork		1	2	3	4	5
4.	Malnutrition		1	2	3	4	5
5.	Witchcraft		1	2	3	4	5
6.	Sins		1	2	3	4	5
7.	Cold weather	1	2	3	4	5	
8.	Wet weather		1	2	3	4	5
9.	Smoking		1	2	3	4	5
10.	Poor eating habits		1	2	3	4	5
11.	Overcrowding		1	2	3	4	5
12.	Alcohol		1	2	3	4	5
13.	Neglect		1	2	3	4	5
14.	Infection/germs		1	2	3	4	5
15.	Poor housing		1	2	3	4	5
16.	Dusty work/mine work		1	2	3	4	5
17.	From other TB patient		1	2	3	4	5
18.	Poisoning		1	2	3	4	5

Symptoms   *(1 = Strongly agree and 5 = Strongly disagree)*

1.	Cough with expectoration		1	2	3	4	5
2.	Chest pain		1	2	3	4	5
3.	Low grade fever		1	2	3	4	5
4.	Haemopthesis (cought with blood)	1	2	3	4	5	
5.	Loss of appetite		1	2	3	4	5
6.	Loss of weight		1	2	3	4	5
7.	Night sweat		1	2	3	4	5
8.	Skin problem	1	2	3	4	5	
9.	Hair loss		1	2	3	4	5
10.	Blindness		1	2	3	4	5

Transmission of TB   *(1 = Strongly agree and 5 = Strongly disagree)*

1.	Sputum (including standing on the sputum)	1	2	3	4	5
2.	Air borne (breathing, cough and droplet spread)	1	2	3	4	5
3.	Sharing toilet, bath, towel or clothes	1	2	3	4	5
4.	Sharing cigarettes, food or drinks	1	2	3	4	5
5.	Sexually transmitted	1	2	3	4	5
6.	Contact with someone with TB	1	2	3	4	5

When to stop treatment   *(1= Strongly agree and 5 = Strongly disagree)*

1.	When feeling well	1	2	3	4	5
2.	After a period less than six months	1	2	3	4	5
3.	When side-effects are experienced	1	2	3	4	5
4.	Depends on how bad it is	1	2	3	4	5
5.	On discharge by the doctor or from the hospital	1	2	3	4	5
6.	When treatment finished	1	2	3	4	5
7.	After a period of six months or more	1	2	3	4	5
8.	Once radiograph is clear	1	2	3	4	5
9.	Once disease is cured	1	2	3	4	5

Health beliefs

Health motivation   *(1 = Strongly agree and 5 = Strongly disagree)*

1.	Utilized the primary health care facility nearby village	1	2	3	4	5
2.	Coped by practicing isolation	1	2	3	4	5
3.	Coped by praying to God	1	2	3	4	5
4.	Coped by cleaning the body	1	2	3	4	5
5.	Coped by eating good food	1	2	3	4	5

Perceived susceptibility

6.	Suffered from TB in the past	1	2	3	4	5
7.	TB is infectious	1	2	3	4	5
8.	The whole family needs to go for check up	1	2	3	4	5
9.	Can contract TB more than once	1	2	3	4	5

Perceived severity

10.	TB is life threatening	1	2	3	4	5
11.	TB reduces one's working capacity	1	2	3	4	5
12.	Isolation by friends	1	2	3	4	5
13.	Not totally well after treatment	1	2	3	4	5

Perceived benefits

14.	Curable by taking drugs regularly	1	2	3	4	5
15.	Taking drugs prevents hospitalization	1	2	3	4	5
16.	Treatment takes only 6 months	1	2	3	4	5
17.	Treatment prevents social stigma	1	2	3	4	5

Perceived costs

18.	Regularity in taking treatment is important	1	2	3	4	5
19.	The family has to spend more money	1	2	3	4	5
20.	A social stigma is attached to TB	1	2	3	4	5
21.	Difficulty to explain that one has to take medicine	1	2	3	4	5

Time line

Please indicate how much you agree or disagree with the following statements about your illness on a 1-5 Likert scale, with Strongly agree rated as 1 and Strongly disagree given the value of 5. In the event you neither agree nor disagree, please make you mark on 3.

1.   My TB will last a short time   1   2   3   4   5

2.   My TB is likely to be permanent rather than

temporary   1   2   3   4   5

3.   My TB will last a long time   1   2   3   4   5

Control/Cure

Please indicate how much you agree or disagree with the following statements about your illness on a 1-5 Likert scale, with Strongly agree rated as 1 and Strongly disagree given the value of 5. In the event you neither agree nor disagree, please make you mark on 3.

1.   My TB will improve over time   1   2   3   4   5

2.   There is a lot I can do to control my symptoms

of TB   1   2   3   4   5

3.   There is very little that can be done to improve

my TB   1   2   3   4   5

4.   My treatment will be effective in curing my TB   1   2   3   4   5

5.   Recovery from my TB is largely dependent on

chance or fate   1   2   3   4   5

6.   What I do can determine whether my TB gets

better or worse   1   2   3   4   5

APPENDIX B

FOCUS GROUP DISCUSSION GUIDING QUESTIONS

FOR TB PATIENTS

1. Can you explain for which condition/disease you have been hospitalized? What do you know about the condition/disease?

2. How did your condition come about? What do you believe caused the health problem?

3. For how long do you think you will have to take your medicine before you will be fully cured?

4. Did you respond (react) on being informed about your condition? (TB)

5. What was you family's reaction on receiving the news of your condition/disease?

6. What do you think will be the likely reaction from community members on knowing your condition?

FOR COMMUNITY MEMBER (RELATIVES OF PATIENTS)

1. Someone I know told me he/she had TB. What do you know about the disease?

2. Do you remember how and where you learned about it (information about TB)

3. Which other names do you know/use for this disease? What is the meaning of these names?

4. If a person feels ill with (sings and symptoms mentioned above) where would he/she seek help?

5. Do you have an idea of how long it would take to cure TB? What do you know about the treatment?

6. What is the normal handling of a TB case in your community?

7. What different types TB, if any do you perceive to exist?

APPENDIX C

UNIVERSITY OF THE NORTH
ETHICS COMMITTEE

CONSENT FORM

I, _____ hereby voluntarily consent to participates in the following project:

I realise that:

1. The study deals with _____ (e.g. effect of certain medication on the human body);

2. The procedure or treatment envisaged may hold some risk for me that cannot be foreseen at this stage;

3. The Ethics Committee has approved that individuals may be approached to participate in the study;

4. The attached protocol sets out the extent, aims and methods of the research and that this protocol has been explained to me;

5. The attached protocol sets out the risks that can be reasonably expected as well as the possible discomfort for persons participating in the research, an explanation of the expected advantages for myself or others that are reasonably expected from the research and alternative procedures that may be to my advantage;

6. I will be informed of any new information that may become available during the research that may influence my willingness to continue my participation;

7. Access to the records that pertain to my participation in the study will be restricted to persons directly involved in the research;

8. Any questions that I ma have regarding the research, or related matters, will be answered by the researchers;

9.   If I have any questions about, or problems regarding the study, or experience any undesirable effects, I may contact a member of the research team;

10.   Participation in this research is voluntarily and I can withdraw my participation at any stage;

11.   If any medical problem is identified at any stage during the research, or when I am vetted for participation, such condition will be discussed with me in confidence by a qualified person and/or I will be referred to my doctor,

12.   I indemnify the University of the North and all persons involved with the above project from any liability that my arise from my participation in the above project or that may be related to it, for whatever reasons, including negligence on the part of the mentioned persons.

_____   _____

RESEARCHED PERSON   WITNESS

_____   _____

PERSON THAT INFORMED THE   PARENT/GUARDIAN IF MINOR
RESEARCHED PERSON

Signed at _____ this _____ day of _____ 199 ___