MOTIVATION LEVELS OF TUBERCULOSIS HEALTHCARE STAFF AT A DISTRICT HOSPITAL IN KENYA

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DECLARATION:

In accordance with Rule G4.6.3, I hereby declare that the above-mentioned treatise/dissertation is my own work and that it has not previously been submitted for assessment to another University or for another qualification.

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<td>ART</td>
<td>Anti-Retroviral therapy</td>
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<td>CCC</td>
<td>Comprehensive Care Clinic</td>
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<td>CHW</td>
<td>Community Healthcare Workers</td>
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<td>CM</td>
<td>Cognitive Motivation</td>
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<td>DLTLD</td>
<td>Division of Leprosy, Tuberculosis and Lung Disease</td>
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<td>DOTS</td>
<td>Directly Observed Treatment Short Course</td>
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<td>DR-TB</td>
<td>Drug Resistant TB</td>
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<td>EJS</td>
<td>Extrinsic Job Satisfaction</td>
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<td>EPTB</td>
<td>Extra-Pulmonary Tuberculosis</td>
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<td>GJS</td>
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ABSTRACT

Background: The success of tuberculosis (TB) treatment largely depends on healthcare team factors within a healthcare system, as healthcare workers play a vital role in fostering patient adherence to TB treatment. Strengthening motivation amongst Kenya’s TB healthcare workers should thus be reinforced in order to improve on clinical outcomes of TB treatment in Kenya.

Objectives: To determine motivational needs of TB healthcare staff at a district hospital in Kenya and to provide recommendations on how to enhance their motivation.

Design: TB healthcare workers including nurses, doctors, pharmacists and community healthcare workers were purposively sampled from a district hospital in Kenya. Their motivational levels were measured using a questionnaire adapted from Bennet and colleagues (2000).

Key Findings: A high level of job satisfaction was present in more than 50% of the employees, although the ‘extrinsic job satisfaction’ sub-scale stood out as scoring relatively poorly in comparison to the other ‘job satisfaction’ sub-scales. Cognitive motivation yielded mixed results with 44% of respondents rating themselves as being satisfied, and 56% between neutral and very dissatisfied. The overall organisational commitment was positive, with the majority (60%) of respondents rating themselves as being committed to their organisation. The majority (96%) of workers rated their performance at work as very high.

Conclusion: Improvement in staff motivation can be attributed to how well a hospital's management organises and runs its hospital. It was recommended that hospitals should provide an environment where motivational strategies are continuously implemented and where change is positively rewarded. This may, in turn, have a positive impact on TB treatment outcomes. The study may be of interest to key decision makers in Kenya’s healthcare system as well as TB programme managers, hospital managers and health managers in general. Further investigations are needed in order to determine whether Kenya’s public healthcare system has a staff retention strategy that is up to date with the motivational needs of Kenya’s health workforce.

Keywords: Staff motivation, Tuberculosis, healthcare workers, motivational needs, healthcare system.
1.1 BACKGROUND TO TUBERCULOSIS

Tuberculosis (TB) is a challenge for any healthcare system. Addressing it requires the use of laboratories and radiography, the input of skilled clinicians, a reliable supply of drugs, the use of health education, provision of continuity of care as well as good follow-up and information systems (Garner, Smith, Munro & Volmink, 2007:325-420). In recent years, much progress has been made in the global control of tuberculosis, through the large-scale implementation of Directly Observed Treatment Short Course (DOTS) (discussed in Section 2.2.2.1). In spite of the progress made, it has been acknowledged that TB control efforts worldwide are insufficient. The global TB targets – detecting 70% of TB cases and successfully treating 85% of them, and halving the prevalence and mortality of the disease by 2015, as part of the Millennium Development Goals (MDGs)– are only likely to be met if current efforts are intensified (WHO, 2006:9).

The Millenium Development Goals are eight international development goals that all 192 United Nations (UN) member states agreed to achieve by the year 2015. They include poverty and hunger eradication, universal primary education, promotion of gender equality and empowerment, improved maternal health, environmental sustainability, reducing child mortality rates, fighting disease epidemics and developing a global partnership for development (UN, 2010). One of the MDGs that forms the basis for this study is that of strengthening health systems through human resource development, in order to reach global TB targets (WHO Report, 2009:54). The “Stop TB Strategy” (discussed in Section 2.2.2) is the World Health Organisation’s (WHO) recommended approach to achieving these targets (WHO Report, 2009:2).

A comprehensive strategic plan for human resource (HR) development needs to ensure both financing and guidance for an adequate, competent and optimally performing workforce for TB control, integrated within the overall healthcare workforce plans and strategies (WHO Report, 2009:55). Plans should be based on a recent needs assessment and should include:

(i) a clear vision and goal, and associated objectives and strategies;

(ii) definition of training and staffing needs for all components of the “Stop TB Strategy”;
(iii) up-to-date job descriptions;
(iv) provision for updating of the TB training curricula of various health cadres where appropriate;
(v) on-going training for existing staff at all levels of the healthcare system; and
(vi) systematic supervision and monitoring of recruitment and training needs (WHO Report, 2009:55).

The success of TB treatment largely depends on patient adherence to the treatment regimen, which is usually fostered in part by the healthcare team (International Standards for Tuberculosis Care, 2006:34). Thus TB healthcare workers play a significant role in the successful treatment of TB, and strengthening their motivation especially in developing countries is crucial (Mathauer & Imhoff, 2006:2). Problems of low motivation amongst healthcare workers are common in many countries (Bennet, Franco, Kanfer & Stubblebine, 2000:1). A motivated and qualified workforce is crucial to the increase of productivity and quality of health services in order to achieve health service targets (Dieleman, Toonen, Touré & Martineau, 2006:2). Motivation in the work context is defined as "an individual's degree of willingness to exert and maintain an effort towards organisational goals". The challenge for managers is how to create and maintain this kind of motivation (Dieleman, et al., 2006:2).

Kenya ranks 13th on the list of 22 high-burden TB countries and has the fifth highest burden in Africa (USAID, 2009:3). According to the latest surveillance data and estimates of TB incidence, Kenya is the first country in sub-Saharan Africa to have achieved the global targets for both case detection and treatment success (WHO Report, 2009:117). Despite this, the HIV/AIDS epidemic and the emergence of Multiple Drug Resistant TB (MDR-TB) have tremendously increased the demand placed on healthcare workers and the healthcare system (HATIP, 2009:5). Many healthcare workers experience occupational stress and are unable to cope with the demands or expectations of the job (HATIP, 2009:5). Motivating, as well as protecting and caring for healthcare workers, requires rigorous action at health facility, medical training facility, government and ministry of health levels, as well as at national and global policy levels (HATIP, 2009:15). This small scale study was aimed at determining levels of
motivation amongst TB healthcare staff at a district hospital in Kenya. This was done in order to identify motivational needs and provide recommendations with regards to possible interventions, to motivate TB healthcare staff.

1.2 PROBLEM STATEMENT

1.2.1 PROBLEM DEFINITION

Tuberculosis control efforts worldwide have improved in the recent past but are not sufficient in the wake of new emerging resistant strains (WHO, 2006:10). Human resource management and service delivery therefore need to be improved, in order to strengthen health systems and improve TB treatment outcomes (Guidelines for TB and Leprosy Control, 2009: 5). A shortage of human resources in the healthcare sector, especially in sub-Saharan Africa, is still the biggest threat to the realisation of plans for scaling up interventions to control the spread of TB (Mathauer & Imhoff, 2006:2). Second to that is the low motivation of existing staff, which has a negative impact on the performance of individual healthcare workers, health facilities and the healthcare system as a whole (Mathauer & Imhoff, 2006:2). Determining the motivating factors and motivation levels of healthcare workers is therefore important, especially in the public health sector which serves the majority of Kenyans. The awareness of TB healthcare workers’ motivational needs can subsequently increase management’s ability to motivate the healthcare workers and thus improve TB infection control and treatment outcomes.

1.2.2 RESEARCH QUESTION

This study will seek to answer the questions:

“What are the levels of motivation of TB healthcare staff in Kenya?” and “How can we increase the level of motivation of TB healthcare staff in Kenya?”
1.3 AIM AND OBJECTIVES OF RESEARCH

1.3.1 AIM
The aim of this study is to determine levels of motivation of TB healthcare staff in a sample taken from a local district hospital in Kenya, in order to determine their motivational needs and recommend strategies that can aid TB programme managers in the motivation of their staff.

1.3.2 OBJECTIVES
More specifically this study seeks to:
- Measure the levels of motivation of TB healthcare staff in the sample group.
- Identify factors which can serve as a future focus for enhancing motivation of TB healthcare staff in the hospital.
- Identify de-motivators experienced by TB healthcare staff.
- Increase awareness and encourage TB programme managers to develop strategies that can enhance the motivation of TB healthcare staff.

1.4 RESEARCH SITE AND POPULATION
The research was conducted at a Kenyan public hospital called Kiambu Hospital. The population included all qualified TB healthcare staff working at the hospital i.e. nurses, doctors, pharmacists and community workers. Participants had to be registered with the necessary regulatory bodies and be part of the TB treatment programme at the hospital, in order to be eligible for the study.

1.5 OVERVIEW OF THE RESEARCH
Firstly, the researcher conducted a preliminary literature review on TB, Drug-Resistant TB and staff motivation in TB care. The findings of the review led to the formulation of the research topic and formed the basis for the research. Subsequently a thorough literature review was undertaken exploring topics such as TB, TB treatment adherence, motivation of healthcare staff and the impact of healthcare staff on the outcomes of TB treatment.
The research design was quantitative, using questionnaire developed by Bennet and co-workers (2000), and employing minor alterations and adaptations to the questionnaire to make it suitable for the study. It comprehensively measured the following motivational constructs relevant to the study:

- General work satisfaction
- Intrinsic job satisfaction
- Extrinsic job satisfaction
- Organisational commitment
- Conscientiousness
- Timeliness and attendance
- Getting along with others.

This research tool has been previously employed in research on employee motivation and has been tested for validity. Empirical data from this research was captured, analysed, presented and interpreted to see whether the findings were consistent with the literature. Finally, conclusions and recommendations were made from the findings of the study.

1.6 CHAPTER LAYOUT

The research treatise is divided into the following five chapters:

- Chapter 1: Introduction - is a brief overview of the challenges facing TB treatment and control, as well as an introduction to the research problem and research question. The research aims and objectives as well a summary of the research methodology are also discussed.
- Chapter 2: Literature Review- is an in depth discussion on TB and the challenges faced in treating it. The emergence of resistant TB strains is highlighted, with special reference to patient adherence to TB treatment and the impact of healthcare workers on patient adherence. Motivation of staff is also discussed with special reference to the motivation of healthcare workers in general, as well as motivation of TB healthcare workers in particular. Lastly, instruments used to measure motivation are discussed.
• Chapter 3: Research Methodology- is an in depth discussion about the research design, the research site and population, the sampling method used, the data collection tool, ethical research considerations and data collation, analysis and interpretation.

• Chapter 4: Results and Discussion- the results are presented in this chapter in the form of tables and graphs, and are discussed with reference to the aims of the study.

• Chapter 5: Conclusion and Recommendations- is a chapter that will draw conclusions from the results and provide recommendations for further research.
CHAPTER TWO

LITERATURE REVIEW
2.1 INTRODUCTION
A comprehensive literature review will be presented in this chapter. Tuberculosis will firstly be introduced by considering its impact on the world and on Kenya in particular. Tuberculosis as a disease will then be explained, including aspects such as TB treatment as well as challenges affecting TB treatment. The impact of healthcare workers on TB treatment adherence will also be discussed. Thirdly, the international challenge of human resource for healthcare will be reviewed, and lastly, motivational theories will be discussed and the instruments used to measure motivation explored.

2.2 GLOBAL IMPACT OF TUBERCULOSIS
Almost one third of the world’s population is infected by *Mycobacterium tuberculosis*, the causative agent of tuberculosis. *Mycobacterium tuberculosis* kills more people than any other single infectious agent and is responsible for 25% of all avoidable deaths in developing countries (The South African Tuberculosis Control Programme, 2000:7). Based on surveillance and survey data, the WHO estimates that 9.27 million new TB cases occurred in 2007. India, China, Indonesia, Nigeria and South Africa rank first to fifth in terms of the total number of TB incident cases. Asia (South-East Asia and Western Pacific regions) accounts for 55% of global cases and the African Region for 31%; the other three regions (the Americas, European and Eastern Mediterranean regions) account for a small percentage of global cases. Among the 15 countries with the highest estimated TB incidence rates, 13 are in Africa, a phenomenon linked to the high rate of HIV co-infection (WHO Report, 2009:7-9).

Among the 9.27 million incident cases of TB in 2007, an estimated 1.37 million (14.8%) were HIV-positive. In 2007, as in previous years, the African Region accounted for most (79%) of the HIV-positive TB cases. This was followed by the South-East Asia Region (mainly India) with 11% of total cases. South Africa accounted for 31% of cases in the African Region. These estimates were produced using the latest global estimates of HIV prevalence among the general population (all ages) published by the Joint United Nations Programme on HIV/AIDS (UNAIDS). (WHO Report, 2009:9-11)
In addition to the 9.27 million first episodes of TB detected in 2007, approximately 1.16 million subsequent episodes of TB (episodes occurring in patients who had already experienced at least one previous episode of TB in the past and who had received at least one month of anti-TB treatment) were reported. Amongst the 10.4 million episodes of TB (both first and subsequent), an estimated 4.9% (511 000) were cases of MDR-TB. Of these, 289 000 were new cases (3.1% of all new cases) and 221 000 were cases that had previously been treated for TB (19% of all previously treated cases). Of the 511 000 incident cases of MDR-TB in 2007, 349 000 (68%) were smear-positive. (WHO Report, 2009:9-11)

Since 1990, the prevalence of TB has been declining in the Eastern Mediterranean Region, the Americas, the South-East Asia Region and the Western Pacific Region, and all four regions are on the way to halving their prevalence rates by 2015 (prevalence has already halved compared with the 1990 level in the Region of the Americas). In the African and European regions, prevalence rates increased substantially during the 1990s and by 2007 were still far above the 1990 level in the African Region and just back to the 1990 level in the European Region. Projections suggest that neither region will reach the target of halving the 1990 prevalence rate by 2015, and in the African Region it is unlikely that prevalence will be back to 1990 levels by 2015. The gap between the 2015 targets and current prevalence rates in these two regions means that the world as a whole is unlikely to meet the Stop TB Partnership target of halving the prevalence rate by 2015. (WHO Report, 2009:12)

2.2.1 GOALS, TARGETS AND INDICATORS OF TUBERCULOSIS

Two landmark documents in global TB control – the Stop TB Strategy and the Global Plan to Stop TB – were launched in 2006 (WHO Report, 2009:34). The Stop TB Strategy, is the WHO’s recommended approach to reducing the burden of TB in line with global targets (WHO Report, 2009:2). It specifies the interventions that need to be implemented to achieve the MDGs (Table 2.1) as well as the Stop TB Partnership (Section 2.2.2) and World Health Assembly (WHA)

---

1 If TB micro-organisms (commonly referred to as acid-fast bacilli, or AFB) are detected using the smear microscopy method, then a patient is said to have smear positive tuberculosis (The South African Tuberculosis Control Programme, 2004:14).
targets (WHO Report, 2009:6). The Global Plan to Stop TB, developed by the Stop TB Partnership, defines how, and at what scale, the strategy should be implemented over the decade 2006–2015 (WHO Report, 2009:34).

The Stop TB Partnership targets are: to halt and begin to reverse the incidence of TB by 2015, and to reduce by 50% prevalence and mortality rates by 2015 relative to 1990 levels. The incidence target is part of MDG Target 6.c, while the targets for reducing prevalence and death rates are based on a resolution that was made in the year 2000, during a meeting held by the Group of Eight (G8) industrialised countries. The outcome targets – to achieve a case detection rate of new smear-positive cases of at least 70% and to reach a treatment success rate of at least 85% for such cases – were first established by the WHA in 1991. Within the MDG framework, these indicators were defined as the proportion of cases detected and cured under DOTS (explained in Section 2.2.2.1). The ultimate goal of eliminating TB, defined as having an occurrence rate of less than 1 case per million population per year by 2050, was set by the Stop TB Partnership. (WHO Report, 2009:6)

Table 2.1 Goals, targets and indicators for Tuberculosis control

<table>
<thead>
<tr>
<th>HEALTH IN THE MILLENNIUM DEVELOPMENT GOALS</th>
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<tr>
<td><strong>Goal 6: Combat HIV/AIDS, malaria and other diseases</strong></td>
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<tr>
<td><strong>Target 6c:</strong> Halt and begin to reverse the incidence of malaria and other major diseases</td>
</tr>
<tr>
<td><strong>Indicator 6.9:</strong> Incidence, prevalence and death rates associated with TB</td>
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<tr>
<td><strong>Indicator 6.10:</strong> Proportion of TB cases detected and cured under DOTS</td>
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**Stop TB Partnership targets**

- **By 2005:** At least 70% of people with sputum smear-positive TB will be diagnosed (i.e. under the DOTS strategy), and at least 85% successfully treated. The targets of a case detection rate of at least 70% and a treatment success rate of at least 85% were first set by the World Health Assembly of WHO in 1991.

- **By 2015:** The global burden of TB (per capita prevalence and death rates) will be reduced by 50% relative to 1990 levels.

- **By 2050:** The global incidence of active TB will be less than 1 case per million population per year.

Source: WHO Report, 2009:7
In recent years, progress in the global control of TB has been made, through the large-scale implementation of DOTS. Although it has been acknowledged that TB control efforts have improved worldwide, this is still not sufficient (WHO, 2006:10). The WHO believes that global TB targets can be achieved through the intensification of current efforts (WHO, 2006:10). Thus far, global targets for both case detection and treatment success have been achieved in 36 countries including four high burden countries (HBCs): China, Kenya, the Philippines and Vietnam (WHO Report, 2009:30).

2.2.2 THE STOP TUBERCULOSIS STRATEGY

As previously mentioned (Section 2.2.1), the Stop TB Strategy is the WHO’s recommended approach to reducing the burden of TB worldwide. It outlines the major interventions that should be implemented in order to achieve the MDGs. These are divided into six broad components:

i. Pursuing quality DOTS expansion and enhancement
   - Political commitment with increased and sustained financing
   - Case detection through quality assured bacteriology
   - Standardised treatment, with supervision and patient support
   - Effective drug supply and management system
   - Monitoring and evaluation system, and impact measurement

ii. Addressing TB-HIV, MDR-TB and other challenges
   - TB/HIV collaborative activities
   - Prevention and control of drug-resistant TB
   - Addressing prisoners, refugees and other risk groups and special situations

iii. Contributing to healthcare system strengthening
   - Active participation in efforts to improve human resources, financing, management and service delivery
   - Sharing innovations that strengthen systems, including the practical approach to lung health
• Adapting innovations from other fields

iv. Involving all care providers
  • Public-private mix approaches
  • International Standards for TB Care

v. Engaging people with TB and affected communities
  • Community participation in TB Care
  • Advocacy, communication and social mobilisation

vi. Enabling and promoting research
  • Programme-based operational research
  • Research to develop new diagnostics, drugs and vaccines. (Guidelines for TB and Leprosy Control, 2009: 5)

2.2.3. TUBERCULOSIS IN KENYA

Kenya ranks 13th on the list of the 22 HBCs in the world and has the fifth highest burden in Africa (WHO Report, 2009:117). Despite this, Kenya continues to achieve the MDGs by treating an increasing number of TB patients each year. However, widespread co-infection with HIV (approximately 48% of new TB patients) makes TB treatment difficult. Whilst the number of new cases appears to be declining, the number of patients requiring re-treatment has increased (USAID, 2009:3). The emergence and spread of drug resistant TB (DR-TB) also poses a threat to current TB treatment efforts. In 1993-1994 Kenya was the only country that reported no cases of MDR-TB. However this is no longer the case, as recent results from routine surveillance have confirmed otherwise (Guidelines for TB and Leprosy Control, 2009:46). The WHO estimates that there were around 2,000 cases of MDR-TB in Kenya in 2007, although only 4.1 percent of these cases were diagnosed and reported (USAID, 2009:3). Thus far, Kenya has reported a cure of 30 cases of the hard to treat MDR TB, at a costly price of 45 million shillings (4.5 million Rand) (Esipisu, 2010:6). Hence, preventing the spread of resistant TB strains is vital to reducing patient suffering and preventing costly treatment expenses (Wanja, 2010:6).
In 2007, the Kenyan government increased its political commitment by upgrading the National Leprosy and Tuberculosis Program (NLTP) to a division within the Ministry of Health (MOH), namely the Division of Leprosy, Tuberculosis and Lung Disease (DLTLD). The government also increased funding for TB control. This coupled with increased donor support, has improved DOTS services, increasing the number of TB patients that have access to care. The DLTLD implements TB and HIV/AIDS treatment services, community-based DOTS (C-DOTS), public-private mix (PPM) DOTS and various activities, to address MDR-TB. There is also a policy supporting MDR-TB diagnosis and treatment and in 2008, USAID continued to support routine MDR-TB surveillance. (USAID, 2009:3)

According to the WHO’s 2009 Global Report on TB, Kenya has approximately 132,000 new TB cases and an incidence rate of 142 new sputum smear-positive (SS+) cases per 100,000 population (USAID, 2009:3). The DLTLD began to implement the WHO-recommended DOTS strategy in 1993 and reported 100 percent DOTS coverage by 1996. In 2005, the DOTS case detection rate reached the WHO’s target of 70 percent and rose to 72 percent in 2007. The DOTS treatment success rate also met the WHO’s target of 85 percent in 2007 (USAID, 2009:3). Collaborative TB/HIV activities have been widely implemented, with 79% of confirmed TB patients tested for HIV and 37% of HIV positive TB patients accessing anti-retroviral therapy (ART) in 2007 (WHO Report, 2009:117). The main challenges of TB control include the high turnover of healthcare staff, including those employed at the central TB unit, and high demand for training of healthcare workers (WHO Report, 2009:117).

2.2.4. HUMAN RESOURCE DEVELOPMENT AND TUBERCULOSIS

The WHO Report of 2009 states that a total of 94 countries including 14 HBCs have conducted a needs assessment, and 90 countries including the 14 HBCs have a comprehensive plan for HR development for TB control. Six of the countries that reported having an HR development plan had not conducted any need assessments, and most of the HR development plans that existed needed to be strengthened. For example, only seven HBCs had considered the training and staffing needs for all the major components of the Stop TB Strategy. Information regarding staff positions, vacancies and the training status of staff is essential for HR development, yet routine
monitoring of staff availability, turnover and training needs still appears weak across the HBCs, with only 9 HBCs providing some information about the availability of staff trained in TB control at healthcare facilities. In all but two countries, the information was incomplete or contradictory. (WHO Report, 2009:55)

Although training related to TB control is included in the basic curriculum for doctors and nurses, monitoring missions to HBCs have shown that the basic curriculum is often not formalised. The main conclusion based on the data remains that major strengthening of HR development for TB control is urgently needed in many countries in all the regions, especially in HBCs. (WHO Report, 2009:55)

2.3 UNDERSTANDING TUBERCULOSIS

Tuberculosis is an infectious disease caused by the *Mycobacterium tuberculosis* bacteria. It is usually transmitted by inhalation through the lungs (The South African Tuberculosis Control Programme, 2000:11). Tuberculosis develops in two stages. The first stage occurs when TB bacilli are inhaled, but the micro-organisms remain dormant within the human body because of a healthy immune system. The second stage occurs when the infected individual develops the ‘active form’ of the disease. Among those who do become infected, most (90%) will never become ill unless their immunity is compromised by malnutrition, stress, HIV, cancer, diabetes or any other immune-compromising condition (The South African Tuberculosis Control Programme, 2000:11).

Pulmonary tuberculosis (PTB) or lung TB, is the most infectious and common form of the disease, occurring in over 80% of TB cases. When an individual with active pulmonary TB coughs or spits he/she produces small droplets that contain TB bacilli. Subsequent inhalation of these droplets from the air can lead to infection. TB can spread from the location of inhalation to other parts of the body through the blood stream, the lymphatic system, via the airways or by direct extension to other organs (The South African Tuberculosis Control Programme, 2000:11). Tuberculosis that can affect other parts of the body is termed extra-pulmonary tuberculosis (EPTB). Organs that can be affected include the pleura, joints, genitor-urinary tract, nervous system, lymph nodes, spine or abdomen. Extra-pulmonary TB is almost never infectious, unless
the patient also has pulmonary tuberculosis as well. (The South African Tuberculosis Control Programme, 2000:11)

The definite diagnosis of tuberculosis depends on the diagnostic tools available. In small countries the diagnosis of pulmonary tuberculosis should be based mostly on the sputum smear examination and in a few cases on chest X-ray examinations as well as on physical examination by an experienced clinician. The sputum smear examination involves microscopic analysis of the sputum specimen (smear microscopy). Smears may be prepared directly from clinical specimens or from concentrated preparations. The acid fast staining procedure depends on the ability of mycobacteria to retain dye when treated with a mineral acid or an acid alcohol solution. If micro-organisms (commonly referred to as acid-fast bacilli, or AFB) are detected by this method then the patient is said to have smear positive tuberculosis. (The South African Tuberculosis Control Programme, 2004:14)

2.3.1. SYMPTOMS OF TUBERCULOSIS

The most common symptoms of pulmonary tuberculosis are:

- persistent cough for 3 weeks or more;
- sputum production which may be blood-stained;
- shortness of breath, and chest pain;
- loss of appetite and loss of weight;
- a general feeling of illness (malaise);
- tiredness and loss of motivation;
- night sweats and fever. (The South African Tuberculosis Control Programme, 2000:12)

2.3.2. CATEGORIES OF TUBERCULOSIS CASES

Once the diagnosis of active TB is made, cases are then categorised according to previous treatment received. Thus cases are categorized as new, relapse, return to treatment after default, failures and others (transfer-outs and chronic cases). It is important to define a case
according to whether or not the patient has previously received TB treatment in order to identify those patients at increased risk of acquiring drug resistance and prescribe the appropriate treatment regimen (The South African Tuberculosis Control Programme, 2004:20,21). The categories are as follows:

i. Category 1- New cases (patients who have never been treated before or patients who have used anti-TB drugs for less than one month).
   a) Sputum smear positive PTB.
   b) Sputum smear negative with extensive parenchymal involvement.
   c) Severe forms of EPTB (Meningitis, milliary, pericarditis, genitor-urinary, peritonitis, spinal).

ii. Category 2- Previously treated sputum smear positive PTB
    Relapses, failures and returnees after default (also called smear positive re-treatment cases). These patients are at increased risk of having resistant TB, especially retreatment failures.

iii. Category 3- New less severe
    a) Sputum smear negative PTB
    b) Extra-pulmonary TB

iv. Category 4
    Chronic and MDR-TB. (Guidelines for TB and Leprosy Control, 2009:8).

2.3.3. DRUGS USED IN THE TREATMENT OF TUBERCULOSIS
The key to stopping the spread of TB in a community is to begin treatment as soon as suspected patients begin coughing up live TB bacilli. For treatment to be effective, it is crucial that the correct drugs are given for the correct period of time (The South African Tuberculosis Control Programme, 2004:28). The aims of TB treatment of are to:

- cure the patient of TB;
- prevent death from TB or its complications;
- decrease transmission of TB to others; and
• prevent the development of acquired drug resistance. (The South African Tuberculosis Control Programme, 2004:28)

There are three main characteristics associated with anti-TB drugs and they may possess one or more of these characteristics to various extents. The anti-TB drugs possess bactericidal properties, bacteriostatic or sterilising properties, and/or the ability to prevent drug resistance (The South African Tuberculosis Control Programme, 2004:28).

There are various types of bacilli populations that live within a tuberculosis lesion, namely:

• Metabolically active bacilli;
• Intermediately active bacilli;
• Semi dormant bacilli (persisters), which undergo occasional spurts of metabolism; and
• Dormant bacilli which may become active. (The South African Tuberculosis Control Programme, 2004:28)

Different anti-TB drugs act against different populations of bacilli. Bacilli may occur extra-cellularly or intra-cellularly. The pH in the intercellular spaces is usually neutral or alkaline, whereas intra-cellular pH is acidic. Some TB drugs work best in an acidic environment while others are more effective in an alkaline environment. (The South African Tuberculosis Control Programme, 2004:28)

Tuberculosis treatment regimens are divided into intensive and continuation phases. During the intensive phase, the bactericidal effect of treatment leads to rapid bacteriological sputum conversion and culture negativity, and an improvement of illness. During the continuation phase, when fewer drugs are given, the sterilising effect of the treatment eliminates the remaining viable bacilli and prevents subsequent relapse. (South African Medicine Formulary [SAMF], 2008:301)
2.3.3.1 THE ESSENTIAL TUBERCULOSIS DRUGS

**Rifampicin (R)**

Rifampicin is bactericidal for both intracellular and extracellular bacilli, acting in both alkaline and acidic media. It is active against all bacterial populations including gram-positive, gram-negative and dormant bacilli (SAMF, 2008:305). Its action commences within one hour of intake and its high potency makes rifampicin the most effective sterilising anti-TB drug (The South African Tuberculosis Control Programme, 2004:28). Some adverse effects associated with rifampicin include:

- Gastro-intestinal symptoms e.g. nausea, anorexia, mild abdominal pain and diarrhoea;
- Cutaneous reactions: mild flushing and itchiness of the skin;
- Hepatitis: may occur in patients with history of liver disease or alcoholism;
- Hypersensitivity reactions: Influenza syndrome and shock associated with intermittent therapy may result in fever, urticaria, haemolysis, eosinophilia, thrombocytopenia, leucopenia, interstitial nephritis and acute tubular necrosis;
- Drug interactions: rifampicin stimulates liver enzymes, which may lead to the breaking down of other drugs more rapidly than normal, e.g. oral anticoagulants (warfarin), oral diabetic drugs, digoxin, phenobarbitone and other anti-epileptics; and
- Compromised contraceptive efficacy: rifampicin may decrease the effectiveness of oral and injectable contraceptives. (SAMF, 2008:306)

**Isoniazid (INH)**

Isoniazid acts in both alkaline and acidic media (mainly alkaline) and on intra-cellular and extra-cellular bacilli. It is predominantly more active against rapid and intermediate growing bacilli but has limited action against slow growing bacilli (The South African Tuberculosis Control Programme, 2004:28). It is indicated for the treatment and prophylaxis of tuberculosis, and is used in combination with other agents (SAMF, 2008:305). Adverse effects include:

- Central nervous system (CNS) toxicity such as peripheral neuropathy (tingling and numbness of the hands and feet), seizures, psychosis, ataxia and optic neuritis;
• Hepatitis, more often in patients older than 35 years;
• Drug induced lupus erythromatosus;
• Hematological effects such as anaemia, thrombocytopenia and neutropenia;
• Generalised skin rash and fever; and
• Joint pains. (The South African Tuberculosis Control Programme, 2004:31,32)

**Pyrazinamide (Z)**

Pyrazinamide is a nicotinamide derivative that is weakly bactericidal and highly specific against *Mycobacterium tuberculosis*, but has potent sterilising activity, particularly in the relatively acidic intracellular environment of macrophages and in areas of acute inflammation. It is highly effective during the first two months of treatment and achieves its sterilising action within 2-3 months. Its use has enabled treatment regimens to be shortened and the risk of relapse to be reduced (The South African Tuberculosis Control Programme, 2004:82). Adverse effects of pyrazinamide include:

• Liver damage: Anorexia, mild fever, tender enlargement of the liver and spleen may be followed by jaundice;
• Arthralgia: The level of uric acid increases and gives rise to gout and painful joints; and
• Skin rash on sun exposed areas. (The South African Tuberculosis Control Programme, 2004:83)

**Ethambutol (E)**

Ethambutol is active in alkaline as well as acidic media, and on all bacterial populations. It is a bacteriostatic with a low potency and therefore it minimises the emergence of drug resistant strains of TB. It is used in combination with other TB drugs (The South African Tuberculosis Control Programme, 2004:29). Adverse effects include:

• Progressive loss of vision caused by retrobulbar neuritis
• Skin rash
• Joint pains
• Peripheral neuropathy. (The South African Tuberculosis Control Programme, 2004:33)

**Streptomycin (S)**

Streptomycin is an aminoglycoside antibiotic that is used in combination with other agents in the treatment of TB and sensitive gram-negative infections (The South African Tuberculosis Control Programme, 2004:83). It is effective against rapidly growing extracellular mycobacteria in the alkali medium of cavity walls (SAMF, 2008:305). Adverse effects experienced with streptomycin intake may include:

• Cutaneous hypersensitivity, rash and fever.
• Ototoxicity (damage to eighth cranial nerve): this damages the vestibular (balancing) apparatus causing dizziness, tinnitus, vertigo (loss of balance) and vomiting.
• Nephrotoxicity: streptomycin is toxic to the proximal renal tubular cells.
• Anaphylaxis: streptomycin injection may be followed by tingling around the mouth, nausea and occasionally by sudden collapse.
• Deafness in unborn children: streptomycin should be avoided during pregnancy because it crosses the placenta. (SAMF, 2008:309; The South African Tuberculosis Control Programme, 2004:84)

2.3.3.2 SECOND-LINE DRUGS USED IN THE TREATMENT OF TUBERCULOSIS

Second-line TB drugs are used in the treatment of drug resistant TB (discussed in Section 2.3.4.1). These drugs are much more expensive than first line drugs, require longer length of therapy and are less specific for TB bacilli and thus have more side effects (SAMF, 2000:279).

**Ethioniamide**

Ethioniamide is a synthetic thiocarbamide derivative of isonicotinic acid. It is used in the treatment of TB, in combination with other drugs, and may be bactericidal or bacteriostatic, depending on its concentration at the site of infection (SAMF, 2008:309). Common side effects include nausea, vomiting, diarrhoea, weight loss, CNS effects, hepatotoxicity, gynecomastia and impotence (SAMF, 2008:310).
**Floroquinolones**

Floroquinolones, e.g. ciprofloxacin and ofloxacin are bactericidal. They are second-line agents used as adjuncts to therapy in MDR cases (SAMF, 2008:309). Adverse reactions of ciprofloxacin are uncommon but consist of gastrointestinal disturbance (anorexia, nausea, vomiting) or CNS symptoms (dizziness, headache, mood changes and, rarely, convulsions). Ofloxacin and ciprofloxacin should not be used in pregnant women or growing children because they may impair growth and produce injury to growing cartilage (SAMF, 2008:289).

**Aminoglycosides**

Some aminoglycosides such as kanamycin and amikacin can be used as second-line agents. They are both administered via intramuscular injections. Amikacin is as effective as kanamycin and better tolerated. Streptomycin-resistant strains of TB are usually susceptible to kanamycin and amikacin (SAMF, 2008:309). Side effects experienced during treatment are similar to those associated with streptomycin such as; ototoxicity, deafness or vertigo, as well as reversible nephrotoxicity (SAMF, 2008:286).

**Cycloserine**

Cycloserine is bacteriostatic and is used in combination with other second-line agents in the treatment of MDR-TB (SAMF, 2008:311). It has a high incidence of side effects which include: dizziness, slurred speech, convulsions, headache, tremor, insomnia, confusion, depression and altered behaviour. The most serious risk is suicide, therefore mood changes should be monitored closely (SAMF, 2008:311).

**Terizidone**

Terizidone (a derivative of cycloserine) is bacteriostatic and is used in combination with other second-line agents in treatment of MDR-TB, as it does not share cross-resistance with other anti-tuberculosis drugs. It has a lower incidence of side effects than cycloserine (SAMF, 2008:309).

**Capreomycin**

Capreomycin, in combination with other second-line agents, is reserved for infections of
*M.*Tuberculosis* that are resistant to other drugs. Its use is limited by renal toxicity, requiring discontinuation in up to 25% of patients. In addition to nephrotoxicity, ototoxicity is also common. Hypersensitivity reactions include urticaria and maculopapular rash (SAMF, 2008: 309,311).

2.3.3.3 RECOMMENDED TREATMENT REGIMENS

A large number of well-designed clinical trials have provided the evidence base for several sets of treatment recommendations for TB. Clinical data indicates that a rifampicin-containing regimen is the backbone of anti-tuberculosis chemotherapy and is highly effective in treating tuberculosis caused by drug-susceptible *M. tuberculosis* (International Standards for Tuberculosis Care, 2006:30-32). Two systematic reviews of regimens of less than six months have found that shorter durations of treatment have an unacceptably high rate of relapse (International Standards for Tuberculosis Care, 2006:30-32). Thus, the current international standard for smear or culture-positive tuberculosis is a regimen administered for a minimum duration of six months (International Standards for Tuberculosis Care, 2006:30-32).

For the six-month treatment duration to be maximally effective, the regimen must include pyrazinamide during the initial two-month phase, and rifampicin must be included throughout the full six months. Although the six-month regimen is the preferred option, there are several variations in the frequency of drug administration that have been shown to produce acceptable results. An alternative continuation phase regimen, consisting of isoniazid and ethambutol given for six months, making the total duration of treatment eight months, may also be used. It should be recognised, however, that this regimen, presumably because of the shorter duration of rifampicin administration, is associated with a higher rate of failure and relapse, especially in patients with HIV infection. Nevertheless, the eight-month regimen may be used when adherence to treatment throughout the continuation phase cannot be assessed. The rationale for this approach is that if the patient is non-adherent, the emergence of resistance to rifampicin will be minimised. (International Standards for Tuberculosis Care, 2006:30-32)
Intermittent administration of anti-tuberculosis drugs, which is the administration of TB treatment 2 or 3 times a week when conditions for 5 times weekly treatment do not allow, enables supervision to be provided more efficiently and economically with no reduction in efficacy. The evidence on effectiveness of intermittent regimens has been reviewed recently. These reviews, based on several trials, suggest that anti-tuberculosis treatment may be given intermittently three times a week throughout the full course of therapy or twice weekly in the continuation phase without apparent loss of effectiveness (International Standards for Tuberculosis Care, 2006:30-32). The evidence base for currently recommended anti-tuberculosis drug dosages is derived from human clinical trials, animal models, and pharmacokinetic and toxicity studies. The evidence on drug dosages and safety, and the biological basis for dosage recommendations have been extensively reviewed in publications by WHO CDC, the Infectious Diseases Society of America (IDSA), and others (International Standards for Tuberculosis Care, 2006:30-32).

**New cases**

Treatment regimens have an initial (or intensive) phase lasting 2 months and a continuation phase usually lasting 4 months. During the intensive phase consisting of 4 drugs (isoniazid, rifampicin, pyrazinamide, and ethambutol), there is rapid killing of tubercle bacilli. Infectious patients become rapidly non-infectious (within approximately 2 weeks). Tuberculosis symptoms abate and the vast majority of patients with sputum smear-positive TB become smear-negative within 2 months. In the continuation phase fewer drugs (isoniazid, rifampicin) are necessary but for a longer time. The sterilising effect of the drugs eliminates the remaining bacilli and prevents subsequent relapse. (The South African Tuberculosis Control Programme, 2004:29)

**Re-treatment cases**

Previously treated patients include all TB patients who were treated as new cases for more than one month in the past and are now smear or culture positive. They have a higher likelihood of developing drug resistance through inadequate prior chemotherapy. The re-treatment regimen has an initial phase of 3 months - two months with 5 drugs (isoniazid, rifampicin, pyrazinamide, ethambutol and streptomycin), one month with 4 drugs (isoniazid, rifampicin, pyrazinamide,
and ethambutol) and a continuation phase of 5 months with 3 drugs (isoniazid, rifampicin, and ethambutol). Three drugs (rifampicin, isoniazid, ethambutol) are given throughout the treatment period. This regimen can cure patients excreting bacilli still fully sensitive to the drugs and those excreting bacilli resistant to isoniazid and or streptomycin. Under proper case management conditions, MDR-TB cases are those most at risk of failure in the re-treatment regimen (The South African Tuberculosis Control Programme, 2004:29). Summary tables illustrating the recommended treatment regimens for new adult cases, retreatment cases, children and MDR TB are provided in Appendix A.

2.3.4. CHALLENGES EXPERIENCED WITH TUBERCULOSIS TREATMENT

The success of treatment for TB, assuming an appropriate drug regimen is prescribed, depends largely on patient adherence to the regimen (International Standards for Tuberculosis Care, 2006:33). DOTS requires that an observer watch the patient swallowing the tablets, in a way that is sensitive and supportive to the patient needs, ensuring that the patient takes the right drugs, in the right doses, at the right intervals. In practice, it means providing an acceptable treatment supporter to patients to enable them to complete their treatment. (The South African TB Control Programme, 2004:38-39). Challenges that face TB treatment success include DR-TB and lack of patient adherence.

2.3.4.1. DRUG RESISTANT TUBERCULOSIS (DR-TB)

Although its causes are microbial, DR-TB is a man-made problem resulting from human error in any or all of the following:

- management of drug supply;
- patient management;
- prescription of chemotherapy; and/or
- patient adherence. (The South African Tuberculosis Control Programme, 2004:65)

Drug resistance arises due to the improper use of antibiotics in chemotherapy of drug-susceptible TB patients (WHO, 2008:3). The improper use of anti-TB drugs occurs when there is
a lack of patient cooperation or adherence. Patient adherence is most often a problem when the patient is homeless, has an alcohol or drug problem, is unemployed and/or looking for a job, when a family member has been unsuccessfully treated previously, or when access to healthcare is difficult (The South African Tuberculosis Control Programme, 2004:65).

Drug resistance can also be a consequence of suboptimal TB treatment regimens and treatment interruptions (International Standards for Tuberculosis Care, 2006:41). The most common medical errors leading to selection of resistant bacilli are:

- Prescription of inadequate chemotherapy (e.g. three drugs during the initial phase of treatment in a new smear-positive patient with bacilli resistant to isoniazid); and
- Adding one extra drug in the case of treatment failure, and often adding a further drug when the patient relapses after what amounts to monotherapy. (The South African Tuberculosis Control Programme, 2004:65)

In addition, there are numerous errors observed in the management of TB drug supply, the most common ones being:

- Frequent or prolonged shortages of anti-tuberculosis drugs due to poor management;
- Use of two or three drugs when four or five first-line drugs should be given;
- Use of tuberculosis drugs (or drug combinations) of unproven bioavailability;
- Poor management practices multiplying the risk of successive mono-therapies and selection of resistant bacilli;
- Healthcare workers not ensuring that a good relationship is built with the patient from the start, e.g. not taking time to show an understanding of the patient's situation nor taking a problem-solving approach;
- Patient's lack of knowledge due to poor information, or not repeatedly checking on patient understanding and practice;
- Poor case-management, e.g. careless attitudes, lack of friendly support and treatment not being directly observed;
- Frequent staff changes, with no focal point for ensuring correct clinical practice;
- Poor staff morale, compounded by lack of regular support and supervision; and
- Poor record keeping and follow-up of patients, compounded by poor referral systems.

(The South African Tuberculosis Control Programme, 2004:65)

Drug resistance is classified in two ways:

i. Based on exposure:
   a) Primary resistance- if there was definitely no previous treatment.
   b) Initial resistance-when previous treatment cannot definitely be excluded.
   c) Acquired resistance- if there is a definite history of previous treatment.

ii. Based on the type of resistance expressed by the TB bacilli:
   a) Mono-resistant TB- TB is resistant *in vitro* to one type of anti-TB drug only.
   b) Poly-resistant TB- TB which is resistant *in vitro* to more than one anti-TB drug except for both rifampicin and isoniazid.
   c) Multi-Drug Restistant (MDR) TB-TB that is resistant to both rifampicin and isoniazid.
   d)Extensively Drug Resistant (XDR) TB- is MDR TB with further resistance to at least rifampicin and isoniazid, a fluoroquinolone and one or more of injectable TB drugs: kanamycin, amikacin and capreomycin. (Guidelines for TB and Leprosy Control, 2009:47)

The strongest factor associated with drug resistance is previous anti-tuberculosis treatment. For previously treated patients, the odds of any resistance is at least four times higher, and that of multiple drug resistance is at least ten times higher than in new (untreated) patients. In addition, co-morbid conditions associated with reduced serum levels of anti-tuberculosis drugs (e.g. mal-absorption, rapid transit diarrhoea, HIV infection, or use of antifungal agents) may lead to the acquisition of drug resistance. (International Standards for Tuberculosis Care, 2006:41)
2.3.4.2 PATIENT ADHERENCE TO TUBERCULOSIS TREATMENT

Adherence to treatment means following the recommended course of treatment by taking all the prescribed medications for the entire length of time necessary (The South African Tuberculosis Control Programme, 2004:38). The success of TB treatment largely depends on the adherence of patients to treatment regimen (International Standards for Tuberculosis Care, 2006:34). Achieving adherence can be challenging because drug regimens consist of a combination of drugs, given for a minimum of six months, often long after TB symptoms have subsided. Drug adverse effects (discussed in section 2.3.3) are also commonly experienced and may deter patients from adhering to treatment. A community’s cultural beliefs and social stereotypes regarding TB can also influence a patient’s willingness to adhere to TB treatment. Consequently, without the appropriate treatment support, a significant number of TB patients discontinue treatment prematurely (International Standards for Tuberculosis Care, 2006:33).

The premature interruption of treatment presents a problem for patients, their family members, those who care for them, and for healthcare workers (The South African Tuberculosis Control Programme, 2004:38). To foster and assess adherence, a patient-centred approach to administration of drug treatment, based on the patient needs and mutual respect between the patient and the provider, should be developed for all patients (International Standards for Tuberculosis Care, 2006:33). Promoting adherence through a patient-centred approach involves facilitating access to treatment, choosing with the patient the most convenient time and place for direct observation of treatment, and when possible, providing other social and medical services. Facilitating access includes providing drugs and laboratory service for diagnosis free of charge, reducing the time and cost of obtaining treatment for the patient, and providing good and rapid attention. Convenience to the patient must be balanced with the assurance of regular drug intake and monitoring, important to giving the patient the best chances of cure (The South African Tuberculosis Control Programme, 2004:38). Treatment supervision and support needs to be culture sensitive, gender-sensitive and age-specific and should include both patient counselling and community education (International Standards for Tuberculosis Care, 2006:33). Adherence is a multi-faceted phenomenon determined by the interplay of factors (see Table 2.2).
### Table 2.2 Factors Affecting Adherence

<table>
<thead>
<tr>
<th>TUBERCULOSIS</th>
<th>FACTORS AFFECTING ADHERENCE</th>
<th>INTERVENTIONS TO IMPROVE ADHERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Social/economic factors</td>
<td>( - ) Lack of effective social support networks and unstable living circumstances; culture and lay beliefs about illness and treatment; stigma; ethnicity, gender, and age; high cost of medication; high cost of transport; criminal justice involvement; involvement in drug dealing</td>
<td>Assessment of social needs, social support, housing, food tokens, and legal measures; providing transport to treatment settings; peer assistance; mobilisation of community based organisations; optimising the cooperation between services; education of the community and providers to reduce stigma; family and community support</td>
</tr>
<tr>
<td>2. Health system/healthcare team factors</td>
<td>( - ) Poorly developed health services; inadequate relationship between healthcare provider and patient; healthcare providers who are untrained, overworked, inadequately supervised or unsupervised in their tasks; inability to predict potentially non adherent patients ( + ) Good relationships between patient and physician; availability of expertise; links with patient support systems; flexibility in the hours of operation</td>
<td>Uninterrupted, ready availability of information; training and management processes that aim to improve the way providers care for patients with tuberculosis; support for local patient organisations/groups; management of disease and treatment in conjunction with the patients; multidisciplinary care; intensive staff supervision; training in adherence monitoring; use of DOT</td>
</tr>
<tr>
<td>3. Condition-related factors</td>
<td>( - ) Asymptomatic patients; drug use; altered mental states caused by substance abuse; depression and psychological stress ( + ) Knowledge about TB education on use of medications; provision of information about tuberculosis and the need to attend for treatment</td>
<td>Education on use of medications; provision of information about tuberculosis and the need to attend for treatment</td>
</tr>
<tr>
<td>4. Therapy-related factors</td>
<td>( - ) Complex treatment regimen; adverse effects of treatment; toxicity</td>
<td>Education on use of medications and adverse effects of medications; adherence education; use of fixed dose combination preparations; tailor treatment support to needs of patients at risk of non adherence; agreements (written or verbal) to return for an appointment or course of treatment; continuous monitoring and reassessment</td>
</tr>
<tr>
<td>5. Patient-related factors</td>
<td>(-) Forgetfulness; drug abuse; depression; psychological stress; isolation due to stigma ( + ) Belief in the efficacy of treatment; motivation</td>
<td>Therapeutic relationship; mutual goal-setting; memory aids and reminders; incentives and/or reinforcements; reminder letters, telephone reminders or home visits for patients who default</td>
</tr>
</tbody>
</table>

(+)= factors having a positive effect on adherence; ( - )= factors having a negative effect on adherence

Adapted from International Standards for Tuberculosis Care, 2006:34.
2.3.4.3. THE ROLE OF DIRECTLY OBSERVED TREATMENT (DOT) IN ADHERENCE TO TUBERCULOSIS TREATMENT

Non-adherence, which commonly occurs during the course of TB self-medication, may result in the emergence of resistant bacilli (SAMF, 2008:301). Directly observed treatment is thus recommended by the WHO and is essential to TB treatment adherence. It helps reinforce patients’ motivation to continue treatment and counter the tendency of some to interrupt treatment. It ensures the accountability of healthcare workers by ensuring that they check that patients take their treatment, furthermore, it helps prevent the emergence of drug resistant TB. (The South African Tuberculosis Control Programme, 2004:38-39)

2.3.4.4. ELEMENTS OF DIRECTLY OBSERVED TREATMENT SHORT-COURSE (DOTS) THERAPY

The first component of the Stop TB Strategy, ‘pursuing quality DOTS expansion and enhancement’ (see Section 2.2.2), requires the understanding and implementation of the DOTS elements explained below.

a) Case detection through quality-assured bacteriology

Case detection among symptomatic patients self-reporting to health services, is done using sputum smear microscopy. Sputum culture is also used for diagnosis in some countries, but direct sputum smear microscopy should still be performed for all suspected cases (WHO Report, 2009:34).

b) Standardised treatment with supervision and patient support

Standardised short-course chemotherapy using regimens of 6–8 months need to be given to all confirmed smear-positive cases. Good case management includes DOT during the intensive phase for all new smear-positive cases, during the continuation phase for regimens containing rifampicin, and during the entirety of a re-treatment regimen. In countries that have consistently documented high rates of treatment success, DOT may be reserved for a subset of patients, as long as cohort analysis of treatment results is provided in order to document the outcome of all cases. (WHO Report, 2009:34)
c) An effective drug supply and management system

It is imperative to establish and maintain a system that can supply all essential anti-TB drugs and ensure that no interruption of TB drug supply occurs (WHO Report, 2009:34).

d) Monitoring and evaluation system, and impact measurement

The establishment and maintenance of a standardised recording and reporting system, that allows assessment of treatment results, is vital. (WHO Report, 2009:34)

Directly observed treatment means that an observer watches the taking of every capsule or tablet, in a way that is sensitive, and supportive to their needs. This ensures that TB patients take the right drugs, in the right doses, at the right intervals. In practice, it means providing a treatment supporter acceptable to a patient, to enable him/her complete treatment (The South African Tuberculosis Control Programme, 2004:38). The supporter may be a healthcare worker or a trained and supervised community member. The district coordinator is responsible for coordinating training and monitoring community treatment supporters, and there must be a clearly defined line of accountability from the district coordinator to the clinics and to treatment supporters (The South African Tuberculosis Control Programme, 2004:38-39).

Despite the fact that DOT is the best method for ensuring TB treatment adherence, treatment interruptions still occur with some patients. To prevent interruptions, it is important to set aside enough time to meet with TB patients (and preferably with a patient’s family members as well) at the time of registration, when they first start their TB treatment. This is an important opportunity to offer advice and counsel to the patient. During this meeting it is vital to record the patient's physical address and other physical addresses (e.g. partner/ spouse, parents, work place, place of study) in order to maximise the probability of locating patients who interrupt treatment. (The South African Tuberculosis Control Programme, 2004:40)

Where resources permit, it is beneficial for a healthcare worker to accompany the patient to his/her residence, and to identify potential problems which the patient may face during the initial phase of treatment. A visit to the patient's home before or during the initial phase of treatment allows for verification of the patient's exact address, and at the same time
provides an opportunity to arrange for screening of all household contacts, especially children under the age of 5 years. (The South African Tuberculosis Control Programme, 2004:40)

2.3.4.5. STRATEGIES FOR IMPROVING PATIENT ADHERENCE TO TUBERCULOSIS TREATMENT

The public health priority of South Africa’s National TB Control Programme (NTCP), is to cure smear-positive cases, while preventing the emergence of drug resistance. Ensuring adherence to treatment is necessary to achieve this. However, poor adherence to TB medication is a common problem resulting in inadequate treatment (The South African Tuberculosis Control Programme, 2004:38). The following strategies can be implemented in order to foster patient adherence to treatment regimen.

a) Quality interaction with patients:

- A partnership needs to be created between the TB patient and the healthcare giver.
- The healthcare giver must verify that patients take their TB medication and not assume that all patients are adherent to treatment.
- Each patient needs to be given adequate time at each visit.
- The healthcare giver should be positive and not intimidate or frighten the patient i.e. treat the person and not the disease.
- The healthcare giver needs to understand and address different cultural beliefs and values.
- Treatment should be adapted to the lifestyle of the patient where possible.
- Referrals to social welfare should be made where necessary. (The South African Tuberculosis Control Programme, 2004:41-42)

b) Patient education:

- Vital information should be given first during the patient interview.
- Instructions must be clear and concise as the patient might be anxious after hearing the diagnosis.
The healthcare worker should be clear about the length of the TB treatment course.

The patient must not be overloaded with too much information at one time.

Use of culturally and linguistically appropriate educational material should be made.

The patient's beliefs about TB should be considered and if possible integrated into the treatment plan.

The healthcare giver should review instructions given to the patient, to ensure that they have been understood.

The patient's questions should be clarified and responded to clearly.

Written instructions should be given to the patient.

The healthcare giver should describe the specific adherence behaviour required. (The South African Tuberculosis Control Programme, 2004:41-42)

c) Treatment:

Patients should be informed about the various options available to them, and appropriate treatment plans need to be tailor made to suit different patients.

Patients should be given clear warnings regarding medication side effects.

Proper medical records must be kept for each patient on treatment.

Quick follow up on missed appointments should take place.

Healthcare managers should ensure that the healthcare team stays motivated and supportive of TB patients.

Healthcare givers should ensure a suitable physical environment for the patients.

Healthcare providers should ensure confidentiality at all times.

The TB clinic should offer a holistic approach to addressing patient needs. (The South African Tuberculosis Control Programme, 2004:41-42)
2.3.4.6 ENSURING TUBERCULOSIS TREATMENT ADHERENCE IN CHILDREN AND ADOLESCENTS

Many children with TB have few or no symptoms of the disease and some do not experience a dramatic improvement in symptoms when given the appropriate treatment (The South African Tuberculosis Control Programme, 2004:42). Due to this characteristic of TB in children, it might be difficult to convince parents that their children are ill and need treatment, or that the treatment needs to be given as prescribed. This presents the problem of non-adherent parents, which can be improved by having healthcare givers work together with the parents, who are ultimately in charge of administering TB medication to children (The South African Tuberculosis Control Programme, 2004:42). In addition to children, adolescents also pose a challenge to treatment adherence, due to the fear of being stigmatised by their peers (The South African Tuberculosis Control Programme, 2004:42). Their concerns need to be addressed by training healthcare givers on how to provide suitable TB treatment support for this specific age group, and by offering tailor made patient counselling as well as community education (discussed in Section 2.3.4.4).

To address the potential problems experienced with parents of children infected with TB, the following anticipatory guidance should be provided. Parents should know that children may:

- resist taking medication; and
- experience adverse reactions to medication (The South African Tuberculosis Control Programme, 2004:42).

When parents are aware of these potential problems, they become better equipped in dealing with them and can cooperate with healthcare givers to ensure treatment adherence. Direct observation of treatment must be ensured by a facility healthcare worker, community healthcare worker, parent, or by a caregiver, and proper records of all administered doses kept. Supplementing DOT with incentives or enablers to encourage co-operation from the child might be beneficial as well. (The South African Tuberculosis Control Programme, 2004:42)
2.4 AFRICA’S HEALTHCARE WORKFORCE CRISIS

Sub-Saharan Africa is battling with approximately 24% of the world’s disease burden and experiencing healthcare systems that are unresponsive, inefficient and even unsafe (WHO World Health Report, 2006:8). Various circumstances have contributed to this, but it has been suggested that motivation and performance of healthcare workers, as key players in the healthcare system, significantly affects the quality healthcare delivery in Africa (Franco, Bennet, Kanfer & Stubblebine, 2000:1).

A chronic shortage of skilled healthcare personnel exists worldwide and is mostly felt in countries with the greatest healthcare needs, e.g. in developing countries (WHO World Health Report, 2006:12). The WHO estimates that there is a global deficit of more than 4 million trained healthcare workers (WHO World Health Report, 2006:8), which is further aggravated by an unequal geographical distribution of healthcare workforce (WHO World Health Report, 2006: 4).

The shortages in healthcare workforce are largely felt in Sub-Saharan Africa and parts of Asia (WHO World Health Report, 2006:8-12). In Africa, the ratio of nurses to doctors is estimated at 8:1 while in the Western Pacific Region this ratio is 1.5:1 (WHO World Health Report, 2006: 4). The Americas region, with 10% of the global disease burden, has 37% of the world’s healthcare workers and spends more than 50% of the world’s financial resources for health, whilst the African region has 24% of the global burden, but has access to only 3% of healthcare workers and less than 1% of the world’s financial resources for health (WHO World Health Report, 2006: 8). This means that the countries that are experiencing the most severe HR shortage are those that need skilled healthcare workers most desperately. Thus it is apparent that the workforce challenges faced by Sub-Saharan African countries will make it difficult for these countries to achieve the MDGs (WHO World Health Report, 2006: 12).
2.4.1 PERFORMANCE MANAGEMENT IN HUMAN RESOURCE DEVELOPMENT FOR HEALTH

Motivation can be defined as an individual’s degree of willingness to exert and maintain an effort towards organisational goals (Dieleman, et al., 2006:2). A motivated and qualified workforce is crucial as it affects the productivity and quality of healthcare services, as well as the implementation of healthcare programmes (Dieleman, et al., 2006:2). Health sector performance is critically dependent on worker motivation, since healthcare services are often quite demanding, service quality, efficiency, and equity are all directly mediated by healthcare workers’ willingness to apply themselves to their tasks (Franco, et al., 2000:1).

Many countries are in the process of designing and implementing healthcare system reforms. Several of these initiatives include the use of incentives, targeted both at healthcare organisations and individuals working in the healthcare sector, to promote both efficiency and quality of care. However, it is critical to gain a better understanding of various factors affecting motivation amongst healthcare workers, before designing reforms which are intended to, explicitly or implicitly, affect motivation. (Franco, et al., 2001:2)

While there are many theories on motivation, two different areas of motivation are often confused: motivation to be in a job and motivation to perform within a job. Both are important, and managers need to understand the impact of their activities on both areas. Herzberg’s two-factor theory of motivation (discussed in Section 2.5.3.1.4) explains these two areas of motivation. It distinguishes ‘satisfiers’, which are the main causes for job satisfaction (or motivation to perform), from ‘dissatisfiers’, which are the main causes for job dissatisfaction (or de-motivation to remain in a job). (Dieleman, et al., 2006:2)

An organisation needs to influence the ‘satisfiers’ through performance management. Performance management is the measuring, monitoring and enhancing of staff performance by using a range of human resource management (HRM) tools such as: job descriptions, supervision, performance appraisals, continuous education, rewards and career development (Dieleman, et al., 2006:2). However, performance management is often underdeveloped in the public health sector in resource-poor settings (Dieleman, et al., 2006:2). A study conducted by Dieleman and colleagues (2006) reveals that gains in motivation can be made by giving greater responsibility to staff and by holding staff responsible, and also by improving mechanisms for
recognition. These gains in motivation, would ultimately contribute to improving both quality and accessibility of healthcare (Dieleman, et al., 2006:6-7). Unfortunately some activities, such as promotion, career development and performance appraisal are sometimes seen as administrative rituals and are not used to enhance performance (Dieleman, et al., 2006:6). A study conducted in 15 organisations in various countries revealed that integrated performance management systems existed in only three of the 15 organisations. Overall, performance management activities did not seem to be linked to each other. In addition, healthcare workers seemed to find that the decisions made by managers lacked transparency. (Dieleman, et al., 2006:6)

From the above discussion, it is evident that although salaries and incentives are important factors that can affect motivation amongst healthcare workers, giving greater responsibility to healthcare staff by holding them responsible for various tasks, and improving mechanisms for recognition, influences staff motivation (Dieleman, et al., 2006:6). The implementation of suitable HR activities needs to be preceded by identification of the factors which motivate healthcare workers in their specific contexts (Dieleman, et al., 2006:2). There is room for improvement, and much can still be done to correctly manage the performance of healthcare staff, and subsequently experience the benefits of a well-executed performance management system in Africa.

2.5 STAFF MOTIVATION

When people are motivated, they are responding to conditions operating within and outside of themselves. Motivation is frequently studied with reference to needs, motives, drives and goals or incentives (Mckenna, 2006:90). Needs can be classified as physiological, security or safety, social and ego or esteem needs. Motives consist of inner states that energise, activate and direct the behaviour of an individual towards attaining a goal or incentive. The concept of drive can be explained as the adaptation of a pattern of behaviour, aimed at achieving a particular goal. The achievement of desired goals or the attainment of incentives, satisfy or reduce the behaviour associated with the drive. (Mckenna, 2006:90-91)
Motivation can be defined as the force that energises behaviour, gives direction to behaviour and underlies the tendency to persist even in the face of one or more obstacles (Grobler, Wärnich, Carrell, Elbert, Hatfield, 2006:217). It is not possible to directly observe motivation because it is an internal psychological process. Being a complex internal psychological process, motivation cuts across many disciplinary boundaries, including economics, psychology, organisational development, human resource management, and sociology (Franco, Bennet and Kanfer, 2002:1). The internal motivational process can be visualised as a series of inputs (determinants) which lead to certain motivational outcomes (consequences) (Franco, et al., 2000:13). Motivational determinants operating at an individual level include:

- Individual differences among workers: expectations for consequences of work behaviour, perception of self-efficacy and goals; and
- Perceptions of the work context or organisational level: worker perceptions of resource availability, organisational processes, human resource management and organisational culture.

Motivational outcomes that result from the various motivational inputs can be divided into three types: first, consequences in terms of worker affective motivation (or how workers feel), second, worker cognitive motivation (or what workers think), and third, worker behaviour (Bennet, et al., 2000:3). Worker behaviour refers to general work actions, manner, and conduct that reflect diligence in work and consideration in the work environment such as timeliness and conscientiousness (Franco, et al., 2000:14). Figure 2.1 below presents the complex play of forces that influence motivation.
2.5.1 HEALTHCARE WORKER MOTIVATION

Low motivation of healthcare workers is common in many countries and needs to be addressed, especially because of the highly labour intensive nature of healthcare delivery (Bennet, et al., 2000:1). Motivational problems at work may be reflected in a variety of circumstances. Some common manifestations include:

- Lack of courtesy to patients;
- Failure to arrive at work on time and high levels of absenteeism;
- Poor process quality such as failure to conduct proper patient examinations, failure to treat patients in a timely manner (Bennet, et al., 2000:1); and
- Increased staff turnover, which includes internal or external migration of jobs, as well as emigration of healthcare staff to countries that offer “better opportunities” (Henderson & Tulloch, 2008).
A very limited and non-systematic understanding about the factors and consequences of healthcare worker motivation exists. As a result, policy tools focus on financial levers which suggest that linking pay to performance or increasing pay is sufficient (Bennet, et al., 2000:1). Other questions regarding healthcare worker motivation, such as how a decentralisation process affects healthcare worker motivation, types of feedback mechanisms most effective in improving healthcare worker motivation, and how alternative reward systems affect healthcare worker motivation, still need to be addressed (Bennet, et al., 2000:1).

While economic factors play a large role in healthcare worker motivation and retention, they are not the sole reasons for healthcare worker shortages (Henderson & Tulloch, 2008). Healthcare workers leave their positions for numerous reasons. Surveys of healthcare workers in five Pacific countries examined reasons for leaving or staying in their country of origin and demonstrated that there are common patterns among countries, even though there is variation in the relative importance of factors influencing individuals. Findings indicate that healthcare workers commonly leave to obtain better salaries, training opportunities and more desirable working conditions, to access education for children, to find political stability, and because of family ties abroad (Henderson & Tulloch, 2008). Evidence from the same studies indicate that healthcare workers who remain in their countries of origin hold more senior positions, receive good salaries and privileges, and work in favourable conditions (Henderson & Tulloch, 2008). (See Figure 2.2)

2.5.1.1. HEALTHCARE WORKER MOTIVATION AND RETENTION IN KENYA
Paradoxically, Kenya has many unemployed qualified healthcare professionals, yet many staff gaps still exist at the Ministry of Health. This scenario pushes healthcare workers to seek employment in the international market, thus undermining the capacity of local healthcare systems to function effectively. Internal and international migration has directly led to staff shortages in various areas (Ndetei, Khasakhala & Omolo, 2008).

A study by Ndetei and colleagues (2008) noted the following reasons for migration of healthcare workers in Kenya:
• quality of working conditions;
• chances for career growth;
• resourcing of health systems;
• opportunities for post-basic education;
• opportunities to travel;
• level of supervision;
• access to HIV and AIDS facilities;
• access to educational facilities for children;
• employment and income-generating opportunities for spouse/family; and
• access to research facilities.

(Source: Henderson & Tulloch, 2008).

Figure 2.2 Factors affecting healthcare worker motivation and retention
Evidence gathered by Ndetei and colleagues (2008) highlighted that the major challenges experienced with healthcare staffing were those of internal migration and the inequitable distribution of healthcare personnel between urban and rural areas in Kenya. These inequalities in the distribution of healthcare workers result in "higher" levels of the healthcare system in urban areas, and more skilled and adequate levels of staffing, compared to facilities in rural areas. Thus, rural populations that have greater health needs, end up with poorer health services.

The factors contributing to this mal-distribution (push factors) may include: poor pay, particularly if one considers that less skilled staff in rural district hospitals do not qualify for various allowances; poor working conditions; limited career opportunities; poor communication facilities; limited educational opportunities and the absence of services for conditions such as HIV and AIDS. While the Ministry of Health is actively recruiting and posting healthcare workers to poor economic settings in the country (sub-distRICT and district hospitals), they work there without supervision and this forces healthcare workers to move to urban facilities with better working conditions, better hospital supplies and opportunities to be supervised, to further their careers or to engage in private practice (Ndetei, et al., 2008).

In contrast, healthcare workers in urban and private institutions appear to access good housing and training facilities and have many opportunities to advance their careers. They have good, safe working conditions as well as adequate medical supplies. Urban cities in Kenya offer good quality education for their children, job opportunities for spouses, and access to quality medical care. Most urban or private institutions have functional administrative systems and policies are implemented in practice. They offer a good working environment, which acts as ‘pull factor’ for healthcare workers in rural and semi-urban areas. Work organisation in the private sector was also reported to be well structured, with healthcare workers deployed in their specific areas of professional training, a regular review of work, and management systems that work to a high standard. Healthcare workers in urban and private institutions are also provided with systems that keep track of their continued medical education (CME) and career progress. This improves workers' self-esteem, provides valuable supervision and support, and
opens doors for further career growth, thus workers feel that they are part of the healthcare system, which raises their morale (Dolvo, as cited by Ndetei, et al., 2008).

While financial factors are obviously important, and have been addressed in the form of various allowances, non-financial and management "incentives" are also very important to healthcare workers in Kenya. Evidence from various sources points to the fact that there is a need to address the mal-distribution between urban and rural areas, and between levels of care, as well as to stem the internal migration from poorer to richer areas (Ndetei, et al., 2008). In Kenya, poorer areas generally have worse living and working conditions, and better non-financial incentives propel healthcare workers to migrate to bigger health facilities (provincial and national hospitals) situated in towns and cities across the country. To retain healthcare workers in public sector employment, the Ministry of Health introduced allowances for physicians, dentists and pharmacists in public service in 2002 (Dambisya, as cited by Ndetei, et al., 2008). Unfortunately, the implementation of incentives depends on the facility, so facilities that are better organised, often in higher-income areas, are more successful in providing incentives. Ironically, though, it is at the lower levels of the healthcare system (in rural and poorer areas) where incentives need to be implemented most urgently to counteract the strong push factors that force workers out of these areas (Ndetei, et al., 2008).

From the above discussion it is evident that the factors that affect healthcare worker motivation and retention are numerous and complex, and that the Ministry of Health and the Kenyan healthcare system in general, affect motivation and retention of healthcare workers in Kenya.

2.5.2. MOTIVATION OF TB HEALTHCARE STAFF
As mentioned previously (Section 2.3.4), the success of TB treatment depends largely on patient adherence to TB treatment, and healthcare workers are responsible for promoting adherence through a patient-centred DOT approach (Section 2.3.4.2). By so doing, healthcare workers help to reinforce patients’ motivation to continue with TB treatment, and reduce the tendency to interrupt or not comply with treatment regimen (The South African Tuberculosis Control Programme, 2004:38-39). Therefore the strengthening of TB healthcare worker
motivation is critical, especially in high burden countries, as healthcare workers can influence treatment success or failure as previously discussed (see Section 2.3.4).

The HIV/AIDS epidemic has greatly increased the demands placed on healthcare workers in dealing with TB (HATIP, 2009:5). Many healthcare workers experience occupational stress and are unable to cope with the demands or expectations of their jobs. Some are inadequately trained or supervised, or are unable to perform their jobs well when working in inadequate and often deteriorating facilities that are short staffed and lacking the necessary equipment and essential supplies. In addition, the infection and death of colleagues as a result of exposure to TB, due to poor workplace safety conditions, can lead to further de-motivation (HATIP, 2009:5).

Motivating as well as protecting and caring for healthcare workers requires rigorous action at the health facility level, ministry of health, medical training facilities, as well as at national and global policy level (HATIP, 2009:15). TB healthcare workers need regular training in good TB infection control practice. They also need to be prepared for the demands of TB and HIV/AIDS. This may be possible by integrating stress management aspects in the pre-service training (HATIP, 2009:18). Healthcare system administrators can also motivate the staff, by the development and implementation of additional incentive schemes (HATIP, 2009:18).

2.5.3 MOTIVATIONAL THEORIES
In this study motivational theories will be categorised mainly as need theories and cognitive theories.

2.5.3.1. NEED THEORIES
Need theories fall into the category of “content theories” of motivation, which assume that individuals possess a number of motives awaiting gratification, and there is an attempt to explain motivation in terms of what arouses and energises behaviour (Mckenna, 2006:92).
2.5.3.1.1. Maslow’s Hierarchy of needs

In 1954, Abraham Maslow put forward the hierarchy of needs theory, which suggests that employees are motivated by their needs, and the intensity of motivation to meet these needs is a function of how strong the need is. In Maslow’s hierarchy five levels of needs exist namely physiological, security, social, self-esteem and self-actualisation needs (Figure 2.3). Maslow suggests that individuals sequentially move up from one level of need fulfilment to the next. (Grobler, et al., 2006:218)

![Maslow's Hierarchy of Needs Diagram](source: Mckenna, 2006:93)

Figure 2.3 Maslow’s hierarchy of needs

a) **Physiological needs**

The needs that are usually taken as the starting point for motivation are the so-called physiological drives. A person who is lacking food, safety, love and esteem would most probably hunger for food more strongly than anything else. If all the needs are unsatisfied, the organism is then dominated by the physiological needs and all other needs may become non-existent or pushed into the background. Once the basic physiological needs are fulfilled, other ‘higher’ needs emerge and subsequently these, rather than the physiological needs dominate the organism. And when these in turn are satisfied, again new (and still ‘higher’) needs emerge and so on. Thus it can be seen from this theory that basic human needs are organised into a hierarchy of relative pre-potency. One further implication is that gratification in motivational theory becomes as important a concept as deprivation, as it releases the organism from the domination of a relatively more physiological need, permitting thereby the emergence of other more social goals. Once satisfied, the physiological needs, along with their partial goals, cease
to exist as active determinants of behaviour. They only exist in a potential fashion, in that if they are thwarted they may re-emerge to dominate the organism. But a satisfied need is not a motivator. The organism is dominated and its behaviour organised only by unsatisfied needs. (Vroom, 1974: 27-29)

b) Safety needs
Safety needs include physical, emotional and job security, a modestly comfortable and predictable routine and a desire for fair treatment and justice at work. Security needs could be aroused at work when there is uncertainty about continued employment with the company. Likewise, the threat of health and safety hazards could also arouse safety needs. (Mckenna, 2006:93-94)

c) Affiliation needs
If both physiological and safety needs are fairly well gratified, then needs for social contacts, belonging to a group, friendship and love may emerge. The individual may hunger for affectionate relations and strive to achieve this goal (Vroom, 1974:31). The individual has a need to belong to a group at work, which, for example, offers the opportunity to develop meaningful associations with colleagues, to give and receive friendship, understanding, and compassion, and to be accepted by colleagues. The consequence of not satisfying social needs could be various forms of undesirable behaviour such as resistance to change, resistance to budget pressures, antagonism and unwillingness to cooperate, aimed at defeating the achievement of organisational goals (Mckenna, 2006: 94).

d) Esteem needs
The next level of needs deals with esteem needs comprised of both self-esteem and esteem from others. The need or desire for a stable, firmly based, high evaluation of self, for self-respect or self-esteem and for the esteem of others is common in most societies. An individual may have a desire strength, achievement, adequacy confidence or for independence and freedom. The individual may also have a desire for reputation or prestige, recognition, attention, importance or appreciation (Vroom, 1974:33-34). Argyle as quoted by Mckenna
(2006:94) recognises self-image development as an essential part of esteem motivation. Those endowed with high self-esteem work harder in tough situations and those with low self-esteem are more likely to be derailed by negative comments (Mckenna, 2006:94).

e) Self-actualisation needs
At the apex of the pyramid are the self-actualisation needs, implying self-fulfilment derived from the achievement which follows the successful accomplishment of something which the individual considers worthwhile (Mckenna, 2006:94). Even if all needs are satisfied, discontent and restlessness can soon develop if the individual is not doing what he/she is best suited to. Self-actualisation refers to the desire for self-fulfilment, which may be described as the desire to become more and more what one is, and to become everything that one is capable of becoming (Vroom, 1974:33).

2.5.3.1.2. Alderfer’s ERG Theory
Closely related to Maslow’s hierarchy of needs is Alderfer’s existence, relatedness and growth (ERG) theory proposed in 1972. It consists of three need categories which include:

- **Existence**- these are needs related to Maslow’s physiological needs and certain safety needs;
- **Relatedness**- these are needs related to Maslow’s safety, social and some esteem needs, in particular the need for interpersonal relationships;
- **Growth**- these are needs related to Maslow’s esteem and self-actualisation needs, in particular the need for personal growth and the capability to exercise one’s creativity. (Mckenna, 2006:95)

An important distinction between the ERG theory and Maslow’s theory is that the ERG theory purports that if one need is frustrated then people simply concentrate on other needs. For example if a task deprives workers of all forms of casual conversation, then they may tend to demand more money (Grobler, *et al.*, 2006:218). Also according to the ERG theory more than
one need could be present at the same time and in no particular hierarchy or order (Mckenna, 2006:96).

2.5.3.1.3. Achievement motivation

A person with a motive to achieve tends to define his/her goals in accordance with some standard of excellence (Mckenna, 2006:96). David McClelland believes that a society’s overall economic performance can be high, if the average level of the need to achieve is high in the population. He cites evidence to the effect that in any society the amount of achievement imagery in its children’s literature is a fairly good predictor of the economic growth in that country for the following 20 years (Mckenna, 2006:96). McClelland’s 1967 achievement motivational theory emphasises three motivational needs, which are: the need to achieve, the need for affiliation and the need for power (Grobler, et al., 2006:218).

People who are motivated by the need to achieve focus on goals, performance and tangible results among other things (Grobler, et al., 2006:218). High achievers can flourish if the tasks given to them are challenging but feasible, where they have a sense of control over what they accomplish, and where they can receive regular feedback on their performance (Mckenna, 2006:96). People who are motivated by their need for affiliation focus on making friends, becoming members of a group and companionship with others (Grobler, et al., 2006:218). They also tend to avoid conflict and criticism and thus tend not to succeed in management, as this may require the making of decisions that are sometimes unpopular (McClelland, 1987:355). Lastly those with a desire for power are motivated by the opportunity to exert control over others, resources and the environment (Grobler, et al., 2006:218). McClelland believes that the need for power is related to success in the exercise of managerial leadership as a study he conducted in 1982 revealed that success in managerial positions is associated with the need for power, high self-control and a low need for affiliation (Mckenna, 2006:97).

2.5.3.1.4. Herzberg’s two factor theory

Frederick Herzberg’s two factor theory of motivation, purported in 1966, is consistent with Maslow’s and McClelland’s theories. His “dual factor” theory (introduced in Section 2.4.1) is based on considerable empirical evidence and is built on the principle that people are
motivated towards what makes them feel good and away from what makes them feel bad (Mckenna, 2006:98). Herzberg divides factors which motivate or provide job satisfaction into two groups known as motivators and hygiene factors.

Motivating factors are the six ‘job content’ factors that include: achievement, recognition, the work itself, responsibility, advancement, and possibility of growth (Riley, 2005:5). Motivators are feelings of achievement from a job, recognition from doing a great job, having a meaningful piece of work, gaining increased responsibility, and opportunity for advancement (Mckenna, 2006:99). Hygiene factors are the ‘job context’ factors, which include company policy, supervision, relationship with supervision, work conditions, relationship with peers, salary, personal life, relationship with subordinates, status, and job security (Riley, 2005:5,6). With hygiene factors, increasing amounts are needed to produce the same effect therefore employees can never get enough of the hygiene factors (Mckenna, 2006:98).

The theory differentiates the factors between intrinsic motivators and extrinsic motivators. The intrinsic motivators, known as the job content are the ones that can contribute a great deal to the level of job satisfaction an employee feels at work. The job context factors, on the other hand, are the extrinsic factors that relate more to the environment in which people work than to the nature of the work itself. Herzberg identifies these factors as the sources for job dissatisfaction. Herzberg reasoned that because the factors that cause satisfaction are different from those causing dissatisfaction, the two feelings cannot simply be treated as opposites of one another. (Riley, 2005:5,6)

Adopting Herzberg’s approach, a manager should always build motivators into the job so as to promote job satisfaction positively. However in order to minimise dissatisfaction, hygiene factors should be improved (Mckenna, 2006:99). Herzberg thus prescribes job enrichment as a means to increase employee motivation and job satisfaction. Job enrichment is an approach to job design that attempts to make the tasks more intrinsically interesting, involving and rewarding. It comprises both vertical and horizontal loading of a job. Vertical loading entails adding more tasks to the job and also gives the worker more control over the job. It entails the introduction of more important and challenging duties into the job, whilst horizontal (scope) loading refers to job enlargement and job rotation. The underlying belief in
Herzberg’s approach is that increased job satisfaction is an important source of motivation and will lead to better performance because of its association with increased productivity and reduced turnover, absenteeism and tardiness. (McKenna, 2006: 99,100)

2.5.3.2 COGNITIVE THEORIES
The cognitive approach to motivation is primarily concerned with the desire of individuals to produce an effect on their environment and, in the process, to develop certain skills. A cognitive theory of motivation recognises that many aspects of motivation arise when people are fully aware of their motives and actions, and of the risks involved, and make plans guided by their expectations. The most popular cognitive theories which will be highlighted briefly are goal setting, expectancy theory and equity theory. Cognitive theories are also known as process theories because unlike content theories (need theories), discussed in Section 2.5.3.1, process theories focus on how behaviour is initiated, redirected and terminated in order to create and maintain motivation. (McKenna, 2006:101-102)

2.5.3.2.1. Goal setting
A goal is basically a desirable objective, the achievement of which is uppermost in the mind of an individual (Mckenna, 2006:102). Goals can be used for two purposes in organisations:

(i) As motivational devices in the sense that employees work towards meeting these goals.
(ii) As a control device, where performance is monitored in relation to the goals set for individuals and departments. (Mckenna, 2006:102)

The starting point for a goal-setting theory of motivation is that behaviour is influenced by conscious goals and intentions. The original model of goal setting was postulated in 1968 by Edwin Locke, who felt that performance was shaped by goal difficulty and goal specificity (Mckenna, 2006:102). Locke’s goal setting theory has shown that job performance can be increased through setting of goals i.e. when individuals are given measurable goals rather than vague performance standards, and when the link between
performance and rewards is made explicitly clear. The best known expression for goal setting theory is management by objectives which involves a systematic process whereby a manager and subordinate discuss and jointly agree on a set of determined goals. The link between performance and rewards is based on goals that are achieved rather than how goals are achieved or how hard the subordinated works to meet the goals (Grobler, et al., 2006:218).

2.5.3.2.2. Expectancy Theory

This theory expounds the view that individuals consciously choose their behaviours from amongst alternative behaviours, by anticipating the possible outcome of various actions; by placing a weighting or value on each possible outcome, assessing the probability that each outcome will result from an alternative of behaviours; and finally, the course of action that maximises expected values will be chosen. Put another way, people expect to work hard in their jobs only when they believe that by doing so they will better their performance (known as expectancy), that good performance will be recognised and rewarded (known as instrumentality), and that the rewards on offer are the ones they desire (known as valence). Vroom, in 1964, put forward a well-known formulation of expectancy theory, which makes it possible to quantify valence, expectancy and instrumentality. (McKenna, 2006:107-108)

Although one can find evidence in support of Vroom’s expectancy theory, there are speculations that the theory is rather idealistic because of the difficulty researchers are likely to experience when trying to see a connection between performance and rewards. Thompson and McHugh as cited in McKenna (2006) maintain that on the surface the theory appears simple and powerful but it is not free from difficulties connected with measurement, while some researchers have already experienced difficulty replicating the original methodology (Mckenna, 2006:108-109).

2.5.3.2.3. Equity Theory

The equity theory takes a similar view to expectancy theory but its main thrust is that people are motivated to secure what they perceive to be a fair return for their efforts. People are generally inclined, consciously or otherwise, to compare each other’s inputs (e.g. education,
experience, effort and skill) and outputs (e.g. salary, increases in salary, promotion and fringe benefits). If they perceive their input as justifying a larger output, or if on a comparative basis, they believe that they are unfairly treated, feelings of inequity can arise. Feelings of inequity could motivate people to do more or less work depending on the nature of the inequity. (McKenna, 2006:110)

In recent years, there has been a revision of equity theory using a more explicit cognitive processing perspective along the following lines:

- **Distributive justice.** In the past the focus was on distributive justice i.e., the perceived fairness of the process of allocating rewards (e.g. compared to employees in similar jobs elsewhere or in the organisation). Now there exists a new perspective known as procedural justice.

- **Procedural justice** refers to the perceived fairness of the process used to determine distribution of the rewards. In procedural justice, for example, there is a perception that the organisation should make available sufficient funds for reward purposes and that the reward system be impartial (Folger & Konovsky as cited in Mckenna, 2006:111)

In a study by McFarlin and Sweeney (cited in Mckenna, 2006:111), it was concluded that both distributive and procedural justice were associated with employee variables, such as satisfaction, commitment and trust.

In conclusion, the lack of success of process theories in managerial terms is due to the complexity that makes them less powerful in explanatory terms compared to content theories. Most management development texts still present content theories as the main theories, because they are simple, easier to demonstrate, and they sound powerful, whereas cognitive/process theories suffer from the fact that they are multi-factorial and multi-variate, and their research models are difficult to replicate and measure. (Thompson & McHugh as cited in McKenna, 2006:111-112)
2.5.4. JOB SATISFACTION

As mentioned earlier increased job satisfaction is an important source of motivation and will lead to better performance because of its association with increased productivity and reduced turnover, absenteeism and tardiness (McKenna, 2006: 99-100). It is thus important that when attitudes are discussed in a work context, job satisfaction and organisational commitment are included.

2.5.4.1. CAUSES OF JOB SATISFACTION

The following are some of the organisational factors that might be considered as causes of job satisfaction:

- Pay and benefits- equitable or fair salaries, rewards, incentives and policies are important.
- Promotion- the level of satisfaction will depend on the system in operation, be it merit or seniority based.
- Job- this would embrace: (a) skills variety- the extent to which the job allows a worker to use a number of different skills and abilities to execute his/her duties; (b) interest and challenge derived from the job; and (c) lack of role ambiguity- how clearly the individual understands their job.
- Leadership- there has been endorsement of people-centred or participative leadership as a determinant of job satisfaction
- Work group- it would appear that good intra-group working and supportive colleagues have a value in presenting job dissatisfaction.
- Working conditions-where working conditions are good, comfortable and safe, the setting appears to be appropriate for reasonable job satisfaction. (McKenna, 2006:297)
2.5.5. JOB DISSATISFACTION

An employee’s satisfaction might be defined as the difference between the amount of some valued outcome a person receives from a job and the amount of that outcome the person thinks he/she is entitled to receive. Thus, an employee becomes dissatisfied when his/her expectations of these outcomes are not met (Grobler, et al., 2006:128). Herzberg’s two factor theory (Section 2.5.3.1.4), identifies job context factors or extrinsic factors, as the sources for job dissatisfaction. Job satisfaction or dissatisfaction generally depends on pay and benefits, supervision, co-workers, the type of job and the organisation in general (Grobler, et al., 2006:128).

The behavioural manifestations of job dissatisfaction could include: resigning from the organisation and going elsewhere; being vocal in registering complaints; being reluctant to accept guidance or instructions from supervisors and managers; deliberately not performing one’s job responsibilities; theft and sabotage; poor overall job performance with a high incidence of errors and wastage. On the other end of the spectrum a dissatisfied worker could take action to do something positive about his/her predicament by suggesting remedies, getting the boss and/or union involved and displaying loyalty by defending the organisation in the hope that the situation will improve. (Mckenna, 2006:301-302)

2.5.5.1. CONSEQUENCES OF JOB DISSATISFACTION

A commonplace view is that if an organisation does not create conditions for the provision of a minimum level of job satisfaction, one can expect certain outcomes or consequences to follow (Mckenna, 2006:299). While it is difficult to put a monetary value on job dissatisfaction, estimates can be made of the economic cost of the results of job dissatisfaction such as deterioration in productivity, employee turnover, absenteeism, employee grievances and employee morale (Grobler, et al., 2006:128).

2.5.6. ORGANISATIONAL COMMITMENT

Commitment, a key ingredient in human resource management, can be defined as the relative strength of an individual’s identification with and involvement in an organisation (Mowday,
Porger & Steers as cited in Mckenna, 2006:302). Involvement could be reflected in the person’s willingness to undertake duties beyond the standard requirements of the job. Organisational commitment arises when the employee strongly identifies with the organisation, agrees with its objectives and value systems and is willing to expend effort on its behalf (Mckenna, 2006:302).

2.6. MEASURING MOTIVATION LEVELS IN HEALTHCARE STAFF

Attitudes such as motivation cannot be directly observed, but are rather measured indirectly (Mckenna, 2006:289). The most frequently adopted approach to measuring levels of motivation involves the use of rating scales. This method of measuring attitudes, asks the respondent not only to indicate agreement or disagreement, but also to signify how strongly he or she agrees or disagrees with a number of statements relevant to the attitude being measured. This is normally done on a 5-point Liker scale (Mckenna, 2006:291). These measuring instruments are often designed to provide feedback on specific examples of employee satisfaction and dissatisfaction.

Other techniques for measuring job motivation include the analysis of critical incidences and performance of interviews. Interviews offer a more open-ended approach than measuring instruments, and offer the interviewee a wider scope in terms of response. The interviewer can probe because he/she has the opportunity to ask questions and seek clarification. One shortcoming of this technique is that it is time-consuming, and is influenced, to a greater extent, by researcher bias. (Mckenna, 2006:297-298)

2.6.1. EXISTING RESEARCH ON ASSESSMENT OF MOTIVATION IN HEALTHCARE STAFF

Much of the research on healthcare worker motivation has been undertaken in the healthcare systems of industrialised countries. There are serious obstacles in transferring findings from this context to those of developing countries: not only are there significant differences in organisational structure, processes, and culture, but there are also differences in broader societal culture (Bennet & Franco, 1999:17). A consideration of culture is therefore relevant to assessing the impact of health sector reform upon healthcare worker motivation in at least two dimensions. First, the effectiveness of a particular constellation of organisational structure,
processes, and culture in achieving worker motivation will depend to a considerable extent on how well the characteristics of the organisation mesh with the local culture that frames an individual’s values and goals. Second, the broader societal culture forms the backdrop in which an individual healthcare provider interacts with his/her patients and makes choices about appropriate provider behaviour (Bennet & Franco, 1999:17).

The various studies which have examined the effect of culture upon motivation suggest such an adverse and complex set of local cultural contexts that it is difficult to draw specific conclusions for the design of health sector reform. Overall, the key lesson emerging is that, to be effective, reforms should be embedded in a sound understanding of local values, and culture (Bennet & Franco, 1999:20).

The vast body of empirical work within the health sector that explores the organisational determinants of motivation relates primarily to nurses in industrialised country contexts (Bennet & Franco, 1999:11). Empirical analysis of the nursing profession in the United States appears to support Herzberg’s notion that primary motivators tend to be intrinsic factors (such as job satisfaction and recognition) rather than extrinsic factors such as pay (Bennet & Franco, 1999:11). In a study of social workers Vinokur-Kaplan and colleagues (as cited in Bennet & Franco, 1999:12) found that: “Among workers in public and non-profit agencies, perceived opportunities for promotion and job challenge are pre-eminent in influencing their job satisfaction”. Many studies have identified that combining both financial and non-financial incentives provides for the best retention strategy (Willis-Shattuck, et al., 2008:5). It has been found that often reform programmes have focused on a limited number of channels, such as financial incentives, to influence worker behaviour, and have neglected less tangible incentives such as recognition and achievement (Franco, et al., 2002).

In South Africa, rural allowances were found to have a limited effect on retaining workers (Reid, cited in Willis-Shattuck, et al., 2008:5). The limited effect of financial allowances was also found in Cameroon and Zimbabwe where incentives have been perceived as unequally distributed between healthcare workers. However, the fact that Uganda has the lowest level of those intending to migrate may be an indication that efforts to increase salary are working (Awases, Gbary, Nyoni & Chatora, cited in Willis-Shattuck, et al., 2008:5). Health sector reforms
had positive motivational effects in Bangladesh (through the securing of reliable, prompt payment of salaries). This is consistent with the effect of reforms in Kazakhstan (through better financial incentives and changed organisational relationships) however, the potentially positive effect of Zimbabwean health sector reforms on motivation were undermined by poor communication and conflict with local cultures, resulting in workers perceiving the reforms as threatening their job security, salaries and career advancement (Willis-Shattuck, et al., 2008:5).

In a study investigating healthcare worker motivation in developing and transitional countries, conducted in Jordan and Georgia, significant differences between occupational groups were found in at least one of the countries. In Georgia, differences matched prior expectations in the sense that doctors, nurses and allied workers significantly differed from administrative and service workers. In Jordan this was not the case: many of the significant differences arose between nurses (or nurses and allied health professionals) versus other cadres of workers (Bennet, et al., 2000:27-28). In Mali 'feeling responsible' received a significantly higher score by physicians compared to nurses and 'increase in salary' was significantly more motivating for nurses compared to physicians (Dieleman, et al., 2006). The incentive of specialist training in Indonesia was found to be enough to make urban doctors serve in rural locations (Chomitz, Setiadi, Azwar, Ismail & Widiyarti, cited in Willis-Shattuck, et al., 2008).

In South Africa, nurses between 30-49 years of age, and were working with children under 18, were more likely to consider going overseas than younger or older nurses (Penn-Kekana, Blaauw, Tint, Monareng & Chege, as cited in Willis-Shattuck, et al., 2008). Despite these findings, Willis-Shattuck and colleagues (2008) found the evidence insufficient to draw conclusions on how motivational factors affect different cadres of healthcare workers, as most studies sampled healthcare workers as a whole and results were not produced outlining how each cadre valued the different motivational factors. Studies which did specifically sample one cadre of healthcare worker had no comparisons to determine whether motivational factors were valued the same by another cadre (Willis-Shattuck, et al., 2008).

With regards to age and gender, analysis from the studies conducted in Jordan and Georgia found that gender was an independent factor which explained the differences in
scores. For 15 out of the 20 determinants examined there were significant differences between
gender groups (at the 5 percent level) in Jordan, and 14 out 20 determinants had significant
differences by age group. This contrasts with Georgia where for only three out of 21
determinants were there significant differences by gender and just one out of 21 by age

2.6.2. INSTRUMENTS USED TO MEASURE MOTIVATION
Studies regarding the development, testing and implementation of measuring instruments
adapted to measure healthcare worker motivation in third world contexts were identified, and
two instruments from two different studies compared. The first study was carried out in Kenyan
district hospitals. A quantitative tool was used to measure the influence of baseline motivation
on the response to a hospital-based intervention to change healthcare worker practices and,
later, the interaction between motivation and delivery of the intervention over time (Mbindyo,
Blaauw, Gilson & English, 2009:2). The focus of this study was to develop a rapid self-
administered tool. This study proposed ten key questions that appear to capture the relevant
issues affecting staff motivation in district hospitals quantitatively (Mbindyo, et al., 2009:10).

The second study assessed the feasibility of transferring psychometric tools typically
used in industrialised countries to measure motivational processes in other contexts. The study
carried out in Jordan and Georgia, started by using qualitative techniques and progressed to the
use of an entirely quantitative survey instrument (Bennet, et al., 2000:4). Scales used in this
study measured motivational determinants and motivational outcomes (Section 2.5).

Regression analysis conducted to investigate the relationships between motivational
determinants and motivational outcomes revealed that on the whole, relationships were not
strong i.e. motivational determinants are not significantly associated with motivational
outcomes (Bennet, et al., 2000:19). Cronbach’s alpha analysis also revealed that motivational
outcome reliability scores were generally high thus contributing to further confidence in this
tool (Bennet, et al., 2000:17,18).
Performance measures of healthcare worker motivation (as part of the motivational outcome score), can be obtained in a variety of ways. Quantity, quality, time, and performance measures of motivation are typically customised to the work environment and involve quantification of time spent on-task or level of task-directed effort allocated per unit time, for example number of hours spent in surgery, quality of communication with patients, number of daily blood draws, frequency of patient contacts, quality of clerical work, and number of hours spent writing reports. Simple behavioural measures are most useful in environments where performance is easily quantified (Kanfer, 1999:13).

The manner in which behavioural measures are obtained may affect their validity as indices of motivation. Work attendance or punctuality, for example, may be assessed by self-report, supervisor observations, or through archival records. Systematic error may be introduced in each method due to poor recording methods or failure to identify non-motivational determinants of the behaviour (e.g., illness) (Kanfer, 1999:14).

Correlation analysis was used to explore the extent to which supervisor assessed measures of performance correlated with self-assessed measures of performance (Bennet, et al., 2000:18, 19). On priori grounds the researchers expected there to be a strong positive correlation between supervisor-assessed measures of performance and self-assessed measures of performance. However mixed results were obtained showing a low correlation between the scales in one country and a high correlation in the other (Bennet, et al., 2000:25). In another study by Franco, Kanfer, Milburn, Qarrant and Stubblebine (2000:31), significant differences were found between worker and supervisor ratings, and correlations between these two measures were extremely low.

The quantitative tool developed by Bennet and co-workers (2000), was adopted for use in this study as it comprehensively measures the motivational constructs relevant to this study. Motivational outcomes are measured by using performance scales. Information is collected on two types of outcome measures:

(i) affective and cognitive motivational outcomes,
(ii) self-assessed work behaviour.
Within the broad construct of affective and cognitive motivational outcomes, the five sub-scales used are:

- General work satisfaction;
- Intrinsic job satisfaction;
- Extrinsic job satisfaction;
- Organisational commitment; and

Additionally self-assessed performance questions are used in the study to cover general aspects of work behaviour. Three sub-scales on performance are measured, namely:

- Conscientiousness;
- Timeliness and attendance; and
- Getting along with others. (Bennet, et al., 2000:17)

2.7 SUMMARY

About one third of the world’s population is infected with TB (The South African Tuberculosis Control Programme, 2000:7), therefore current efforts to achieve Global TB targets need to increase tremendously (WHO, 2006:10). Contributing to healthcare system strengthening is an important avenue to achieving the global TB targets. Active participation in efforts to improve human resources, financing, management, service delivery, sharing innovations that strengthen systems and adopting innovations from other fields are all ways in which the healthcare system can be strengthened (Guidelines for TB and Leprosy control, 2009:5).

Whilst the number of new TB cases in Kenya appears to be declining, the number of patients requiring re-treatment has increased (USAID, 2009:3). Challenges to the treatment of TB have also increased due to the emergence of DR-TB (Guidelines for TB and Leprosy Control, 2009:46). The success of TB treatment largely depends on patient adherence to treatment. However, achieving adherence can be difficult as drug side effects, lengthy treatment periods, cultural beliefs and stigma amongst other challenges, pose a threat to drug adherence. Consequently, without appropriate treatment support, a significant proportion of TB patients
discontinue treatment before completion (International Standards for Tuberculosis Care, 2006:33). Patient supervision and support is thus needed from TB healthcare workers in order to improve the success or outcome of TB treatment, thereby contributing to the achievement of global TB targets and attainment of MDGs by 2050.

Healthcare sector performance in terms of TB management is dependent on worker motivation. Problems of low motivation amongst healthcare workers are common in many countries, and are important as they can affect staff performance (Bennet, et al., 2000:1). In addition, labour shortages within the healthcare workforce pose a serious problem (WHO World Health Report, 2006:8-12). Therefore the implementation of suitable HR activities in an effort to increase staff motivation is necessary. This should be preceded by the identification of motivating factors for healthcare workers within their specific contexts (Dieleman, et al., 2006:2). The following section will discuss the methodology used in this study.
CHAPTER THREE

METHODOLOGY
3.1 INTRODUCTION
In this chapter, the research methodology will be described in detail and a brief discussion on the sub-scales used in the tool measuring motivation, and its relevance to this research, will also be presented.

3.2 RESEARCH DESIGN
This study employed a quantitative research design to determine the motivation levels of TB healthcare workers in Kenya. A quantitative method was chosen because it assesses the level of motivation using quantifiable measures. It is an objective approach with the data collected being reliable and precise. A self-administered questionnaire–based survey developed by Bennet and colleagues (2000) was adapted for this study.

3.3 RESEARCH SITE AND POPULATION
3.3.1. RESEARCH SITE
Kenya’s health sector comprises of a public and private sector. Health services are provided through a network of health facilities with the public sector accounting for about 51% of facilities. The public health system consists of levels of health facilities namely: national referral hospitals, provincial general hospitals, district hospitals, health centres, and dispensaries. National referral hospitals are at the apex of the healthcare system, providing sophisticated diagnostic, therapeutic, and rehabilitative services. Provincial hospitals oversee and act as referral hospitals to their district hospitals. They also provide specialised care. District hospitals concentrate on the delivery of healthcare services and generate their own expenditure plans and budget requirements based on guidelines from the Provincial Health Management Team (PHMT). Health centre provide ambulatory health services as well as preventive and curative services, which are mostly adapted to local needs while dispensaries are meant to be the healthcare system’s first line of contact with patients. They provide wider coverage for preventive health measures, which is one of the primary goals of Kenya’s health policy. (Muga, Kizito, Mbayah, Gakuruh, nd: 15-16)
The site selected for this research was Kiambu District Hospital which is a public hospital located in the Central Province of Kenya. This site was an appropriate size facility for this small scale study. This hospital also has a TB programme, making the site suitable and relevant to this study.

3.3.2. RESEARCH POPULATION
The research population consisted of all TB healthcare staff employed on a full-time basis at Kiambu District Hospital. The TB healthcare staff included various healthcare professions, namely: doctors, nurses, pharmacists and community healthcare workers. The participants were registered with their respective professional bodies and had worked within a public health facility for no less than six months. The inclusion criteria disregarded the post level of the participants. The health personnel who were excluded from participating in the research included interns and employees contracted by non-profit organisations supporting the hospital. The TB healthcare workers interacted with TB patients in the medical ward, the TB clinic, and the comprehensive care clinic (CCC) which offers comprehensive care to HIV patients.

3.3.3. SAMPLING METHOD
The sampling method was purposive as it was specifically aimed at healthcare workers involved with TB patients and TB programmes. The researcher had to purposefully look for and talk to the respondents who qualified for the study. A convenience, snow-ball sampling technique was also used as the hospital was quite large and TB healthcare staff were dispersed in various clinics and wards. Finding willing participants was a challenge since some of the eligible TB healthcare workers felt that their jobs would be at risk if they were to participate. Thus the researcher identified willing respondents and then requested that they provide the names of other potential respondents who qualified for the study. A total of 33 questionnaires were distributed with an aim of obtaining feedback from 30 respondents. Only 25 questionnaires were returned, therefore a response rate of 83.3% was achieved.
3.4 PERMISSION TO CONDUCT RESEARCH AND ETHICAL CONSIDERATIONS

In order to conduct the research, permission was obtained from Kiambu District Hospital’s Medical Superintendent as well as the Matron in Charge (Appendix B). Ethical approval was obtained from the Kenya Medical Research Institute (KEMRI) (Appendix C). In addition, ethical approval was obtained through the University’s Faculty of Health Sciences’ Research, Technology and Innovation Committee (FRTI) (Appendix D).

The ethical principles and guidelines embedded in the Belmont Report (1979) were adhered to. There was no risk of harm or injury to any of the participants arising from this research and all information generated during data collection was safeguarded to ensure confidentiality and privacy. All respondents who chose to participate did so voluntarily and only after reading, understanding and signing an informed consent form which was explained by the chief researcher. Anonymity was guaranteed by ensuring that the respondents did not write their names on the questionnaire. Completed questionnaires were numbered and stored in a secure location. The signed consent forms were stored separately from the questionnaires and in a secure location, in order to protect the identity of the participants. The participants were aware that they were free to withdraw from the investigation at any time. No coercion tactics were used nor monetary rewards offered to the participants. The data collected was computerised and stored in a confidential manner. All the information sources used in the study were cited and their contributing writers duly recognised.

3.5 DEVELOPMENT OF DATA COLLECTION TOOL

A self-administered questionnaire was used to collect the data in this research. Information was collected on three types of outcome measures:

(i) Affective outcomes
(ii) Cognitive outcomes
(iii) Self-assessed worker behaviour

Within the broad construct of affective and cognitive motivational outcomes five sub-scales were used. For the self-assessed performance questions three items were used. Table 3.1
below summarises the various the motivational outcomes assessed. The questionnaire that was used for the survey is attached as Appendix E.

Table 3.1 Scales used to measure motivational outcomes

<table>
<thead>
<tr>
<th>Motivational construct</th>
<th>Sub-scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affective and Cognitive outcomes</td>
<td>General work satisfaction</td>
</tr>
<tr>
<td></td>
<td>Intrinsic work satisfaction</td>
</tr>
<tr>
<td></td>
<td>Extrinsic work satisfaction</td>
</tr>
<tr>
<td></td>
<td>Organisational commitment</td>
</tr>
<tr>
<td></td>
<td>Cognitive motivation</td>
</tr>
<tr>
<td>Worker behaviour</td>
<td>Conscientiousness</td>
</tr>
<tr>
<td></td>
<td>Getting along</td>
</tr>
<tr>
<td></td>
<td>Timeliness &amp; attendance</td>
</tr>
</tbody>
</table>

Adapted from Bennet, et al., 2000:18

Section A of the questionnaire was designed to capture biographical information that was relevant to the objectives of the study. This section gathered demographic data on the nature of the research population. Section B of the questionnaire focused on affective and cognitive motivation as well as worker behaviour. As previously discussed (Section 2.6.1), the quantitative tool by Bennet and co-workers (2000) was used in this study since it comprehensively measured motivational constructs relevant to the study. A 5-point Likert scale was used to rate and quantify the responses on a scale from 1 to 5. An open ended question “question B9” in Section B was included in order to identify any additional motivational needs and factors which might have not been included in the questionnaire. The question was, “Give any other comments on what can be done to increase motivation amongst TB healthcare staff”. This was a qualitative type question and the responses therefore had to be grouped into common themes for analysis.
3.6 RATING SYSTEM

The rating scale used in this study was the Likert scale. This method of measuring attitudes is widely used to indicate agreement or disagreement and the strength of agreement and disagreement with a statement (McKenna, 2006:290). The Likert scale normally uses a 5 or 7 point scale, with the 5 point scale being the most common. For this study, a 5-point scale was used to indicate level of satisfaction i.e. “VERY DISSATISFIED”, “DISSATISFIED”, “NEUTRAL”, “SATISFIED” and “VERY SATISFIED”, as well as level of agreement i.e. “STRONGLY DISAGREE”, “DISAGREE”, “NEUTRAL/UNCERTAIN”, “AGREE”, “STRONGLY AGREE”.

3.7 PILOT STUDY

A pilot study scheduled to be conducted at a small community clinic did not take place due to unforeseen circumstances. The clinic as well as the initial research site chosen, pulled out of the study. The researcher, due to time constraints had limited time to locate a new research site. Therefore, the actual study was conducted without the testing of the data collection tool. Nonetheless, the first two questionnaires handed out at the research site were used as pilot studies. There were no alterations made to the tool since the first two respondents found the tool easy to use and understand. The principal researcher individually distributed the questionnaires and was available if the respondents needed clarification on the questionnaire.

3.8 DATA COLLATION, ANALYSIS AND INTERPRETATION

Data was processed using Microsoft Excel®2007, which included questionnaire coding, data capture, checking data for errors e.g. missing data and data transformation. Item responses to all sections of the questionnaire were quantitatively coded and entered into a data file. Each response was assigned a number between one and five. Reverse-scored items were re-coded as well, in order to facilitate accurate analysis of results. Initial data analysis was performed using descriptive statistics, distribution frequencies, mean values, maximum and minimum values and standard deviation calculations. The internal reliability of the motivational questionnaire was assessed using Cronbach’s Coefficient.
The following inferential statistics were used to test various hypotheses in terms of statistical and practical significance.

- **One sample t-test** (at p value of 0.05) was used to evaluate differences in means between two groups.
- Practical significance was calculated using the **Cohen’s d statistic**.
- **Pearson’s Correlation Coefficient** ($r$) was used to compare correlations between sets of data. The results were tabulated and reported graphically and can be viewed in Chapter Four.
- **Confidence intervals** were calculated to determine the percentage confidence of mean scores.
- **Mann Whitney test** was used to evaluate different scores between two categories.
- **Wilcoxon Marched Pairs test** to compare various variable (motivational scale) scores.

Statistical analysis using Statistica Version 8.0 was done with the assistance of the NMMU’s Unit for Statistical Consultation (USC).

### 3.9 LIMITATIONS

The TB healthcare workers were only sampled from one public health facility, therefore caution must be exercised in extrapolating and generalising the results to all TB healthcare workers in Kenya. Some respondents were unwilling to participate due to fear of losing their jobs, while others wanted compensation in order to participate, and the researcher was not offering compensation. Thus the sample size at the research site was smaller than was anticipated. The participants also highlighted the fact that the questionnaire was lengthy. In addition to the above limitations, the pilot study that was scheduled for the testing and amendment of the data collection tool, did not take place due to unforeseen circumstances mentioned in Section 3.7.

In conclusion, this chapter has described in detail the processes involved in conducting the study. The following chapter will present the results and discuss the findings.
CHAPTER FOUR

RESULTS AND DISCUSSION
4.1 INTRODUCTION
This chapter will present, discuss and interpret the study results in relation to the research objectives. A statistical package, Statistica Version 8.0 was used to analyse the data, and attention was given to the trends that affect the motivation of healthcare workers. The findings will be presented in two parts; demographic information, followed by the analysis and interpretation of employee perceptions regarding motivation. A brief description of the data collection process will be discussed, followed by demographic data presentation and discussion, and lastly, the data collected on the motivational levels of TB healthcare staff will be presented and discussed.

4.1.1 DATA COLLECTION PROCESS
As discussed previously in Chapter 3, Section 3.3.3, the questionnaires were distributed to all willing healthcare workers involved in the treatment of TB patients and in TB programmes, and permanently employed at the Kiambu District Hospital for longer than 6 months. Data was collected over a period of four weeks (October 1 – October 31, 2010). A total of 33 questionnaires were distributed to the health facilities. The questionnaires were distributed to the respondents by the researcher who was also responsible for advising the respondents on informed consent and instructing them on how to complete the questionnaire. The researcher went to the hospital three times a week to collect the questionnaires. Of the 33 questionnaires distributed, a total of 25 completed questionnaires were returned, giving a response rate of 83.3%. It is rare to find response rates that are close to 100% (Smith, 2005:53). The non-responders were healthcare workers who went on leave or who forgot to hand in the questionnaires by the due date.
4.2 DEMOGRAPHIC DATA.

4.2.1 Age
Respondents’ ages were grouped into age categories. As seen in Table 4.1, the majority of the respondents were between the ages of 26 and 45 years (80.0%; 20, n=25). There were no respondents in the age group above 56 years.

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Respondents (number)</th>
<th>Respondents (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 and below</td>
<td>2</td>
<td>8%</td>
</tr>
<tr>
<td>26-35</td>
<td>10</td>
<td>40%</td>
</tr>
<tr>
<td>36-45</td>
<td>10</td>
<td>40%</td>
</tr>
<tr>
<td>46-55</td>
<td>3</td>
<td>12%</td>
</tr>
<tr>
<td>56 and above</td>
<td>0</td>
<td>0%</td>
</tr>
</tbody>
</table>

4.2.2 Gender
The study sample consisted of 16.0% (n=4) males and 84.0% (n=21) female (Figure 4.1).
On consideration of both age and gender, (Figure 4.2), it was evident that the majority of the respondents (64.0%; 16, n=25) were females between the ages of 26 to 45 years. There were only two (female) respondents below 25 years and three (female) respondents between the ages of 46 to 55.

![Figure 4.2 Age and gender distribution of respondents (n=25)](image)

It is also apparent from the age distribution of the sample that 12 respondents were below 36 years and 13 respondents above 36 years. Therefore when interpreting the results, the age categories below 25 years and 26-35 years will be grouped together, and the age categories 36-45 years and 46-55 years will also be grouped together, in order to be able to determine whether a relationship exists between respondents’ age and the motivational scores obtained in the study.

The influence of gender on worker motivation should be considered when researching factors affecting motivation. Women are often forced by society to make choices between career and family that are not typically encountered by men (Carvajal and Hardigan, 2000:420). The predominant group in this study was females between 26 and 45 years, which is typically an age that have started a family and have children to raise, hence family demands may have an impact on work attitudes. As mentioned in Section 2.6.1, studies conducted in Jordan and Georgia found that gender was an independent factor which explained differences in motivational determinant scores (Bennet, et al., 2000:27-28). Unfortunately it will not be
possible to test whether gender affects the scores in this study as the sample size is too small and distribution between the two genders is not large enough to provide conclusive evidence of a relationship.

4.2.3 JOB POSITION

The healthcare workers at the hospital were distributed within different sections of the hospital, with the doctors and nurses working in the wards and at the Comprehensive Care Clinic (CCC) that offered specialised care to HIV/AIDS and TB patients. The pharmacists and community healthcare workers who responded to the questionnaire were situated at the CCC. Community healthcare workers were also involved in follow up of TB patients in their homes and keeping track of defaulters in addition to other duties previously described in the literature (Section 2.3.4.3 and Section 2.3.4.4).

![Figure 4.3 Job distribution of respondents (n=25)](image)

The respondents included doctors (n=5), nurses (n=13), pharmacists (n=2) and community healthcare workers (n=5) (Figure 4.3).

Studies conducted in Jordan and Georgia showed significant differences in motivational scores between occupational groups (Bennet, et al., 2000:27-28). Likewise as mentioned in Section 2.6.1, 'feeling responsible' received a significantly higher score by physicians compared to nurses and 'increase in salary' was significantly more motivating for nurses compared to physicians in Mali (Dieleman, et al., 2006). The incentive of specialist training was found to be
enough to make urban doctors serve in rural locations in Indonesia (Chomitz, et al., as cited in Willis-Shattuck, et al., 2008). Unfortunately in the case of this study, it will not be possible to determine differences in scores between various occupational groups as the sample size per occupational group was too small to analyse statistically or obtain conclusive evidence of a relationship.

4.3 PERCEPTIONS REGARDING MOTIVATION

Section B of the questionnaire measured perceptions on motivation using a self-assessment questionnaire (SAQ). Information was collected on three types of outcome measures: affective motivational outcomes, cognitive motivational outcomes and self-assessed work behaviour (see Table 3.1). Firstly, the level of job satisfaction will be discussed, followed by cognitive motivation, organisational commitment and finally work behaviour (getting along with others, conscientiousness, timeliness and attendance), also know as performance behavior.

This section of the questionnaire was scored using the five point Likert scale with 1 being “VERY DISSATISFIED”, 2-“SATISFIED”, 3-“NEUTRAL”, 4-“SATISFIED” and 5-“VERY SATISFIED”. The data from this section was analysed by compiling frequency tables of each subscale which were then used for the descriptive statistics. The mean was also calculated for each item in the subscales. When interpreting the overall results, the mean scores were grouped into 1.0-2.6 (< low score), 2.6-3.4 (average score) and >3.4-5.0 (high score). This section will also present the descriptive statistics, inferential statistics and correlation results.

4.3.1 JOB SATISFACTION

As mentioned in Section 2.5.4, increased job satisfaction is an important source of motivation and is associated with increased productivity and reduced turnover, absenteeism and tardiness (McKenna, 2006: 99-100). In this study, job satisfaction was divided into three sub-scales namely: General Job Satisfaction (GJS), Intrinsic Job Satisfaction (IJS) and Extrinsic Job Satisfaction (EJS). An ‘Overall job satisfaction (OJS)’ score was calculated by averaging the three scores (GJS, IJS and EJS). All the items in these sub-scales were positively worded. Table 4.2 organises the items in subscales and percentage number of respondents per score (n=25).
Table 4.2 Job Satisfaction Frequency Distribution

<table>
<thead>
<tr>
<th>1. General Job Satisfaction (GJS)</th>
<th>N</th>
<th>Very dissatisfied</th>
<th>Dissatisfied</th>
<th>Neutral</th>
<th>Satisfied</th>
<th>Very Satisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 All in all, how satisfied are you with your co-workers in your work unit?</td>
<td>25</td>
<td>0%</td>
<td>0%</td>
<td>27%</td>
<td>46%</td>
<td>23%</td>
</tr>
<tr>
<td>1.2 All in all, how satisfied are you with your supervisor?</td>
<td>25</td>
<td>0%</td>
<td>4%</td>
<td>20%</td>
<td><strong>60%</strong></td>
<td>16%</td>
</tr>
<tr>
<td>1.3 All in all, how satisfied are you with your job?</td>
<td>25</td>
<td>0%</td>
<td>8%</td>
<td>12%</td>
<td><strong>64%</strong></td>
<td>16%</td>
</tr>
<tr>
<td>1.4 Considering your skills and the effort you put into your work, how satisfied are you with your pay?</td>
<td>24</td>
<td>41.7%</td>
<td>25%</td>
<td>12.5%</td>
<td>16.7%</td>
<td>4.2%</td>
</tr>
<tr>
<td>1.5 How satisfied are you with the management in your department?</td>
<td>25</td>
<td>4%</td>
<td>0%</td>
<td>28%</td>
<td><strong>56%</strong></td>
<td>12%</td>
</tr>
<tr>
<td>1.6 How satisfied are you with hospital management?</td>
<td>25</td>
<td>0%</td>
<td>8%</td>
<td>32%</td>
<td><strong>52%</strong></td>
<td>8%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Intrinsic job satisfaction (IJS)</th>
<th>N</th>
<th>Very dissatisfied</th>
<th>Dissatisfied</th>
<th>Neutral</th>
<th>Satisfied</th>
<th>Very Satisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 How satisfied are you with your opportunity to use your abilities in your job?</td>
<td>25</td>
<td>4%</td>
<td>8%</td>
<td>12%</td>
<td><strong>48%</strong></td>
<td>28%</td>
</tr>
<tr>
<td>2.2 How satisfied are you with the opportunities you have to learn new things?</td>
<td>25</td>
<td>4%</td>
<td>16%</td>
<td>24%</td>
<td><strong>44%</strong></td>
<td>12%</td>
</tr>
<tr>
<td>2.3 How satisfied are you with the chances you have to accomplish something worthwhile?</td>
<td>25</td>
<td>4%</td>
<td>12%</td>
<td>32%</td>
<td><strong>44%</strong></td>
<td>8%</td>
</tr>
<tr>
<td>2.4 How satisfied are you with the chances you have to do something that makes you feel good about yourself as a person?</td>
<td>25</td>
<td>0%</td>
<td>20%</td>
<td>12%</td>
<td><strong>40%</strong></td>
<td>28%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1 How satisfied are you with the fringe benefits you receive?</td>
<td>24</td>
<td>37.5%</td>
<td>12.5%</td>
<td>29.2%</td>
<td>16.7%</td>
<td>4.2%</td>
</tr>
<tr>
<td>3.2 How satisfied are you with the educational or training opportunities you get?</td>
<td>25</td>
<td>32%</td>
<td>20%</td>
<td>16%</td>
<td>32%</td>
<td>0%</td>
</tr>
<tr>
<td>3.3 How satisfied are you with the physical working conditions (space, lighting, and ventilation)?</td>
<td>25</td>
<td>28%</td>
<td>32%</td>
<td>12%</td>
<td>28%</td>
<td>0%</td>
</tr>
</tbody>
</table>
As can be seen in Table 4.2, GJS scores were high with the majority of the respondents feeling satisfied. More than half (56%) of respondents had high mean scores between >3.4-5.0 per sub-scale (Table 4.3). Despite the high scores, item 1.4, related to satisfaction with salary, in Table 4.2 stood out as scoring poorly with 41.7% of the respondents feeling very dissatisfied with their pay and a further 25% feeling dissatisfied. Thus a total of 66.7% of the respondents were unhappy with their salaries. Many studies have identified that combining both financial and non-financial incentives would provide for the best retention strategy (Willis-Shattuck, et al., 2008:5), thus it important for the employers to motivate employees who feel dissatisfied with their pay.

The sub-scales measuring intrinsic and extrinsic job satisfaction are in line with Herzberg’s dual factor theory (Section 2.5.3.1.4) that categorises job satisfaction factors into two groups. The intrinsic motivators, known as the job content factors such as recognition for doing a great job, having meaningful work, gaining increased responsibility, and opportunities for advancement, are the ones that can contribute to the level of job satisfaction an employee feels at work. The extrinsic or job context factors, on the other hand, are the factors that relate more to the environment in which people work and are sources for job dissatisfaction.

Herzberg reasoned that because the factors that cause satisfaction are different from those causing dissatisfaction, the two feelings cannot simply be treated as opposites of one another (Riley, 2005:5,6). Intrinsic job satisfaction scored highly with 76% (n=19) of the respondents scoring a mean that ranged between >3.4 and 5.0 (Table 4.3). Only 12% (n=3) of the respondents scored poorly for this sub-scale which implies that most of the healthcare workers are satisfied with the content of their work. The extrinsic job satisfaction scored relatively low with 56% (n=14) scoring between 1.0 and <2.6. As seen in Table 4.2 (yellow highlight), more than 50% of the workers were unhappy with their physical working conditions, training opportunities and fringe benefits. Only 20% (n=5) of the respondents scored this on the high end of the scale, between >3.4 and 5.0 (Table 4.3).
When comparing IJS and EJS there was a notable difference in scores with EJS scoring significantly lower than IJS. The Wilcoxon Test was used to test for significant differences between the IJS and EJS scores. The Wilcoxon test is a nonparametric test used to compare two paired groups. It is also called the Wilcoxon matched pairs signed ranks test and it analyses the differences between the paired measurements for each subject (Easton & McColl, n.d.). The p value provides an indication of the significance of the difference. If the p value is less than 0.05, one can reject the idea that the difference is a coincidence, and conclude instead that the populations have different medians (Easton & McColl, n.d.). This difference was demonstrated by a p value of 0.00008 and a Cohen’s d value of 1.16, which showed that the difference in IJS and EJS scores was both statistically and practically significant (p < 0.05 and Cohen’s d > 0.80 respectively). This indicates that intrinsic job satisfaction and extrinsic job satisfaction are different, and satisfaction with one does not necessarily lead to satisfaction with the other or vice versa, thus suggesting that job satisfaction is a complex interplay of different factors.

To further elaborate the difference in scores a scattergram is provided, and as can be seen in Figure 4.4 below, most of the respondents scored below average (less than 3 on the Likert scale) in the ‘extrinsic job satisfaction’ sub-scale, while on the ‘x’ axis, most of the

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2 An ‘Overall job satisfaction’ (OJS) was obtained by calculating the mean of three scores (GJS, IJS and EJS).
respondents’ scores ranged between 3.5 and 5 which shows a high level of ‘intrinsic job satisfaction’ as already discussed.

![Figure 4.4: Scattergram: Intrinsic Job Satisfaction and Extrinsic Job Satisfaction](image)

A study conducted by Mbindyo and colleagues (2009) sought to explore contextual influences on healthcare worker motivation in Kenya. Some constraints that were found to affect healthcare workers' ability to serve patients included: staff shortage, shortages of drugs and nonmedical supplies, often in combination with old buildings that resulted in ‘staff just working to clear the queue but not to provide quality work’. Lack of fairness in ensuring equal access to opportunities, such as training seminars, was also pointed out as being a source of demotivation. Within the Kenyan context, Mbindyo found that ‘At times, ward supervisors get people from their own tribe’ to go for training, thus raising the issue of unfairness based on ethnic lines. Mbindyo also highlights how some simple, local, non-financial incentives might help, such as offering lunch to staff working in critical areas or providing a separate room where hospital staff (and their families) can come for treatment when sick. The findings from the study
by Mbinyo and colleagues (2009) are thus useful in that they describe the human resource challenge of healthcare in Kenya, and provide rich data that can be used to understand the Kenyan context while discussing extrinsic job satisfaction.

Table 4.2 above indicates that most of the staff at the hospital are satisfied with departmental and hospital management as only 4% (n=1) scored poorly for item 1.5 (How satisfied are you with the management in your department?), and 8% (n=2) for item 1.6 (How satisfied are you with hospital management?). Many issues that cause low motivation cannot be resolved at hospital level, but the study conducted by Mbinyo and colleagues (2009) revealed that hospital management can work to mitigate low extrinsic job satisfaction. One doctor interviewed in Mbinyo’s study felt that: ‘They can at least offer tea. Look, we chase patients to pay fees... This is an extra load on us, it is a clerical job.’ It is thus recommended that management be encouraged to improve extrinsic job factors in Kiambu hospital as these play a role in healthcare worker motivation.

An overall job satisfaction score (OJS) (Table 4.3) was calculated by averaging the mean scores obtained from GJS, IJS and EJS scores. The OJS score will be discussed later in Sections 4.3.3 and 4.3.6.2, and comparisons made between ‘overall job satisfaction’, ‘overall work behaviour (OWB), and ‘organisational commitment’.

4.3.2 COGNITIVE MOTIVATION
The cognitive motivation (CM) scale is linked to the cognitive motivation theory which recognises that many aspects of motivation arise when people are fully aware of their motives and actions, and of the risks involved, and make plans guided by their expectations (McKenna, 2006:101-102). As seen in Table 4.4, 44% of respondents had CM scores between >3.4 and 5.0 (high score) and 32% between 2.6 and 3.4 (neutral/average score). This means that the majority (76%) of the respondents’ scores ranged between neutral and very satisfied (2.6-5.0). Only 24% (n=6) of respondents displayed a low level of cognitive motivation (1.0-<2.6).
Table 4.4 Frequency distribution: Average Cognitive Motivation Scores (n=25)

<table>
<thead>
<tr>
<th>Average Scores</th>
<th>1.0 - 2.6&lt;</th>
<th>2.6 - 3.4</th>
<th>&gt;3.4 - 5.0</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Cognitive Motivation</td>
<td>6</td>
<td>24%</td>
<td>8</td>
<td>32%</td>
</tr>
</tbody>
</table>

Table 4.5 below, provides a more detailed picture of how the respondents scored the various items.

Table 4.5 Cognitive Motivation Frequency Distribution

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1 How satisfied are you that you have been given enough authority by your superiors to do your job well?</td>
<td>25</td>
<td>4%</td>
<td>8%</td>
<td>28%</td>
<td>48%</td>
<td>12%</td>
</tr>
<tr>
<td>4.2 How satisfied are you with your present job when you <strong>compare it to similar positions</strong> in other hospitals?</td>
<td>25</td>
<td>16%</td>
<td>28%</td>
<td>36%</td>
<td>20%</td>
<td>0%</td>
</tr>
<tr>
<td>4.3 How satisfied are you with the progress you are making toward the <strong>goals which you set</strong> for yourself in your present situation?</td>
<td>24</td>
<td>8.3%</td>
<td>8.3%</td>
<td>29.2%</td>
<td>45.8%</td>
<td>8.3%</td>
</tr>
<tr>
<td>4.4 On the whole, how satisfied are you that your superior accepts you as a professional expert to the degree which you are <strong>entitled</strong> by reason of your position, training and experience?</td>
<td>24</td>
<td>4.2%</td>
<td>16.7%</td>
<td>16.7%</td>
<td>45.8%</td>
<td>16.7%</td>
</tr>
<tr>
<td>4.5 On the whole, how satisfied are you with your present job when you <strong>consider the expectations you</strong> had when you started working here?</td>
<td>24</td>
<td>16.7%</td>
<td>20.8%</td>
<td>20.8%</td>
<td>37.5%</td>
<td>4.2%</td>
</tr>
<tr>
<td>4.6 How satisfied are you with your present job in light of future career <strong>expectations</strong>?</td>
<td>24</td>
<td>13%</td>
<td>20.8%</td>
<td>12.5%</td>
<td>50%</td>
<td>4.2%</td>
</tr>
</tbody>
</table>
It is apparent that there was a substantial number of respondents who scored low (dissatisfied and very dissatisfied), with 44% (n=11) scoring low for the item 4.2, which compared satisfaction levels in present job positions to similar positions in other hospitals. Nine (37.5%) participants scored low for item 4.5 suggesting that some employees feel that the initial expectations they had when they began working for the hospital hadn’t been met. Thirty three percent (n=8) of respondents felt that their present job did not align with their future career expectations. Item 4.2 which requires the respondents to compare their own job satisfaction levels to similar positions elsewhere, relates to an aspect of equity theory. This theory suggests that people are motivated to secure what they perceive to be a fair return for their efforts, and are therefore inclined to consciously or subconsciously compare each other’s inputs and outputs (McKenna, 2006:110). A lack of fairness in ensuring equal access to opportunities, can be de-motivating (Mbinyo, et al., 2009:6), therefore the hospital needs to address the sense of fairness and equality amongst the staff as 44% scored this item low.

Literature on the Kenyan healthcare system highlights that in order to retain healthcare workers in public sector employment, the Ministry of Health introduced allowances for physicians, dentists and pharmacists in public service in 2002 (Dambisya, as cited by Ndetei, et al., 2008). If the equity theory is taken into account, the healthcare system appears to ‘favour’ a certain cadre through provision of incentives in order to retain them and is thus likely to provoke feelings of injustice by other cadres leading to de-motivation.

Item 4.3 scored highly with 54.1 % of the participants feeling satisfied and very satisfied with the achievement of their goals. It is posited that the hospital CEO has some leeway to provide local incentives that can improve worker motivation which need not have major financial implications. Examples include identifying and rewarding well-performing healthcare workers. This sends the message that the hospital management is interested in and rewards good performance (Mbinyo, et al., 2009). Hospital management should thus be advised to explore and even apply the goal setting theory, by directly linking goals and objectives to rewards, and in so doing motivate the staff.
Items 4.5 and 4.6 which relate to the expectancy theory, sought to determine how satisfied the employees were in light of their initial and future expectations respectively. As the name suggests, the expectancy theory draws from the idea that people come into work environments with expectations, and they expect to work hard in their jobs only when they believe that by doing so they will better their performance, get recognised and get rewarded in ways that are meaningful to them (McKenna, 2006:107-108). What hospital managers can gain from this is that there are different strategies of motivation, and using the expectancy theory is one additional way of encouraging staff members to achieve their goals by rewarding them for such behaviour.

4.3.3 ORGANISATIONAL COMMITMENT

Organisational commitment was measured in order to determine the strength of the healthcare workers’ identification with and involvement in the hospital. This section of the questionnaire was scored using the five point Likert scale, and the respondents were required to indicate their level of agreement with statements. The respondents’ level of agreement was measured as follows: 1—“STRONGLY DISAGREE”, 2—“DISAGREE”, 3—“NEUTRAL”, 4—“AGREE” and 5—“STRONGLY AGREE”. This scale contained both positively and negatively worded items (*highlighted in green). During data capture, the negatively worded scores were reversed in order to obtain the true ranking of the negatively worded items, so that high scores now have a positive meaning and low scores a negative meaning. The reversal was done in order to facilitate interpretation of the results. Data from this section was analysed by compiling frequency tables.

<table>
<thead>
<tr>
<th>Average Scores</th>
<th>1.0 - 2.6</th>
<th>2.6 - 3.4</th>
<th>&gt; 3.4 - 5.0</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>GJS</td>
<td>2</td>
<td>8%</td>
<td>8</td>
<td>32%</td>
</tr>
</tbody>
</table>
The mean frequency distribution was also calculated and grouped into categories 1.0-2.6 < (low score), 2.6-3.4 (neutral/average score) and > 3.4-5.0 (high score). Results presented in Table 4.6, show that only 8% (n=2) of respondents scored low (1.0 to <2.6). The majority (92%) of respondents ranged from neutral to strongly agree (2.6-5.0). Table 4.7 below provides a more detailed picture of how the respondents scored the various items. Note that in Table 4.7 the negatively worded items (*) remain as they were originally in the questionnaire and are not reversed (scores are highlighted in green). Most of the negatively worded statements had a positive score, that is the items received scores ranging between strongly disagree and neutral (1.0-2.6<), with the exception of item 5.9, where the majority (74.9%) of the respondents ranged between neutral and strongly agree, thus showing that most of the respondents feel that they are not in agreement with the hospital’s policy. All in all, the scores awarded to the items in this scale were relatively positive for the majority of the respondents.

As explained in Section 2.5.6, organisational commitment arises when the employee strongly identifies with the organisation, agrees with its objectives and value systems and is willing to expend effort on its behalf (Mowday, et al., as cited in McKenna, 2006:302). Although not possible in this study, because of the sample size, it would be interesting to compare organisational commitment between different age groups (i.e. <36 years and 36+ years). Evidence gathered by Mbindingo and colleagues (2009) shows that perceptions may vary between older and younger respondents, the former ‘resigning themselves to working for a future that has increasingly become gloomy’, and with younger healthcare professionals accepting the fact that ‘low salary is a significant de-motivator but all they want at the moment is experience and then they can move on’. To compare the effect of relationship between age and organisational commitment, a scattergram (Figure 4.5) was used, and as can be seen by the trend-line, there is a general sense of increase in organisational commitment as age increases.
### Table 4.7 Organisational Commitment Frequency Distribution

<table>
<thead>
<tr>
<th>5. Organisational commitment</th>
<th>N</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1 I often tell my friends that this hospital is a great organisation to work for.</td>
<td>25</td>
<td>8%</td>
<td>8%</td>
<td>4%</td>
<td>60%</td>
<td>20%</td>
</tr>
<tr>
<td>5.2 I feel very little commitment to this hospital*</td>
<td>25</td>
<td>28%</td>
<td>32%</td>
<td>12%</td>
<td>20%</td>
<td>8%</td>
</tr>
<tr>
<td>5.3 I find that my values and this hospital’s values are very similar.</td>
<td>25</td>
<td>4%</td>
<td>24%</td>
<td>40%</td>
<td>28%</td>
<td>4%</td>
</tr>
<tr>
<td>5.4 I am proud to tell others that I am part of this hospital.</td>
<td>25</td>
<td>4%</td>
<td>4%</td>
<td>12%</td>
<td>52%</td>
<td>28%</td>
</tr>
<tr>
<td>5.5 This hospital really inspires me to do my very best on the job.</td>
<td>24</td>
<td>20.8%</td>
<td>25%</td>
<td>25%</td>
<td>25%</td>
<td>4.2%</td>
</tr>
<tr>
<td>5.6 I am extremely glad I work for this hospital, as opposed to other hospitals I might have worked for</td>
<td>24</td>
<td>8.3%</td>
<td>8.3%</td>
<td>25%</td>
<td>41.7%</td>
<td>16.7%</td>
</tr>
<tr>
<td>5.7 It would take very little change in my present personal circumstances to cause me to leave this hospital*</td>
<td>24</td>
<td>0%</td>
<td>29.2%</td>
<td>37.5%</td>
<td>8%</td>
<td>12.5%</td>
</tr>
<tr>
<td>5.8 There is not too much to be gained professionally by working for this hospital indefinitely.*</td>
<td>24</td>
<td>33.3%</td>
<td>45.8%</td>
<td>4.2%</td>
<td>16.7%</td>
<td>0%</td>
</tr>
<tr>
<td>5.9 Often, I find it difficult to agree with this hospital’s policies on important matters relating to its employees*</td>
<td>24</td>
<td>8.3%</td>
<td>16.7%</td>
<td>20.8%</td>
<td>33.3%</td>
<td>20.8%</td>
</tr>
<tr>
<td>5.10 For me, this is the best of all possible hospitals to work for.</td>
<td>24</td>
<td>17%</td>
<td>21%</td>
<td>38%</td>
<td>21%</td>
<td>4%</td>
</tr>
<tr>
<td>5.11 Accepting to work for this hospital was a definite mistake on my part.*</td>
<td>24</td>
<td>45.8%</td>
<td>33.3%</td>
<td>16.7%</td>
<td>4.2%</td>
<td>0%</td>
</tr>
<tr>
<td>5.12 I am willing to put in a great deal of effort beyond that normally expected in order to ensure that our work at this hospital is successful.</td>
<td>24</td>
<td>4.2%</td>
<td>4.2%</td>
<td>12.5%</td>
<td>41.7%</td>
<td>37.5%</td>
</tr>
</tbody>
</table>

* Negatively worded items.
Further discussion on the effect of age on organisational commitment will be provided in Section 4.3.6.1.

![Scattergram: Relationship between organisational commitment and age (n=25)](image)

**Figure 4.5** Scattergram: Relationship between organisational commitment and age (n=25)

As mentioned previously (Section 2.5.1.1), Ndetei and colleagues (2008) gathered evidence highlighting the major challenges experienced with healthcare staffing, which included internal migration which results in the inequitable distribution of healthcare personnel between urban and rural areas in Kenya. Low organisational commitment should therefore be taken seriously, as it has a negative impact on the Kenyan healthcare system. As discussed previously (Section 2.5.1.1.) the factors contributing to this mal-distribution (push factors) may include: poor pay, poor working conditions, limited career opportunities, poor communication facilities and limited educational opportunities. The push factors mentioned are factors that contribute to job satisfaction or dissatisfaction therefore it would be interesting to see the correlation between these two scales as this can indicate whether an individual’s job satisfaction can affect their commitment to an organisation. Figure 4.6 below shows that in this study there was a positive correlation between these two scores, thus suggesting that an increase in job satisfaction may result in an increase in organisational commitment. A
correlation ‘r’ score of 0.502 was obtained thus suggesting that the correlation between these two scores is both practically significant ($r > 0.300$) and statistically significant ($r > 0.396$ at 0.05 level).

Figure 4.6 Scattergram to determine the relationship between Overall Job Satisfaction & Organisational Commitment (n=25)

In summary, to improve organisational commitment, the hospital could increase healthcare worker motivation and performance through supportive supervision from credible peers linked to feedback on performance and possibly benchmarking with other hospitals (Nzinga, Mbinyo, Mbaabu, Warira and English as cited in Mbinyo, et al., 2009). By monitoring how well the hospital has performed in certain pre-selected and modifiable criteria, shortcomings can be identified and actions taken to improve performance in the hope of initiating a cycle of improvement (Nzinga, et al., as cited in Mbinyo, et al., 2009). Thus if the organisation, in this case the hospital, has staff members who are committed to it, it can capitalise on motivating them so as to get the best out of its staff and in so doing have a TB healthcare workforce that is dedicated to its patients by ensuring effective TB treatment.
4.3.4. SELF ASSESSED WORK BEHAVIOUR

This section analyses self-assessed performance questions and statements that cover general aspects of work behaviour. The scales measured respondents’ extent of agreement with the statements, and scores were ranked as follows: 1-“STRONGLY DISAGREE”, 2-“DISAGREE”, 3-“NEUTRAL”, 4-“AGREE” and 5-“STRONGLY AGREE”. These scales contained both positively worded items and negatively worded items (*). As mentioned in Section 2.5, work behaviour refers to general work actions, manner, and conduct that reflect diligence in work and consideration in the work environment. Worker performance was represented by three different facets: conscientiousness (good work habits, reliable, timely, high quality work), getting along with others (working relationships with co-workers and supervisors), and timeliness and attendance (T&A).

| Table 4.8 Frequency Distribution: Average Work Behaviour Scores (n=25) |
|---------------------------------|-----------------|-----------------|-----------------|-----------------|
|          Average Scores         | 1.0 - 2.6<      | 2.6 - 3.4       | >3.4 - 5.0      | Total           |
|          n | %   | n | %   | n | %   | n | %   |
| Getting Along |      |      |      |      |      |      |      |
| 0 | 0% | 5 | 20% | 20 | 80% | 25 | 100% |
| Conscientiousness |      |      |      |      |      |      |      |
| 0 | 0% | 0 | 0% | 25 | 100% | 25 | 100% |
| T&A |      |      |      |      |      |      |      |
| 0 | 0% | 1 | 4% | 24 | 96% | 25 | 100% |
| OWB³ |      |      |      |      |      |      |      |
| 0 | 0% | 1 | 4% | 24 | 96% | 25 | 100% |

Ratings of performance were generally high as can be seen in Table 4.8, with 100% of the respondents scoring high conscientiousness scores (>3.4-5.0), and only 20% (n=5) of the respondents scoring moderately (neutral) with regards to ‘getting along’. None of the respondents (0%) scored poorly (1.0-2.6<) for these scales. These results are consistent with previous studies conducted by Franco and colleagues (2000:31) where performance ratings were high. In yet another study done by the same researchers (Franco and colleagues, 2000), there were significant differences between worker rated performance scores and supervisor ratings. Unfortunately in this study only self-assessed performance scores were obtained.

³ An overall mean score consisting of Getting along, conscientiousness and T&A scores was calculated to obtain the ‘overall work behaviour’ (OWB) score.
therefore comparisons between self-assessed and supervisor assessed performance scores could not be made. The three work behaviour scores were averaged to form a new score, the ‘overall work behaviour’ score, OWB, seen in Table 4.8. This score will be useful in making comparisons in subsequent discussions (Section 4.3.6.2).

<table>
<thead>
<tr>
<th>Table 4.9 Work Behaviour Frequency Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>6. Getting along with others</td>
</tr>
<tr>
<td>6.1 I get along well with my co-workers</td>
</tr>
<tr>
<td>6.2 I get along well with my supervisor</td>
</tr>
<tr>
<td>6.3 I maintain a positive attitude towards my work</td>
</tr>
<tr>
<td>6.4 I get upset at work*</td>
</tr>
<tr>
<td>6.5 I do not get defensive or upset when criticised</td>
</tr>
<tr>
<td>7. Conscientiousness</td>
</tr>
<tr>
<td>7.1 I am reliable and dependable at work.</td>
</tr>
<tr>
<td>7.2 I always finish my work on time.</td>
</tr>
<tr>
<td>7.3 My work is of high quality.</td>
</tr>
<tr>
<td>7.4 I am a hard worker.</td>
</tr>
<tr>
<td>7.5 I do things that need doing without being asked or told.</td>
</tr>
<tr>
<td>7.6 I am very knowledgeable about my job</td>
</tr>
<tr>
<td>7.7 I am careful not to make errors</td>
</tr>
<tr>
<td>7.8 I keep updated on new equipment and procedures</td>
</tr>
<tr>
<td>7.9 I am a fast worker</td>
</tr>
<tr>
<td>8. Timeliness and attendance</td>
</tr>
<tr>
<td>8.1 I am punctual about coming to work</td>
</tr>
<tr>
<td>8.2 I am rarely absent from work</td>
</tr>
<tr>
<td>8.3 I spend my time at work on work-related activities.</td>
</tr>
</tbody>
</table>

* Negatively worded statements
Table 4.9 clearly summarises respondent scores for the various items. With regards to ‘getting along’, Items 6.4 had 40% of respondents agreeing to the statement that they get upset at work. There were also 48% of respondents who scored between strongly disagree and neutral for item 6.5, which sought to determine whether the employees get defensive or upset when criticised at work. Despite the high performance behaviour scores, it is evident from the above items (6.4 and 6.5) that there are employees who may not be happy with how they ‘get along’ in the workplace.

The conceptualisation of outcomes of the motivational process, as illustrated in Figure 2.1, suggest that affective and cognitive motivation, also determines worker performance. In other words, job satisfaction and increased organisational commitment should contribute to an individual’s willingness to exert and maintain an effort towards organisational goals (Franco, et al., 2000:31). From an organisational perspective, it is worker performance and not job satisfaction or organisational commitment that is most directly linked to achievement of organisational objectives and goals. Thus, further analysis will be conducted (Section 4.3.6.2) to assess the correlations and effects of affective and cognitive motivational outcomes on performance measures.

4.3.5 SUMMARY OF THE MOTIVATIONAL OUTCOME SCALES

Table 4.10 is a summary of the descriptive statistics for the eight motivational outcome scales. Each respondent’s scores (on the 5-point Likert scale) on the items were averaged to obtain a single overall score for each subscale and as mentioned earlier, negatively worded items were reversed in order to facilitate a comparable interpretation of results. The summarised results are consistent with previous discussions and trends that were observed previously (Section 4.3.1 to Section 4.3.4). As seen in Table 4.10, the mean of ‘extrinsic job satisfaction’ subscales is 2.41, which supports the results in Section 4.3.1, that showed that the majority of respondents were dissatisfied with physical working conditions, training opportunities and fringe benefits. The middle of the scale (3), represents a “neutral” opinion; thus it is presumed that the findings on cognitive motivation were inconclusive as the mean score (3.18) was in the region of 3 and thus neutral. The scales of ‘general job satisfaction’, ‘intrinsic job satisfaction’ and
‘organisational commitment’ with means of 3.54, 3.62 and 3.46 respectively, suggest a small inclination towards satisfaction. The behavioural/performance scores were quite high which was also consistent with the findings discussed earlier.

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>Minimum</th>
<th>Median</th>
<th>Max</th>
<th>Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>GJS</td>
<td>3.54</td>
<td>0.52</td>
<td>2.50</td>
<td>3.50</td>
<td>4.50</td>
<td>3.17</td>
</tr>
<tr>
<td>IJS</td>
<td>3.62</td>
<td>0.86</td>
<td>1.50</td>
<td>3.75</td>
<td>5.00</td>
<td>3.50</td>
</tr>
<tr>
<td>EJS</td>
<td>2.41</td>
<td>0.96</td>
<td>1.00</td>
<td>2.33</td>
<td>4.00</td>
<td>1.67</td>
</tr>
<tr>
<td>CM</td>
<td>3.18</td>
<td>0.89</td>
<td>1.00</td>
<td>3.25</td>
<td>4.67</td>
<td>3.00</td>
</tr>
<tr>
<td>Org Com</td>
<td>3.46</td>
<td>0.52</td>
<td>2.25</td>
<td>3.58</td>
<td>4.42</td>
<td>3.00</td>
</tr>
<tr>
<td>Getting Along</td>
<td>3.97</td>
<td>0.46</td>
<td>3.20</td>
<td>4.00</td>
<td>4.80</td>
<td>4.00</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>4.39</td>
<td>0.37</td>
<td>3.89</td>
<td>4.44</td>
<td>5.00</td>
<td>4.00</td>
</tr>
<tr>
<td>T &amp; A</td>
<td>4.41</td>
<td>0.61</td>
<td>2.67</td>
<td>4.67</td>
<td>5.00</td>
<td>5.00</td>
</tr>
</tbody>
</table>

The median is the observation at the centre of the ordering in the case of an ordered number of observations (Campbell, Machin & Walters, 2007:29). It is noteworthy that the mean and median were close to each other in all subscales except for ‘timeliness and attendance’ (T&A). In a symmetrical distribution, the value of the mean is equal to the value of the median (Jones, 2002:14); however none of the scales were symmetrically distributed. The median scores are slightly greater than the mean scores in all but for the ‘general job satisfaction’ and extrinsic job satisfaction’ subscales. This then means that the data for the ‘IJS’, ‘CM’, OrgCom, ‘conscientiousness’, ‘getting along’ and ‘timeliness and attendance’ scales was negatively skewed, and the data for ‘GJS’ and ‘EJS’ positively skewed, with regards to the distribution of mean scores.
Figure 4.7 is a graphical depiction of the data on mean affective and cognitive motivational outcomes scores as well as mean work behaviour scores.

The results obtained in this study were very similar to results obtained from a study conducted by Franco and colleagues (In: An In-depth Analysis of Individual Determinants and Outcomes of Health Worker Motivation in Two Jordanian Hospitals, 2000). Franco and colleagues found that performance ratings were generally high, extrinsic job satisfaction quite low, and measures of general job satisfaction, intrinsic job satisfaction, cognitive motivation and organisational commitment at more neutral or moderate levels.

4.3.5.1 CONFIDENCE INTERVAL OF MEAN SCORES
A confidence interval gives an estimated range of values which is likely to include an unknown population parameter (in this case the mean), the estimated range being calculated from a given set of sample data (Easton & McColl, n.d.). Confidence limits are the lower and upper boundaries or values of a confidence interval, that is, the values which define the range of a confidence interval. If independent samples are taken repeatedly from the same population, and a confidence interval calculated for each sample, then a certain percentage (in this case
95%) of the intervals will include the unknown population parameter. The width of the confidence interval gives us an idea about how uncertain we are about the unknown parameter. A very wide interval may indicate that more data should be collected before anything definite can be said about the parameter. (Easton & McColl, n.d.)

Confidence intervals are calculated for different confidence levels, depending on how precise one wants to be. An interval calculated at a 95% level suggests that one is 95% confident that the interval contains the true population mean. As can be seen in Table 4.11, all the motivational outcome mean scores are within the 95% confidence interval, therefore it can be said that we are 95% confident that the mean scores obtained are equal to the overall population mean. Confidence intervals are more informative than the simple results of hypothesis tests (where we decide "reject $H_0" or "don't reject $H_0"), since they provide a range of plausible values for the unknown parameter (Easton & McColl, n.d.).

<table>
<thead>
<tr>
<th>Table 4.11 Inferential Statistics: Confidence Interval (n=25)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>GJS</td>
</tr>
<tr>
<td>IJS</td>
</tr>
<tr>
<td>EJS</td>
</tr>
<tr>
<td>CM</td>
</tr>
<tr>
<td>Org Com</td>
</tr>
<tr>
<td>Getting Along</td>
</tr>
<tr>
<td>Conscientiousness</td>
</tr>
<tr>
<td>T &amp; A</td>
</tr>
</tbody>
</table>

* CI95%lo – Lower limit of confidence interval  ** CI95%hi – Upper limit of confidence interval
4.3.5.2 RELIABILITY OF MOTIVATIONAL OUTCOME SCALES

After analysing the responses to the motivational outcome scales and subscales, it was important to determine the internal reliability (or consistency) of the tool in measuring the various constructs using Cronbach’s coefficient alpha. This coefficient measures how well a set of variables or items measure a single construct. Values of alpha close to 0 indicate no or little correlation between the items that make up a subscale, while values close to 1 indicate high inter-item correlations (Smith, 2005:102). Table 4.12 shows the Cronbach’s alpha scores and the number of items per variable, in the same order as was presented in the questionnaire. Cronbach’s alpha coefficients greater than 0.70, the recommended minimum value for reliability (Nunally, 1978: 85-94), were observed for approximately half of the summated scores, whilst the values for the other scores were all in the 0.50 to 0.69 range, which according to Nunally (1978) is sufficient evidence of adequate reliability when conducting exploratory research.

<table>
<thead>
<tr>
<th></th>
<th>No. of Items</th>
<th>Cronbach’s Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>GJS</td>
<td>6</td>
<td>0.68</td>
</tr>
<tr>
<td>IJS</td>
<td>4</td>
<td>0.85</td>
</tr>
<tr>
<td>EJS</td>
<td>3</td>
<td>0.65</td>
</tr>
<tr>
<td>CM</td>
<td>6</td>
<td>0.92</td>
</tr>
<tr>
<td>Org Com</td>
<td>12</td>
<td>0.65</td>
</tr>
<tr>
<td>Getting Along</td>
<td>5</td>
<td>0.52</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>9</td>
<td>0.79</td>
</tr>
<tr>
<td>T &amp; A</td>
<td>3</td>
<td>0.58</td>
</tr>
</tbody>
</table>
The study conducted was of an explanatory nature, thus the reliability of the performance sub-scale, ‘timeliness and attendance” and ‘getting along with others’ can be said to have been lower than desired. The poor performance of these sub-scales was consistent with results obtained in a previous study by Bennet and colleagues (2000:18,29). Based on the Cronbach’s alpha values, it can be concluded that the reliability of the summated scores is at an adequate level, except for the two mentioned scales. Correlation analysis discussed in Section 4.3.6.2 below, will provide further insight into relationships between scales.

4.3.6 GROUPED ANALYSIS

The grouped analysis was done in order to compare the motivational outcome subscales to the demographic data, and to identify whether relationships exist between subscales.

4.3.6.1 THE EFFECT OF DEMOGRAPHIC VARIABLES ON MOTIVATIONAL OUTCOMES

The demographic variables obtained from the respondents were: age, gender, job position (occupational group) and language spoken. The language category was not relevant to the analysis as all the participants were English speaking. The influence of gender on healthcare worker motivation was important but it was impossible to test for the effect of gender on motivational scores as the sample size was too small. In addition to this, the gender distribution was uneven with only four males and 21 females, thus it was not possible to accurately determine a relationship between gender and the motivational scores. Similarly as discussed in Section 4.2.3, it was not possible to determine differences in scores between various occupational groups as the sample size per occupational group was too small to calculate any significant differences or determine any evidence of a relationship. The variable that was grouped for analysis was age, and is discussed below.

Age

The age distribution was grouped into two categories for analysis, namely below 36 years, and 36 years and older. The mean responses on motivational outcomes were determined for the two age categories. Figure 4.8 summarises the mean of each age group with the corresponding
motivational outcomes. The Mann-Whitney U-test was used to test whether significant differences existed between the mean subscale scores for the younger and the older age group. The Mann-Whitney test is one of the most powerful of the nonparametric tests for comparing two populations. It is used to test the null hypothesis that two populations have identical distribution functions against the alternative hypothesis that the two distribution functions differ only with respect to location (median), if at all (Easton & McColl, n.d.).

The assumption made as a result of literature from previous studies, was that the older age group would have a significantly higher mean score that the younger age group. The significance test (conducted at a significance level of less than 0.05) was aimed at revealing whether or not the difference between the two age categories could be ascribed to chance factors operating at the time, or were truly specific to this sample.

![Figure 4.8 Mean score values for respondents below 36 years, and 36 years and above (n=25)](image)

The most commonly used significance level of the p-value is the 5% significance. P-values less than 0.05 indicate a statistically significant difference between the two groups at the 5% level (Hannagan, 1997:142). None of the subscales had any significant difference as all the p-values were above 0.05 and thus not statistically significant (Table 4.13). Nonetheless, the organisational commitment score (0.056) was quite close 5% (0.05) level of significance and is
therefore reportable. Overall, the older group had higher mean scores in all the variables, except for ‘timeliness and attendance’. This might suggest that the older group were slightly more motivated at work compared to the younger group, although the difference in mean scores is not statistically significant as shown by the p-values in Table 4.13. It was therefore concluded that there was insufficient evidence to support the hypothesis that older employees scored significantly higher motivational scores than their younger counterparts at this particular hospital.

<table>
<thead>
<tr>
<th></th>
<th>&lt;36 years</th>
<th>36 years and over</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>GJS</td>
<td>3.389</td>
<td>3.685</td>
<td>0.090</td>
</tr>
<tr>
<td>IJS</td>
<td>3.479</td>
<td>3.750</td>
<td>0.297</td>
</tr>
<tr>
<td>EJS</td>
<td>2.083</td>
<td>2.705</td>
<td>0.140</td>
</tr>
<tr>
<td>CM</td>
<td>2.928</td>
<td>3.404</td>
<td>0.220</td>
</tr>
<tr>
<td>Org Com</td>
<td>3.257</td>
<td>3.647</td>
<td><strong>0.056</strong></td>
</tr>
<tr>
<td>Getting Along</td>
<td>3.900</td>
<td>4.031</td>
<td>0.510</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>4.361</td>
<td>4.410</td>
<td>0.641</td>
</tr>
<tr>
<td>T &amp; A</td>
<td>4.444</td>
<td>4.385</td>
<td>0.499</td>
</tr>
</tbody>
</table>

Despite the insignificant difference in mean scores across the age groups, there was an overall higher mean score in the older age group. The results obtained resonate with results obtained from a study, by Franco and colleagues (2000:22), which reported a difference in average motivational outcome scores among age groups, with older employees being more likely to report positive motivational outcomes than their younger counterparts.
4.3.6.2 RELATIONSHIPS BETWEEN MOTIVATIONAL OUTCOME SCALES

Statistical relationships were determined using correlation analysis and the one sample T-test and are discussed below.

**Correlation Analysis**

The Pearson’s correlation coefficient (r) was used to determine if there was a correlation between the motivational outcome scales by looking at the linear relationship between them. Pearson’s correlation is the measure of the strength of linear dependence between two variables, giving a value somewhere between +1 and -1. Values close to zero are an indication of a weak relationship while values closer to +1 indicate a strong correlation between the two factors measured (Hannagan, 1997:166).

The purpose of this correlation was to determine which scales have a strong effect on the motivational outcomes of the respondents. As seen in Table 4.14 below, there were some correlations between the scales. To achieve statistically significant correlation at a 0.05 level, the r-value needed to be greater than 0.0396 (highlighted in red in Table 4.14), and greater than 0.300 for a practically significant correlation (in bold, Table 4.14). The r-values highlighted in red are both statistically and practically significant as they meet the criteria described, thus they are most relevant to this study. The values highlighted in bold are only practically significant. It can be seen from the results that a correlation exists between all the affective and cognitive motivational outcomes, with varying levels of significance (practical significance or practical and statistical significance).

The strongest relationships exist between ‘extrinsic job satisfaction’ and ‘general job satisfaction’ (0.790), and between ‘extrinsic job satisfaction’ and ‘cognitive motivation’ (0.643). However, the correlation between ‘intrinsic job satisfaction’ and ‘timeliness and attendance’ was weakest (-0.006). The other weak correlations can be seen in Table 4.14 (highlighted in blue). It was worthy to note that all the variables that had low correlations were linked to either ‘intrinsic job satisfaction’ or ‘timeliness and attendance’. For example, there was an extremely low relationship between ‘intrinsic job satisfaction’ and all the performance behaviour variables, with correlation values ranging from -0.006 to 0.147. In addition, a low relationship
also existed between the ‘timeliness and attendance’ variable and ‘cognitive motivation’ (0.259), as well as the ‘organisational commitment’ (0.075).

The observations made from the results were somewhat consistent with results from prior research conducted by Franco and colleagues (2000), who found that a relationship was lacking between affective and cognitive outcomes and performance, particularly with the performance measures used. They gave a number of possible reasons why the relationship might have been so. One of the reasons worth noting was that the performance measures used actually addressed worker behaviour rather than worker performance in relation to their jobs. For this reason, the measures did not reflect the very particular nature of healthcare work well.

Franco and colleagues (2000), highlight the idea that the performance scale did not attempt to capture important dimensions of providing healthcare services, such as the quality of interpersonal services (e.g. Was the provider polite? Did they demonstrate compassion in the way in which they dealt with patients?), nor the clinical aspects of care (such as whether or not

<table>
<thead>
<tr>
<th>Table 4.14 Pearson correlation coefficient (r)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GJS</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>GJS</td>
</tr>
<tr>
<td>0.503</td>
</tr>
<tr>
<td>IJS</td>
</tr>
<tr>
<td>0.343</td>
</tr>
<tr>
<td>EJS</td>
</tr>
<tr>
<td>0.595</td>
</tr>
<tr>
<td>CM</td>
</tr>
<tr>
<td>OrgCom</td>
</tr>
<tr>
<td>Getting Along</td>
</tr>
<tr>
<td>Conscientiousness</td>
</tr>
<tr>
<td>T&amp;A</td>
</tr>
</tbody>
</table>

Red highlight = Statistically significant at |r| > 0.396 at .05 level for n = 25; Bold highlight= Practically significant at |r| > 0.300; Blue highlight = weak correlation
doctors conducted good clinical examinations, or actively monitored patients). These dimensions of performance would probably be perceived by many to be more important than generic factors such as timeliness and speed of work reflected in the instrument (Franco, et al., 2001: 29-30). In retrospect, it would have been helpful to consider these findings or perhaps incorporate them into the instrument used in this study, as it might have provided for an interesting analysis to see whether correlations in performance scales would have been stronger, in this research.

**One Sample T-test**

As the conceptualisation of motivational outcomes (illustrated in Figure 2.1) suggests, affective and cognitive motivation, also determine worker performance (Franco, et al., 2000:31). From an organisational perspective, it is worker performance and not job satisfaction or organisational commitment that is most directly linked to achievement of organisational objectives and goals (Franco, et al., 2000:31). Thus, analysis is needed to determine the correlations of affective and cognitive motivational outcomes on performance measures.

A one sample T-test was conducted to determine difference in mean scores between ‘overall job satisfaction (OJS)’ and ‘overall work behaviour (OWB)’ (as indicated in Section 4.3.1 and 4.3.4). As mentioned earlier, these two scores were obtained by averaging the job satisfaction subscales, GJS, IJS & EJS, and work behaviour subscales, ‘conscientiousness’, ‘timeliness & attendance’ and ‘getting along’, to obtain single scores for each scale: ‘OJS’ and ‘OWB’ respectively. A one sample t-test is a hypothesis test used to answer questions about means, where the data are a random sample of independent observations from a population of given mean and unknown variance (which therefore has to be estimated from the sample) (Easton & McColl, n.d.).

The null hypothesis for the one sample t-test stated that there was no difference between the two means:

\[ H_0: \mu = \mu_0 \]

The alternative hypothesis stated that the two means were not equal:

\[ H_1: \mu \neq \mu_0 \]
The test yielded a small p-value of <0.000, at significance level of 5% (p< 0.05), therefore the null hypothesis had to be rejected in favour of the alternative hypothesis. Practical significance was determined using Cohen’s d and was 1.83, thus it was concluded that the difference in scores was both statistically and practically significant. Thus we can conclude that having significantly lower job satisfaction may not mean that the overall work performance will be low as well. This echoed with previous evidence already discussed in this study (Section 4.3.4), as well as evidence by Franco and colleagues (2000) that observed a generally higher performance (work behaviour) score, from both self-assessed and supervisor assessed perspectives, compared to affective motivation scores.

4.3.7 ANALYSIS OF QUALITATIVE DATA: SECTION B9 - STRATEGIES FOR INCREASING MOTIVATION AMONGST TB HEALTHCARE STAFF

Section B9 of the questionnaire was an open ended question that asked the respondents to comment on what they thought could be done to motivate them as they deal with TB patients. The responses yielded rich qualitative data which described, in respondents’ own words, the specific needs of healthcare workers interacting with TB at this particular hospital. It was important for the researcher to not only gather quantitative data, but also gain insight of employees’ perceptions on how they might be motivated, by obtaining qualitative feedback. The data obtained was grouped into themes for analysis and is summarised in Table 4.15.

As can be seen in Table 4.15, seven main themes were identified. The majority (40%; n=25) of the respondents suggested that they needed training and educational opportunities. Training and educational opportunities are extrinsic motivators and as already seen in Section 4.3.1, ‘extrinsic job satisfaction’ scored poorly, thus we can understand why the majority of the staff members would suggest this as a way of motivating them. They mostly used words like ‘frequent training’, ‘more training’, ‘continuous training’, ‘newer trends’, to emphasise that they felt the need for continual education and training opportunities. The employees were very keen on being empowered with knowledge, especially on newer trends in practices and management of TB.
<table>
<thead>
<tr>
<th>Questionnaire</th>
<th>Theme</th>
<th>No. of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1,Q5,Q7,Q24</td>
<td><strong>INCREASE REMUNERATION</strong></td>
<td>4 (16%; n=25)</td>
</tr>
<tr>
<td>Q1, Q2, Q5, Q7, Q15, Q24</td>
<td><strong>IMPROVE PHYSICAL WORKING CONDITIONS</strong></td>
<td>6 (24%; n=25)</td>
</tr>
<tr>
<td>Q5,Q6,Q8,Q11, Q13, Q14, Q15, Q16, Q22, Q24</td>
<td><strong>OFFER CONTINUOUS TRAINING AND PROFESSIONAL DEVELOPMENT, AND FUNDING FOR FURTHER STUDIES.</strong></td>
<td>10 (40%; n=25)</td>
</tr>
<tr>
<td>Q6,Q20,Q24,Q25</td>
<td><strong>SYSTEMS THAT ALLOW FOR HOLISTIC, PATIENT CENTRED CARE</strong></td>
<td>4 (16%; n=25)</td>
</tr>
<tr>
<td>Q7,Q15</td>
<td><strong>EMPLOY MORE STAFF</strong></td>
<td>2 (8%; n=25)</td>
</tr>
<tr>
<td>Q8, Q10, Q11</td>
<td>PROVIDE TEAM BUILDING ACTIVITIES</td>
<td>3 (12%; n=25)</td>
</tr>
<tr>
<td>--------------</td>
<td>----------------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td></td>
<td>• Organising team building events for employees</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Provide music.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q9, Q20, Q24</th>
<th>PROVIDE CARE AND SUPPORT FOR TB CAREGIVERS</th>
<th>3 (12%; n=25)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Most staff are suffering innocently, Provide compensation in case staff suffers while on duty</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Insure healthcare workers against TB</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Ensure good welfare of staff like when they are sick, when they have social problems; to consider how they are attended humanly and financially</td>
<td></td>
</tr>
</tbody>
</table>

One employee suggested that scholarships be made available to staff who want to study further. It is important to recognise that employees have their own hopes and dreams for their careers, and these contribute to their cognitive motivation. It is important to create a balance between institutional goals and employee goals, as limited career opportunities and educational opportunities are seen as ‘push factors’ (see Section 2.5.1.1), that contribute to mal-distribution of healthcare staff in Kenya (Ndetei, et al., 2008). The suggestions to train and provide opportunities for further studies may be a way of increasing ‘cognitive motivation’, which was demonstrated by items 4.5 and 4.6 (Section 4.3.2), as being low for 33% of respondents. Opportunities for skills advancement and career growth should thus be provided to healthcare workers in order to motivate them and avoid losing workers to the private health sector or to developed countries which readily offer these opportunities (Ndetei, et al., 2008).

Public hospitals and institutions should also offer support and encourage continuous medical education (CME) which is practiced in private health institutions. Dolvo (as cited in Ndetei, et al., 2008), suggests that providing supervision and support for continuous education and career growth contributes to workers feeling that they are part of the healthcare system, which in turn may increase organisational commitment and reduce staff turnover. In addition, education and training can contribute to recognition, advancement, increased responsibility in the workplace and the possibility of growth, which are all intrinsic job motivators (Riley, 2005:5).
One of the community healthcare workers (CHWs) suggested that the TB clinic should offer refresher courses to CHWs. This way, the nurses working at the TB clinic can have a chance to interact with and train the CHWs. This kind of interaction could encourage teamwork and sharing of knowledge across the different occupational groups and cadres that deal with TB within the hospital. The need for teamwork was evident for 12% (3; n=25) of the respondents. Staff members suggested that they would like to be taken on team-building retreats, which is a good way of encouraging staff interaction on a social level. Maslow’s hierarchy of needs theory (Mckenna, 2006:94), identifies affiliation needs as important needs. It is normal for colleagues to feel the need to develop meaningful associations, form friendships and be accepted by each other. Alderfer’s ERG theory (Mckenna, 2006:95) also highlights the need for interpersonal relationships, and Herzberg’s theory categorises the need for relationship under the ‘hygiene factors’ of job satisfaction (Riley, 2005:5,6). The suggestions made by the employees should thus be taken into account when planning for motivational interventions for healthcare staff.

Four (16%) respondents felt that a salary increase would motivate them, and a further 6 (24%) felt that an improvement in working conditions would also be a way of motivating the employees. Herzberg’s ‘dual factor’ theory identifies these (salary and working conditions) as ‘job context’ or ‘hygiene’ factors (Mckenna, 2006:98). The employees suggested that the hospital should improve ventilation in the wards and provide isolation wards for patients, as TB is a communicable disease and can easily spread especially in poor environmental conditions. They also mentioned that they need protective gear for themselves as well as sufficient supplies and inventory, such as sputum mugs and syringes, and in correct sizes. In the treatment of TB, working conditions are of utmost importance as they could directly affect the treatment outcomes. An environment that is not conducive can lead to the spread and re-infection of TB, in both staff and patients (HATIP, 2009:5). It is interesting to note that the items in the ‘job satisfaction’ scale that were rated poorly, were the ones that measured the level of satisfaction with salary and working conditions (see Table 4.2, item 1.4 and 3.3 respectively). The employees’ comments support evidence that low satisfaction exists where pay and working conditions are concerned, thus the public healthcare institutions need to be aware of this.
Hygiene factors are important and should be improved where possible, in order to minimise job dissatisfaction amongst healthcare workers (McKenna, 2006:99).

The theme of holistic patient-centred care was also evident amongst respondents (16%, n=25). One respondent suggested that drug outlets be located nearer to patients’ homes, while another suggested that access to TB medication should be made easier, especially over weekends, at night and on public holidays. Another respondent recommended that in addition to medical care, patients should also receive emotional and spiritual support, as some are critically ill and the possibility of death is very real, especially in AIDS patients. This suggests that some employees are keen on promoting adherence through a patient-centred approach. As previously discussed (Section 2.3.4.2), poor patient adherence is one of the causes of TB treatment failure. The International Standards for Tuberculosis Care (2006:33) recommends that drug adherence be fostered using patient-centred methods that are based on patient needs. The hospital has already put structures in place in order to supply TB medication to clinics that are easily accessible to patients, and these (structures) should be continuously monitored and improved upon. The public healthcare system and hospital’s managers should establish or improve on existent psychological and spiritual support mechanisms provided to patients. This would take the strain off the employees who sometimes have to provide emotional and spiritual support in addition to medical care.

Lastly, the theme of employee wellness was an issue for some of the respondents (12%; n=25). One respondent said that “employees who suffer while on duty are suffering innocently and should thus be compensated”. Another suggested that healthcare staff should be provided with insurance against TB infection, while another suggested that staff members should receive holistic support to ensure their physical, social and emotional wellbeing. The concern expressed by these respondents reiterates a previous discussion (Section 2.5.2), which highlights the kind of pressure that TB healthcare staff are under. In a review by HATIP (Caring for the caregiver in the face of HIV and TB, 2009:5), it was acknowledged that the HIV/AIDS epidemic has greatly increased the demands placed on healthcare workers in dealing with TB. Many healthcare workers experience occupational stress and are unable to cope with the demands at work. Some are unable to perform their jobs well when working in inadequate and often
deteriorating facilities that are short staffed and lacking the necessary equipment and essential supplies. Healthcare workers have been known to occasionally battle with bereavement overload, over-identify with their patients, fear occupational exposure to HIV and TB, and find it difficult to cope with their own and patients’ stigmatisation and confidentiality issues (HATIP 2009:6). In addition, the infection and death of colleagues as a result of a lack of workplace safety in the event of exposure to TB, leads to further de-motivation (HATIP, 2009:5).

The concerns expressed by the respondents are genuine, and they constitute the second level of Maslow’s hierarchy of needs, which is the need for safety. As mentioned previously (Section 2.5.2), safety needs include physical safety, emotional safety and a desire for fair treatment and justice at work (Mckenna, 2006:93-94). Security needs exist at the hospital due to fear of exposure to health hazards within the work environment, as well as the emotionally draining nature of the job. The suggestions made by the respondents with regards to their safety needs are crucial to the improvement of staff motivation. Healthcare managers should improve work conditions, provide adequate training and supplies to be used to protect employees from infection, as well as provide emotional support to help employees deal with occupational challenges, and provide compensation in the case of exposure to infections in the workplace.

4.4 SUMMARY OF FINDINGS

In summary, 25 respondents participated in the study and were stationed at a district hospital in Kiambu town in Kenya. Due to the small sample size, it was not possible to generalise results to the entire population of TB healthcare workers in Kenya. Purposive sampling was used to select healthcare staff members who interacted with TB patients on a daily basis in the wards, in the TB clinic and at the comprehensive care clinic. The demographics consisted of 84% women and 16% men between the ages of about 25 years to 55 years. The sample consisted of four occupational groups: nurses (52%), doctors (20%), pharmacists (8%) and community healthcare workers (counsellors) (20%). All the participants could understand English and thus it was not necessary to analyse their abilities based on language factors, as English is the official
language used in Kenya. Nonetheless, the researcher was present throughout the research process and was able to clarify sections of the questionnaire that were not well understood.

The scales in the questionnaire were tested to determine reliability and consistency in measuring the various factors and items within the population. Pearson’s correlation coefficient (r) and Cronbach’s alpha coefficient, revealed that all the scales were reliable and correlated, except for two performance measure scales, namely: ‘timeliness and attendance’ and ‘getting along with others’, which demonstrated poor internal reliability and a lack of relationship (correlation) between these two sub-scales and most of the other scales (see Section 4.3.5.2 and 4.3.6.2).

More than 50% of the employees had high job satisfaction scores. The ‘extrinsic job satisfaction’ sub-scale stood out as scoring quite poorly compared to the other sub-scales in the ‘job satisfaction’ category. In addition, a total of 66.7% of the respondents were unhappy with their salaries. The ‘cognitive motivation’ variable yielded mixed results with 44% of respondents rating themselves as being satisfied (and very satisfied), while 56% ranged between neutral and very dissatisfied. The overall ‘organisational commitment’ score was good with the majority (60%) of the respondents rating themselves as being highly committed to the organisation. The self-assessed performance questions had the highest ratings compared to all the other scales.

The effect of age on the motivation of healthcare workers was examined and results obtained were inconclusive for both age groups (below 36 years and above 36 years). Finally Section B9 of the questionnaire provided the participants with an opportunity to suggest how to increase motivation in TB healthcare workers. They suggested the following:

- increased remuneration;
- improved working conditions;
- training and professional development opportunities;
- holistic patient-centred care;
- employment of more staff;
- team building activities; and
- holistic support and care for the TB caregivers.

The following section is a discussion of the conclusions and recommendations made.
CHAPTER FIVE

CONCLUSION
The study began by reviewing literature regarding the impact of TB on health, and the need to improve TB control efforts in light of emerging resistant TB strains. Strengthening healthcare systems by improving human resource management and service delivery was seen as a way of improving TB treatment outcomes, as healthcare workers are seen as key players in the fight against TB. Low staff motivation has been identified as the second biggest threat to the realisation of scaling up interventions for TB control (Mathauer & Imhoff, 2006:2). Low staff motivation can have a negative impact on the performance of individual healthcare workers, healthcare facilities and the healthcare system as a whole (Mathauer & Imhoff, 2006:2). The objectives of this study were:

- to determine the level of motivation of TB healthcare staff;
- to identify factors which can enhance motivation of TB healthcare staff in the hospital;
- to identify de-motivators experienced by TB healthcare staff; and
- to provide recommendations to TB programme managers/hospital managers, on how to enhance motivation in TB healthcare workers.

Having considered the objectives above and analysed the major findings, the research now focuses on the conclusion and recommendations.

5.1 OBJECTIVE ONE – TO DETERMINE THE LEVEL OF MOTIVATION OF TB HEALTHCARE STAFF

The first objective was realised by using the questionnaire to measure overall job satisfaction, cognitive motivation, organisational commitment and performance behaviour (Section B1 to B8 of the questionnaire). Findings revealed that the majority of workers had an overall job satisfaction (88%) that ranged between average and very satisfied. The majority (56%) of employees experienced low extrinsic job satisfaction, and a substantial number (66.7%) of employees were unhappy with their salaries. Cognitive motivation yielded mixed results, with 44% of respondents rating themselves as being satisfied (and very satisfied) and 24% rating their cognitive motivation as poor (dissatisfied and very dissatisfied). The overall organisational commitment score was positive with the majority (60%) of the respondents rating themselves as being highly committed to the organisation, 32% averagely committed and only 8% having low
commitment. The self-assessed performance scored highly compared to all the other scales. The majority (96%) of employees rated their performance behaviour as high.

5.2 OBJECTIVE TWO - TO IDENTIFY FACTORS WHICH CAN ENHANCE MOTIVATION OF TB HEALTHCARE STAFF IN THE HOSPITAL

The second objective was realised after a complete analysis of the entire questionnaire was done. From the analysis, it was possible to identify the gaps that needed to be addressed with regards to the motivation of the healthcare workers concerned. Literature from past studies (Mbindyo, et al., 2009; Franco, et al., 2000) was used to provide a conceptual framework and direct the study. This served as a point of reference regarding what healthcare managers can do in order to enhance motivation amongst healthcare workers. Findings from these studies Mbindyo, et al., 2009; Franco, et al., 2000) together with findings from the District hospital enabled the researcher to identify factors which can enhance motivation (amongst TB healthcare workers) in this particular institution.

The employees identified factors that can be used to enhance their motivation and suggested simple and practical ways of doing so (Section B9 of the questionnaire). Their suggestions included: provision of opportunities for skills advancement and career growth (through training and educational opportunities), increased team building activities, increase of salaries and improvement of working conditions (e.g. ventilation as well as sufficient supplies and inventory). The theme of holistic patient-centred care (including physical, spiritual and emotional support) was also evident, with suggestions that drug outlets should be located nearer to patients’ homes and that drugs should be more accessible during weekends, nights and public holidays. Lastly, the employees suggested that they be provided with insurance against TB infection and receive holistic support to ensure their physical, social and emotional wellbeing.
5.3 OBJECTIVE THREE - TO IDENTIFY DE-MOTIVATORS EXPERIENCED BY TB HEALTHCARE STAFF

In order to achieve the third objective, motivational theories had to be closely examined (Section 2.5.3) so as to appreciate the rationale behind motivation and behaviour. Herzberg’s dual factor theory, in particular, aided the understanding of sources of de-motivation and/or job dissatisfaction among employees. The theory identifies two sets of factors, namely, intrinsic motivators and extrinsic motivators. As mentioned previously, intrinsic motivators (job content factors), are the ones that can contribute largely to the level of job satisfaction an employee feels at work. The extrinsic (job context) factors, which include company policy, supervision, relationship with supervision, work conditions, relationship with peers, salary, personal life, relationship with subordinates, status, and job security, relate more to the environment in which people work in; Herzberg identifies these factors as the sources for job dissatisfaction.

Section B3 of the questionnaire was aimed at measuring the participants’ levels of extrinsic motivation and yielded lower scores compared to other job satisfaction scales (general job satisfaction and intrinsic job satisfaction). De-motivators were thus identified as dissatisfaction with: fringe benefits (50%), educational/training opportunities (52%) and physical working conditions (60%). This was reiterated in Section B9 of the questionnaire, where the employees elaborated on the changes that were needed in order to increase their motivation (see Objective 2 above).

Another theory that guided the understanding of de-motivators was the cognitive theory. This theory recognises that many aspects of motivation arise when people are fully aware of their motives and actions, and make plans guided by their expectations (Mckenna, 2006). A lack of attainment of these expectations/goals can lead to feelings of de-motivation. Section B4 of the questionnaire aided in determining whether the employees’ personal goals and expectations were being met. A substantial number of respondents scored low, with 44% (n=11) feeling dissatisfied with their job positions compared to similar positions in other hospitals. Nine (37.5%) felt that the initial expectations they had when they began working for the hospital hadn’t been met. Thirty three percent (n=8) of respondents felt that their present job did not align with their future career expectations. As seen in Table 4.15, 40% of the respondents
expressed a strong need for skills advancement and educational opportunities, which confirms that they consciously acknowledged the existence of cognitive expectations and goals which were not being met.

5.4 OBJECTIVE FOUR - TO PROVIDE RECOMMENDATIONS TO TUBERCULOSIS PROGRAMME MANAGERS/HOSPITAL MANAGERS ON HOW TO ENHANCE MOTIVATION IN TB HEALTHCARE WORKERS.

The study demonstrated that in keeping with the literature, factors influencing healthcare worker motivation are interlinked and complex. While Mbindyo and co-authors (2009) suggest that most the of the factors negatively impacting on healthcare worker motivation in Kenyan district hospitals appear to be external to the hospitals – at a national level, they also purport that motivation can be attributed to how well a hospital’s management organises and runs the hospital. Woodward (as cited in Mbindyo, et al., 2009), argues that a hospital must provide an environment where attempts to introduce change will be positively rewarded and that removing cues that make healthcare workers revert to their old behaviour will continue to support change. The following recommendations are thus made based on the analysed results.

Facilitate patient centred support

Holistic patient-centred care (including physical, spiritual and emotional support) should be facilitated and encouraged in the hospital in order to aid the effective treatment of TB, so that the healthcare workers can see that the work they do can have a positive impact on their community. Recommendations include increasing the number of drug outlets located near patients’ homes and making drugs more accessible during weekends, nights and public holidays.

Create a safe working environment for effective TB treatment

The hospital should start by improving its physical environment, especially ensuring the availability of essential supplies e.g. protective gear, sputum mugs and syringes. Systems that can ensure a constant supply of essential inventory in the right quantities and sizes, and from
reputable sources, should be developed and monitored. Secondly, hospital management should look into ways of improving ward conditions such as ventilation.

Create a supportive environment

The majority of TB healthcare workers were unhappy with their salaries and working conditions. Although issues of remuneration are not the direct responsibility of public hospital managers, implementing simple non-financial measures to improve worker motivation by hospital management, may have some positive effect. Hospital managers should also make use of simple local incentives to positively influence worker motivation and collaborate with civil society and donors, to improve hospital facilities. While the hospital management cannot directly rectify issues related to delayed promotions or poor salaries, they can act as advocates for their staff. Such actions rely on having good communication channels that ensure all are clear on what is possible to help manage healthcare workers’ expectations of local management (Mbindyo, et al., 2009).

Encourage continuous professional development and offer opportunities for skills advancement

Reinforcing an employee’s reasons for becoming a healthcare professional and enhancing professional identity (cognitive motivation) seems to be powerfully motivating, thus hospital managers should provide cognitive motivation support for workers’ through continuing professional education (CPE). Hospital management should also create opportunities for its healthcare staff to access regular training on new developments in the field of TB. The training can be practical e.g. nurses in the hospital can be asked to train or mentor community healthcare workers and so forth. Special attention should be given to younger healthcare workers who generally scored low for affective and cognitive motivation. Organisational practices that attract and retain the younger generation should be determined and implemented urgently in order to retain Kenya’s healthcare professionals.

Provide supportive supervision and teamwork

Interventions should aim at improving hospital and healthcare worker motivation and performance through supportive supervision from credible peers linked to feedback on
performance, and possible benchmarking with other hospitals. (Nzinga, Mbindyo, Mbaabu, Warira and English, 2009:44). Nzinga and colleagues suggest that by monitoring how well the hospital performs in certain pre-selected and modifiable criteria, shortcomings can be identified and actions taken to improve performance. This can be introduced to hospitals and clinics within the Kiambu district with the hope that it could create a virtuous cycle of improvement. Additional recommendations on how to foster team work include: taking staff members on team building retreats, rewarding workers for team efforts through recognition, feedback, and other such interventions.

**Employee wellness and holistic care**

Healthcare workers who work with TB and HIV patients require extra support to deal with occupational stresses and the increased risk of TB infection as a consequence of the nature of their work. As suggested by one of the participants, there should be emotional guidance and counselling available for the employees. The employees want to be compensated as for injury on duty related to TB infection or any other forms of suffering related to their work. Hospital managers are in a position to lobby on behalf of their employees for these needs to be met by the government. They can also create public/private partnerships with local organizations and donors to address these issues.

**Recognition and Rewards for achievements made**

Hospital managers should aim to increase the sense of organisational belonging and commitment. One way of achieving this is by increasing worker pride (Mbindyo, *et al.*, 2009), by recognising the contributions of individual workers, developing stronger relations and communications with the surrounding communities, and creating opportunities for community recognition of hospital (and individual or team) efforts.

### 5.5 LIMITATIONS

Some limitations were experienced during the study, and these need to be noted in order to understand the potential generalisability of the study. The first limitation was time constraints that led to the researcher not properly piloting the research tool. Nonetheless the first two
questionnaires handed out at the research site were used as pilot samples. In hindsight it would have been useful to include more demographic categories that would have provided for further comparisons and better understanding of the demographic effects on motivational outcomes within the sample group. Relevant demographic categories to be considered for incorporation in future instruments could include:

- Type of qualification.
- Practice site and hospital section: in order to differentiate the duties and responsibilities of various hospital sections.
- Position held (e.g. manager): in order to identify the career movement of healthcare workers.
- Number of years employed in the public service: in order to get a realistic perception of public service job satisfaction which may be linked to years of service.
- Marital status and number of dependants: in order to determine the role of work-life conflict experienced by the respondent which could have had an effect on job satisfaction (Mott, 2004:326).

Another limitation was the small size of the sample, which limits the researcher’s ability to generalise results, therefore, the findings are only relevant to the study site and should not be generalised to all public healthcare facilities in Kenya. The low reliability and correlation scores obtained in two out of the three performance assessment sub-scales suggest significant disparity in the performance scale. The disparity in perceptions of performance merits further investigation and further qualitative work should be done to examine the meaning of these constructs in the Kenyan context, and scales be adjusted to create more powerful performance measures.

5.6 RECOMMENDATIONS FOR FUTURE STUDY

The performance measures used in this study were broad, reflecting generic work behaviours that would be applicable to all four professional categories (Franco, et al., 2000:37), which may have resulted in a loss of specificity that would have been useful in measuring performance
behaviour exclusive to the various professional categories. Future research should aim to refine
the investigational tool used, by adopting it to the Kenyan context and by introducing more
profession-specific performance measures that also reflect organisational objectives for each
type of healthcare worker within the Kenyan context. It would also be of value to investigate
whether Kenya’s public healthcare system has a staff retention strategy in place and whether
this strategy is up to date with the motivational needs of Kenya’s healthcare workforce. Lastly
further motivational studies need to be conducted for other diseases that are endemic within
Kenya in order to better understand and meet the motivational needs of Kenya’s healthcare
workforce.
REFERENCES LIST


APPENDICES

Appendix A – TB and DR TB Treatment Regimens (SAMF, 2008:302,303).

Appendix B – Permission Letters from Kiambu District Hospital.

Appendix C – Ethics Approval from Kenya Medical Research Institute (KEMRI).

Appendix D – NMMU FRTI Ethical Approval.

Appendix E – Self-Assessment Questionnaire.
APPENDIX A

GENERAL ANTI-INFECTIVES FOR SYSTEMIC USE

who remain smear- or culture-positive after re-treatment are often infected with drug-resistant strains. Patients should be referred to a specialised centre for evaluation and further management. *Since several of the antituberculosis drugs are hepatotoxic, liver function should be monitored in patients at risk.

TB DRUG REGIMENS
National Tuberculosis Control Programme of the Department of Health

REGIMEN 1 – New cases over 8 years of age
New smear-positive patients, new smear-negative patients and extrapolumary TB

<table>
<thead>
<tr>
<th>Pre-treatment body weight</th>
<th>Initial phase: 2 months</th>
<th>Continuation phase: 4 months</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Given 7 days a week</td>
<td>Given 7 days a week</td>
</tr>
<tr>
<td></td>
<td>RHZE:</td>
<td>RH</td>
</tr>
<tr>
<td></td>
<td>150, 75, 400, 275 mg</td>
<td>150, 75 mg</td>
</tr>
<tr>
<td>20–24 kg</td>
<td>1 1/2 tablets</td>
<td>1 1/2 tablets</td>
</tr>
<tr>
<td>25–29 kg</td>
<td>1 1/2 tablets</td>
<td>2 tablets</td>
</tr>
<tr>
<td>30–37 kg</td>
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</tr>
<tr>
<td>38–54 kg</td>
<td>3 tablets</td>
<td>3 tablets</td>
</tr>
<tr>
<td>55–70 kg</td>
<td>4 tablets</td>
<td>2 tablets</td>
</tr>
<tr>
<td>≥ 71 kg</td>
<td>5 tablets</td>
<td>2 tablets</td>
</tr>
</tbody>
</table>

R = rifampicin; H = isoniazid; Z = pyrazinamide; E = ethambutol

REGIMEN 2 – Retreatment cases over 8 years of age
Previously treated TB patients returning for treatment after cure or completion, default and failure

<table>
<thead>
<tr>
<th>Pre-treatment body weight</th>
<th>Initial phase: first 2 months</th>
<th>Initial phase: 3rd month</th>
<th>Continuation phase: 5 months</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Given 7 days a week</td>
<td>Given 7 days a week</td>
<td>Given 7 days a week</td>
</tr>
<tr>
<td></td>
<td>RHZE:</td>
<td>RHZE</td>
<td>RH</td>
</tr>
<tr>
<td></td>
<td>150, 75, 400, 275 mg</td>
<td>150, 75, 400, 275 mg</td>
<td>150, 75 mg, 300, 150 mg</td>
</tr>
<tr>
<td>30–37 kg</td>
<td>2 tablets</td>
<td>2 tablets</td>
<td>2 tablets</td>
</tr>
<tr>
<td>38–54 kg</td>
<td>3 tablets</td>
<td>3 tablets</td>
<td>2 tablets</td>
</tr>
<tr>
<td>55–70 kg</td>
<td>4 tablets</td>
<td>4 tablets</td>
<td>2 tablets</td>
</tr>
<tr>
<td>≥ 71 kg</td>
<td>5 tablets</td>
<td>5 tablets</td>
<td>2 tablets</td>
</tr>
</tbody>
</table>

R = rifampicin; H = isoniazid; Z = pyrazinamide; E = ethambutol

* Streptomycin should not be given during pregnancy or to those over 65 years; and only administered to children under extraordinary circumstances (specialist advice). Dosage adjustment is required in renal impairment.

REGIMEN 3 – Children up to the age of 8 years
For treatment of uncomplicated intra-thoracic tuberculosis and extra-pulmonary tuberculosis such as lymph gland and pleural effusion in children

<table>
<thead>
<tr>
<th>Pre-treatment body weight</th>
<th>Initial phase: 2 months</th>
<th>Continuation phase: 4 months</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Given 7 days a week</td>
<td>Given 7 days a week</td>
</tr>
<tr>
<td></td>
<td>RHZ:</td>
<td>RH</td>
</tr>
<tr>
<td></td>
<td>60, 30, 150 mg</td>
<td>60, 30 mg</td>
</tr>
<tr>
<td>2–2.9 kg</td>
<td>1/2 tablet</td>
<td>1/2 tablet</td>
</tr>
<tr>
<td>3–5.9 kg</td>
<td>1 tablet</td>
<td>1 tablet</td>
</tr>
<tr>
<td>6–8.9 kg</td>
<td>1 1/2 tablets</td>
<td>1 1/2 tablets</td>
</tr>
<tr>
<td>9–11.9 kg</td>
<td>2 tablets</td>
<td>2 tablets</td>
</tr>
<tr>
<td>12–14.9 kg</td>
<td>2 1/2 tablets</td>
<td>2 1/2 tablets</td>
</tr>
<tr>
<td>15–19.9 kg</td>
<td>3 tablets</td>
<td>3 tablets</td>
</tr>
<tr>
<td>20–24.9 kg</td>
<td>4 tablets</td>
<td>4 tablets</td>
</tr>
<tr>
<td>25–29.9 kg</td>
<td>5 tablets</td>
<td>5 tablets</td>
</tr>
<tr>
<td>30–35.9 kg</td>
<td>6 tablets</td>
<td>6 tablets</td>
</tr>
<tr>
<td>36–40 kg</td>
<td>7 tablets</td>
<td>7 tablets</td>
</tr>
</tbody>
</table>
### STANDARDISED REGIMEN FOR MULTIDRUG-RESISTANT TB (MDR-TB)

Treatment should be started in a referral centre and be adjusted according to patient weight.

#### Intensive phase: 6 months  Doses given daily

<table>
<thead>
<tr>
<th>Drug</th>
<th>&lt; 33 kg</th>
<th>33–50 kg</th>
<th>51–70 kg</th>
<th>&gt; 70 kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kanamycin</td>
<td>15–20 mg/kg</td>
<td>500–750 mg</td>
<td>1000 mg</td>
<td>1000 mg</td>
</tr>
<tr>
<td>Pyrazinamide</td>
<td>30–40 mg/kg</td>
<td>1000–1750 mg</td>
<td>1750–2000 mg</td>
<td>2000–2500 mg</td>
</tr>
<tr>
<td>Ethionamide</td>
<td>15–20 mg/kg</td>
<td>500 mg</td>
<td>750 mg</td>
<td>750–1000 mg</td>
</tr>
<tr>
<td>Ofloxacin</td>
<td>800 mg</td>
<td>800 mg</td>
<td>800 mg</td>
<td>800–1000 mg</td>
</tr>
<tr>
<td>Ethambutol*</td>
<td>25 mg/kg</td>
<td>800–1200 mg</td>
<td>1200–1600 mg</td>
<td>1600–2000 mg</td>
</tr>
<tr>
<td>or Terizidone</td>
<td>15–20 mg/kg</td>
<td>750 mg</td>
<td>750 mg</td>
<td>1000 mg</td>
</tr>
<tr>
<td>or Cycloserine</td>
<td>15–20 mg/kg</td>
<td>500 mg</td>
<td>750 mg</td>
<td>750–1000 mg</td>
</tr>
</tbody>
</table>

#### Continuation phase: 12–18 months (doses given daily), from culture conversion

<table>
<thead>
<tr>
<th>Drug</th>
<th>&lt; 33 kg</th>
<th>33–50 kg</th>
<th>51–70 kg</th>
<th>&gt; 70 kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethionamide</td>
<td>15–20 mg/kg</td>
<td>500 mg</td>
<td>750 mg</td>
<td>750–1000 mg</td>
</tr>
<tr>
<td>Ofloxacin</td>
<td>800 mg</td>
<td>800 mg</td>
<td>800 mg</td>
<td>800–1000 mg</td>
</tr>
<tr>
<td>Ethambutol*</td>
<td>25 mg/kg</td>
<td>800–1200 mg</td>
<td>1200–1600 mg</td>
<td>1600–2000 mg</td>
</tr>
<tr>
<td>or Terizidone</td>
<td>15–20 mg/kg</td>
<td>750 mg</td>
<td>750 mg</td>
<td>1000 mg</td>
</tr>
<tr>
<td>or Cycloserine</td>
<td>15–20 mg/kg</td>
<td>500 mg</td>
<td>750 mg</td>
<td>750–1000 mg</td>
</tr>
</tbody>
</table>

* Kanamycin may be substituted with amikacin.

* Ethambutol to be used if strain still susceptible. Terizidone (or cycloserine) to be used if strain is resistant to ethambutol.

Pyridoxine (vitamin B6) 150 mg to be given daily to patients on terizidone or cycloserine.

### STANDARDISED REGIMEN FOR EXTENSIVELY DRUG-RESISTANT TB (XDR-TB)

Treatment should be started in a referral centre and be adjusted according to patient weight.

#### Intensive phase: 6 months  Doses given daily

<table>
<thead>
<tr>
<th>Drug</th>
<th>&lt; 33 kg</th>
<th>33–50 kg</th>
<th>51–70 kg</th>
<th>&gt; 70 kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capreomycin</td>
<td>15–20 mg/kg</td>
<td>500–750 mg</td>
<td>1000 mg</td>
<td>1000 mg</td>
</tr>
<tr>
<td>Ethionamide</td>
<td>15–20 mg/kg</td>
<td>500 mg</td>
<td>750 mg</td>
<td>750–1000 mg</td>
</tr>
<tr>
<td>Pyrazinamide</td>
<td>30–40 mg/kg</td>
<td>1000–1750 mg</td>
<td>1750–2000 mg</td>
<td>2000–2500 mg</td>
</tr>
<tr>
<td>PAS</td>
<td>150 mg/kg</td>
<td>8 g</td>
<td>8 g</td>
<td>8 g</td>
</tr>
<tr>
<td>Cycloserine*</td>
<td>15–20 mg/kg</td>
<td>500 mg</td>
<td>750 mg</td>
<td>750–1000 mg</td>
</tr>
<tr>
<td>or Ethambutol</td>
<td>25 mg/kg</td>
<td>800–1200 mg</td>
<td>1200–1600 mg</td>
<td>1600–2000 mg</td>
</tr>
<tr>
<td>or Terizidone*</td>
<td>15–20 mg/kg</td>
<td>750 mg</td>
<td>750 mg</td>
<td>1000 mg</td>
</tr>
</tbody>
</table>

#### Continuation phase: 12–18 months (doses given daily), from culture conversion

<table>
<thead>
<tr>
<th>Drug</th>
<th>&lt; 33 kg</th>
<th>33–50 kg</th>
<th>51–70 kg</th>
<th>&gt; 70 kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethionamide</td>
<td>15–20 mg/kg</td>
<td>500 mg</td>
<td>750 mg</td>
<td>750–1000 mg</td>
</tr>
<tr>
<td>Pyrazinamide</td>
<td>30–40 mg/kg</td>
<td>1000–1750 mg</td>
<td>1750–2000 mg</td>
<td>2000–2500 mg</td>
</tr>
<tr>
<td>PAS</td>
<td>150 mg/kg</td>
<td>8 g</td>
<td>8 g</td>
<td>8 g</td>
</tr>
<tr>
<td>Cycloserine*</td>
<td>15–20 mg/kg</td>
<td>500 mg</td>
<td>750 mg</td>
<td>750–1000 mg</td>
</tr>
<tr>
<td>or Ethambutol</td>
<td>25 mg/kg</td>
<td>800–1200 mg</td>
<td>1200–1600 mg</td>
<td>1600–2000 mg</td>
</tr>
<tr>
<td>or Terizidone*</td>
<td>15–20 mg/kg</td>
<td>750 mg</td>
<td>750 mg</td>
<td>1000 mg</td>
</tr>
</tbody>
</table>

* Pyridoxine (vitamin B6) 150 mg to be given daily to patients on terizidone or cycloserine.
MINISTRY OF MEDICAL SERVICES

Telegram: "MEDICAL", Kiambu
Telephone: Kiambu (office) 2022191

When replying please quote
Email address.
Kiambu dnoh @Sopanet.Com

DATE: 29TH SEPTEMBER 2010

TO ALL DEPARTMENTS

TO WHOM IT MAY CONCERN

There bearer of this note has been allowed to conduct a research on Motivation levels of Tuberculosis healthcare staff at Kiambu District hospital.

T. MBUA

NURSING OFFICER IN CHARGE.
Medical Superintendent Consent Form

I give consent for you to approach TB health care staff to participate in the study ‘Motivation Levels Of Tuberculosis Healthcare Staff At A Distric Hospital In Kenya’.

I have read the Project Information Statement explaining the purpose of the research project and understand that:

- The role of the hospital is voluntary
- The hospital may decide to withdraw from participation at any time without penalty
- TB healthcare staff i.e. nurses, doctors, pharmacists and community workers will be invited to participate and that permission will be sought from them prior to participation
- Only health care staff who consent will participate in the project
- All information obtained will be treated in the strictest confidence.
- The participants’ names will not be used and individual participants will not be identifiable in any written reports about the study.
- Participants may withdraw from the study at any time without penalty.
- A report of the findings will be made available to the hospital.
- I may seek further information on the project from the principal researcher, Mellanda Busolo on +254 717 247 653 or +27 76 845 4305.

[Signatures]

Medical Superintendent

[Signature]

Date

Please return to: Mellanda Busolo (Principal Researcher) or Margaret Asingwa (Research Assistant).
APPENDIX C

KENYA MEDICAL RESEARCH INSTITUTE

P.O. Box 54840 - 00200 NAIROBI, Kenya
Tel: (254) (020) 2722541, 2713349, 0722-205901, 0793-400003; Fax: (254) (020) 2720030
E-mail: director@kemri.org, info@kemri.org. Website: www.kemri.org

KEMRI/RES/7/3/1

TO: MS. MELLANDA ISIA BUSOLO,
NELSON MANDELA METROPOLITAN UNIVERSITY, PORT ELIZABETH
mibvybez@gmail.com
PRINCIPAL INVESTIGATOR

RE: NON-SSC PROTOCOL NO. 233(INITIAL SUBMISSION):
MOTIVATION LEVELS OF TUBERCULOSIS HEALTH CARE STAFF AT A
DISTRICT HOSPITAL IN KENYA

August 16, 2010

This is to inform you that during the 181st meeting of the KEMRI/ERC meeting held on 10th
August 2010, the above study was reviewed.

The Committee notes that the above referenced study aims to determine the motivation of
TB health care staff in a sample group taken from a local district in Kenya with a view to
recommend motivation strategies to the TB programme managers.

Due consideration has been given to ethical issues and the study is hereby granted approval
for implementation effective this 16th day of August 2010, for a period of twelve (12)
months.

Please note that authorization to conduct this study will automatically expire on 15th
August 2011. If you plan to continue with data collection or analysis beyond this date,
please submit an application for continuing approval to the ERC Secretariat by 3rd July
2011.

You are required to submit any amendments to this protocol and other information pertinent
to human participation in this study to the ERC prior to initiation. You may embark on the
study.

Yours sincerely,

R. C. KITHINJI,
FOR: SECRETARY,
KEMRI/NATIONAL ETHICS REVIEW COMMITTEE
APPENDIX D

Copies to:
Supervisor: Ms S Burton

Summerstrand South
Faculty of Health Sciences
Tel. +27 (0)41 5042121  Fax. +27 (0)41 5042854
Nouwaal.Ahmed@nmmu.ac.za

Ref: student no. 204024978
Contact person: Ms N Ahmed

18 August 2010
Ms M Busulo
23 Rheebock Crescent
Lovenstein
Belville
Cape Town
7550

FINAL RESEARCH/PROJECT PROPOSAL: MA (Health and Welfare Management)

Please be advised that your final research proposal was approved by the Faculty Research, Technology and Innovation Committee subject to the following amendments/recommendations being made to the satisfaction of your Supervisor:

COMMENTS/RECOMMENDATIONS

1. Page 2 (Table of contents) and Page 25 - The word Thesis should be replaced with Treatise.
2. Page 18 (Research problem) – Should be shortened and clarified.

FRTI gave ethics approval and no further REC-H application is required. FRTI committee number for the proposal is H10HEASDP004.

Please be informed that this is a summary of deliberations that you must unpack with your Supervisor.

Kind regards

Ms N Ahmed
Faculty Manager: Administration
Faculty of Health Sciences
### Section A – Biographical Information

Please indicate appropriate choice by using ‘X’ next to the your answer of choice or write where indicated

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Gender</strong></td>
<td>Female</td>
<td>Male</td>
<td></td>
</tr>
<tr>
<td><strong>2. Age (years)</strong></td>
<td>25 and below</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>26-35</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>36-45</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>46-55</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>56 and above</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>3. Home language</strong></td>
<td>Swahili</td>
<td>English</td>
<td>Other: (specify)</td>
</tr>
</tbody>
</table>
4. Health profession

<table>
<thead>
<tr>
<th>Doctor</th>
<th>Nurse</th>
<th>Pharmacist</th>
<th>Community healthcare worker</th>
</tr>
</thead>
</table>

**Section B – Perceptions regarding Motivation**

Please indicate to what extent you are satisfied with each of the statements below by circling the appropriate number.

<table>
<thead>
<tr>
<th></th>
<th>Very dissatisfied</th>
<th>Dissatisfied</th>
<th>Neutral</th>
<th>Satisfied</th>
<th>Very satisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. General Job Satisfaction</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1 All in all, how satisfied are you with your co-workers in your work unit?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>1.2 All in all, how satisfied are you with your supervisor?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>1.3 All in all, how satisfied are you with your job?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>1.4 Considering your skills and the effort you put into your work, how satisfied are you with your pay?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>1.5 How satisfied are you with the management in your department?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>1.6 How satisfied are you with hospital management?**</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Very satisfied</td>
<td>Dissatisfied</td>
<td>Neutral</td>
<td>Satisfied</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>----------------</td>
<td>--------------</td>
<td>---------</td>
<td>-----------</td>
</tr>
<tr>
<td>2.</td>
<td>Intrinsic job satisfaction</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1</td>
<td>How satisfied are you with your opportunity to use your abilities in your job?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2.2</td>
<td>How satisfied are you with the opportunities you have to learn new things?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2.3</td>
<td>How satisfied are you with the chances you have to accomplish something worthwhile?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2.4</td>
<td>How satisfied are you with the chances you have to do something that makes you feel good about yourself as a person?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3.</td>
<td>Extrinsic job satisfaction</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.1</td>
<td>How satisfied are you with the fringe benefits you receive?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3.2</td>
<td>How satisfied are you with the educational/training opportunities you get?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3.3</td>
<td>How satisfied are you with the physical working conditions (space, lighting, and ventilation)?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4.</td>
<td>Cognitive motivation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.1</td>
<td>How satisfied are you that you have been given enough authority by your superiors to do your job well?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4.2</td>
<td>How satisfied are you with your present job when you compare it to similar positions in other hospitals?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4.3</td>
<td>How satisfied are you with the progress you are making toward the goals which you set for yourself in your present situation?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4.4</td>
<td>On the whole, how satisfied are you that your superior accepts you as a professional expert to the degree which you are entitled by reason of your position, training and experience?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4.5</td>
<td>On the whole, how satisfied are you with your present job when you consider the expectations you had when you started</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4.6</td>
<td>How satisfied are you with your present job in light of future career expectations?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

Please indicate to what extent you agree with each of the statements below by circling the appropriate number.

<p>| 5. | Organisational commitment | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
| 5.1 | I often tell my friends that this hospital is a great organisation to work for. | 1 | 2 | 3 | 4 | 5 |
| 5.2 | I feel very little commitment to this hospital | 1 | 2 | 3 | 4 | 5 |
| 5.3 | I find that my values and this hospital’s values are very similar. | 1 | 2 | 3 | 4 | 5 |
| 5.4 | I am proud to tell others that I am part of this hospital. | 1 | 2 | 3 | 4 | 5 |
| 5.5 | This hospital really inspires me to do my very best on the job. | 1 | 2 | 3 | 4 | 5 |
| 5.6 | I am extremely glad I work for this hospital, as opposed to other hospitals I might have worked for | 1 | 2 | 3 | 4 | 5 |
| 5.7 | It would take very little change in my present personal circumstances to cause me to leave this hospital | 1 | 2 | 3 | 4 | 5 |
| 5.8 | There is not too much to be gained professionally by working for this hospital indefinitely. | 1 | 2 | 3 | 4 | 5 |</p>
<table>
<thead>
<tr>
<th>5.9</th>
<th>Often, I find it difficult to agree with this hospital's policies on important matters relating to its employees</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.10</td>
<td>For me, this is the best of all possible hospitals to work for.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5.11</td>
<td>Accepting to work for this hospital was a definite mistake on my part.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5.12</td>
<td>I am willing to put in a great deal of effort beyond that normally expected in order to ensure that our work at this hospital is successful.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6.</th>
<th>Getting along with others</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1</td>
<td>I get along well with my co-workers</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6.2</td>
<td>I get along well with my supervisor</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6.3</td>
<td>I maintain a positive attitude towards my work</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6.4</td>
<td>I get upset at work</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6.5</td>
<td>I do not get defensive or upset when criticised</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>7.</th>
<th>Conscientiousness</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.1</td>
<td>I am reliable and dependable at work.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7.2</td>
<td>I always finish my work on time.</td>
<td>1</td>
<td>2</td>
<td>3</td>
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</tr>
<tr>
<td>7.3</td>
<td>My work is of high quality.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7.4</td>
<td>I am a hard worker.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7.5</td>
<td>I do things that need doing without being asked or told.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
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<td></td>
</tr>
<tr>
<td>7.6</td>
<td>I am very knowledgeable about my job.</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<td>5</td>
</tr>
<tr>
<td>7.7</td>
<td>I am careful not to make errors</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<td>5</td>
</tr>
<tr>
<td>7.8</td>
<td>I keep updated on new equipment and procedures</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7.9</td>
<td>I am a fast worker</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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</tr>
<tr>
<td>8.</td>
<td>Timeliness and attendance</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>8.1</td>
<td>I am punctual about coming to work</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8.2</td>
<td>I am rarely absent from work</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8.3</td>
<td>I spend my time at work on work-related activities.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

9. Any other comments on what can be done to increase motivation amongst TB healthcare staff?

Thank you for completing this questionnaire