

MEASUREMENT OF BURNOUT AND ASSOCIATED FACTORS IN THE SURGICAL STAFF AT CHRIS HANI BARAGWANATH HOSPITAL

Sinola Karishma Rajaram

A Research Report submitted to the Faculty of Health Sciences, University
of Witwatersrand, in partial fulfilment of the requirements for the degree of
Masters in Medicine (Community Health)

Johannesburg, 2011

DECLARATION

I, Sinola Karishma Rajaram, declare that this research report is my own work. It is being submitted for the Masters in Medicine (Community Health) at the University of Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at this University or any other University.

Sinola Karishma Rajaram

_____ Day of _____ 2011

DEDICATION

I humbly dedicate this report to my husband Desmond who has offered his continued support and encouragement to the completion of this work.

This is also dedicated to my beautiful son, Yeshaai, from whom a smile or even a glance was motivation enough to complete this report.

To my unborn child that I am carrying you are in my thoughts.

To my puppies, Sumo and Fufoo thank you for the company in the early hours of the morning when all in our home were asleep.

To all of you, I love you immensely.

PRESENTATIONS

1. Rajaram SK. Evaluation of the Surgical Transformation Project: Burnout: Preliminary findings. Proceedings of the Wits School of Public Health Research Day; 2007; Johannesburg, South Africa.
2. Rajaram SK. Evaluation of the Surgical Transformation Project: Burnout. Proceedings of the Prakash Vallabh Conference; 2007; Johannesburg, South Africa.
3. Rajaram SK. Evaluation of the Surgical Transformation Project: Burnout. Proceedings of the Wits School of Public health Research Day; 2009; Johannesburg, South Africa.

EXECUTIVE SUMMARY

Chris Hani Baragwanath Hospital (CHBH) has been the site of continuous organizational and management change since the inception of the democratic government in 1994. In conjunction with this change, the staff has been subject to a lot of stress created by multiple factors, such as an increased workload and an epidemiologically demanding profile of patients. The Surgical Transformation Project (STP) was launched in CHBH that has impacted on the staff in surgery and its sub-specialties. There has been no formal study done previously to assess how these innumerable changes have impacted on the lives of the surgical staff.

Aim: To measure burnout and its associated factors in the surgical staff at a central South African hospital (CHBH).

Methods: The study is a cross-sectional study that targeted all the staff that attended work during a two month period in the general surgical department at CHBH. The staff participated by filling out a self-administered questionnaire that included an assessment of burnout, job satisfaction, their personal work situation and demographic details.

Results:

1. The response rate was 76.6%.
2. The majority of staff (90.1%) in the surgical department at CHBH experience burnout. Amongst the staff burnout is more prevalent amongst the nurses and amongst the medical staff it is the medical officers that are prone to burnout.
3. The older, female nurses were proven to experience higher levels of burnout.
4. Unexpected staff absenteeism was associated a significant factor ($p < 0.001$) associated with a high level of burnout. Other significant factors that were associated with burnout were night duty ($p < 0.001$), the number of years worked at CHBH ($p = 0.04$) as well as the long shifts worked ($p = 0.008$).
5. It appears that, despite high levels of burnout, 83% of the staff enjoys their jobs. Eighty-two percent are still proud to be associated with CHBH; and 90% are still seeking their career path in CHBH.

Conclusion: In order to address the spectrum of associated factors arising from staff burnout such as those discussed above it would be imperative to address burnout as it does exist in this study population, it can be measured with a well described, validated tool amongst staff and therefore easily monitored.

ACKNOWLEDGEMENTS

I would like to thank Prof Helen Schneider for her support and initial conceptualization of this project, Dr Deb Basu for stepping in and helping me salvage the dissertation, Prof Shan Naidoo for the encouragement to complete this project and Mr Eustacius Musenge for input regarding the statistical analysis.

TABLE OF CONTENTS

DECLARATION	ii
DEDICATION	iii
PRESENTATIONS.....	iv
EXECUTIVE SUMMARY	v
ACKNOWLEDGEMENTS.....	vi
TABLE OF CONTENTS.....	vii
LIST OF FIGURES	ix
LIST OF TABLES	x
GLOSSARY OF TERMS	xi
LIST OF ABBREVIATIONS.....	xiii
CHAPTER ONE	1
ORIENTATION OF STUDY	1
1.1 Introduction	1
1.2 The Surgical Transformation Project (STP)	2
1.3 Problem statement	5
1.4 Justification for the study	5
1.5 Study aims and objectives	6
1.6 Subsequent chapters	6
CHAPTER TWO	7
LITERATURE REVIEW	7
2.1 Human resources for health challenges	7
2.2 Determinants and Consequences of Human resources for Health (HRH) Challenges.....	14
2.3 Burnout of HCW: A public health issue of importance.....	16
CHAPTER THREE	22
METHODOLOGY	22
3.1 Setting and scope	22
3.2 Study design.....	22
3.3 Study population and sample	23
3.4 Measurement.....	23
3.5 Data management.....	26
3. 6 Pilot study	33
3.7 Ethical consideration.....	33
CHAPTER FOUR.....	35
RESULTS	35
4.1.Response rates.....	35
4.2 Demographic profile of respondents.....	36
4.3 Staff categories.....	36
4.4 The work environment.....	38
4.5 Essential resource shortage	38
4.6 The human environment of work.....	40
4.7 Burnout	44
4.8 Analysis of the use of the MBI in the study population	52
CHAPTER FIVE	54
DISCUSSION	54
5.1 Introduction.....	55
5.2 Response rates.....	55

5.3 Demographic profile of respondents.....	55
5.4 Burnout	56
5.5 Burnout: Three constructs of Burnout: Emotional Exhaustion, Depersonalization and Personal accomplishment.....	56
5.6 Factors influencing burnout	58
5.7 Burnout: Perceptions of CHBH	62
5.8 Analysis of the MBI.....	63
CHAPTER SIX.....	64
CONCLUSION AND RECOMMENDATIONS	64
6.1 Conclusions related to the aims of the study	64
6.2 Limitations of the Study.....	65
6.3 Recommendations.....	66
6.4 Conclusion	67
References.....	68
Appendix A :Self administered Questionnaire (SAQ).....	72
Appendix B: Information Sheet.....	77
Appendix C: Consent.....	80
Appendix D: Ethics clearance form.....	80
.....	81
Appendix E: Post Graduate Committee Approval Letter	81

LIST OF FIGURES

Figure 2.1: Countries with a critical shortage of healthcare workers (Doctors, nurses, midwives).....	11
Figure 2.2 Consequences of HRH challenges.....	14
Figure 2.3: Model of burnout and associated factors.....	18
Figure 3.1: Organisation of the analysis of MBI	32
Figure 3.2: Organisation of the descriptive analysis	
Figure 3.3 Organisational chart for the statistical analysis	31
Figure 4.1 Proportion of the total staff that responded ‘Yes’ to running out of essential resources within the last month of working at CHBH.	39
Figure 4.2 Proportion of staff that responded ‘Yes’ as to sources of stress in the work environment in the Surgery Department at CHBH.....	41
Figure 4.3 Proportion of staff that responded ‘Yes’ as to sources of stress in the work environment in the Surgery Department at CHBH.....	42

LIST OF TABLES

Table 2.1: Proportion of Government Health Expenditure paid to health workers	10
Table 2.2. Different tools of measurement of burnout.....	19
Table 3.1: Variables Part 1, 2 and 4.....	25
Table 3.2: Part 3 of the Self-administered questionnaire.....	26
Table 4.1: Study population and response rate according to staff category	35
Table 4.2 Demographic profile according to staff category of the study population	36
Table 4.3: Proportion of staff according to staff category	37
Table 4.4 Mean hours and years worked at CHBH in the Surgery Department according to staff category.....	38
Tale 4.5 Proportion of the total staff that responded ‘Yes’ to running out of essential resources within their last month of work at CHBH according to staff category	40
Table 4.6 Proportion of the total staff that responded ‘Yes’ to factors perceived as a source of stress in the work environment in the surgical department at CHBH according to staff category.....	43
Table 4.7: Proportion of the total respondents classified according to the aggregate burnout scores	44
Table 4.8 Proportion of total staff according to current position and staff category who experienced burnout according to the levels of burnout	45
Table 4.9 Proportion of the total burnout respondents according to the three constructs of burnout in the population	46
Table 4.10: Proportion of the three constructs in the total study population including those who have no burnout	47
Table 4.11 Mean years worked at CHBH according to the level of burnout experienced by staff in the Surgery Department in CHBH (N=231).....	48
Table 4.12 Proportion of staff according to level of burnout that responded ‘Yes’ as to sources of stress in the work environment in the Surgery Department at CHBH. (N=231)	49
Table 4.13 Proportion of staff according to level of burnout that responded ‘No’ as to their association and career prospects from the Surgery Department at CHBH. (N=231)	50
Table 4.14: Summary of the regression results for the three constructs of burnout and burnout in the Surgery Department at CHBH.....	51
Table 4.15: Summary of the regression model diagnostics for the three constructs of burnout	52
Table 4.16 Mean, standard deviations, 95% confidence intervals, and internal consistency estimates (Cronbach’s alpha) of the Maslach Burnout Inventory	54

GLOSSARY OF TERMS

- **Burnout**: A syndrome of emotional exhaustion, depersonalization and reduced personal accomplishment, including cynicism that can occur especially among individuals who do ‘people work’, of some kind, but not exclusively. A key aspect of the burnout syndrome is emotional exhaustion.¹
- **Depersonalization**: It is the development of negative, cynical attitudes and feelings towards ones’ patients. These attitudes are often linked to emotional exhaustion.¹.
- **Emotional exhaustion**: It is a key aspect of the burnout syndrome; when individuals’ emotional resources are depleted as workers, they no longer feel able to give of themselves at a psychological level.¹
- **Reduced personal accomplishment**: It is the tendency to evaluate oneself negatively, particularly with regard to ones’ work and patients. Staff members feel unhappy about themselves and dissatisfied with their accomplishments on the job.¹
- **Gross National Product (GNP)** The World Bank defines GNP as the total domestic and foreign output claimed by residents of a country in one year. What they claim is also their income; thus, GNP is a measure of national income and GNP per capita is a measure of the average income of each member of the population, including what they may earn or receive from abroad.²
- **Human resources for health (HRH)**: synonyms are health manpower, health personnel, or health workforce. It denotes persons engaged in any capacity in the production and delivery of health services.³

- **Human resources management (HRM):** It covers all matters related to the employment, use, deployment and motivation of all categories of health workers, and largely determines the productivity and therefore the coverage of the health services system and its capacity to retain staff.³
- **Human service professional (HSP):** Professional staff in human service delivery such as nurses, doctors, teachers and police officers. They are often required to spend considerable time in intense involvement with patients, clients and people.⁴
- **Maslach Burnout inventory (MBI):** The 22 items for the Maslach Burnout Inventory (MBI) were designed to measure hypothesized aspects of the burnout syndrome. There are three subscales that measure levels of emotional exhaustion, depersonalization and personal accomplishment.⁴
- **Surgical Transformation Project (STP):** It is a current project at Chris Hani Baragwanath Hospital where a model of integrated management, in order to optimise the functioning of the surgical services, is being implemented. This model was formulated with elements of decentralisation as one of its core principles.
- **Stress:** Defined by the World Health Organization as an excess demand on an individual beyond his/her ability to cope⁵
- **Surgical staff:** All staff, inclusive of medical, nursing and support staff, which work in the Department of Surgery and their subspecialties at Chris Hani Baragwanath Hospital.

LIST OF ABBREVIATIONS

CHBH	Chris Hani Baragwanath Hospital
COSATU	Congress of South African Trade Unions
DP	Depersonalization
EE	Emotional exhaustion
HCW	Healthcare workers, including nurses, doctors and support staff in the healthcare industry.
HIV	Human immunodeficiency virus
HIVISS	HIV Impact Surveillance System ⁶
HRH	Human resources for health
HRM	Human resources management
HSP	Human service professionals
MBI	Maslach Burnout Inventory
NALEDI	National Labour and Economic Development Institute
NEHAWU	National Education Health & Allied Workers Union
PA	Reduced personal accomplishment
SD	Surgery Department
STP	Surgical Transformation Project
WHO	World Health Organization

CHAPTER ONE

ORIENTATION OF STUDY

The purpose of this study was to measure the levels of burnout and its associated factors amongst all the staff in the surgical services in a public hospital (Chris Hani Baragwanath Hospital) in the Gauteng Province of South Africa. This chapter will cover an introduction to the topic, a background of the study and its aims and objectives.

1.1 Introduction

Hospitals form the cornerstone of health systems and are pivotal to the welfare of a community. A hospital is a social institution that is linked to the economic, social, political and cultural conditions that govern people. Chris Hani Baragwanath Hospital (CHBH) is by no means an exception and, being a public hospital, there have been efforts, however disjointed and seemingly scattered, to fashion CHBH into a ‘People’s Hospital.’⁷

Public hospitals in South Africa such as CHBH, have been aptly described as ‘highly stressed institutions.’⁸ Healthcare workers (HCW) work under highly demanding conditions with extreme pressure and strain. ‘This often leads to increased stress, burnout and lack of job satisfaction which ultimately contribute to a decline in work performance, absenteeism, and intent to leave work.’⁸

In various studies and situational analyses such as the HIVISS burnout study⁶, Ethics Audit of CHBH⁹ and the NALEDI Report,⁸ attempts have been made to define the nature of the problems in South African public hospitals. The focus of these reports was CHBH. A common theme that emerged from these reports is the problems are multi-

level.

Externally, hospital functioning has become challenged by forces such as rapid urbanisation, with migration of people to large urban centres, such as Soweto. The human immunodeficiency virus (HIV) pandemic has further changed the profile of hospital patients.

Internally, institutions have come under enormous pressure from weak, dysfunctional and inconsistent management structures. Due to the burden of increased public need, workers have had to endure increased workload and stress. Added to the complexity of maintaining consistent clinical outcomes, health care workers have been further challenged by poor labour relations, poor management, and lack of retention incentives and competitive remuneration. Consequently, there has been an exodus of doctors and nurses from the public services into the private sector as well as overseas. These and many more factors have additively brought public hospitals into generalised states of dysfunction and disrepute. The CHBH has been susceptible to these pressures just like any other public service institute in South Africa.

In view of that, various stakeholders; namely the Congress of South African Trade Unions (COSATU) and NALEDI (National Labour and Economic Development Institute) decided to initiate a decentralised management of health services in CHBH, South Africa's largest public hospital. This transformation project was initiated in the Surgical Department and therefore came to be named the Surgical Transformation Project (STP) (Figure 1.1)

1.2 The Surgical Transformation Project (STP)

The Surgical Transformation Project (STP) at CHBH is an innovative attempt to implement a model of integrated management in order to optimise the functioning of the

surgical services. This model was formulated with elements of decentralisation as one of its core principals. The STP arose out of a need to improve the management and quality of health care services as well as the quality of the working life for staff at CHBH.

The National Labour and Economic Development Institute (NALEDI) was approached in the year 2000 by the National Education Health and Allied Worker's Union (NEHAWU) to assist in evaluating the current environment within which its constituents, nursing and general workers, functioned. Through a series of consultations and workshops, NALEDI put together 'broad proposals for change in a report aptly titled 'Towards a People's Hospital' in 2002.'⁷ This report, as well as further interaction with the management of CHBH, the Gauteng and National Department of Health, led to the proposal of the STP to be implemented within the surgical department at CHBH. The STP had proposed a change of management structure as well as a decentralised model of management.

Prior to the STP, staff in CHBH had already reported high levels of stress and burnout therefore with the implementation of the STP, which aimed to alleviate this stress and burnout, it became important to document the levels of burnout amongst the staff prior to the start of the STP and to do a similar study after the completion of the STP to assess the impact on the staff.

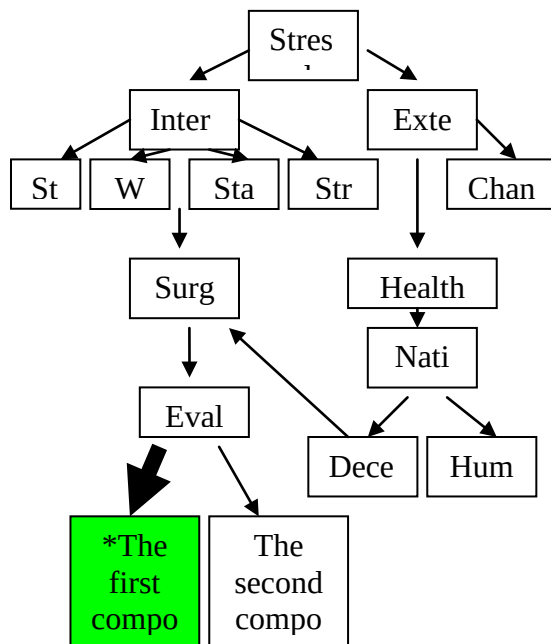


Figure 1.1 Outline of the rationale of the study
 * Focus of this report

1.3 Problem statement

The study described in this report was part of a process to document the stress and burnout of the surgical staff before initiation of the STP. The focus of the report is the first component of the evaluation of the STP (Figure 1.1). The results are expected to assist in the assessment of the impact of the STP after its completion.

1.4 Justification for the study

Human resource (HR) management in the health sector is recognized as a pivotal public health issue of importance in South Africa, if not globally. According to the staff at the surgical department at CHBH burnout and retention strategies are critical concerns that need to be addressed.

The justification for this study is that:

1. There is a paucity of data in the area of burnout in South Africa.
2. There is no known study (to the best of the author's knowledge) in tertiary institutions on levels of burnout amongst staff.
3. There are anecdotal reports of burnout amongst the staff at CHBH which needs to be documented.
4. The study was expected to identify factors associated with staff burnout and the results would enable the formulation of recommended strategies to alleviate them.
5. No systematic study has been done using a validated tool such as the Maslach Burnout Inventory (MBI) to assess burnout in a tertiary hospital in the past. Therefore, it was decided to use the MBI as it has been internally validated and internationally recognized.⁴ It should also be displayed that the tool measures burnout as it was designed to in a South African study population.

1.5 Study aims and objectives

The aim of the study is to measure burnout and its associated factors in the surgical staff at a central South African hospital (CHBH).

The specific objectives are:

1. To measure the levels of burnout amongst all the staff working in the surgical services in CHBH using the MBI
2. To assess the factors that is associated with burnout amongst the staff

1.6 Subsequent chapters

Chapter Two: Literature review: a summary of the key literature on human resources for health challenges and burnout.

Chapter Three: Methodology: a description of the study design and the methods used in the data collection and analysis.

Chapter Four: Results: these are presented in tables and graphs to which the discussion refers.

Chapter Five: Discussion: interpretation of the results with reference to the objectives of the study.

Chapter Six: Conclusion and recommendations: this chapter provides the researcher with a platform to succinctly comment on the findings and to make recommendations that target the findings.

CHAPTER TWO

LITERATURE REVIEW

In this chapter, relevant reports and articles from the literature with regard to the human resources challenge in health, burnout and the associated factors will be reviewed.

2.1 Human resources for health challenges

There are innumerable factors that impact healthcare worker (HCW) burnout and exit from the health services. The human resources for health challenges are global, yet they ultimately impact local services. Burnout is a recurring outcome of HCW strain, according to the literature.

2.1.1 Global Picture

The World Health Organization (WHO) defines health workers to be all people engaged in actions whose primary intent is to enhance health. This meaning extends from WHO's definition of the health system as comprising activities whose primary goal is to improve health.¹⁰ Health workers make important contributions and are critical to the functioning of health systems. The health workforce is a major input in the production of health care within the health system. According to the WHO, "at the heart of each and every health system, the workforce is central in advancing health."¹⁰ Without a foundation of skilled human resources, health care systems cannot function adequately or effectively, particularly in the public sector and at the primary level of care. A typical country devotes just over forty-two percent of their total general government health expenditure to paying its health workforce.¹⁰

The developing countries had a higher burden of disease and fewer health professionals than the developed countries. For example, the ratio of nurses: doctors ranges from nearly 8:1 in the African Region to 1.5:1 in the West.¹⁰ There is a dramatic skills shortage of doctors and specialists in Africa. The proportion of healthcare workers to the population in Africa also makes for a vast contrast. There are 2.3 healthcare workers in Africa compare to a global average of 9.3 healthcare workers per1000 population.¹⁰

As a result of that workers in health systems around the world are experiencing increasing stress and insecurity as they react to a complex array of forces. The final outcome has been high levels of burnout amongst healthcare workers especially nurses

.^{10, 11, 12, 13}

Demographic and epidemiological transitions drive changes in population-based health threats to which the workforce must respond.¹⁰ The World Health Report for 2006 has within it a recurring theme of increased work burdens, stress and eventual burnout as some of the key ‘push factors’ that are driving the healthcare work force in leaving their jobs.¹⁰ Financing policies, technological advances and consumer expectations can dramatically shift demands on the workforce in health systems. Workers seek opportunities and job security in health markets that are part of the global political economy by migrating locally to private sector or internationally.

2.1.2 Africa

In Africa the epidemic and scourge of HIV and the acquired immunodeficiency syndrome (AIDS) imposes huge work burdens, risks and threats to the health force. The well-being

of health care workers has come under close scrutiny in the current health management crisis. There are currently fifty-seven countries with critical shortages equivalent to a global deficit of 2.4 million doctors, nurses and midwives.¹⁰ The proportional shortfalls are greatest in sub-Saharan Africa. The African Region has twenty-four percent of the burden of disease but only three percent of health workers commanding less than one percent of world health expenditure. In stark contrast the wealthier countries that have ten percent of the global burden of disease, thirty-seven percent of the world's health workers at a cost of more than fifty percent of the world's health financing.¹⁰ The proportion of government expenditure paid to healthcare workers also makes for a large contrast in the developed and developing countries (Table 2.1). The exodus of skilled health professionals in the midst of so much unmet health need places Africa at the epicentre of the global health workforce crisis.

Table 2.1: Proportion of Government Health Expenditure paid to health workers

WHO Region	Wages, salaries and allowances of employees as percentage of general government health expenditure (GGHE)	Number of countries with available data
Africa(including South Africa)	29.5	14
Southeast Asia	35.5	2
Europe	42.3	18
Western pacific	45	7
Americas	49.8	17
Eastern Mediterranean	50.8	5
World	42.2	64

Data source: World Health Organization¹⁰

A recent study from sub-Saharan Africa points to significant push and pull factors that impact the movement and exit of HCW.¹³ Workers' cite concerns about lack of promotion, poor management, heavy workload, burnout, lack of facilities, and a declining health service as the push factors for migration.

The unmistakable imperative is to strengthen the workforce so that health systems can cope with ever-changing challenges.

The migration of health professionals out of the public health sector into the private sector as well as international hospitals and clinics have left those who remain in the

country to become over-stretched as they inevitably become subjected to increased workloads consequently leading to burnout and a desire to leave as well. There has been documented inadvertently a critical shortage of HCW globally and especially in Africa. (Figure 2.1).

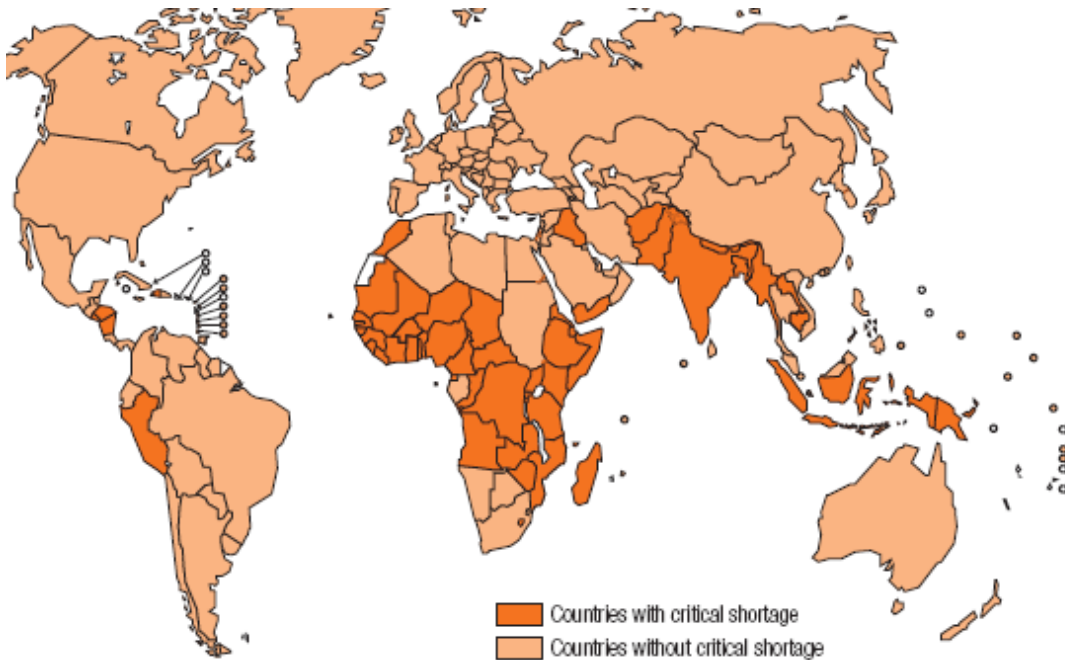


Figure 2.1: Countries with a critical shortage of healthcare workers (Doctors, nurses, midwives)

Data source: World Health Organisation Global Atlas of the Health Workforce ¹⁴

The performance of health systems is influenced significantly by well-being of its health workforce. These factors have played a pivotal role in the poor status of human resources for health in Africa. A strong human infrastructure is fundamental to closing today's gap between health promise and health reality and anticipating the health challenges. Momentum for action has grown steadily over recent years. Member States of WHO, spearheaded by health leaders from Africa, in 2006 adopted two resolutions in World Health Assemblies:

1. There was a call for global action to build a workforce for national health systems and
2. Stemming the flow of unplanned professional emigration.¹⁰

Key to unpacking the issues at the cause of this crisis is the overall well-being, safety and management of the workers within the health force.

2.1.3 South Africa

Health workers are not just individuals but are integral parts of functioning health teams in which each member contributes different skills and performs different functions.¹⁰ The most significant component of any health system is its health personnel and its well-being. South Africa's National Department of Health has recognised this in view of latest policy thrusts.¹⁵

According to Buch et al strengthening the work ethos is a way forward in strengthening the health system.¹⁶ The perceived worker attitudes and problems need to be addressed directly. South Africa's concerns are in keeping with the global picture. Health professionals consistently raise the issue of poor conditions under which they are expected to work as one of the factors that 'push' them out of the public health services into private and internationally. The working conditions are often described as strained; workloads and burnout are cited as their key 'push' factors.

These 'push' factors also include:

- High levels of absenteeism and burnout amongst staff
- Lack of appropriate medical equipment and supplies
- Poor maintenance of equipment especially at the lower level hospitals
- High vacancies in the public health services resulting in a shortage of critical staff.

- Dilapidated facilities and
- Shrinking operational budgets.¹³

Without a foundation of skilled human resources, health care systems cannot function adequately or effectively, particularly in the public sector and at the primary level of care to tackle crippling diseases and achieve national health goals. The ratios of doctors in South Africa are 1:4.5 and 1:3 for nurses in the public sector per 1000 population.¹⁸ The shortage is obvious and not in keeping with global trends. The shortage has put an increased burden on those working in the public sector and has been cited as a reason for burnout amongst staff.¹⁹

2.1.4 Gauteng

The impacts of an increased workload, shortage of staff and perceived indifference from management have led to the consequent experience of burnout in Gauteng Provincial Health Facilities.⁶ Gauteng hospitals and health facilities serve approximately eighteen percent of the national population.¹⁶ The provincial ratio of doctors: population is 1:0.7 and nurses 1:0.2 per 1000 population.¹⁸ Albeit they are significantly better than the National quoted statistics the shortage is still dire. This shortage has impacted directly on workloads. According to HIVISS⁶ workloads emerged as a strong predictor of burnout in the investigated Gauteng facilities. The shortfall of HIVISS though is that it was set up at clinics and the levels of burnout at hospitals are largely unknown. This is also a surveillance site not a longitudinal study and these are accompanied by very little evidence of factors and causality.

2.2 Determinants and Consequences of Human resources for Health (HRH)

Challenges

The consequences of HRH challenges experienced globally as well as provincially are (Figure 2.2):

1. Unmanageable workloads and constrained resources
2. Burnout
3. Staff migration
4. Retention
5. Inequitable distribution of healthcare workers
6. Inadequate supply and increased demand

All these consequences supported by literature as above contribute to the outcome of interest burnout in HCW.^{6, 13-16}

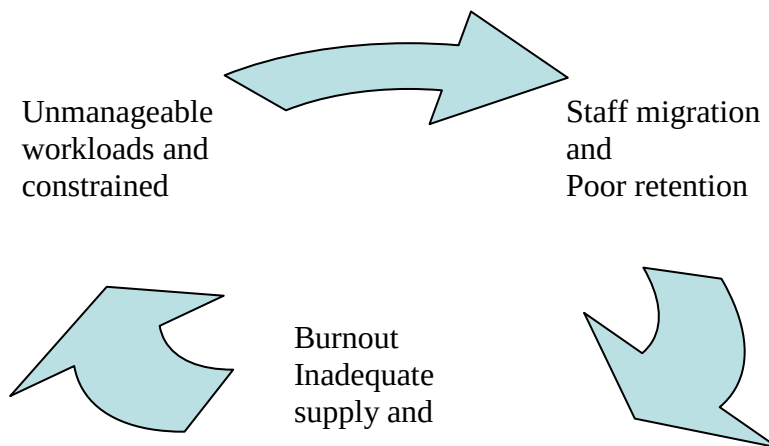


Figure 2.2 Consequences of HRH challenges

In view of the supporting evidence and argument presented thus far, health workers and their well-being are of paramount importance to the well-being of a health system. The

literature within HRH have highlighted a recurring problem of health worker burnout and increasing work demands as key ‘push’ factors for health worker migration, diminishing numbers of health workers and increasing workloads.

The production, recruitment and retention of health workers remain key challenges facing but not confined to South Africa as these have been documented as challenges for the entire Southern African region and globally.²⁰ The HRH crisis limits growth within the health system, especially in light of the vision in the National Health Act (Act 61 of 2003)²¹ and the unfolding Health Charter process, which seek to unify a segmented health system.²²

South Africa faces a major crisis in terms of human resources for health. There is a shortage within the country coupled with a misdistribution between provinces as well as between the public-private sectors and rural-urban facilities. There is a need for political will to implement national plans, together with international cooperation to align resources, harness knowledge especially about health workers and build robust health systems for treating and preventing disease and promoting population health. The development of capable, motivated and supported health workers is expected to assist in overcoming bottlenecks to achieve national and global health goals. Understanding the health worker and the factors associated with their work environment will further tackle the overall task of HRH improvement. Therefore burnout has come into focus in this report as an aspect that will further the understanding and contribute to improvements. The following section will address issues surrounding burnout of HCW.

2.3 Burnout of HCW: A public health issue of importance

2.3.1 Definition

Burnout has been described by Maslach et al. as a condition in which professionals ‘lose all concern for the patients they work with, and come to treat them in a detached, dehumanized way.’⁴ Professional burnout is a syndrome arising in response to chronic interpersonal stressors on the job.²²

Burnout is a condition of emotional exhaustion (EE), depersonalization (DP), and a reduced sense of personal accomplishment (PA) that can occur among individuals who do ‘people-work’ of some kind.⁴ These three constructs EE, DP and PA are what forms the basis of the standardised investigation of burnout internationally.

2.3.2 The Concept of burnout

Burnout has been conceptualised through years of work by Maslach into three defined constructs.¹ These constructs are:

1. Emotional exhaustion: It is a key aspect of the burnout syndrome and it is explained as when individuals’ emotional resources are depleted as workers they no longer feel able to give of themselves at a psychological level¹

2. Depersonalization: It is the development of negative, cynical attitudes and feelings towards ones’ patients. These negative, cynical attitudes towards patients are often linked to emotional exhaustion.¹

3. Reduced personal accomplishment: It is the tendency to evaluate oneself negatively,

particularly with regard to ones' work and patients. Staff feels unhappy about themselves and dissatisfied with their accomplishments on the job.¹

The MBI has been designed to evaluate an individual's level of burnout based on their responses to statements revolving around these constructs.

2.3.3 Factors associated with burnout

There is a large body of work on burnout that revolve around establishing its associated factors and consequences.^{6, 22, 23} Burnout has been shown empirically to be related to certain characteristics of the job environment such as workplace demands, individual factors and workplace resources.²⁴ Within these categories workload burdens, staff shortages and resource shortages have been factors shown to increase burnout.^{6, 24} Presented below (Figure 2.3) is a model of burnout and the associated factors that influence it as adapted from HIVISS.⁶

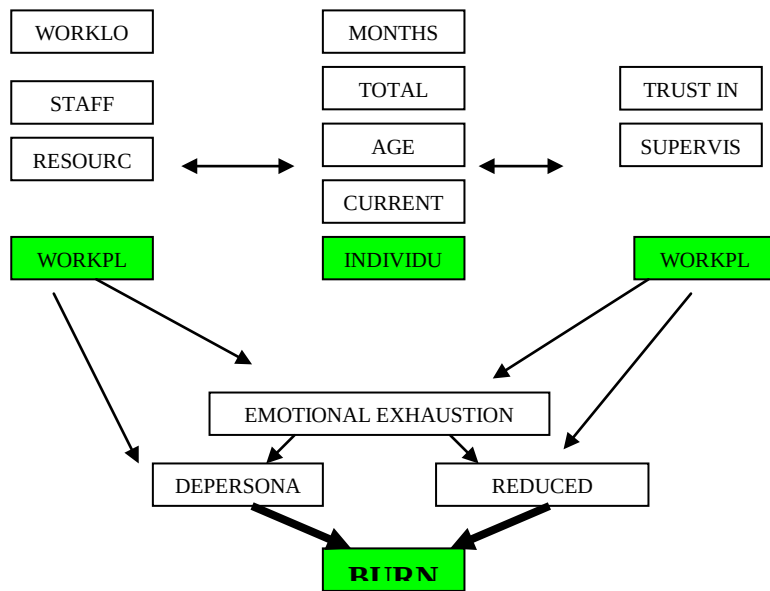


Figure 2.3: Model of burnout and associated factors
Adapted from model described in HIVISS.⁶

2.3.4 Measurement of burnout

There are various tools which have been developed to measure burnout (Table 2.2).

Amongst these tools the MBI is most commonly used and validated.²³

Table 2.2. Different tools of measurement of burnout

Name tool	Year developed
Jones' Staff Burnout scale	1980
Pines' Burnout measure	1981
Maslach-Burnout Inventory	1981
Shirom-Melamed Burnout Measure	1989

Data source: Confirmatory factor analysis of the MBI²⁸

There are various instruments for measuring job-related burnout in human service professionals. Historically the development of the currently widely used MBI was preceded by Freudenburg (1974, Staff Burnout). Maslach had begun preliminary work in 1976, but in 1981 along with Jackson created the MBI which is widely used mostly due to the extensive research in support of its reliability and validity.⁴(Table 2.2).

The items of the MBI were designed to measure the aspects of the burnout syndrome. There are twenty-two items written in the form of statements that enquire from the respondent about their personal feelings and attitudes regarding their job and job environment. Each statement is rated as a frequency scale of 0 (Never) to 6 (Every day). The constructs of EE has nine statements, DP has five and PA contains eight.¹ After the repeated use of the MBI the tool has become pivotal in systematic research on burnout

and its impact on the individual.

2.3.5 The Outcomes of burnout

In order to understand the outcomes of burnout a 'health systems approach' needs to be adopted. The outcomes impact quality of care which influences staff exiting the health sector as well as absenteeism. Thereafter; the shortage of staff which results in an increased work burden allows the vicious spiral towards an overall HR structure in crisis.

It is well documented amongst healthcare professionals that burnout can reduce their ability to provide good quality of care to their patients.^{1, 6, 25}

Manifestations of burnout include a low morale, loss of interest in one's work, increased absenteeism and treating patients as impersonal objects.^{1, 6} Maslach has written in her extensive research on burnout in healthcare professionals:

*'Perhaps the most visible impact of burnout is the change in people's work performance. Motivation is down, frustration is up, and an unsympathetic, don't-give-a-damn attitude predominates. They don't care in making their judgements, and they don't care as much about the outcome. They go 'by the book' and are stale rather than fresh. They give the bare minimum rather than giving their all, and sometimes give nothing at all. Their motto as said by one long time worker is, 'The more they ask, the less I do.'*²⁶

Thomas (2002) suggested that the ever growing patient load in the presence of a rapidly diminishing workforce further contributed to stress experienced in the public sector. This was attributable to doctors and nurses leaving the public sector or just not taking up

existing post. It was suggested that the imbalance seen in doctor-nurse-patient ratios lead to an increased number of nights, weekends and overall hours spent at work.²⁷ This placed an enormous personal demand on healthcare workers, further contributing to burnout.

2.3.6 Conclusion

The problem of burnout is multi layered. Clearly the evidence presented states that burnout is an issue of significance amongst the healthcare workers. The individual factors, workplace factors and workplace resources have an alarming effect on the individual HCW and it serves to follow that the paucity in research around burnout will be an important void to fill. Especially an exploration of the factors associated with it and the validity of the tool employed to measure it in a South African public hospital setting.

CHAPTER THREE

METHODOLOGY

The methodology for this study was determined by the aims and objectives of this study. In this chapter, the setting, scope and design of the study, the selection of the subjects and research tools is covered. Further, the collection of the data is described and the methods of data analysis and statistical testing are specified.

3.1 Setting and scope

The CHBH is classified as a tertiary services public hospital which provides curative services for approximately 3.5 million people from the Southern and Western parts of Gauteng. However, it often receives referrals for specialist treatment, from all the surrounding African countries as well. The hospital is situated on the southern border of Soweto.²⁸

This study was done only in the surgical department of a public sector hospital therefore the findings from this study may not be applicable to private healthcare institutions.

3.2 Study design

A cross-sectional study over a two month period October and November 2006 was conducted.

3.3 Study population and sample

3.3.1 Study population

At the time of the study between October and November 2006 the entire staff complement of the surgical department and the sub-specialities were approached by the principal researcher with regards to participation in the study and specifically the completion of the attached questionnaire (See appendix A) in order to assess burnout. All the staff that attended work during this two month period in the general surgical department wards and the five sub-specialties namely: Urology; Plastic surgery; Orthopaedics; Paediatric surgery; and Ear, nose and throat surgery were defined as the study population.

3.3.2 Study sample

At the time of the study the staff working in surgery was 340. The staff who were on leave and absent for a long period of time during the study were excluded. Therefore the final study population was 310.

3.4 Measurement

3.4.1 Measurement tools

The self-administered questionnaire (SAQ) which includes the MBI is to be completed by all surgical staff. The completed SAQ will then be collected by the principal researcher and entered anonymously on the data collection sheet.

A four page four part questionnaire was developed for this study (Appendix A)

Part 1: Includes demographic data such as age, sex, current position, and data concerning professional work history.

Part 2: Includes work and personal situation with variables on hours worked in the last week, number of patients seen in the last working day, colleague absenteeism and resources in the work environment. A list inclusive of equipment, drugs, soap and other disposables (needles, syringes, alcohol swabs, blood tubes, cotton wool) were included as the resources in the work environment.

Part 3: Includes the MBI as it was created by Maslach et al in order to assess the levels of burnout in an internationally standardised way. The section has the twenty-two statements of the MBI that was assessed on a seven point Lickert frequency scale of zero (none) to six (every day).

Part 4: Includes questions on job satisfaction, satisfaction with colleagues, supervisors, workload, and conditions of service and career prospects.

3.4.2 Variables

The variables for the study that were measured in part 1, 2 and 4 are listed in Table 3.1

Table 3.1: Variables Part 1, 2 and 4

Background
Gender
Current position
Year started work
Number of years worked at CHBH
Working experience (years)
Work and personal situation
Hours worked in a week
Number of patients seen in a week
The shortage of resources in the ward
The unexpected absenteeism of colleagues in the last month
The sources of stress in the work environment
The running out of equipment in the ward
Job satisfaction
Job satisfaction
Factors associated with job satisfaction

The variables that were measured using the MBI are listed in Table 3.2 as they were asked according to the participants

Table 3.2: Part 3 of the Self-administered questionnaire

Variables of the MBI
I feel emotionally drained from my work
I feel used up at the end of the workday
I feel fatigued when I get up in the morning and have to face another day on the job
I can easily understand how my patients feel about things
I feel I treat some patients as if they were impersonal objects
Working with people all day is really a strain for me
I deal very effectively with the problems of my patients
I feel burned out from my work
I feel I'm positively influencing other people's lives through my work
I've become more callous toward people since I took this job
I worry that this job is hardening me emotionally
I feel very energetic
I feel frustrated by my job
I feel I'm working too hard on my job
I don't really care what happens to some patients
Working with people directly puts too much stress on me
I can easily create a relaxed atmosphere with my patients
I feel exhilarated after working closely with my patients
I have accomplished many worthwhile things in this job
I feel like I'm at the end of my rope
In my work, I deal with emotional problems very calmly
I feel patients blame me for some of their problems
I am often bored in my job
I frequently think of quitting my job

3.5 Data management

3.5.1 Data collection

Data on staff burnout levels was collected as well as demographic information and factors regarding staff position, resources and perception of workloads. The final analysis would be to determine if burnout exists amongst the staff and what are the associated factors in this population. All staff including nursing staff, medical staff and support staff was visited when the morning seven o'clock shift started as well as at seven o'clock in

the evening when the night staff came on duty. Medical staff was also approached at their daily or weekly department meetings. The information sheet (see Appendix B) was used in order to inform the staff about the study, the voluntary nature of participation as well as their anonymity.

Verbal consent was obtained from the participants after the briefing of staff in the wards or meetings. Written consent was not obtained as this served only to compromise the anonymous identity of the participants. Any apprehension regarding issues of confidentiality, management of data and presentation of results were discussed and allayed. Then the questionnaire was handed out and upon completion it was returned to the principal researcher. In order to enhance the response rate, the surgical staff that was willing to participate in the study were followed up until receipt of the completed questionnaire. 'Complete' records were defined as those that had had the following:

- Non-identifying demographic details,
- Completed MBI

If any of the above were missing, or if the information in the 'completed' questionnaire could not provide the required data, the questionnaire was considered 'incomplete' and not used in the study.

3.5.2 Data analysis tools

The questionnaires were coded for each element and entered onto a Microsoft excel spreadsheet. Each questionnaire entered was given a record number. For each record the MBI score for burnout was calculated as a simple summation without weighting any of the twenty two statements or three constructs. Each of the three constructs had their individual scores to be used in the analysis. The data collection spreadsheet was then entered onto STATA version 9 for further statistical analysis.

3.5.3 Descriptive data analysis

The descriptive analysis as laid out below (Figure 3.2) was conducted on the data collected.

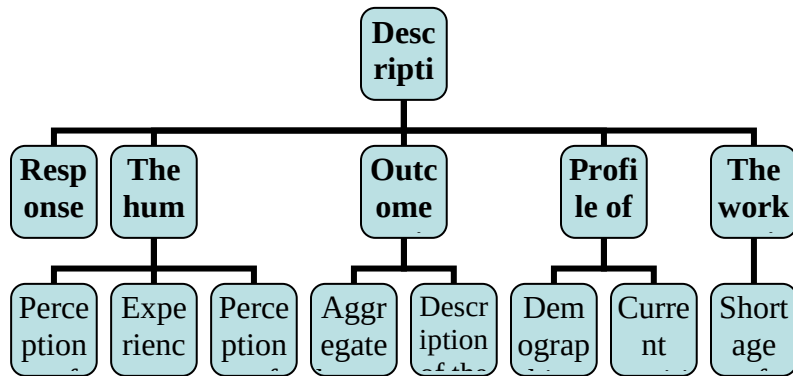


Figure 3.2 Organisation of the descriptive analysis to

This section would describe the population under study and develop the outcome variables in keeping with the other objectives. Data would be expressed as means +/- SD (Standard deviation) according to the distribution of data. (Table 3.1)

Each of the participants in the study completed the MBI. The 22 statements were presented as a seven point Lickert scale based on frequency where 0 (Never) to 6 (Everyday) in keeping with literature.¹ each participant score was simply a summation without the weighting of any individual statement. The aggregate scores generated were then classified into 4 levels of burnout where 0 (No burnout), 1 (Low), 2 (Medium) and 3 (High). This section answers the second objective of the study. (Table 3.2)

According to Maslach et al. (1981) the 22 statements fall into one of three constructs namely; Emotional Exhaustion, Depersonalization and Personal accomplishment.¹ In keeping with Beckstead²³ and Maslach et al.¹ the responses from the participants were classified into the three constructs after a factor analysis was done on the variables and these scores were used in the analysis.^{1, 23} This therefore begins to address the objective on analysis of the MBI as used in the study population

3.5.4 Analytical statistics

The organization of the analytical statistics will be laid out as described in Figure 3.3.

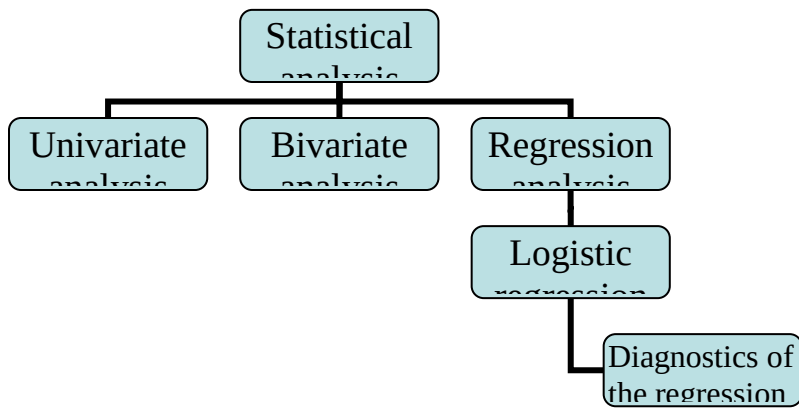


Figure 3.3 Organisational chart for the statistical analysis

a. Univariate analysis

One-way analysis of variance (ANOVA) according to the data distribution would be used to compare the levels of burnout with other categorical variables.

b. Bivariate analysis

The chi square test was used to test the statistical significance of the association between categorical variables.

c. Regression analysis

Stepwise regression for the constructs of burnout emotional exhaustion (EE), Depersonalization (DP) and personal accomplishment (PA) and Burnout

A model of stepwise regression was used as the outcome variable was treated as dichotomous. For example there was either EE or not. A p- value of 0.05 indicated statistical significance.

d. Diagnostics of the regression model include sensitivity, specificity and all the data that were correctly classified according to the model.

e. Analysis of the MBI

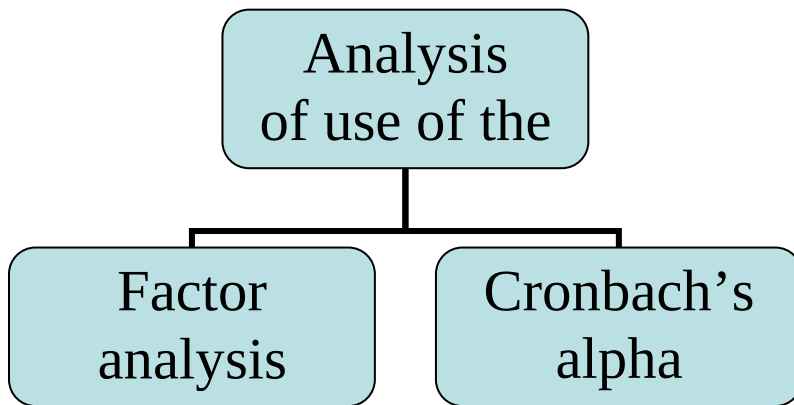


Figure 3.1: Organisation of the analysis of MBI

a. Factor analysis

Factor analysis was used to evaluate the constructs of the MBI questionnaire. The eigenvalues rule was used to determine which factors would be extracted. Factor analysis is a statistical technique used for analyzing the correlations among several variables in order to estimate the number of fundamental dimensions that underlie the observed data in the study population.²⁹ The objective was to explain the co-variability of observable random variables (in this study the responses of the 22 statements of the MBI) in terms of smaller unobservable variables (factors). Eigenvalues are used in explaining the variability and a factor with an eigenvalues greater than 1.00 is considered significant and less than 1.00 is considered weak.

b. Cronbach's alpha

The estimates of alphas are a reliability measure that assesses the internal consistency. The reliability estimates of the factors drawn from the responses to the MBI will allow the researcher to comment on the use of the (MBI) in this study population.³²

3. 6 Pilot study

An initial pilot of the questionnaire was done prior to the final SAQ used in the study. After meetings with the nursing ward managers, the head of department of surgery and the executive staff at CHBH a pilot questionnaire and protocol for the proposed study was developed. There were thirty questionnaires distributed over a week to staff that had already left the department. These were then reviewed and further adapted in order to meet the objectives of the study and understanding of the pilot population of the questions. The demographic fields and factors that may be associated with burnout in this specific study population were included after an initial pilot of the questionnaire. The final SAQ took approximately fifteen minutes to complete and attached was the information sheet which explained the study. A final questionnaire (Appendix A) was then prepared and distributed.

3.7 Ethical consideration

Permission was obtained from the CEO, Dr A Manning and the Clinical Director, Dr R Billa of the CHBH for the study of the hospital and its staff. Furthermore permission to conduct the study in the surgical department was obtained from the head of department, Professor M Smith.

Ethical clearance for this study was obtained from the Human Research Ethics

Committee (Medical) of the University of Witwatersrand (M060727) (Appendix C) The staff of the surgical department at CHBH had also supported and actively participated in the study. All information had been collected anonymously, and confidentiality has been respected.

CHAPTER FOUR

RESULTS

In this chapter a presentation of the results in the form of tables and graphs are made as well as a highlight of the key findings.

4.1.Response rates

The data was classified according to staff categories. The data was collected from a total study sample of 310 staff working in the Surgery Department (SD) at the time of the study (Table 4.1).

Table 4.1: Study population and response rate according to staff category

Staff Category	Total Staff	Response	Response rate (%)
Nurses	210	152	72.4
Medical(Doctors)	57	46	80.7
Other (support & administration)	43	33	76.7
Total	310	231	76.6

To calculate the response rate, the total staff working in the SD at the time of the survey was taken as the denominator, this excluded the staff on leave or absent. Therefore the response rate was 76.6 %.

4.2 Demographic profile of respondents

The mean age of the overall population was 40.2 years, with nurses having a mean age of 41.6 years (Table 4.2). Females formed the majority of the study population (76.6%) overall. The majority of the doctors who responded were males (78.3%).

Table 4.2 Demographic profile according to staff category of the study population

	Nurses	Doctors	Other staff	Overall
Age(years)	41.6	37.2	42.8	40.2
Gender:				
Female(percentage)	92.8	21.7	87.9	76.6
Male(percentage)	7.2	78.3	12.1	23.4

The medical staff (doctors) are significantly younger than the other categories of staff (one-way ANOVA, $P < 0.05$).

There were significantly more females amongst the nurses than in any other category (chi square test, $P < 0.0001$).

4.3 Staff categories

The data was classified into their respective staff categories (Table 4.3). All the nursing staffs (Nursing auxillary-Ward/unit managers) were grouped together as Nurses. All doctors (Interns, Medical officers, Registrars and Consultants) were classified as Medical staff. Support staff and administrators were grouped as Other staff.

Table 4.3: Proportion of staff according to staff category

Staff category	Proportion of the total study population (%)
Other	
Cleaner	5.2
Porter	6.9
Administrative Clerk	4.3
Total	16.4
Nurses	
Nursing auxillary	15.2
Enrolled nurse	17.3
Professional nurses	6.5
Ward or unit manager	23.4
Total	62.4
Medical	
Medical intern	4.3
Medical officer	10.9
Registrar	4.3
Consultant	1.7
Total	21.2

The nurses (Table 4.3) formed the largest proportion of the study population (62.4%). Medical officers formed the highest proportion of the medical staff (10.9%). The proportion of ward/unit managers was the highest amongst the nurses (23.4 %). Nursing auxiliaries are pivotal ‘nursing assistants’ and they comprised 15.2 % of this study population. Specialist consultants amongst medical staff were the lowest proportion (1.7%). Support staffs are critical in the efficient management of the department and they formed cumulatively 16.4% of the total. Overall the nurses formed a significant proportion of the staff compared to any other category (chi square, $P < 0.05$).

4.4 The work environment

Medical staff (Table 4.4) reported working 55.1 hours in their last week. Overall the mean number of hours worked in the last week by staff was 48.0 hours. The mean number of years worked by nurses 12.5 years, was significantly noted (one-way ANOVA, P, 0.05) to being almost double the number of years reported by medical staff.

The number of patients as reported by staff seen within the last week varied widely. Medical staff reported significantly (one-way ANOVA, $P < 0.00$) that they consulted 43.0 patients weekly as opposed to nurses who consulted 27.2 patients weekly.

Table 4.4 Mean hours and years worked at CHBH in the Surgery Department according to staff category

	Standard deviation	Nurses	Medical	Other	Overall mean
Self-reported hours worked in the last week	8.7	45.9	55.1	43.0	48.0
Self-reported years worked at CHBH	8.9	12.5	6.5	14.8	9.2
Number of patients seen weekly	19.4	27.2	43.0	0	35.1

4.5 Essential resource shortage

The staffs were asked in the SAQ if they had run out of essential resources within the last month of working at CHBH. They had to respond either yes or no. The total response (Figure 4.1) varied for each item on the list.

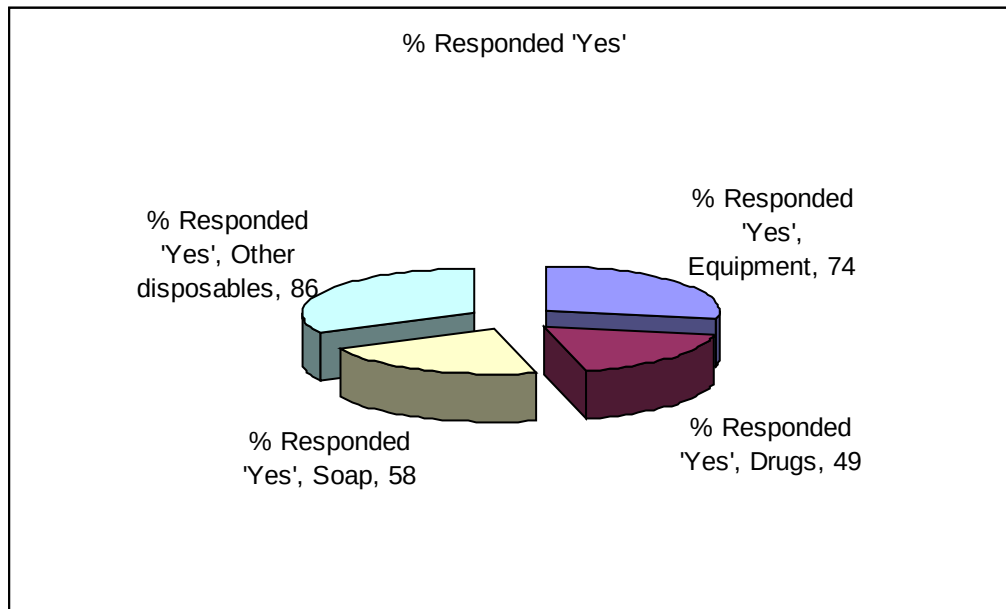


Figure 4.1 Proportion of the total staff that responded 'Yes' to running out of essential resources within the last month of working at CHBH.

A total of 86% of the staff reported running out of other disposables. A total of 49% reported that essential drugs ran out and 74% reported running out of equipment. Soap is an essential resource in the management of the ward and 58% of the staff reported running out of it in the last month (Figure 4.1).

It was useful to look at the response according to the staff category. This allowed for insight into staff perception of the resources which are available to them in their work environment (Table 4.5).

Tale 4.5 Proportion of the total staff that responded ‘Yes’ to running out of essential resources within their last month of work at CHBH according to staff category

	Nurses(%)	Medical(%)	Other (%)
Equipment	42	43	15
Drugs	47	51	2
Soap	48	28	24
Other disposables	33	63	4

The proportion of medical staff (Table 4.5) that reported they ran out of other disposables and drugs were 63% and 51% respectively. The proportion of nurses that reported soap and drugs as essential resources that ran out were 48% and 47% respectively. Likely due to their job profile 24 % of the other staff reported running out of soap.

4.6 The human environment of work

Questions around the perceptions of staff were included to get a sense of the environment at work with regards to their interaction with colleagues as well as a perception of their workload. They were asked if the following were a source of stress at work; communication amongst staff, communication with

the Supervisor and their authority, or the unexpected absence of a colleague in last month. Those participants who answered 'Yes' are displayed below. (Figure 4.2).

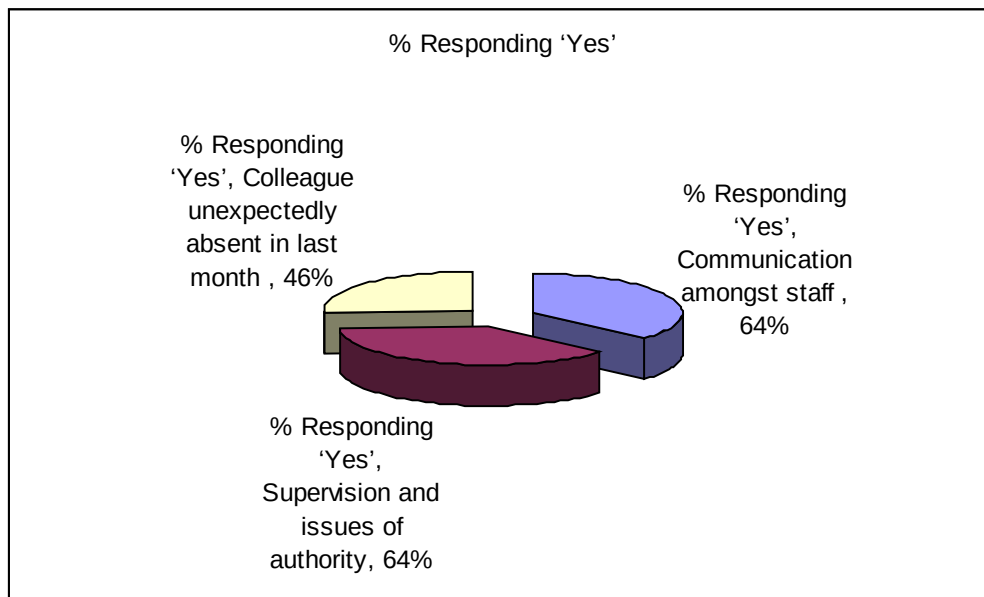


Figure 4.2 Proportion of staff that responded 'Yes' as to sources of stress in the work environment in the Surgery Department at CHBH.

In response to staff absenteeism within the last month, 46% of the respondents cited this factor as a source of stress in the work environment. There was 64% of the staff who perceived 'communication amongst staff' and 'issues of supervision and authority' as a source of stress.

The participants were then asked their perception of sources of stress in the work environment with regards to shortage of staff, poor remuneration, night duty, and long shifts. Those that answered yes are displayed (Figure 4.3).

Shortage of staff was cited by 92% of the respondents as a recurring source of stress at work, and 76% of staff perceived poor remuneration for work done as a source of stress. Other factors such as long shifts and night duty had only 64% and 56% of staff respectively responding 'Yes'.

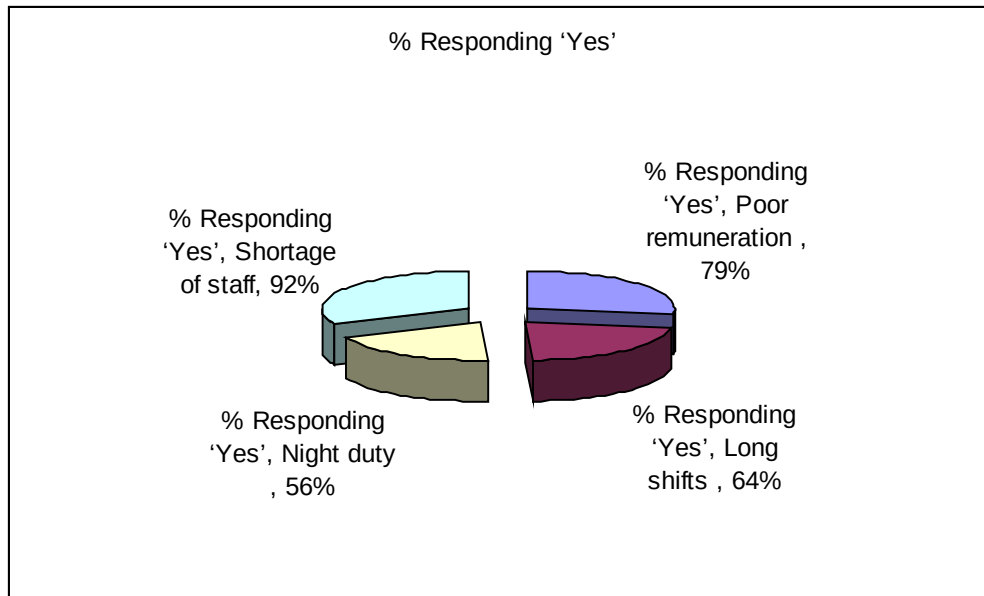


Figure 4.3 Proportion of staff that responded 'Yes' as to sources of stress in the work environment in the Surgery Department at CHBH.

It was useful to look at each factor according to staff category and see specifically which factor would be perceived as a source of stress per category. (Table 4. 6)

Table 4.6 Proportion of the total staff that responded ‘Yes’ to factors perceived as a source of stress in the work environment in the surgical department at CHBH according to staff category

	Nurses (%)	Medical (%)	Other (%)
Communication amongst staff	62	16	22
Communication with Supervisor and their authority	48	27	25
If a colleague was unexpectedly absent in last month	23	69	8
Shortage of staff,	42	45	13
Poor remuneration,	64	23	13
Night duty	61	25	14
Long shifts	21	43	36

The factors that nurses reported that impacted them often in terms of stress in the work environment were poor remuneration (64%) and communication amongst staff (62%) were significant compared to the staff (one-way ANOVA, $P < 0.001$). The factor which impacted them the least (one-way ANOVA, $P < 0.005$) compared to staff were long shifts (21%). The majority of the medical staff cited unexpected staff absenteeism (69%) and shortage of staff (45%) as factors of stress at work compared to other staff (one-way ANOVA, $P < 0.00$). Least of their concern was communication amongst staff (16%). Administrative and support staff frequently cited long shifts (36%) as a source of stress.

4.7 Burnout

4.7.1 Aggregate burnout scores

Each participant score was simply a summation of the Lickert scale associated with the response without the weighting of any of the 22 individual statements of the MBI. The aggregate scores generated were then classified into 4 levels of burnout where 0 (No burnout), 1 (Low), 2 (Medium) and 3 (High) (Table 4.7).

Table 4.7: Proportion of the total respondents classified according to the aggregate burnout scores

Levels of burnout	Frequency	Proportion (%)
0 - No	23	9.9
1 - Low	50	21.7
2 - Medium	78	33.8
3 - High	80	34.6

There was a total of 90.1% (95% CI- 57.1-99.6) of the population that displayed burnout (Low-high). There was 34.6% of the total respondent population who displayed high levels of burnout. There was 9.9% that displayed no burnout. (Table 4.7) The medium and high levels of burnout comprise of a large number of females. The men are experiencing significantly lower levels of burnout.

It was useful to look at staff category according to their position held in the staffing establishment and their levels of burnout (Table 4.8).

Table 4.8 Proportion of total staff according to current position and staff category who experienced burnout according to the levels of burnout

	Levels of Burnout				
Staff category	Total	0-None	1-Low	2-Medium	3-High
Other					
Cleaners	11	1	3	2	5
Porters	17	1	5	4	7
Administrative clerk	11	1	2	3	5
Nurse					
Nursing auxillary	41	6	8	17(41.5)	10(24.4)
Enrolled nurse	36	2	7	16(44.4)	11(30.6)
Professional nurse	16	1	6	3	6
Ward/Unit manager	49	4	11	25(51.0)	9(18.4)
Medical					
Medical intern	13	3	2	4	4
Medical officer	15	2	2	0	11(73.3)
Registrar	1	0	0	1	0
Consultants	20	2	4	2	12(60.0)

In the nursing category, (Table 4.8) 65.9% of the nursing axillaries reported medium-high levels of burnout. Specifically, 24.4% reported high levels of burnout. Amongst the enrolled nurses 75% of them reported medium-high levels of burnout and 69.4% of the ward/unit managers reported medium-high levels of burnout. There were 73.3% of the medical officers that displayed high levels of burnout and 60.0% of the consultants in surgery with high levels of burnout. All the results were statistically significant (chi square, $P < 0.05$).

4.7.2 Three constructs of Burnout: Emotional Exhaustion, Depersonalization and

Personal accomplishment

In view of burnout as an outcome variable, in the literature supported by Maslach et al¹ it is important to look at the respondents who are classified as having burnout, and at which construct level the population is affected. This can assist in the structure of intervention. The data on all those who exhibited burnout was then stratified according to the responses and three constructs (Table 4.8). For ease of presentation it was feasible to present the findings as the proportion of those who are burnout according to their response.

Table 4.9 Proportion of the total burnout respondents according to the three constructs of burnout in the population

Three constructs of burnout	Once a week- Everyday (%)	Never-Few times a month (%)
<u>Emotional exhaustion</u> 'I feel emotionally drained from my work'	45.5	54.5
<u>Depersonalisation</u> 'I feel I treat some patients as if they were impersonal objects'	21.2	78.8
<u>Personal accomplishment</u> 'I feel I am positively influencing other peoples lives through my work'	46.9	53.1

An initial scan of the three constructs show that there was 45.5% of the total population (Table 4.9) who are burnout that are emotionally exhausted and 78.8% reported that they 'Do not treat some patients as personal objects.' therefore they do not exhibit symptoms of depersonalization. There were 53.1% who reported that they do not have a sense of personal accomplishment and that they are not positively influencing other peoples' lives

through their work.

It is critical to understand the proportion of the study population that is burnout and the factors associated with it; yet it is also imperative to use the data to expose what the entire study population whether burnout or not are displaying in terms of the three constructs. This may assist the tailoring of an intervention if needed (Table 4.10).

Table 4.10: Proportion of the three constructs in the total study population including those who have no burnout

Three constructs of burnout	Proportion (%) (Number of respondents)
<u>Emotional exhaustion</u> 'I feel emotionally drained from my work'	73.6 (170)
<u>Depersonalisation</u> 'I feel I treat some patients as if they were impersonal objects'	40.3 (93)
<u>Personal accomplishment</u> 'I feel I am positively influencing other peoples lives through my work'	20.8 (183)

Emotional exhaustion was displayed by 73.6% of the total study population and only 20.8% of the staff felt that they were positively influencing other peoples' lives through their work at CHBH.

4.7.3 The work environment

The staff that experienced burnout were analysed according to the number of years worked at CHBH (Table 4.11). This showed significantly (one-way ANOVA, $P < 0.001$) that as the level of burnout became high the number of years worked in CHBH increased.

The number of hours worked within the last week by staff increased as the level of burnout increased.

Table 4.11 Mean years worked at CHBH according to the level of burnout experienced by staff in the Surgery Department in CHBH (N=231)

	Levels of burnout			
	Level 0-None	Level 1- Low	Level 2-Medium	Level 3-High
	N(23)	N(50)	N(78)	N(80)
Self-reported years worked at CHBH Mean (Standard deviation)	9.1 (8.9)	11.8 (10.1)	13.0 (10.3)	13.6 (9.5)
Hours worked in the last week	45.0 (11.3)	43.0 (9.9)	45.2 (9.8)	45.9 (10.1)
Number of patients seen in the last week	32.7 (17.6)	34.6 (19.5)	35.2 (22.4)	39.8 (14.2)

4.7.4 The human environment to work

The staff that experienced some level of burnout were also analysed according to questions asked about their perceptions of staff in order to get a sense of the environment at work with regards to their interaction with their colleagues (Table 4.12).

They were asked if the following were a source of stress at work; communication amongst staff, communication with the Supervisor and their authority, or the unexpected absence of a colleague in last month. Those participants who answered ‘Yes’ (Figure 4.2) were considered in the analysis. A significant proportion (Table 4.12) of the participants who showed a high level of burnout reported that unexpected absenteeism (61.9% chi square, $P<0.05$), communication amongst staff (85.7% chi square, $P<0.05$) and communication with their supervisor (85.7% chi square, $P<0.05$) were a source of stress

in their work environment.

Table 4.12 Proportion of staff according to level of burnout that responded ‘Yes’ as to sources of stress in the work environment in the Surgery Department at CHBH. (N=231)

	Levels of burnout			
	Level 0- None	Level 1- Low	Level 2- Medium	Level 3- High
	N(23)	N(50)	N(78)	N(80)
Unexpected absenteeism(Staff responded ‘Yes’)	34.4%	39.5%	56.3%	61.9%
Communication amongst staff	54.6%	58.4%	72.9%	85.7%
Communication with your Supervisor and their authority	50.0%	60.0%	70.2%	85.7%

4.7.5 Perceptions of CHBH

Participants were asked questions about their association with CHBH and their career prospects at the hospital (Table 4.13). The staff that were experiencing high levels of burnout showed significantly (chi square, $P < 0.01$) that there was only 18.2% that were not proud to be associated with CHBH. There 54.6% with a medium level of burnout that were not proud to be associated with CHBH.

There was 9.1% (chi square, $P < 0.01$) who experienced high levels of burnout who were not satisfied with their career prospects at CHBH.

Table 4.13 Proportion of staff according to level of burnout that responded ‘No’ as to their association and career prospects from the Surgery Department at CHBH. (N=231)

	Levels of burnout			
	Level 0-None	Level 1-Low	Level 2-Medium	Level 3-High
	N(23)	N(50)	N(78)	N(80)
I feel proud to be associated with CHBH(‘No’)	9.1%	18.2%	54.6%	18.2%
Are you satisfied with career prospects at CHBH(‘No’)	15.9%	61.4%	13.7%	9.1%

4.7.6 Summary of regression model for the three constructs of burnout and burnout

All the factors associated with the three constructs of burnout as well as with the aggregate burnout scores that were significant are presented in Table 4.14. Those participants who showed emotional exhaustion (EE) exhibited that ‘No support from their supervisor’ and conflict with their colleagues was a significant predictor of EE.

In terms of depersonalization (DP) a strong predictor was having no support from the head of department.

Gender was a significant predictor of a lack of personal accomplishment.

In terms of burnout gender, night duty and the years worked at CHBH were seen as significant predictors.

Table 4.14: Summary of the regression results for the three constructs of burnout and burnout in the Surgery Department at CHBH

	Odds ratio	95% Confidence interval	P-value
<u>Emotional exhaustion</u>			
Self-reported hours worked in the last week	0.9	0.77-0.97	0.01
Shortage of beds	1.9	1.14-3.01	0.01
No support from supervisor	6.8	1.28-35.80	0.02
Conflict with colleagues	7.1	1.59-31.72	0.01
<u>Depersonalisation</u>			
No support from head of department	4.5	1.12-17.70	0.03
No support from supervisor	0.3	0.07-1.00	0.05
Conflict with colleagues	3.2	0.95-10.89	0.06
<u>Lack of personal accomplishment</u>			
Gender	5.8	1.81-18.8	0.00
<u>Burnout</u>			
Night duty	0.8		0.00
Gender	0.8		0.00
Self-reported years worked at CHBH	0.8		0.04
Long shifts	0.8		0.00

4.7.7 Burnout: Summary of the diagnostic checks of the regression model for the three constructs of burnout

The regression model correctly classified 87.4%, 88.8% and 88.4% of the three constructs of burnout EE, DP and PA respectively and 89.1 % of those who were burnout. (Table 4.15). The sensitivity and specificity are also reported.

Table 4.15: Summary of the regression model diagnostics for the three constructs of burnout

<u>Emotional exhaustion</u>	
Sensitivity	77.5
Specificity	93.7
Correctly classified	87.4%
<u>Depersonalisation</u>	
Sensitivity	70.0
Specificity	96.1
Correctly classified	88.8%
<u>Lack of personal accomplishment</u>	
Sensitivity	91.4
Specificity	82.5
Correctly classified	88.4%
<u>Burnout</u>	
Sensitivity	91.2
Specificity	81.4
Correctly classified	89.1%

4.8 Analysis of the use of the MBI in the study population

a. Factor analysis

In order to conduct the factor analysis the following steps were taken with respect to the data collected:

1. All variables were considered to be independent

2. Participants response was measured using the MBI
3. All the correlations to the answers for the 22 questions in the MBI were calculated. The items that grouped together in a logical way and had a higher correlation were considered.
4. Then the correlations were grouped to form factors.
5. The first 3 factors (EE, DP and PA) that accounted for enough variation to draw inferences about the score of the respondents were then considered and which of the 22 items in the MBI made up these factors were then viewed. (Figure 4.4).

b. Cronbach's alphas

The reliability estimates (i.e., Cronbach's alphas) reported in Table 4.16 were compared to the published norms⁴. The Cronbach's alpha coefficients calculated on this sample of participants were not significantly different from those published by Maslach et al.⁴

Table 4.16 Mean, standard deviations, 95% confidence intervals, and internal consistency estimates (Cronbach's alpha) of the Maslach Burnout Inventory

Three constructs of burnout	Standard deviation	Mean Cronbach's alpha
Study population (N=231)		
Emotional exhaustion	16.7	0.8
Depersonalization	7.9	0.8
Reduced personal accomplishment	14.0	0.8
Published norms (N=1104)⁴		
Emotional exhaustion	9.53	0.8
Depersonalization	5.22	0.8
Reduced personal accomplishment	7.34	0.8

*Any Cronbach's above 0.7 was considered acceptable.

What it bears to mind to remember is that this is not a complete confirmatory factor analysis of the MBI as a tool used to measure burnout. It is however an exploratory analysis to display that the MBI tool performed as it was designed to in this study population.

CHAPTER FIVE

DISCUSSION

In this chapter, the results obtained from the analysis of the data are discussed and compared with those from other published studies.

5.1 Introduction

This study was one of the few studies in CHBH that attempted to investigate the level of burnout in a tertiary public hospital. In South Africa there is limited literature published on measured burnout in a public setting.

5.2 Response rates

The participants of this study included all the staff that worked in the Surgery Department in CHBH. The staffs were classified according to staff categories: Nurse, Medical and Other. The data was collected from a total study sample of 310 staff working in the Surgery Department (SD) at the time of the study. The total number who responded was 231 (Table 4.1). The total response rate was 76.6%. The response rate varied from 72.4% for nurses and 80.7% for the medical staff. A high response rate increases the confidence in the validity of the reported data and the likelihood the data can be used to impact interventions. The interest generated during the staff meetings and situation analysis could have contributed to the high response rate.

5.3 Demographic profile of respondents

Females formed the majority of the study population (76.6%) overall while males made

up only 23.4%. The majority of the doctors who responded were males (78.3%) and nurses who were females (92.8%). (Table 4.2). The difference in gender is large. In view of the literature this gender divide is in keeping with global, national and local norms amongst nurses and medical staff.^{30, 31}

The mean age of the overall population is 40.2 years, with nurses having a mean age of 41.6 years. The mean age of the overall population indicates an ageing workforce. The nursing staffs makes up the majority of the staff complement and it is concerning that there are fewer younger staff. Gulalp et al.'s³¹ meta-analytic review of nursing burnout literature suggested that increased age and length of nursing experience contribute to burnout in nurses.

5.4 Burnout

In the study population there are 68.4 % who exhibit medium-high levels of burnout. (Table 4.7). In reference to Section 4.7 the medium and high levels of burnout comprise of a large number of females. The men are experiencing significantly lower levels of burnout. In a US Study of nearly 6000 physician's females were 60% more likely to report signs and symptoms of burnout than men.³¹ Thomas has demonstrated also that women are at higher risk for burnout.²⁷ In summary it appears that nurses who are female and older and, who have been working long at CHBH have shown the highest levels of burnout.

5.5 Burnout: Three constructs of Burnout: Emotional Exhaustion, Depersonalization and Personal accomplishment

There is 45.5% of the total population (Table 4.8) that are burnout who are emotionally exhausted and 78.8% reported that they 'Do not treat some patients as personal objects.' therefore they do not exhibit symptoms of depersonalization. Seventy-nine percent of the respondents experiencing some level of burnout (Level 1, 2, 3) displayed symptoms of depersonalization. In the literature it was found that high levels of depersonalisation associated with burnout were also found by Leiter et al.³³ as well. In a more recent study, Schmitz et al a sample of 366 nursing staff from five German hospitals across nine wards found that reports of depersonalization was also high.

There were 53.1% who reported that they do not have a sense of personal accomplishment and that they are not positively influencing other peoples' lives through their work. All the factors associated with the three constructs of burnout as well as with the aggregate burnout scores that were significant are presented in Table 4.13. Those participants who showed emotional exhaustion (EE) exhibited that 'No support from their supervisor' and conflict with their colleagues was a significant predictor of EE.

In terms of depersonalization (DP) a strong predictor was having no support from the head of department. Gender was a significant predictor of a lack of personal accomplishment.

The original burnout sequencing proposed by Maslach assumed that the sequence towards burnout starts with emotional exhaustion.¹ These are usually as a result of dealing with the emotional demands of ill patients. In CHBH there certainly has been an epidemiologic transition regarding disease profile and numbers of patients that seek care

at the hospital. This increased workload certainly can be a factor associated with high levels of emotional exhaustion and subsequent burnout in staff.

5.6 Factors influencing burnout

5.6.1 Staff categories

The nurses (Table 4.3) formed the largest proportion of the study population (62.4%). This highlights the view that nursing staff form the critical mass of a functional hospital system. Their well-being with regards to burnout, the associated factors that impact this and their functioning in their work environment make them an important population to investigate. The proportion of ward/unit managers was the highest amongst the nurses (23.4 %). This is encouraging as managers are required in order to efficiently manage a ward. The scope of this study does not investigate the appropriate ratios of managers needed for effective and efficient ward functioning. Nursing auxiliaries are pivotal ‘nursing assistants’ and they comprise only 15.2 % of this study population.

Medical officers formed the highest proportion of the medical staff (10.9%). Medical officers are the doctors that have greater knowledge and experience compared to interns and community service doctors. Therefore they are an important aspect of the staff establishment with respects to the overall management of patients.

Specialist consultants amongst medical staff were the lowest proportion (1.7%). This low proportion of specialists is a concern as retention of specialists in the public sector is important to further the training of new specialists.

A closer look at the staff and the relationship with the levels of burnout (refer to table

4.8) reveal that of those experiencing medium levels of burnout 66.7 % are nurses. High levels of burnout comprises of 59.0% nurses and 22.7% doctors ($P < 0.05$).

In the nursing category, (Table 4.8) 65.9% of the nursing auxiliaries reported medium-high levels of burnout. Specifically, 24.4% reported high levels of burnout. Nursing auxiliaries are less qualified than enrolled nurses and ward managers. This lack of professional nursing knowledge could be what is contributing to the higher levels of burnout in this category. They are likely not adaptive and insecure due to their levels of education compared to the other nursing staff. This likely contributes to their stress and subsequently burnout levels.

Amongst the enrolled nurses 75% of them reported medium-high levels of burnout and 69.4% of the ward/unit managers reported medium-high levels of burnout.

It is obvious that the results point towards nurses forming the group of staff with the documented higher levels of burnout. With respect to the carrying out of orders from doctors, the care and management of medication and records of patients and other daily ward activities, nurses form the critical mass that need support in order to function effectively. If they are burnout, it cannot be possible to keep pace with the increasing demand from a greater workload and diminishing resources which CHBH as a public hospital will be prone to.

There were 73.3% of the medical officers that displayed high levels of burnout. Medical officers are often career doctors who have finished the mandatory internship and community service and are now often still in public sector because of the desire to get

into a specialist programme. They often bear a large workload this could be a factor contributing to their burnout. There are 60.0% of the consultants in surgery with high levels of burnout. ($P<0.05$) (Table 4.8). They are often in charge of wards and junior doctors so feasibly these results are a reflection of the burden of burnout amongst the consultants.

5.6.2 The work environment

Overall the staffs work on average a 48 hour week. Medical staff (Table 4.4) reported working 55.1 hours in their last week and nurses 45.9 hours per week. The mean hours worked in the last week as reported by participants on average exceed the paid 44 hour week. In this study data on the amount of paid overtime an individual gets was not collected, so these results cannot be viewed with respect to overtime. Likely with such extensive hours of work, this could be a contributing factor associated with burnout.

As the level of burnout increased the **number of hours worked in the last week** increased ($P<0.05$), this illustrates that hours worked is a contributory factor to burnout.(Table 4.11).

An important factor to consider in the work environment is how long a staff member would have worked at CHBH. This study showed that the mean number of years worked by nurses was 12.5 years, almost double the number of years reported by medical staff. Further analyses showed significantly that as the level of burnout became high then the number of years worked in CHBH increased. (Table 4.11)

The **number of patients** as reported by staff seen within the last week varied widely with doctors seeing significantly more than nurses (Table 4.4). A factor associated with high levels of burnout would be a greater work burden. High levels of burnout were associated with a greater number of patients seen ($P < 0.001$).

The main predictive factors in the work environment to burnout are the number of years worked in a healthcare setting. In the regression model used to check for the predictive factors of burnout the **number of years worked** was significantly associated with burnout (Table 4.14). Kantse et al suggest that burnout in older nursing staff may be explained by the fact that the later stages of careers lack the possibility to learn new things and develop themselves.³²

5.6.3 Essential resource shortages

The doctors and nurses who are involved in the daily management of patients experience a shortage of essential resources and other resources required to fulfil their duties effectively (Figure 4.1). In relation to the shortage of essential resources to manage patients and wards effectively, 86% of staff reported that they ran out of essential disposables in the last month of running a ward. 74% of staff reported running out of equipment. Drugs and soap was recorded at 49 and 58% respectively. Amongst the medical staff 51% (Table 4.5) reported running out of drugs. On closer scrutiny of Table 4.5 it is noticed that depending on the job profile of whether it is a nurse or medical doctor the essential items reported as depleted are specific to what they use. This lack of drugs and equipment have a significant impact on their levels of burnout.

5.6.4 The human environment of work

The factors that nurses reported significantly compared to doctors that the factors in terms of stress in the work environment that impact them often are poor remuneration (64%) and communication amongst staff (62%). The factor which impacted them the least was long shifts (21%). Medical staff cited unexpected staff absenteeism (69%) and shortage of staff (45%) as factors of stress at work (Table 4.6).

A significant ($P < 0.05$) proportion (Table 4.12) of the participants who showed a high level of burnout reported that unexpected absenteeism (61.9%), communication amongst staff (85.7%) and communication with their supervisor (85.7%) were a source of stress in their work environment.

These factors can be targeted in the intervention towards combating the high levels of burnout amongst staff. Unexpected absenteeism can contribute to an increased burden and workload for staff that are present and this would inadvertently contribute to higher levels of burnout^{6, 13, 17}.

Staff communication is a recurring factor that shows a significant relationship with burnout. Staffs need to be able to feel that access to managers exists. It is this factor that can assist in mitigating employee exit and be seen as a factor associated with staff burnout. The inability of workers to access management in a hospital especially if they have problems and concerns that directly affect their job; must put strain on the worker and their ability to 'give off their best.' HIVISS reported that a perceived indifference and inaccessibility of management are factors that relate principally to increased workplace burdens and consequently burnout.⁶

5.7 Burnout: Perceptions of CHBH

It appears that despite high levels of burnout expresses their enjoyment for their job. (Table 4.13). The staffs that were experiencing high levels of burnout showed significantly ($P<0.01$) that there was only 18.2% that were not proud to be associated with CHBH. There was 9.1% who experienced high levels of burnout who were not satisfied with their career prospects at CHBH. It appears that burnout levels, albeit high, has not been all pervasive in its effect as yet. This definitely highlights factors associated positively to work at CHBH. It is encouraging to note that there is a level of positivism amongst the staff in their perception of working in CHBH.

5.8 Analysis of the MBI

The aim of the analysis of the MBI was to display that it performed as a tool to measure burnout comparatively to the normative literature (Table 4.15). According to Beckstead²³ in the article ‘Confirmatory factor analysis of the MBI among Florida nurses’ it was reported that ‘Examining the factor structure, using factor analysis techniques prior to working with the construct scores is recommended in order to avoid spurious correlations amongst them.’

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

This chapter provides the researcher with a platform to succinctly comment on the findings and to make recommendations that target the findings.

6.1 Conclusions related to the aims of the study

This was a cross sectional descriptive study, and therefore it looked at rather broad issues pertaining to the prevalence of burnout and selected factors associated with burnout. More detailed studies need to be done which will entail collection of information linked to risk factors associated with burnout that are associated with the personal environment of the staff and their individual mental and health status.

6.1.1 Measurement of the levels of burnout amongst all the staff working in the surgical services in CHBH using the MBI

This study showed that the majority of the staff in the surgical department at CHBH (68.4%) exhibit burnout. Specifically, amongst the nurses (mainly enrolled nurses and the ward/unit managers) burnout was recorded. Amongst the doctors the medical officers and consultants were shown to display high levels of burnout.

6.1.2. To assess the factors that is associated with burnout amongst the staff

This study revealed that the number of years worked; hence the work experience has a significant association with burnout.

The other factors significantly associated with burnout were the **number of hours worked in the last week**, the **number of patients** as reported by staff seen within the last week, and the **number of years worked**.

6.2 Limitations of the Study

1. Response rates

The response rates was less than hundred percent so there is a potential for bias. It may be possible that participants who were experiencing burnout were more motivated to participate. Alternatively if they were too stressed and experiencing burnout they may not have had the time or inclination to participate. It is not possible to determine the direction or the extent of the bias within the scope of the study, though it seems likely that the prevalence of burnout in the study population will allow for a close estimate.

2. Scope of study

This study took place in only CHBH in the surgical department. It may not be possible to generalize the results to other hospitals or departments within CHBH.

3. Burnout

The levels of burnout described in this study does not equate to a clinical diagnosis, but rather a measure of the burden of symptoms.

4. Causality

There is no definitive evidence of causality associated with fact that only the surgical staff suffer from burnout. The results will provide a report of the associations with the surgical staff-burnout-work environment; this may point to a possible systemic problem that can provide direction for future studies of this nature

6.3 Recommendations

The recommendations made below were based on the findings from this study. Some of the points have been taken directly from suggestions or requests made by the subjects, while others have been determined based on the analysis of the data by the researcher. The suggestions and recommendation of the research supervisor are also considered. Possible new topics of research have been suggested. The findings that the researcher felt would be beneficial and relevant both to health professionals and to the subjects are presented below.

6.3.1 Use of findings of this study

There is a variety of ways that both individuals and organizations can deal with burnout.

There are:

1. This study recognises the evidence of burn-out among the doctors. There is a need to conduct further studies to understand its significance.
2. The potential benefits of coping strategies to both organizations and individuals if burnout coping strategies are adopted. It is hoped that the Gauteng Department of Health and CHBH would utilise the findings of this study to develop future programmes targeting specific factors that have been to be associated with burnout in this study population.
3. Expansion of the evaluation of burnout and its associated factors to other departments in CHBH that were not represented in this study would allow for all the staff within the hospital to benefit from the burnout evaluation covered in this project.
4. Workshops with managers and staff to inform about burnout and the factors relating to burnout may impact short, medium and long term plans to manage

these factors.

6.3.2 Future research suggestions

Burnout has been described as a professional occupational disease.¹¹ Healthcare workers form the backbone of the healthcare system and they are critical in delivering effectively the policies and directives of a nation.

In order to address the spectrum of human resource concerns arising from staff burnout such as those discussed it would be imperative to address burnout as it exists, it can be measured within the staff population and easily monitored.

South Africa falls into the category where we are heavily burdened with a vast amount of new health challenges and what is needed are innovative ways to manage them.

One of the key messages from an investigation of the levels of burnout in HCW is that the pools of existing human capacity within the health sector are managed such that they are retained and optimized.

Future topics for research would be:

- 1. A longitudinal study in order to prove causality with regards to documented burnout**
- 2. A research project designed to evaluate burnout in the other departments in CHBH.**

6.4 Conclusion

In summary the findings were in keeping with the how burnout is evaluated by a validated tool. Burnout represents an important public health problem that imposes a significant burden on the efficient management of human resources associated with health as displayed in this study. Staff programmes that target burnout and how to cope can be effectively put in place. Management of burnout after an evaluation as presented in this study can yield benefits to an organisation such as CHBH and its staff.

References

1. Maslach C, Jackson CN, Leiter MP. Maslach Burnout Inventory Manual. 3rd ed. Palo Alto: CA: Consulting Psychologists Press; 1996
2. Investor words. Definition of GNP. [Homepage on the internet]. c2009 [cited 2009 January 12]. Available www.investorwords.com/2186/GNP.html
3. National Department of Health South Africa. Strategic Plan 2007/08 - 2009/10. 2007. Pretoria, South Africa, National Department of Health. Ref Type: Report
4. Maslach C. Burned-out. Can J Psychiatr Nurs 1979; 20(6):5-9
5. Occupational health. Define stress. [Homepage on the internet]. c2009 [cited on 2009 may 29]. Available http://www.who.int/occupational_health/publications/en/oehstress.pdf
6. Schneider H, Oyedele S. HIV impact surveillance system: Burnout and associated factors in health professionals in four hospitals. 2-34. 2005. Wits School of Public Health. Ref Type: Report
7. von Holdt K, Maserumule B. *Beyond the Apartheid Workplace: Studies in Transition* After Apartheid: Decay or Reconstruction? Transition in a Public Hospital. 2005. University of Kwazulu-Natal Press. Ref Type: Report
8. von Holdt K, Murphy M. Public Hospitals in South Africa. Stressed Institutions, Disempowered Management. 2006. South Africa, NALEDI. Ref Type: Report
9. Landman WA, Mouton J, Nevhutalu KH. Chris Hani Baragwanath Hospital Ethics Audit (Report). 2001. Pretoria, Gauteng, South Africa, Ethics Institute of South Africa. Ref Type: Report
10. World Health Organization. The World Health Report 2006: Working together for health. World Health Organization, editor. 2006. Geneva. Ref Type: Report

- 11.** Ilhan MN, Durukan E, Taner E, Maral I, Bumin MA. Burnout and its correlates among nursing staff: questionnaire survey. *J Adv Nurs* 2008; 61(1):100-106.
- 12.** Leiter MP, Meechan KA. Role structure and burnout in the field of human services. *J Appl Behav Sci* 1986; 22(1):47-52.
- 13.** Awases M, Gbary A, Nyoni J, Chatora R. Migration of health professionals in six countries. 2004. Brazzaville, WHO Regional Office for Africa. Ref Type: Report
- 14.** Global atlas. [Homepage on the internet]. c2009. [cited on 2009 March 31]. Available on <http://www.who.int/globalatlas/default.asp>
- 15.** National Department of Health South Africa. A Policy on Quality in Healthcare in South Africa: Abbreviated. 2-22. 2007. Pretoria, South Africa. Ref Type: Report
- 16.** Buch E. Human Resources for Health. Health Summit 2001: Reaching out for Better health for All; 2001
- 17.** Pillay R. Work satisfaction of professional nurses in South Africa: a Comparative analysis of the public and private sectors. *Biomed Central* c2009 [cited 20090 Mar. 25]; Available on : <http://www.human-resources-health.com/content/7/1/15>
- 18.** van Rensburg D, van Rensburg N. Distribution of Human Resources. *South African Health Review*. Durban, South Africa: Health Systems Trust; 2000. 201-232.
- 19.** van Rensburg D, Steyn F, Schneider H, Loffstadt L. Human resource development and antiretroviral treatment in Free State province, South Africa. *Human Resources for Health* c2008 [cited 2009 March. 28]; Available on: [URL:http://www.human-resources-health.com/content/6/1/15](http://www.human-resources-health.com/content/6/1/15)
- 20.** Wadee H, Khan F. Human Resources for Health. *South African Health Review* 2007. Health Systems Trust; 2007. 141-149

21. National Health Act. 61. 2003. Republic of South Africa. Ref Type: Bill/Resolution
22. Gilson L, Erasmus E. Supporting the Retention of Human Resources for Health: SADC policy context. 37. 2005. Ref Type: Report
23. Beckstead JW. Confirmatory factor analysis of the Maslach Burnout Inventory among Florida nurses. *Int J Nurs Stud* 2002; 39(8):785-792
24. Embracio N, Azoulay E, Barrau K, Kentish N, Pochard F, Loundou A et al. High level of Burnout in Intensivists: Prevalence and associated Factors. *Am J Respir Crit Care Med* 2007; 175:686-692
25. Jackson CN, Manning MR. Burnout and health care utilization. *J Health Hum Serv Adm* 1995; 18(1):31-43.
26. Crawford J. Healthy People 2000: National Health Promotion and Disease Objectives. Washington, DC: US Department of Health and Human Services Public Health Service, 1991.
27. Thomas LS. Levels of Occupational Stress in Doctors working in a South African public-sector hospital. [Faculty of Health Sciences: University of Witwatersrand; 2002
28. Chris Hani Baragwanath Hospital Profile. [cited on 2009 March 31]. Available on: <http://www.chrishanibaragwanthospital.co.za/bara/index.jsp>
29. Last J.M. A Dictionary of Epidemiology. Fourth edition. New York: Oxford University Press, Inc; 2001.
30. Padarath A, Chamberlain C, McCoy D, Ntuli A, Rowson M, Loewenson R. Health Personnel in Southern Africa: Confronting the Brain Drain, 2003.
31. Gulalp B, Karcioğlu O, Sari A, Koseoglu Z. Burnout: need help? *J Occup Med Toxicol* 2008; 3:32

32. Kanste O, Miettunen J, Kyngas H. Factor structure of the Maslach Burnout Inventory among Finnish nursing staff. *Nurs Health Sci* 2006; 8(4):201-207.
33. Lahoz MR, Mason HL. Maslach Burnout Inventory: factor structures and norms for USA pharmacists. *Psychol Rep* 1989; 64(3 Pt 2):1059-1063.
34. Ceslowitz SB. The relationship of burnout, use of coping strategies and curricular program of registered nurses. *J N Y State Nurses Assoc* 1990; 21(1):4-8.

Appendix A :Self administered Questionnaire (SAQ)

SURGICAL PILOT EVALUATION SELF-ADMINISTERED QUESTIONNAIRE FOR STAFF WORKING IN SURGICAL SERVICES

INSTRUCTIONS

This questionnaire is for a study to evaluate recent changes in the surgical services at Chris Hani Baragwanath Hospital. We are doing this research to try and assess surgical services, it is not an inspection, but we are trying to learn what is happening in the facilities and how it impacts on staff. Your participation is entirely voluntary. If you chose not to participate there will be no negative consequences for you in any way. At the same time, participating in this study will not give you any advantages

BACKGROUND INFORMATION

Today's date

/ /2006

Your age _____ years

Sex

Female

Male

Your current position (choose the one that best describes your position)

Cleaner	
Porter	
Administrative Clerk	
Nursing auxillary	
Enrolled nurse	
Professional nurses	
Ward or unit manager	
Medical intern	
Medical officer	
Registrar	
Consultant	
Other(please specify)	

What year did you start working at this hospital? _____

How long have you been an employee at Chris Hani Baragwanth Hospital?
_____years

How many years of working experience do you have in total?
_____years

WORK AND PERSONAL SITUATION

In the last week, how many hours would you say you worked? _____ hours

On your most recent working day, how many patients did you see or care for?
_____ patients

When last did you run out of beds for patients in this ward /unit?

In the last month	
In the last 6 months	
Prior to the last 6 months	
Never	
I'm not sure	

In the last month, have any of your colleagues been unexpectedly absent from work?

Yes	No
-----	----

In the last month, did your ward run out of any of the following?

	Yes	No
Equipment		
Drugs		
Linen		
Disposables e.g. gloves		
Soap/hand spray		

Do you consider the following as a problem or a source of stress at CHBH?

	Yes	No
Poor remuneration		
Long shifts		
Night duty		
Shortage of staff		
Staff communication		
Supervision/Issues of authority		

If you had a personal problem that affected your work, who would you feel comfortable to discuss this problem with (you can tick more than one)?

Colleagues	
Family member or friend	
Your immediate supervisor or person to whom you report	
The Head of the section/department	
Human resources manger	
None of the above	

The following are 24 statements of job-related feelings. Please read each statement carefully and decide how often you feel this way about your job, from never to every day.

	Never	A few times a year or less	Once a month	A few times a month	Once a week	A few times a week	Every day
I feel emotionally drained from my work							
I feel used up at the end of the workday							
I feel fatigued when I get up in the morning and have to face another day on the job							
I can easily understand how my patients feel about things							
I feel I treat some patients as if they were impersonal objects							
Working with people all day is really a strain for me							
I deal very effectively with the problems of my patients							
I feel burned out from my work							
I feel I'm positively influencing other people's lives through my work							
I've become more callous toward people since I took this job							
I worry that this job is hardening me emotionally							
I feel very energetic							
I feel frustrated by my job							
I feel I'm working too hard on my job							
I don't really care what happens to some patients							
Working with people directly puts too much stress on me							
I can easily create a relaxed atmosphere with my patients							
I feel exhilarated after working closely with my patients							
I have accomplished many worthwhile things in this job							

I feel like I'm at the end of my rope							
In my work, I deal with emotional problems very calmly							
I feel patients blame me for some of their problems							
I am often bored in my job							
I frequently think of quitting my job							

Some jobs are more interesting and satisfying than others. For each of the following please choose one of the following that best describes your feelings.

	Strongly agree	Tend to agree	Tend to disagree	Strongly disagree
I am satisfied with my job for the time-being				
Each day of work seems like it would never end				
I find real enjoyment in my work				
I feel as if I am working in a 2nd class hospital				
I feel proud to be associated with CHBH				

Please rate how satisfied you are with each of the following

	Very satisfied	Somewhat satisfied	Quite dissatisfied	Very dissatisfied
Immediate supervisor				
Salary				
Co-operation of colleagues				
Condition of service				
Workload				
Career prospects at CHBH				

	Yes	No
Have you heard about the Surgical Transformation Pilot		
Do you believe you know the aims of the Surgical pilot		

Have you noticed any improvements in the past eight months in any of the following?

	Yes	No
Management style		
Patient care		
Number of staff		
Workload		
Ward rounds		

What are your expectations of the Surgical Transformation pilot?

Thank you for your time

Appendix B: Information Sheet



EVALUATION OF THE SURGICAL PILOT AT CHRIS HANI BARAGWANATH HOSPITAL

INFORMATION SHEET: 2006

My name is Dr Sinola Rajaram. I am a Registrar in Public Health at the School of Public Health at the University of Witwatersrand. I would like to invite you to participate in a study we are conducting at Chris Hani Baragwanath Hospital (CHBH) in the surgical department.

Background:

The surgical department at CHBH has been the site for the implementation of a transformation pilot since approximately 2004. This pilot project has been attempting to integrate management of the surgical department in order to improve clinical management of patients, better human resource management as well as overall functioning of the surgical department. The transformation pilot has been conducted with the participation of staff and management.

What this study involves:

This study is being conducted in order to assess the impact of the surgical transformation project. Since the pilot has been implemented there has been no known monitoring and evaluation of the project. As a follow on from this a need has arisen to evaluate the impact of the surgical pilot on:

Clinical outcomes of patients.

Impact on human resource management and staff.

The study aims to evaluate the way the change to an integrated model of management has impacted the everyday practice and attitudes of healthcare workers. Further it aims to evaluate if the outcome of the health and stay at hospital for patients has changed.

We intend to use a range of methodologies which include:

Collection and analysis of routinely collected data, using admission books in the surgical department, admission wards and in-patient wards.

Semi-structured interviews with consenting managers, medical and nursing personnel and auxillary staff in admission wards, in-patient ward and management office at CHBH.

Participant observation of the processes and meetings.

We are not interested in evaluating individual healthcare workers at the department of surgery. We are interested in understanding how the challenges facing them are impacted by the transformation project.

Consent:

Permission to carry out this project has been obtained from the Clinical Executive of CHBH and the CEO, as well as the relevant heads of department. Ethics clearance will be obtained prior to commencing the study from the University of Witwatersrand Ethics Committee for Research. They will give the investigator permission to carry out observation as well as to extract routinely collected data from the admission books.

To obtain consent for observation as well as to attend meetings, all relevant parties shall be consulted and consensus must be reached prior to the investigator doing so.

In terms of the semi-structured interviews, we will ask the permission of individuals involved if they are prepared to be interviewed, and also if they are prepared for us to tape-record the interviews. There will be no direct benefit to anyone who participates in the interview as well as the self-administered questionnaire. Similarly there will be no negative consequences for individuals who do not want to participate. Whether or not you are interviewed or participated in the study will not be reported to your manager or any one else in the hospital. During the study you have the right to decline to answer a question or filling out survey.

Selection of interviewees:

Interviewees will be purposively selected to ensure that key stakeholders are represented.

Confidentiality:

When analyzing and writing up the research we will openly acknowledge that the study was carried out at CHBH, and in the surgical department of this hospital. However, the names of the individuals participating will not be used and only their professional rank will be reported. Only members of the research team, and not the staff or managers at the hospital will know the names of health care workers. Tapes of interviews once they have been transcribed will be destroyed, and transcripts of the interviews will bear the code and not the name of individuals.

We will make every effort to maintain confidentiality. For most levels of staff, the number of staff that participates means that it will not be possible for anyone reading the report to guess who made which comment. However, at ranks where there are only few staff appointed, e.g. at management level there may be some risk that others will be able to guess who made a comment. If members of the research team are concerned that the specifics of a story or incident that we report will mean that an individual may be identifiable, biographical details will be changed to disguise that person's identity. Similarly the research team may contact the individual to check that they are happy with

what was written, and are not concerned that they will be identified.

The interview:

The interview will take approximately 30 minutes. It will be convenient to you and will be carried out in English unless you would prefer it in your own language. It must not interfere with your duties in the hospital.

Feedback:

The results will be fed-back to staff and management of CHBH before it is printed or presented.

Contact details of the Principal Investigator:

If you have any further questions, or any complaints about the way the study is being conducted you can contact the Principal Investigator of the study. Her details are listed below:

Dr Sinola Karishma Rajaram
Wits School of Public Health
Johannesburg
Tel: 011 7172205
Email: sinola.rajaram@gmail.com

Appendix C: Consent

CONSENT FORM

Date: _____

I have read the information sheet about the study and had it explained to me.
I understand that I am being invited to participate in this study, and that it is my choice whether I agree to answer the questions or not. I also understand that I have a right to stop answering the questions at any time or may refuse to answer certain questions. I am told that there will be no risk for me to take part or not to take part in the study.

I understand that my confidentiality will be carefully guarded and that no one outside the research team will be able to know what I said. I understand that all the answers given by others will be combined, so I cannot be identified.

Signature of respondent (if yes)

Witness:

Name and contact details of investigator:

Dr Sinola Karishma Rajaram

Wits School of Public Health

Johannesburg

Tel: 011 7172205

Email: sinola.rajaram@gmail.com

Appendix D: Ethics clearance form

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

Division of the Deputy Registrar (Research)

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)

R14/49 Rajaram

CLEARANCE CERTIFICATE

PROTOCOL NUMBER M060727

PROJECT

Surgical Transformation Project
Evaluation

INVESTIGATORS

Dr SK Rajaram

DEPARTMENT

School of Public Health

DATE CONSIDERED

06.07.28

DECISION OF THE COMMITTEE*
information on the questionnaires

APPROVED subject to removing identifying

Unless otherwise specified this ethical clearance is valid for 5 years and may be renewed upon application.

DATE

06.08.01

CHAIRPERSON


(Professor A Dhai)

*Guidelines for written 'informed consent' attached where applicable

cc: Supervisor : Prof H Schneider

DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and **ONE COPY** returned to the Secretary at Room 10005, 10th Floor, Senate House, University.
I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee. **I agree to a completion of a yearly progress report.**

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

Appendix E: Post Graduate Committee Approval Letter



Faculty of Health Sciences
Medical School, 7 York Road, Parktown, 2193
Fax: (011) 717-2119
Tel: (011)717-2745

Reference: Ms Tania van Leeve
E-mail: tania.vanleeve@.wits.ac.za
09 April 2009
Person No: 9303196A
PAG

Dr SK Rajaram
29 San Vincenzo
5th Road
Halfway House
1685
South Africa

Dear Dr Rajaram

Master of Medicine in the specialty of Community Health: Approval

We have pleasure in advising that your proposal entitled "*Measurement of burnout and associated factors in the surgical staff at Chris Hani Baragwanath Hospital*" has been approved. Please note that any amendments to this title have to be endorsed by the Faculty's higher degrees committee and formally approved.

Yours sincerely

A handwritten signature in black ink, appearing to read "S. Benn".

Mrs Sandra Benn
Faculty Registrar
Faculty of Health Sciences