

https://dspace.org/

Analysing approved incapacity leave among health professionals in the Gauteng Department of Health

Ramsamy, Roshnee

2019

https://hdl.handle.net/10539/29852

Ramsamy, Roshnee (2019) Analysing approved incapacity leave among health professionals in the Gauteng Department of Health, University of the Witwatersrand, Johannesburg, <http://hdl.handle.net/10539/229852>

Downloaded from a DSpace repository. https://dspace.org/

ANALYSING APPROVED INCAPACITY LEAVE AMONG HEALTH PROFESSIONALS IN THE GAUTENG DEPARTMENT OF HEALTH

Roshnee Ramsamy

Student Number: 1437270

Supervisors:

Dr Prudence Ditlopo

Professor Laetitia Rispel

A research report submitted in partial fulfilment of the requirements for the degree of Master of Public Health (MPH) in the School of Public Health, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg.

Johannesburg, October 2019

DECLARATION

I, Roshnee Ramsamy, declare that this research report is my original work. It is being submitted for the degree of Master of Public Health in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at this or any other University. I am aware that plagiarism (the use of someone else's work without their permission and/or without acknowledging the original source) is wrong. I confirm that the work submitted for assessment for the above degree is my own unaided work except where I have explicitly indicated otherwise.

I have read the sections on referencing and plagiarism in the Wits Plagiarism Policy and I have followed the required conventions in referencing the thoughts and ideas of others. I understand that the University of the Witwatersrand may take disciplinary action including suspension or permanent expulsion against me if there is a belief that this is not my own unaided work or that I have failed to acknowledge the source of the ideas or words in my writing.

Signature: 

Date: 31 October 2019

DEDICATION

In memory of my Dad, Rocky Govender,

15 June 1946 – 22 June 2014.

Forever in my heart.

ABSTRACT

Background: In South Africa, a well-performing health workforce is critical to the successful implementation of the National Health Insurance system. Sickness absenteeism influences health worker performance, with potentially negative consequences for quality of patient care and staff morale. Within the South African public sector, temporary incapacity leave is additional sick leave which is granted at the discretion of the employer once the allocated sick leave has been exhausted. Incapacity leave may only be accessed once the allocated 36 days of sick leave have been exhausted and the year 2016 marked the beginning of a new sick leave cycle.

Objectives: The aim of this study was to examine approved incapacity leave of health professionals in the Gauteng Department of Health (GDoH) with the objectives of describing the demographic and occupational characteristics of health professionals with approved incapacity leave, the medical reasons for this type of leave and to determine whether there was an association between demographic characteristics, occupational characteristics and medical reasons (independent variables) and approved incapacity leave (outcome).

Methodology: This descriptive study used official government statistics obtained from the Personnel Salary Administration System. Electronic records of approved incapacity leave absences of health professionals employed in the GDoH were obtained for the period from 1 January 2016 until 31 December 2016. A structured record review form was used to extract information. STATA ® 15 was used for descriptive and multivariate statistical analysis.

Results: In 2016, the GDoH approved the incapacity leave of 518 health professionals, who accounted for 1155 leave episodes. The mean age of health professionals with incapacity leave was 46 years (SD ± 10.2 years). Professional nurses accounted for 41.5% of incapacity leave. The main medical reasons for incapacity leave were mental disorders (12.8%) and musculoskeletal disorders (12.0%). The risk factors for incapacity leave among health professionals were: female, 35 years and older, from district hospitals and working in the Sedibeng health district ($p<0.05$). The odds of incapacity leave was three times higher for health professionals who were older than 45 years (45 to 54 years – adjusted odds ratio (AOR) 3.0 95% CI 2.3-4.0) (≥ 55 years - AOR 3.1 95% CI 2.3-4.3). The odds of incapacity leave among health professionals was highest for those working in the Sedibeng health district (AOR 2.2 95% CI 1.5-3.3).

Conclusions: Sickness absenteeism is complex and influenced by individual, workplace and health system factors. The study findings suggest the need to improve the management of incapacity leave in the GDoH, through inter alia, improved information systems, monitoring of sickness absenteeism and the creation of positive practice environments.

ACKNOWLEDGEMENTS

A heartfelt thank you to my supervisors Professor Laetitia Rispel and Dr Prudence Ditlopo for generously sharing their knowledge and time with me.

Special thanks to:

Dr Duane Blaauw for statistical support.

Mr Daniel Makoni and Mr Lehlokoana Lepele for their assistance with data access.

The SARChI Team at the Centre for Health Policy for their support and encouragement during the past year and half.

My husband Leon for his unwavering support and for keeping things in place at home during my MPH journey. You have been my pillar of strength through all the stages of this journey, motivating me to continue when I didn't think I could.

My children Mikaela and Matthew for respecting Mum's 'study time'. Mikaela I will forever cherish your little notes of encouragement and Matthew, I will always remember being amused by your intriguing questions about my time at 'big school'. You guys are truly awesome.

My special friends (near and abroad) and family who took the time to check up on me and encourage me on.

My MPH research was nested in and funded by the Department of Science and Technology/ National Research Foundation Research Chair entitled *Research on the Health Workforce for Equity and Quality,* held by Professor Rispel. Additional funding was provided by the LESEDI Project funded by Atlantic Philanthropies (Grant ID: 21408). The views expressed in this study are my own and not those of the funders.

My Heavenly Father: Psalm 28:7 "The Lord is my strength and my shield; my heart trusts in him, and he helps me. My heart leaps for joy, and with my song I praise him."

TABLE OF CONTENTS

DECLARATION i

DEDICATION ii

ABSTRACT iii

ACKNOWLEDGEMENTS v

TABLE OF CONTENTS vi

LIST OF FIGURES ix

LIST OF TABLES ix

LIST OF BOXES ix

CHAPTER 1: INTRODUCTION 1

1.1 Background 1

1.2 Definition of terms 3

1.3 Conceptual framework 4

1.4 Literature Review 5

1.4.1 Legislation or policy on sick absenteeism 5

1.4.2 Overview of sickness absenteeism studies 6

1.4.3 Demographic factors and sick absenteeism 7

1.4.4 Occupational factors and sick absenteeism 8

1.4.5 Medical reasons related to sickness absenteeism 10

1.5 Problem statement and justification for the study 12

1.6 Aim and Objectives 13

CHAPTER 2: METHODOLOGY 14

2.1 Introduction 14

2.2 Study setting 15

2.3 Study design 15

2.4 Ethical considerations 15

2.5 Study period 15

2.6 Study population 16
2.7 Selection criteria 16
2.8 Data collection 16
2.9 Data preparation 17
2.10 Data management 18
2.11 Data analysis 20
CHAPTER 3: RESULTS 22
3.1 Demographic and occupational characteristics 22
3.1.1 Demographic characteristics 22
3.1.2 Occupational characteristics 22
3.2 Medical reasons for incapacity leave 24
3.2.1 Description of ICD-10 categories for approved incapacity leave 24
3.2.2 Medical condition by age 25
3.2.3 Medical condition by years of service 26
3.2.4 Medical condition by job title 27
3.2.5 Duration of incapacity leave episodes by medical reasons 28
3.3 Association between demographic and occupational characteristics and incapacity leave… 30
3.4 Multivariate logistic regression 31
3.5 Summary 34
CHAPTER 4: DISCUSSION 36
4.1 Introduction 36
4.2 Demographic characteristics 36
4.3 Occupational characteristics 37
4.4 Medical reasons 39
4.5 Association between demographic and occupational characteristics and approved incapacity leave 40
4.6 Study limitations and remedial steps 41

4.7 Scholarly contribution of the study 42
CHAPTER 5: CONCLUSION AND RECOMMENDATIONS 44
5.1 Study conclusions 44
5.2 Recommendations 44
5.3 Future research 48
5.4 Conclusion 49
REFERENCES 50
APPENDIX 1: Plagiarism declaration 57
APPENDIX 2: Ethical clearance certificate 58
APPENDIX 3: Permission from the Gauteng Province 59
APPENDIX 4: Record review form 60
APPENDIX 5: Plagiarism Report – Turnitin 64

LIST OF FIGURES

Figure 1 Conceptual framework to explore approved incapacity leave in the GDoH 5
Figure 2 Outline of the research process 14
Figure 3 Data preparation process 18
Figure 4 Medical condition for approved incapacity leave among health professionals in the GDoH by job title 28
Figure 5 Histogram of the distribution of duration of incapacity leave 29

LIST OF TABLES

Table 1 Description of variables with collapsed categories 19
Table 2 Demographic characteristics of the health professionals in the GDoH and those with approved incapacity leave 22
Table 3 Occupational characteristics of the health professionals in the GDoH and those with approved incapacity leave 23
Table 4 Medical reasons for approved incapacity leave among health professionals in the GDoH 24
Table 5 Medical reasons for approved incapacity leave among health professionals in the GDoH by age 25
Table 6 Medical reasons for approved incapacity leave among health professionals in the GDoH by years of service 26
Table 7 Duration of incapacity leave by medical reason 29
Table 8 Association between demographic characteristics and approved incapacity leave among health professionals in the GDoH 30
Table 9 Association between occupational characteristics and approved incapacity leave among health professionals in the GDoH 31
Table 10 Adjusted odds ratio of approved incapacity leave among health professionals in the GDoH 32
Table 11 Unadjusted odds ratio of approved incapacity leave among health professionals in the GDoH 33
Table 12 Summary of recommendations 45

LIST OF BOXES

Box 1 Key issues from the literature review on sick absenteeism 12
Box 2 Summary of study results 35

ABBREVIATIONS AND ACRONYMS

AOR	Adjusted odds ratio
EMS	Emergency medical service
GDoH	Gauteng Department of Health
HRH	Human resources for health
ICD-10	International Classification of Disease
IQR	Interquartile range
LMICs	Low and middle income countries
MEC	Member of the Executive Council
NHI	National Health Insurance
NHS	National Health Service
PERSAL	Personnel and Salary System
PHC	Primary health care
PILIR	Policy on Incapacity Leave and Ill Health Retirement
PSC	Public Service Commission
RTW	Return to work
SD	Standard deviation
UHC	Universal health coverage
VIF	Variance inflation factor
WHO	World Health Organization

CHAPTER 1: INTRODUCTION

1.1 Background

Human resources for health (HRH) are a prerequisite for the achievement of universal health coverage (UHC) and improved population health outcomes [1]. Within the global discourse on HRH and UHC, there is increasing scholarly attention on the performance and the efficient utilisation of HRH [1]. The notion of performance combines the availability, productivity, competence and responsiveness of health workers [2]. Improvements in health workforce performance is one of the key objectives of the 2030 Health Workforce strategy of the World Health Organization (WHO) [1]. In South Africa, a well-performing health workforce is critical to the successful implementation of the National Health Insurance (NHI) system, the country's central reform towards UHC [3]. Notwithstanding numerous HRH interventions and achievements in 25 years of democracy, addressing the poor performance of staff is a priority as it compromises quality of care and health service efficiency [4, 5].

A range of issues, including absenteeism and job satisfaction influences health workforce performance [2]. Absenteeism is defined as the absence from a duty or an obligation, and is an important indicator of individual staff performance [2, 6]. Absenteeism has both organisational and health workforce implications. At an organisational level, absenteeism results in staff shortages and increased costs from replacing absent employees, while at health workforce level, it results in increased workload for the remaining staff, poor staff morale and reduced productivity [7, 8]. Absenteeism gives rise to loss in productivity and results in the indirect wastage of valuable human resources [9]. In Sub-Saharan Africa, this type of wastage exacerbates staff shortages and further compromises already weak health systems [9].

Although there are varied classifications of absenteeism, the most common one provides for a distinction between planned and unplanned absences [6]. Planned absences entail situations where the employer is aware of the employee's absence and is able to plan accordingly. In unplanned absences the employee does not go to work, while the employer expects the employee to be at work [6]. Sickness absenteeism, classified as unplanned absence, is defined as an absence from work, which the employee associates with illness or injury [6, 10, 11]. There are two models which explain sickness absenteeism. Firstly, the 'medical model' suggests that individuals have an actual health problem which limits their functioning at work

and secondly the ‘decision model’ which posits that an individual is more likely to take time off work if they are entitled to generous and paid sickness benefits [12, 13].

While sick absenteeism is a problem in many sectors and countries [10, 11], it is assuming increased importance in the health sector affecting both the quality of patient care and staff morale [6, 14]. Higher rates of sickness absenteeism have been reported among health professionals because of the nature of the caring professions, adverse working conditions, long working hours, decreased autonomy and insufficient support from their colleagues and supervisors [10]. Estimates suggest that around 7% of health workers experience at least one sick leave episode per week [15]. The rates for work days lost to sickness absenteeism varies across countries. The National Health Service (NHS) in Scotland reported sickness absenteeism rates as high as 6% whilst in the United States and Canada it was reported as low as 2.1% and 3.2% respectively [16]. In Kenya, sickness absenteeism rates among health workers have been reported to be as high as 25% [15, 17]. There is evidence to suggest that countries with more generous sick leave benefits have higher rates of sickness absenteeism compared with countries with limited sickness absence benefits [16]. Whilst sickness absence has been recognised as a concern for economic reasons due to the high costs associated with it, data on sickness absenteeism have also been used to identify the health status of HRH [17].

In South Africa, existing evidence suggests that sick absenteeism affects the public health care system negatively [18, 19]. Prior to 2001, public sector employees in South Africa could access 120 days of paid sick leave within a three year cycle in accordance with the Basic Conditions of Employment Act [20]. Following a series of reports by the Public Service Commission (PSC) which suggested high rates of absenteeism, high costs associated with absenteeism, sick leave abuse and the poor management of sick leave within the public sector, the Policy on Incapacity Leave an Ill-Health Retirement (PILIR) was implemented in 2006 [20]. The PSC undertook a subsequent evaluation of the impact of PILIR pre- and post-implementation. The evaluation covered the period 2004 to 2009 and assessed sick leave and incapacity leave trends across selected national and provincial departments, amongst them the Gauteng Department of Health (GDoH) [18]. Although several challenges with the implementation of PILIR were identified in the report, there was a decrease in the utilisation of sick leave days in the 2007-2009 sick leave cycle compared to the 2004-2006 sick leave cycle [18]. Another study which evaluated temporary disability leave/additional sick leave at a Free State hospital found that 12.2% of hospital staff had used this type of leave between January 2001 and December 2003 [21]. Ndhlovu’s 2008 study found that there was a 48.8%

absence rate among the employees of four hospitals in Gauteng Province [22]. Lees reported that between 2010 and 2014, around 6% of the nursing staff was on sick leave at Groote Schuur Hospital at any given time [23]. Hence, the extent and management of incapacity leave remain an area of concern within the public health sector. In the GDoH, the estimated costs of incapacity leave taken by employees between the 2014 to 2016 financial years were more than with R14 million, with almost 40% of applications for incapacity leave comprising of absences of one or two days [24].

Notwithstanding the earlier research on sickness absenteeism in the South African public health sector, there is a dearth of empirical studies on incapacity leave, especially among health professionals. Furthermore, absenteeism research in South Africa has focused mainly on the nursing profession, with little information available on sickness absenteeism among other categories of health professionals. In light of the importance of a well-performing health workforce to the achievement of UHC, this study makes an important contribution to the field of research on health worker performance.

1.2 Definition of terms

Absenteeism: The absence from a duty or an obligation [25].

Approved incapacity leave: Temporary incapacity leave which has been assessed through the processes outlined in the incapacity leave policy and found to be valid in terms of the supporting medical information and the duration of the incapacity leave applied for [26].

Health professional: An individual who provides promotive, diagnostic, therapeutic, and preventative services for illness, injury, physical and mental impairments, to the populations they serve. Health professionals operate within all branches of healthcare and include medical doctors (generalists and specialists), all categories of nurses (professional nurses, enrolled/staff nurses, auxilliary nurses/ nursing assistants), dentists, pharmacists and allied health professionals (physiotherapy, occupational therapy, radiology) [27].

National Health Insurance: Is a healthcare financing system which pools funds in order to purchase and provide access to quality and affordable healthcare services for all South Africans regardless of their socio-economic status [3]. The NHI is intended to provide comprehensive, inclusive and equitable health care to all South Africans [4].

Performance: Described as a combination of employees being available, responsive, competent and productive [2].

Sick absenteeism: An absence from work which the employee attributes to illness or injury [11].

Temporary incapacity leave: Refers to additional sick leave that is granted at the discretion of the employer once the allocated sick leave has been exhausted [26].

Universal health coverage: Every person receives the quality promotive, preventive, curative, rehabilitative and palliative health services that they need without facing financial hardship [3] .

1.3 Conceptual framework

Figure 1 represents a conceptual framework, which I used to inform the research design, literature review, and study objectives. This framework adapted from Dieleman and Harnmeijer (2006), demonstrates the relationships between the determinants of health worker behaviour, absenteeism and health worker performance [2]. The original framework describes the concepts of health worker performance where availability, productivity, competence and responsiveness are influenced by outputs such as absence, retention, skills and knowledge [2]. The framework was adapted for this study by focusing on absenteeism and removing other outputs and effects that influence health worker performance such as retention and competence, as these were not explored in the study. The adapted framework posits that at the health system level, regulatory frameworks and accountability mechanisms influence absenteeism. At the level of the workplace, absenteeism is influenced by the type of organisation, facility location, and job location. At the individual level, age, gender and medical condition also influence absenteeism. These factors across the three levels intersect, but for the sake of simplicity are presented separately [2].

Absenteeism affects the availability, productivity and responsiveness of health workers where low absenteeism could lead to increased availability, productivity and responsiveness of health workers while high absenteeism could result in the opposite. These effects (availability, productivity and responsiveness of health workers) can in turn also influence absenteeism. A two-way relationship is also depicted between health worker performance and the availability, productivity and responsiveness of health workers. Ultimately, health worker performance contributes to overall population health and the performance of the health system [2].

The framework is suitable for my study, enabling the description of the demographic, occupational and medical conditions of individuals with approved incapacity leave, and to

explore the associations between demographic and occupational characteristics of health professionals (independent variables) with approved incapacity leave in the GDoH (the outcome of interest).

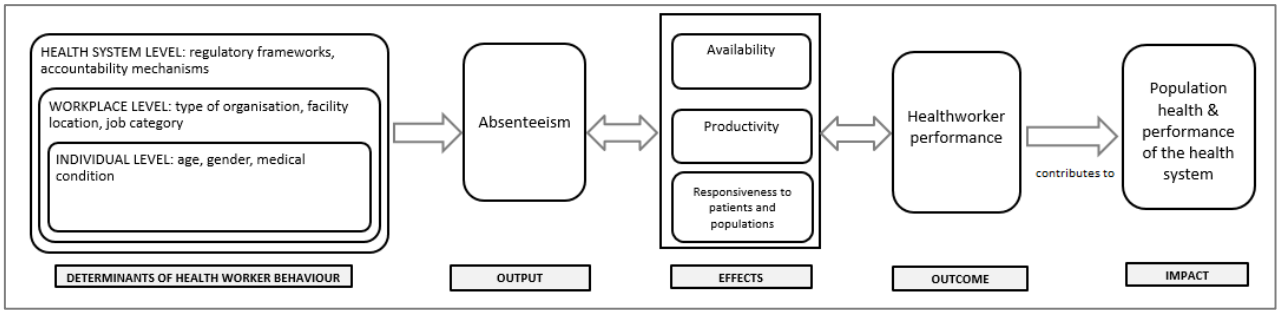

Figure 1 Conceptual framework to explore approved incapacity leave in the GDoH Adapted from Dieleman and Harnmeijer [2]

1.4 Literature Review

The conceptual framework presented in the preceding session and the study objectives informed the literature review. The following search engines were used to identify the relevant data: PubMed, Google Scholar, Researchgate, BioMed Central and the World Health Organization and Occupational Health websites. Some of the key words used in the online search included absenteeism, sick leave, incapacity leave, sickness absence, health worker performance, health professionals, nurses, medical practitioners, allied health and medical reasons for sickness absenteeism.

1.4.1 Legislation or policy on sick absenteeism

Although my study does not focus on sick leave legislation or policy, a brief overview is presented to provide context. Legislation which describes the extent to which employees are compensated during episodes of sickness absences varies across countries [16]. Research shows that sickness absenteeism rates may be influenced by the compensation provided for such absence. In countries such as Finland and Netherlands which have full pay for temporary work incapacity, there are higher rates of sick absenteeism in comparison with the United Kingdom, France or Japan where paid sickness benefits are limited [16].

In the South African public sector, the Leave Determination, read with the applicable collective agreements, provides for normal paid sick leave of 36 working days in a sick leave cycle of three years [26]. Employees appointed in terms of the Public Service Act, 1994, who

may have exhausted their sick leave within the sick leave cycle and are medically certified to be absent from work, would be able to apply for temporary incapacity leave with full pay on the application forms prescribed by PILIR [26]. PILIR outlines the processes and procedures to ensure consistency, fairness and objectivity in the assessment of applications for incapacity leave or ill health retirement. It includes the use of medical experts in the form of Health Risk Managers who are independent multi-disciplinary experts with a specialisation in occupational health [26].

1.4.2 Overview of sickness absenteeism studies

The healthcare environment is complex and requires a tremendous amount of coordination in order to deliver effective health services. The distribution of tasks and adherence to routines, norms and standards all contribute to successful service delivery [28]. When personnel are absent, there are fewer competent personnel available to render effective service delivery and those remaining at work often become over worked by taking on additional tasks to compensate for absent co-workers. This might make them vulnerable to experiencing a deterioration in their own health status resulting in a cycle of absenteeism in the institution [28].

Sickness absenteeism is categorised into either short or long term leave depending on the duration of the leave. Short term leave is generally more frequent and due to illnesses which are less serious compared to long term leave which is often due to more serious conditions [29]. While short term sickness absenteeism is often considered to be of lesser importance as it is not as costly as long term sickness absenteeism, it can become an area of concern when there are repeated short term absence episodes which interfere with work schedules. Furthermore, there is an increased risk for future long term sickness absence among staff with frequent short term sickness absences [16]. Long term sickness absenteeism which has been defined in some studies as sick leave lasting more than seven days has been related to more serious illness that require medical certification and can result in disability in work [16].

Numerous studies have demonstrated complex and contradictory associations between sick absenteeism and a range of demographic, occupational and organisational factors [28, 30]. These studies have found associations between sickness absenteeism and gender and age, and the type of health professional [6, 11, 31]. However, most of these studies were conducted in high-income countries with a dearth of studies in low- and middle-income countries (LMICs) [29, 32, 33].

1.4.3 Demographic factors and sick absenteeism

Researchers have investigated the relationship between age and sickness absenteeism, and found that sickness absenteeism tends to be inversely related to age [6, 16, 34, 35]. The duration of the sickness absence is the key differentiation. The occurrence of long duration sickness absence has been found to increase with age whilst repeated short duration sickness absences have been found to be more prevalent among younger employees [16, 34]. This could be attributed to the deteriorating health of older employees and differences in work culture among younger employees who may have lower levels of job control and who may be exposed to more strenuous tasks [34]. In their review of studies exploring the determinants of sick leave in Netherlands and internationally Beemsterboer et al, found that along with work and health factors, individual factors such as age and gender can also influence the frequency and duration of sick leave [35]. Their review found that older age groups had a lower frequency of sick leave episodes but with a longer duration [35]. In a review of sickness absenteeism studies in Sweden and Nigeria, Belita et al also found similar trends of higher long term absences among older employees [6]. A sick absenteeism study in India found that sickness absence increased with age but with higher rates of unplanned absence among older employees [36].

In South Africa, Kruger and Joubert conducted a record review of 279 temporary disability leave records submitted by employees of a tertiary hospital in the Free State Province between 2001 and 2003. In their study, employees who had applied for this leave were between the ages of 25 and 64 years and the mean age was 43.2 years [21]. A study conducted at the Groote Schuur Hospital in Cape Town, examined the relationship between age and the duration of sick leave absences among nurses [23]. This quantitative study which reviewed sickness absenteeism data from 2010 to 2014, found that one day absences were mostly taken by nurses in the 40 to 49 year age group while sickness absences of more than three days were mostly taken by nurses between the ages of 50 and 59 years [23].

Gender is another demographic characteristic, which is commonly investigated in sickness absenteeism research. Studies have shown that there is a higher frequency of women taking sick leave compared to men [6, 17, 34, 35], with various explanations. These include variability in working conditions and differences in sickness behaviour between the genders [34], and the burden of the multiple roles of women (e.g. as homemaker, caring for sick children or relatives), exacerbated by additional pressures of inflexible work schedules and

lack of access to child care [11]. Furthermore, women form the majority of the health workforce [8].

At the same time, some studies have either found no significant differences in absenteeism rates between men and women or higher absences among men [6]. For instance, Eriksen in a 2003 prospective study on nurse aides found no difference in absence rates between the genders whilst Chaudhury et al, found that more men than women were absent in their study on teacher and health worker absence in LMICs [37, 38]. Lim et al conducted a retrospective study on longitudinal sickness absence data over a three year period at a Thailand teaching hospital and found higher rates of short duration absences among male compared to female personnel [39]. An explanation for a higher absence among men could be the poor integration of men in the workplace especially for predominantly female occupations [38].

In South Africa, the 2010 PSC study found that more female employees took sick leave compared to male employees. However, the authors highlighted that more females than males were employed in the public service and that maternity leave was included in the estimates [18]. In other South African studies, Ndhlovu found higher rates of absenteeism among female employees, while Lees found no significant relationship between gender and the duration of sick leave [22, 23].

1.4.4 Occupational factors and sick absenteeism

A range of workplace or occupational factors such as type of job, size of an organisation, salary level and years of service (length of job tenure) have been found to be related to sick leave. Most of the research studies have been done among nurses because they constitute the majority of the health workforce. Nurses are often exposed to long working hours and perform multiple job functions which can be intensive and at times physically challenging thereby subjecting them to illnesses leading to sick absenteeism. In a cross sectional study which used computerised sickness absence records of health care workers at a teaching hospital in Iran, the authors found that nurses accounted for two thirds of absences [29]. The study found that shortages of nurses in Iranian hospitals contributed to higher workloads and job stress and combined with occupational hazards, impacted on employees' health and subsequently led to increase in sickness absenteeism [29]. Studies on sickness absenteeism that considered other cadres of health professionals have suggested that there are lower rates of sickness absenteeism among physicians and dental staff compared to nurses [6]. A Denmark study on sickness absences among hospital staff found that doctors had fewer

sickness absences which were of shorter duration compared to other occupational groups whilst nursing assistants had more frequent sickness absences which were of longer duration [32]. Similarly in a NHS Scotland study, there were low rates of sickness absenteeism among medical and dental staff compared to other occupational groups [17].

Lim et al explored the influence of work factors on sickness absenteeism and found lower rates of short term sickness absence (less than three days) among doctors and higher rates of long term sickness absences (three days and more) among other medical personnel and manual workers in Thailand. The study further reported that the grade of employment was found to be associated with sickness absenteeism with fewer absences reported among employees within higher grades [39]. Both Ritchie et al and Lim et al indicated that there may be underreporting of sickness absenteeism by doctors with discrepancies between actual and recorded absences [17, 39]. Lim also suggested that the lower absences among doctors could be as a result of doctors self-medicating without the need to take leave and the early detection and management of their illness [39]. The Thailand study also reported a high frequency of absence among laboratory staff which could be ascribed to actual illness as a result of the biological and chemical exposures in the laboratory setting or absences falsely indicated as illnesses [39]. Contrary to these findings, Chaudhury et al in their study on teacher and health worker absence in India, Peru, Uganda and Bangladesh found that higher ranking providers such as doctors were more absent than lower ranking health workers [37]. One of the main reasons cited for this was the opportunities available to doctors to earn additional income outside of the public sector [37]. However, the Chaudhury study was inclusive of all types of absences and needs to be interpreted with caution.

In South Africa, the 2010 PSC Report raised concerns on the high number of sick leave days taken by senior managers responsible for implementation and indicated that their absence from their jobs could have a direct impact on service delivery [18]. The report found that for the GDoH, there was an increase in sick leave days taken by senior management employees (level 13-16) and highly skilled supervision (level 9-12) in 2007-2009 whilst there was a decrease in sick days taken by lower-highly skilled production employees (level 1-8) for the same period [18].

Most of the studies on sickness absenteeism were conducted in hospitals, and there is a dearth of information on whether the type of heath facility could be a factor contributing to sickness absenteeism among health professionals. Belita et al in their review of studies on health

worker absence, suggested that the size of an organisation can influence absenteeism as demonstrated by studies in Costa Rica and Kenya where higher absenteeism was found at the bigger hospitals and in district facilities respectively [6].

In considering the relationship between years worked and sickness absenteeism, Mollazadeh et al found higher rates of sickness absenteeism for employees with less than five years of service compared to those employees with five years and more of service. The study demonstrated significant correlations between the duration of employment and the number of sickness absence spells [29]. In another study, a retrospective analysis of sick leave records for hospital employees in Nigeria showed that there was a higher rate and duration of absence for those hospital employees who were employed for shorter periods as compared with those employed for longer periods [6].

Evidence suggests that employees in their first year of work tend to take more sick leave than those employed for longer periods. This could be due to the lack of job experience, absence of supervisory support, inadequate training systems and difficulty in adapting to a new work environment, which can expose new employees to high levels of job strain [10]. In a descriptive study on sick absenteeism among employees of four hospitals in the GDoH, the researcher noted that there was a higher rates of absenteeism among hospital employees with between 11 and 20 years of service whilst those employees with between 31 and 40 years of service had the lowest absenteeism rates [22]. Lees reported in her study that there was no significant relationship between years of service and sickness absenteeism among the nurses studied at Groote Schuur Hospital [23].

1.4.5 Medical reasons related to sickness absenteeism

In an analysis of medically certified sickness absenteeism of health professionals in separate studies conducted in the Scotland NHS and in Riyadh, the authors found that the major causes of sick absences were related to respiratory, digestive and musculoskeletal disorders with variations occurring among the type of health professional [17, 40]. Some of the variations included digestive disorders among medical and ancillary staff, respiratory disorders among laboratory staff and reasons coded as “other” for medical and dental staff [17]. Khawaja et al suggests that musculoskeletal disorders and respiratory conditions could be as a result of patient handling and exposure to occupational hazards [40]. In a ten year cohort study on health workers at a Brazilian health sciences university, Zechinatti also reported high frequencies of sickness absenteeism related to musculoskeletal and mental disorders [41].

This study found longer periods of sickness absence related to neoplasms, infectious diseases and mental disorders and shorter leave periods associated with respiratory diseases [41]. A Scottish study on the duration of sickness absences taken by healthcare employees, reported that mental health and musculoskeletal disorders accounted for over 30% of all sickness absence events over a six year period. In this study, the average duration of sickness absence was higher for mental health absences [42]. In Kruger and Joubert's study on temporary disability leave among health staff at a Free State hospital, the most frequently stated reasons for this type of leave were related to the musculoskeletal, ear-nose-throat, gastrointestinal and respiratory systems with higher proportion of days taken for musculoskeletal and respiratory conditions [21].

Musculoskeletal disorders and mental health disorders are often the most common systems recorded for sickness absences. Musculoskeletal disorders have a high prevalence globally and the impairments which occur can affect an employee's productivity at work and may result in sick leave utilisation [43]. The occupational hazards of lifting heavy patients and equipment, awkward postures and bending have been identified as factors which predispose health workers to developing musculoskeletal diseases [43]. In a systematic review on the risk factors associated with work-related musculoskeletal disorders among allied health professionals (physiotherapists, occupational therapists and radiographers), Anderson and Oakman reported mixed results. They found that younger age, fewer years of experience and exposure to high levels of manual and repetitive tasks were associated with musculoskeletal disorders [44]. In another systematic review of work-related musculoskeletal disorders among physical therapists, Viera et al. found that there was a high prevalence among female physical therapists and those working at hospitals [45]. Low back pain has been found to be the most common type of musculoskeletal disorder prevalent among health care professionals [46]. A study on the factors associated with and the prevalence of low back pain among nurses in a Kwa-Zulu Natal hospital, there were higher percentages of low back pain among enrolled nurses as compared with professional nurses and nursing assistants and an increased prevalence among those nurses with more than 20 years of service [47]. Olivier et al in her analysis of incapacity leave applications submitted by nurses, found that the median age of applicants was 48 years and 10% of the applicants had applied for ill-health retirement based on their low back pain [48].

Existing evidence suggests that there is increasing frequency of sick absenteeism due to psychological disorders [41]. Sickness absenteeism due to mental health issues are related to

depression, with a range of personal, environmental and workplace factors which are thought to influence the well-being of employees within the health sector [42, 49]. These factors include conflicts between personal and work activities, lack of resources and poor team dynamics. With musculoskeletal disorders and mental disorders being considered large contributors to sick leave utilisation, [48, 49], it is imperative to enhance the existing knowledge on these conditions and incapacity leave utilisation among health professionals in the South African public health sector.

Box 1 Key issues from the literature review on sick absenteeism

- There is increasing scholarly discourse on the performance of the health workforce within the context of UHC.
- Sickness absenteeism is an important component of health workforce performance.
- Majority of studies on sickness absenteeism have been conducted in high income countries and among nurses.
- Although there is contradictory information, the majority of the studies have found that age is inversely correlated with sickness absenteeism and that sickness absenteeism is higher among women.
- Musculoskeletal disorders and mental disorders have been identified as major causes of sickness absenteeism.

1.5 Problem statement and justification for the study

Sick absenteeism is a concern across many sectors, especially in the health sector where employees are exposed to workplace hazards and/or work under conditions that predispose them to illness [29]. There is evidence to suggest that sick leave is a significant problem within the GDoH. According to the 2016/2017 GDoH Annual Report, 54 802 employees utilised more than 450 000 days for both sick leave and disability leave during the 2016 reporting period indicating a 39% increase from the previous reporting period [50, 51]. Whilst there is a clearly demonstrated upward trend of sick leave and incapacity leave utilisation in the GDoH, little is known about the characteristics of health professionals who apply for incapacity leave and the medical reasons for such applications.

In light of the criticality of the health workforce to the successful implementation of the NHI, this study was premised on the following. Firstly, there is little empirical information on the characteristics of health professionals with approved incapacity leave in the GDoH. Secondly, there is a dearth of information on the medical reasons for incapacity leave approvals in the GDoH. Thirdly, there is insufficient information of the associations between incapacity leave approvals and demographic and occupational characteristics. The study begins to address the knowledge gaps on sick absenteeism in a large provincial health department.

1.6 Aim and Objectives

The aim of this study was to examine approved incapacity leave among health professionals employed by the GDoH.

The specific objectives of the study were to:

1) Describe the demographic characteristics of health professionals with approved incapacity leave: gender, age and race.
2) Describe the occupational characteristics of health professionals with approved incapacity leave: years of service, salary level, type/ category of health professional, occupational level, type of service and health district.
3) Describe the medical reasons for approved incapacity leave.
4) Determine whether there is an association between approved incapacity leave (outcome) and the demographic and occupational characteristics (independent variables).

CHAPTER 2: METHODOLOGY

2.1 Introduction

This chapter presents the methodology of this research study. Section 2.2 presents the study setting, Section 2.3 the study design and Section 2.4 the ethical considerations. This is followed by a description of the study period (Section 2.5), the study population (Section 2.6) and the selection criteria (Section 2.7) which were used in this study. Sections 2.8 to 2.10 describe the processes of collection, preparation and management of data, respectively. Section 2.11 describes the data analysis used in this study.

Figure 2 is an outline of the research process.

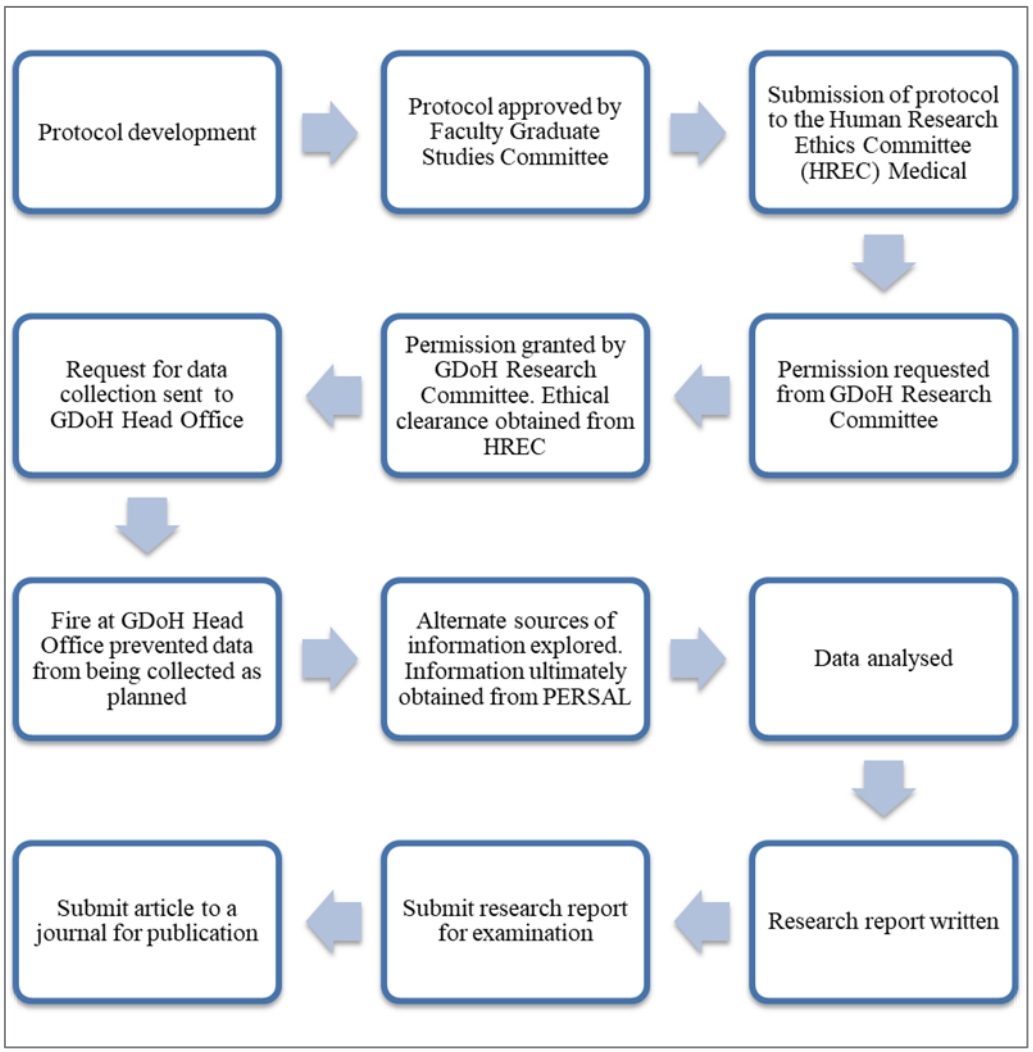

Figure 2 Outline of the research process

2.2 Study setting

The study setting was the GDoH, selected because of accessibility to the researcher and feasibility and affordability in terms of time and budget. Gauteng province is the smallest yet most densely populated province in South Africa with approximately 14.2 million people [52]. The GDoH is one of the largest public health departments in South Africa, with 68 770 employees [50].

In 2016, the GDoH consisted of a Head Office, four Central Hospitals, three Tertiary Hospitals, nine Provincial Regional Hospitals, five District offices, 11 District Hospitals, a Medical Supplies Depot, Sub-District offices, four Nursing Training Colleges, Ambulance services and 373 Clinics [50].

2.3 Study design

This study was a retrospective record review, using official government statistics obtained from the Personnel Salary Administration System (PERSAL).

2.4 Ethical considerations

The Human Research Ethics Committee (Medical) of the University of the Witwatersrand, Johannesburg provided ethical approval for the study (M180522) (Appendix 2). Further permission to conduct the study was obtained from the GDoH Research Committee (Appendix 3).

The names of individuals were removed prior to PERSAL data access. The researcher is a physiotherapist registered with the Health Professional Council of South Africa and understands the importance of confidentiality. The confidentiality of the data sets were respected and all standard ethical processes were adhered to. The collected information was kept confidential and only the researcher and the supervisors had access to the relevant information.

2.5 Study period

The study was an analysis of approved incapacity leave for the period 1 January 2016 to 31 December 2016. The study period was selected due to the increase in sick and disability leave when compared to the previous calendar year as reported in the 2016-2017 GDoH Annual Report [50].

2.6 Study population

The study population comprised of all health professionals employed in the GDoH who had approved incapacity leave in 2016. Hence, there was no sampling, and all approved incapacity leave approvals were used for the study.

2.7 Selection criteria

The inclusion criteria for this study were the following:

i. Incapacity leave records for health professionals employed in the GDoH
ii. Incapacity leave records which occurred during the period 1 January 2016 until 31 December 2016 and
iii. Incapacity leave records, which were processed by the GDoH and deemed to be approved (valid) in terms of PILIR.

The exclusion criteria for this study were the following:

i. Incapacity leave records for non-health professionals in the GDoH,
ii. Incapacity leave records which occurred prior to and after the study period of 1 January 2016 to 31 December 2016
iii. Incapacity leave records which were processed by the GDoH and deemed to be declined (invalid) in terms of PILIR or not processed by the time of data collection
iv. All other forms of leave such as sick leave, annual leave and leave without pay.

2.8 Data collection

The data collection method for this study entailed an analysis of approved incapacity leave records for 2016, using the official PERSAL statistics. The incapacity leave application forms used in the public sector were used to guide the design of the Record review form (Appendix 4).

PERSAL contains electronic incapacity leave records for all public service employees. The GDoH provided the initial dataset of approved incapacity leave for 2016. This information was verified and supplemented by an electronic dataset received from the National Treasury. The GDoH also provided personnel demographic and occupational data of employees for the 2016/2017 financial year. Both the GDoH and National Treasury provided the information in Microsoft Excel format. The data sets contained several variables and only variables which would enable analysis of the demographic and occupational characteristics and the medical reasons for approved incapacity leave were selected.

2.9 Data preparation

Data cleaning involved inspecting the raw data for completeness and consistency. All data were entered into Stata version 15 for analysis. Confidentiality was maintained throughout the research process. Figure 3 depicts the data preparation process represented by eight steps.

Data preparation commenced by preparing the file containing the incapacity leave records. Step 1 involved separating the incapacity leave data by job title in order to identify only health professionals with incapacity leave. Of the 2250 approved incapacity leave records provided, 781 were for non-health professionals and were excluded from the analysis. Step 2 was identifying incapacity leave records which commenced and ended during the study period. Ninety-one incapacity leave records were excluded as they ended either in 2017 or 2018. Step 3 was a thorough inspection of the data upon which 96 duplicate incapacity records were identified and subsequently excluded. This resulted in a data set of 1282 incapacity leave records. Step 4 was identifying the number of health professionals with incapacity leave (n=585) and this was done by using the PERSAL unique employee identification number.

The next stage was preparing the file containing the GDoH personnel demographic and occupational records. Step 5 was to identify health professionals in the GDoH personnel data. Data for non-health professionals were excluded (n=21 958). Step 6 was matching the data of the 46 812 health professionals from the GDoH personnel file with the 585 health professionals from the incapacity leave file. This resulted in a match of 518 employee identification numbers and 67 unmatched employee identification numbers. Step 7 was linking the 518 incapacity leave data with the 46 812 personnel data. This resulted in a data set of health professionals in the GDoH with an indication of which of them had approved incapacity leave. This data set was used in the analysis for objectives 1, 2 and 4.

Step 8 was matching the 67 unmatched employee identification numbers against the 1282 incapacity leave records. There were 127 incapacity leave records belonging to the unmatched employee identification numbers and these were excluded from the analysis. This resulted in a second data set containing 1155 incapacity leave records which was used in the analysis for objective 3.

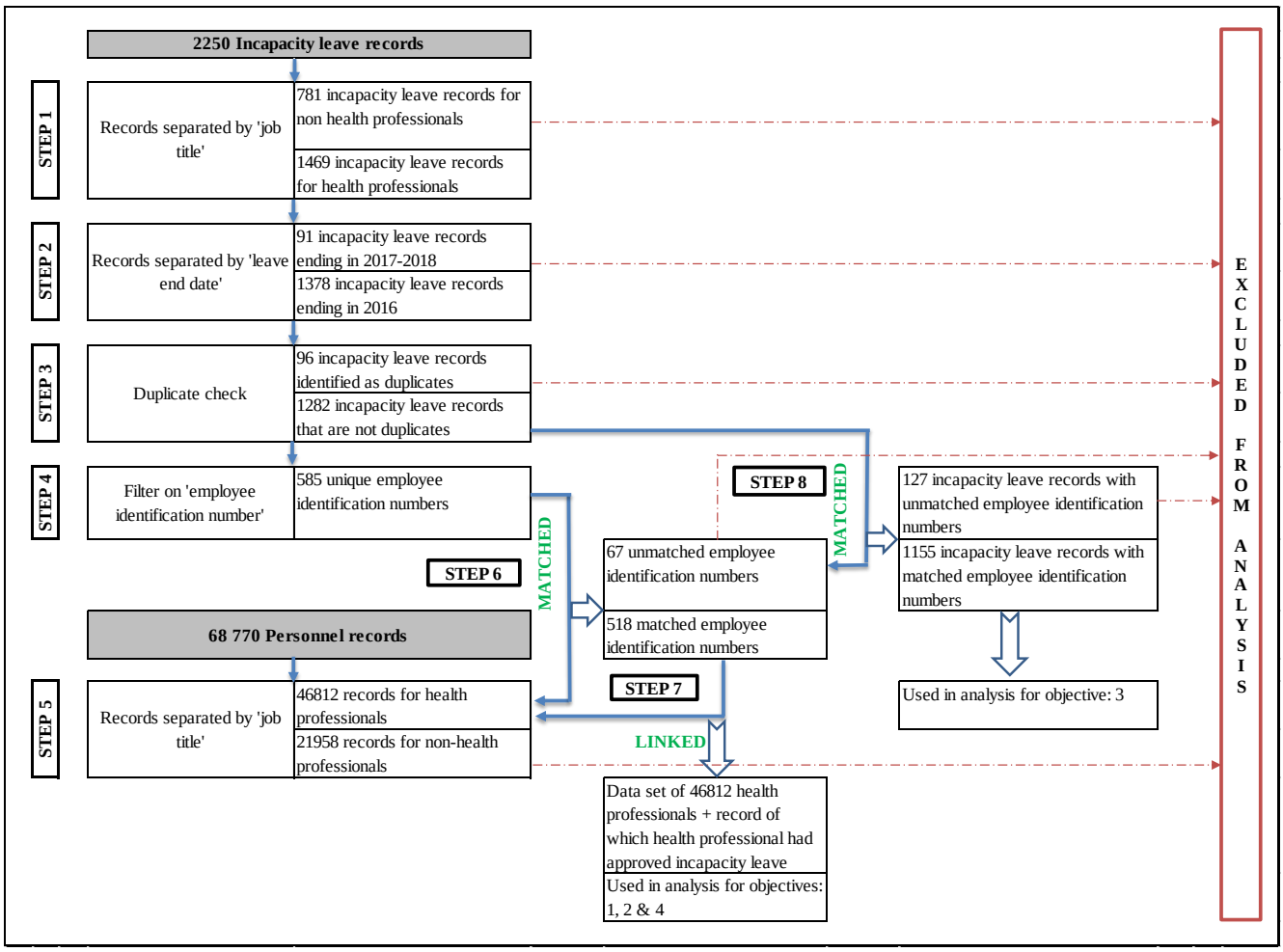

Figure 3 Data preparation process

2.10 Data management

The variables of 'Age', 'Years of service' and 'Salary level' were initially analysed as continuous variables and thereafter they were recoded into categorical variables for descriptive and reporting purposes. Due to the low numbers of health professionals younger than 35 years, it was decided to combine the younger age groups and to recode the 'Age' categories as: < 35 years; 35 to 44 years; 45 to 54 years and ≥ 55 years. 'Years of service' was recoded into the following categories: ≤ 10 years; 11 to 20 years; 21 to 30 years and ≥ 31. 'Salary levels' were recoded into the following categories: <level 6; levels 6 to 9 and levels 10 to 16. The distribution of the data informed the categories which were defined.

The 'Medical reasons' for incapacity leave were categorised according to the 10th revision of the International Classification of Disease (ICD-10) [40]. Using the descriptions provided for each incapacity leave episode, ICD-10 categories were created by referencing ICD-10 online from the World Health Organization (WHO) website (https://icd.who.int/browse10/2016/en).

Data from broad categories such as ‘Job title description’, ‘Type of service/facility description’ and ‘ICD-10 classification’ were thereafter collapsed into narrower categories to ensure more robust results. These changes are presented in Table 1.

Table 1 Description of variables with collapsed categories

Job title category	**Job title description**
Manager	Assistant Director Physiotherapy; Assistant Manager Nursing; Chief Executive Officer - Health; Clinical Manager - Medical; Clinical Manager - Medical; Deputy Manager Nursing; Head Clinical Unit - Medical; Manager Medical Services; Manager Pharmaceutical Services Assistant; Middle Manager - Health; Operational Manager Nursing; Pharmacy Supervisor and Social Worker Supervisor
Medical	Medical Officer; Medical Specialist, Registrar, Medical Practitioner, Dental Practitioner, Dental Specialists, Dentist
Professional nurse	Professional Nurse (speciality nursing, primary health care, general nursing, community service and student)
Staff nurse	Staff or enrolled nurse
Nursing assistant	Nursing assistant or auxiliary
Allied health professionals	Chief Radiographer; Clinical Programme Coordinator; Dental Assistant; Diagnostic Radiographer; Dietician; Electro Cardiogram Assistant; Electro Encephalographic Assistant; Emergency Care Officer; Emergency Care Technician; Emergency Medical Service (EMS) Shift Leader; Forensic Pathology Officer; Lecturer Nursing; Nuclear Medicine Radiographer; Occupational Therapist; Pharmacist; Physiotherapist; Pharmacist Assistant; Physiotherapy Assistant; Physiotherapy Technician; Psychologist; Radiographer; Social Worker; Speech Therapist; Technician/Technologist.
Type of service/facility category	**Type of service/facility description**
Central & Tertiary hosps	Central hospital, Tertiary hospital
Regional hosps	Regional hospital
District hosps	District hospital
Specialised hosps	Specialised hospital
PHC	PHC services
Other types of facility/service	District services, Oral and dental, Specialised services, Support services

ICD-10 category	ICD-10 classification
Mental disorders	Mental and behavioural disorders (F00 – F99)
Musculoskeletal disorders	Diseases of the musculoskeletal system and connective tissue (M00 – M99)
Injuries	Injury, poisoning and certain other consequences of external causes (S00 – T98)
Respiratory diseases	Diseases of the respiratory system (J00 – J99)
Surgery	Surgery
Medical condition unknown	Factors influencing health status and contact with health services (Z00 – Z99)
Neoplasms	Neoplasms (C00 – D48)
Genitourinary diseases	Diseases of the genitourinary system (N00 – N99)
Digestive diseases	Diseases of the digestive system (K00 – K93)
Circulatory diseases	Diseases of the circulatory system (I00 – I99)
Other disorders/diseases	Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (R00 – R99), Certain infectious and parasitic diseases (A00 – B99), Diseases of the nervous system (G00 –G99), Endocrine, nutritional and metabolic diseases (E00 – E90), Diseases of the eye and adnexa (H00 – H59), Diseases of the skin and subcutaneous tissue (L00 – L99), Diseases of Pregnancy, Childbirth and the Puerperium (O00 – O99), Diseases of the ear and mastoid process (H60 – H95), Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism (D50 – D89)

2.11 Data analysis

In this study, the following independent variables for health professionals with approved incapacity leave were used in the analysis: demographic variables – 'Gender', 'Age' (grouped) and 'Race'. Occupational variables included 'Years of service' (grouped), 'Job title' (grouped), 'Salary level' (grouped), 'Type of service' and 'Health district'. The variable for 'Medical reasons' for incapacity leave was the 'ICD-10 category'. The outcome measure approved incapacity leave was dichotomised and coded as either 0 or 1 indicating the absence or presence of the outcome.

For the analysis, data on the exposure variables such as 'Age', 'Gender', 'Race', 'Years of service', 'Job title', 'Salary levels' and 'Medical reasons' were described using frequencies and proportions. In order to determine the distribution of continuous data, 'Age' and 'Years of

service' were first analysed as continuous variables and thereafter as categorical data. The mean and median 'Duration of leave' was analysed for selected exposure variables. Summary statistics were reported in tables and graphs.

The association between incapacity leave episodes among health professionals in the GDoH (outcome variable) and the demographic and occupational characteristics (exposure variables), were first examined through a bivariate analysis. The differences between groups were evaluated using the *Chi-square test*. All variables that were significant at a conservative level of 20% were included in the logistic regression models. 'Race' was excluded because it was not statistically significant and 'Salary level' was excluded as it was related to the variable 'Job title'. Cross tabulations and variance inflation factor (VIF) were performed to determine collinearity between covariate variables such as salary levels and job title.

Multiple logistic regression models were constructed to investigate the independent effects of the exposure variables (demographic factors and occupational factors) upon the probability of incapacity leave among health professionals in the GDoH. The full logistic regression model included 'Age' (grouped), 'Gender', 'Years of service' (grouped), 'Job title' (grouped), 'Type of service' (grouped) and 'Health district'. The results of the logistic regression were presented in the form of adjusted odds ratios with 95% confidence intervals (95% CI).

The quality of the data was assured by obtaining incapacity leave data from GDoH Head Office and National Treasury rather than from individual institutions. The researcher consulted with lecturers at the School of Public Health and the Biostatistics Department at the University of the Witwatersrand to ensure reliability and accuracy of the analysis produced on Stata ® 15.

The results of the study are presented in the next chapter.

CHAPTER 3: RESULTS

Demographic and occupational characteristics

3.1.1 Demographic characteristics

Table 2 provides a description of the demographic characteristics of the health professional population in the GDoH and those with approved incapacity leave for 2016. The majority of health professionals in the GDoH were female (81.7%) and the mean (average) age was 39 years (standard deviation (SD) ± 11.6). The highest proportion of health professionals were 35 years and younger (38.4%) and black African (88.1%). Among the health professionals with approved incapacity leave in the GDoH, the majority were female (91.3%). The mean age and standard deviation of health professionals with approved incapacity leave was 46 ± 10.2 years with just over a third between the ages of 45 to 54 years (35.9%).

Table 2 Demographic characteristics of the health professionals in the GDoH and those with approved incapacity leave

	GDoH health professionals (N=46 812)		**GDoH health professionals with approved incapacity leave (n=518)**	
Demographic variables	**Number (n)**	**%**	**Number (n)**	**%**
Gender				
Female	38 320	81.9	473	91.3
Male	8492	18.1	45	8.7
Age (grouped in years)				
< 35 years	17 952	38.4	93	18.0
35 to 44 years	12 749	27.2	116	22.4
45 to 54 years	9 843	21.0	186	35.9
≥ 55 years	6268	13.4	123	23.8
Age (mean ± S.D.)	39 (± 11.6)		46 (± 10.2)	
Race				
African	41 246	88.1	451	87.1
Coloured	826	1.8	8	1.5
Indian	1435	3.0	13	2.5
White	3305	7.1	46	8.9

3.1.2 Occupational characteristics

Table 3 presents the occupational characteristics of health professionals in the GDoH and those with approved incapacity leave for 2016. The median years of service for all health professionals in the GDoH was 6 years with an inter-quartile range (IQR) of 1 to 10 years.

The median salary level of health professionals was 7 (IQR level 4 to 9). The majority of skilled staff in the GDoH were nurses (66.3%), while 35.7% of health staff were Professional Nurses. Most health professionals were employed in the City of Johannesburg health district (41.7%) and in central and tertiary hospitals (37.3%).

The median years of service among health professionals with incapacity leave was 8 years with an IQR of 5 to 16 years. Among the health professionals with approved incapacity leave, the majority (61.8%) had between 1 and 10 years of service. The median salary level for health professionals with approved incapacity leave was salary level 7 (IQR level 5 to 9). Salary levels 6 to 9 had the highest proportion of health professionals with incapacity leave (51.5%). Professional nurses accounted for 41.5% of health professionals with incapacity leave, while all categories of nurses accounted for 78% of health professionals with approved incapacity leave. In terms of place of employment, most health professionals with incapacity leave were from the City of Johannesburg health district (44.8%) and employed at central and tertiary hospitals (42.7%).

Table 3 Occupational characteristics of the health professionals in the GDoH and those with approved incapacity leave

	GDoH health professionals (N=46 812)		**GDoH health professionals with approved incapacity leave (n=518)**	
Occupational variables	**n**	**%**	**n**	**%**
Years of service (grouped in years)				
1 to 10	35 521	75.9	320	61.8
11 to 20	5947	12.7	83	16.0
21 to 30	3905	8.3	87	16.8
≥ 31	1439	3.0	28	5.4
Median (IQR)	6 (1-10)		8 (5-16)	
Salary levels (grouped)				
< 6	18 653	39.9	154	29.7
6 to 9	17 386	37.1	267	51.5
10 to 16	10 773	23.0	97	18.7
Median (IQR)	7 (4-9)		7 (5-9)	
Job title (grouped)				
Managers	2 523	5.4	39	7.5
Medical staff	6 060	13.0	15	2.9
Professional Nurses	16 715	35.7	215	41.5
Staff Nurses	7 509	16.0	98	18.9
Nursing Assistants	6 825	14.6	91	17.6
Allied health professionals	7 180	15.3	60	11.6

Occupational variables	GDoH health professionals (N=46 812)		GDoH health professionals with approved incapacity leave (n=518)	
	n	%	n	%
Health district				
Ekurhuleni	7 243	15.5	56	10.8
Johannesburg	19 525	41.7	232	44.8
Sedibeng	2 515	5.4	47	9.0
Tshwane	14 136	30.2	153	29.5
West Rand	3 393	7.3	30	5.8
Type of facility/service				
Central & Tertiary hospitals	17 463	37.3	221	42.6
Regional hospitals	7 695	16.4	67	12.9
District hospitals	4 368	9.3	78	15.1
Specialised hospitals	2 166	4.6	25	4.8
PHC	5 265	11.3	72	13.9
Other types of facility/service	9 855	21.0	55	10.6

3.2 Medical reasons for incapacity leave

3.2.1 Description of ICD-10 categories for approved incapacity leave

In 2016, there were 1155 incapacity leave episodes taken by 518 health professionals. The frequency and proportion for the complete range of ICD-10 classifications are presented in Table 4. The two leading medical reasons for incapacity leave among health professionals were mental and behavioural disorders (12.8%) and musculoskeletal disorders (12.0%). These two ICD-10 classifications collectively accounted for a quarter of approved incapacity leave. The third main medical reasons for incapacity leave among health professionals were diseases of the respiratory system and injury, poisoning and certain other consequences of external causes (8.8% each). Neoplasms accounted for 7.5% of incapacity leave.

Table 4 Medical reasons for approved incapacity leave among health professionals in the GDoH

	Approved incapacity leave episodes (n=1155)*	
ICD-10 Classifications	**n**	**%**
Mental and behavioural disorders	148	12.8
Diseases of the musculoskeletal system and connective tissue	139	12.0
Diseases of the respiratory system	102	8.8
Injury, poisoning and certain other consequences of external causes	102	8.8
Surgery	95	8.2
Diseases of the genitourinary system	92	8.0

	Approved incapacity leave episodes (n=1155)*	
ICD-10 Classifications	**n**	**%**
Factors influencing health status and contact with health services	86	7.5
Neoplasms	86	7.5
Diseases of the digestive system	68	5.9
Diseases of the circulatory system	62	5.4
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	45	3.9
Diseases of the nervous system	35	3.0
Certain infectious and parasitic diseases	31	2.7
Diseases of the eye and adnexa	17	1.5
Endocrine, nutritional and metabolic diseases	17	1.5
Diseases of the skin and subcutaneous tissue	12	1.0
Diseases of Pregnancy, Childbirth and the Puerperium	11	1.0
Diseases of the ear and mastoid process	4	0.4
Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	3	0.3

*One heath professional could have more than one episode of incapacity leave

3.2.2 Medical condition by age

Table 5 shows that the proportion of incapacity leave episodes due to mental and behavioural disorders was highest among health professionals 35 years and younger (33.8%) and lowest among health professionals 55 years and older (12.2%). Incapacity leave due to diseases of the musculoskeletal system was highest among health professionals 45 to 54 years old (55.4 %) followed by health professionals 55 years and older (22.3%). Incapacity leave due to diseases of the respiratory system and injury was highest among health professionals in the 45 to 54 year age group (33.3% and 36.3% respectively). Almost half of all incapacity leave related to neoplasms were for health professionals in the 45 to 54 year age category (46.5%).

Table 5 Medical reasons for approved incapacity leave among health professionals in the GDoH by age

ICD-10 categories	Age categories							
	<35 years		35 to 44 years		45 to 54 years		55 years & above	
	n	%	n	%	n	%	n	%
Mental and behavioural disorders	50	33.8	45	30.4	35	23.7	18	12.2
Diseases of the musculoskeletal system	16	11.5	15	10.8	77	55.4	31	22.3
Diseases of the respiratory system	15	14.7	30	29.4	34	33.3	23	22.6
Injury	14	13.7	22	21.6	37	36.3	29	28.4
Surgery	6	6.3	25	26.3	44	46.3	20	21.1

ICD-10 categories	Age categories							
	<35 years		35 to 44 years		45 to 54 years		55 years & above	
	n	%	n	%	n	%	n	%
Diseases of the genitourinary system	15	16.3	17	18.5	34	37.0	26	28.3
Medical condition	26	30.2	11	12.8	29	33.7	20	23.3
Neoplasms	3	3.5	31	36.1	40	46.5	12	14.0
Diseases of the digestive system	16	23.5	12	17.7	22	32.4	18	26.5
Diseases of the circulatory system	2	3.2	13	21.0	32	51.6	15	24.2
Other disorders/disease	54	30.7	43	24.6	65	37.1	13	7.4

3.2.3 Medical condition by years of service

Approved incapacity leave due to mental and behavioural disorders was highest among health professionals with between 1 and 10 years of service (79.1%) and lowest among health professionals with ≥ 31 years of service (2.7%). Incapacity leave due to diseases of the musculoskeletal system was highest among health professionals with between 1 and 10 years of service (46.0%) and among those with between 21 and 30 years of service (32.3%). There were also higher proportions of incapacity leave related to diseases of the respiratory system among health professionals with between 1 and 10 years of service (54.9%) and between 21 and 30 years of service (21.6%). Incapacity leave related to injury, poisoning and certain other consequences of external causes was highest among health professionals with between 1 and 10 years of service (48.0%) and lowest among those with ≥ 31 years of service (9.8%). Incapacity leave related to neoplasms was highest among health professionals with between 1 and 10 years of service (44.2%) and between 11 and 20 years of service (38.4%). These results are presented in Table 6.

Table 6 Medical reasons for approved incapacity leave among health professionals in the GDoH by years of service

ICD-10 categories	Years of service categories							
	1 to 10 years		11 to 20 years		21 to 30 years		≥31 years	
	n	%	n	%	n	%	n	%
Mental and behavioural disorders	117	79.1	14	9.5	13	8.8	4	2.7
Diseases of the musculoskeletal system	64	46.0	25	18.0	45	32.4	5	3.6
Diseases of the respiratory system	56	54.9	19	18.6	22	21.6	5	4.9
Injury	49	48.0	18	17.7	25	24.5	10	9.8
Surgery	51	53.7	22	23.2	18	19.0	4	4.2
Diseases of the genitourinary system	39	42.4	28	30.4	18	19.6	7	7.6
Medical condition	57	66.3	7	8.1	19	22.1	3	3.5
Neoplasms	38	44.2	33	38.4	7	8.1	8	9.3
Diseases of the digestive system	46	67.7	5	7.4	13	19.1	4	5.9

ICD-10 categories	Years of service categories							
	1 to 10 years		11 to 20 years		21 to 30 years		≥31 years	
	n	%	n	%	n	%	n	%
Diseases of the circulatory system	23	37.1	16	25.8	11	17.7	12	19.4
Other disorders/disease	113	64.6	40	22.9	16	9.1	6	3.4

3.2.4 Medical condition by job title

Figure 4 (a-f) presents medical conditions by job title. Apart from the disease category 'other disorders/disease', most incapacity leave for managers were related to diseases of the musculoskeletal system (14.6%) and neoplasms (14.6%). The main medical reason for incapacity leave among the medical staff was mental and behavioural disorders (22.7%). Among professional nurses and staff nurses, apart from the disease category 'other disorders/disease', most incapacity leave were related to mental and behavioural disorders (14.5%) and diseases of the respiratory system (13.6%) respectively. Among the nursing assistants, the second most common medical reason for incapacity leave was mental and behavioural disorders (12.7%). Among the allied health professionals most incapacity leave were related to diseases of the musculoskeletal system (22.5%).

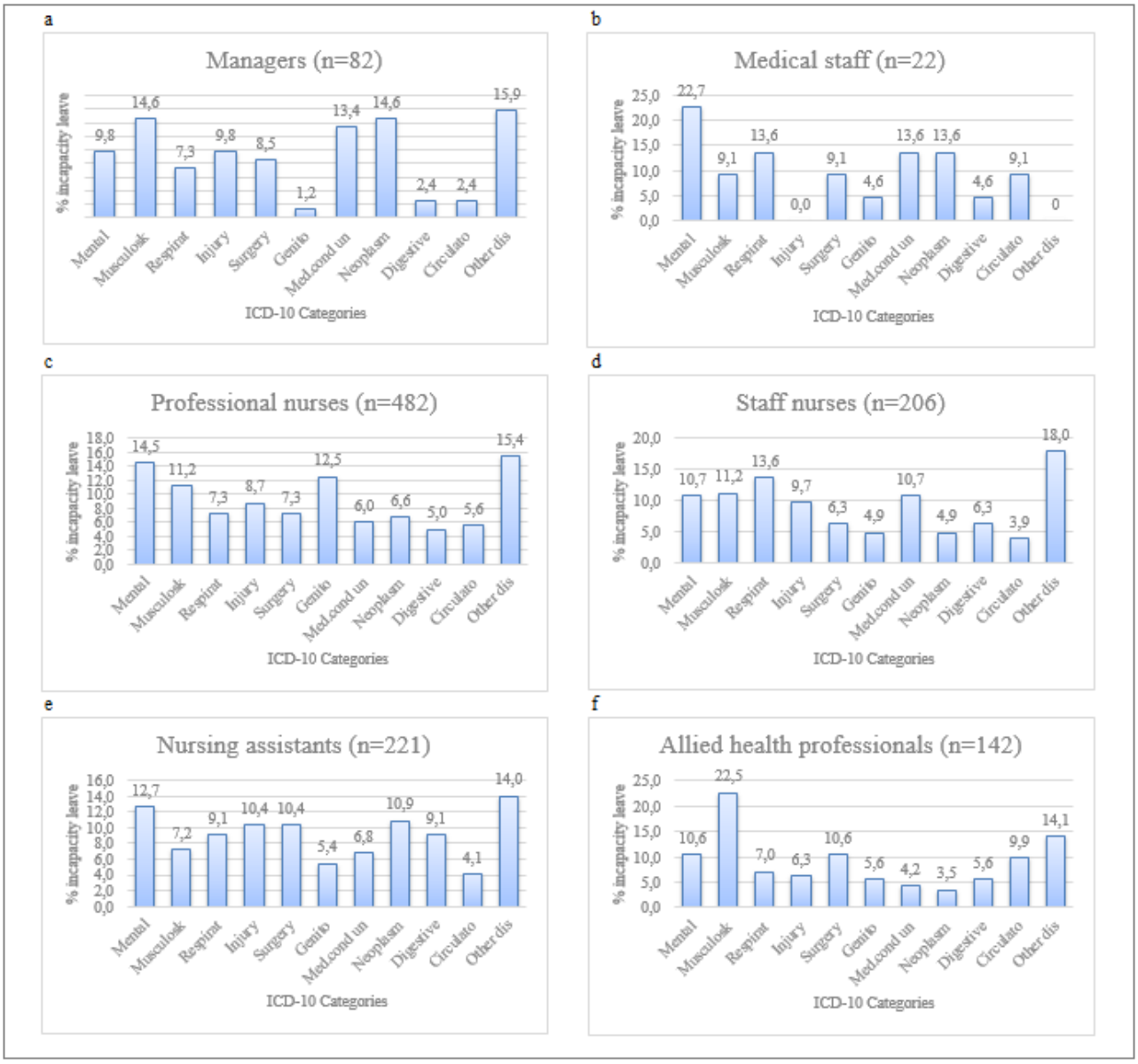

Figure 4 Medical condition for approved incapacity leave among health professionals in the GDoH by job title

Mental = Mental and behavioural disorders, Musculosk = Diseases of the musculoskeletal system and connective tissue, Respirat = Diseases of the respiratory system, Injury = Injury, poisoning and certain other consequences of external causes, Genito = Diseases of the genitourinary system, Med.con un (Medical condition unknown) = Factors influencing health status and contact with health services, Digestive = Diseases of the digestive system, Circulato = Diseases of the circulatory system, Other dis= Other disorders or disease

3.2.5 Duration of incapacity leave episodes by medical reasons

This section commences by providing the distribution for all incapacity leave days taken by health professionals in the GDoH and will thereafter provide the duration of incapacity leave by medical reason. As shown in Figure 5, the distribution was skewed to the left indicating that there were more incapacity leave of shorter durations than longer durations. The mean

duration of incapacity leave was 14.7 ± 28.4 days and the median duration of incapacity leave was 4 days (IQR 2 to 14 days).

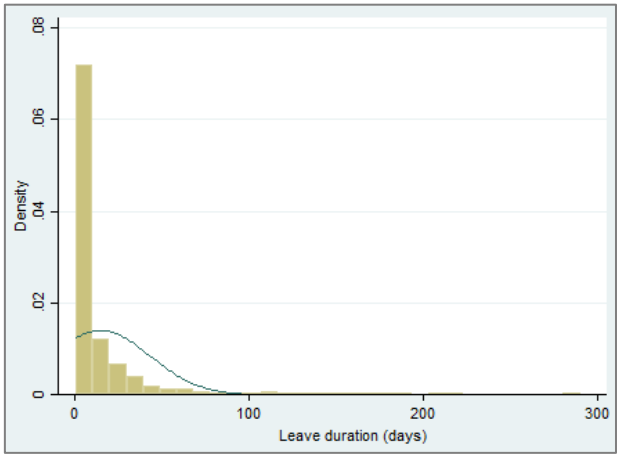

Figure 5 Histogram of the distribution of duration of incapacity leave

Due to the skewness of the data, both the mean and median duration of approved incapacity leave per medical condition are presented in Table 7. The mean duration of approved incapacity leave was highest for incapacity leave related to diseases of the circulatory system (27 ± 46.9 days) followed by neoplasms (25.9 ± 46.2 days) and mental and behavioural disorders (21 ± 31.5 days). The mean duration of incapacity leave was lowest for incapacity leave related to diseases of the respiratory system (5.4 ± 14 days).

The median duration of approved incapacity leave was highest for mental and behavioural disorders (11 days, IQR 4 to 27.5 days) and Surgery (9 days, IQR 5 to 25 days) and lowest for diseases of the genitourinary system (2 days, IQR 1 to 7.5 days) and diseases of the digestive system (2 days, IQR 2 to 5 days).

Table 7 Duration of incapacity leave by medical reason

ICD-10 categories	Mean (SD)	Median (IQR)
Mental and behavioural disorders	21 (31.5)	11 (4-27.5)
Diseases of the musculoskeletal system	9.6 (20)	3 (2-9)
Diseases of the respiratory system	5.4 (14)	2.5 (2-4)
Injury	17.6 (29.4)	7 (3-19)
Surgery	15.9 (15.5)	9 (5-25)
Diseases of the genitourinary system	8.3 (17)	2 (1-7.5)
Medical condition	6.4 (12.3)	3 (1-7)
Neoplasms	25.9 (46.2)	5 (1-24)
Diseases of the digestive system	9.3 (25.8)	2 (2-5)
Diseases of the circulatory system	27 (46.9)	5 (3-22)
Other disorders/disease	15.9 (29)	5 (2-14)

3.3 Association between demographic and occupational characteristics and incapacity leave

With the exception of 'Race', all variables were found to be independently associated with incapacity leave (p value <0. 05). Tables 8 and 9 show the results of these associations.

Table 8 Association between demographic characteristics and approved incapacity leave among health professionals in the GDoH

Demographic variables	Health professionals with incapacity leave (n=518)		Health professionals with no incapacity leave (n=46 294)		p value
	n	%	n	%	
Age					
< 35 years	93	18.0	17 859	38.6	<0.001
35 to 44 years	116	22.4	12 633	27.3	
45 to 54 years	186	35.9	9 657	20.9	
≥ 55 years	123	23.8	6145	13.3	
Gender					
Female	473	91.3	37 847	81.8	<0.001
Male	45	8.7	8447	18.3	
Race					
African	451	87.1	40 795	88.1	0.4
Coloured	8	1.5	818	1.8	
Indian	13	2.5	1422	3.1	
White	46	8.9	3259	7.0	

Table 9 Association between occupational characteristics and approved incapacity leave among health professionals in the GDoH

Occupational variables	Health professionals with incapacity leave (n=518)		Health professionals with no incapacity leave (n=46 294)		p value
	n	%	n	%	
Years of service (grouped in years)					
1 to 10	320	61.8	35 201	76.0	<0.001
11 to 20	83	16.0	5864	12.7	
21 to 30	87	16.8	3818	8.3	
≥ 31	28	5.4	1411	3.1	
Salary levels (grouped)					
< 6	154	29.7	18 499	40.0	<0.001
6 to 9	267	51.5	17 119	37.0	
10 to 16	97	18.7	10 676	23.1	
Job title (grouped)					
Manager	39	7.5	2 484	5.4	<0.001
Medical staff	15	2.9	6 045	13.1	
Professional Nurse	215	41.5	16 500	35.6	
Staff Nurse	98	18.9	7 411	16.0	
Nursing Assistant	91	17.6	6 734	14.6	
Allied health professionals	60	11.6	7 120	15.4	
Health district					
Ekurhuleni	56	10.8	7 187	15.5	<0.001
Johannesburg	232	44.8	19 293	41.6	
Sedibeng	47	9.1	2 468	5.3	
Tshwane	153	29.5	13 983	30.2	
West Rand	30	5.8	3 363	7.3	
Type of facility/service					
Central & Tertiary hospitals	221	42.7	17 242	37.2	<0.001
Regional hospitals	67	12.9	7 628	16.5	
District hospitals	78	15.1	4 290	9.3	
Specialised hospitals	25	4.8	2 141	4.6	
PHC	72	13.9	5 193	11.2	
Other types of facility/service	55	10.6	9 800	21.2	

3.4 Multivariate logistic regression

The results of the logistic regression are presented on Table 10. The risk factors for incapacity leave among health professionals were: 35 years and older and working in the Sedibeng health district ($p<0.05$). Compared to the reference category, the odds of incapacity leave was three times higher for health professionals who were older than 45 years (45 to 54 years - adjusted odds ratio (AOR) 3.0 95% CI 2.3-4.0) (≥ 55 years - AOR 3.1 95% CI 2.3-4.3).

Compared to the reference category, the odds of incapacity leave among health professionals was highest for those working in the Sedibeng health district (AOR 2.2 95% CI 1.5-3.2).

The protective factors for incapacity leave among health professionals were male, medical staff and being employed at 'other' types of facilities/service. There were lower odds of incapacity leave among male health professionals (AOR 0.7 95% CI 0.5-0.9) compared to females ($p<0.05$). The odds of incapacity leave was lowest among medical staff (AOR 0.3 95% CI 0.2-0.6).

Table 11 provides the unadjusted logistic regression models. The odds ratios for 'age groups' and 'health districts' were higher in the unadjusted model compared with the adjusted model and the odds ratio for 'type of service' was similar across both models.

Table 10 Adjusted odds ratio of approved incapacity leave among health professionals in the GDoH

Variables	AOR	p value	95% CI
Demographic variables			
Age groups			
< 35 years	1		
35 to 44 years	1.5	< 0.001	1.2-2.0
45 to 54 years	3.0	< 0.001	2.3-4.0
≥ 55 years	3.1	< 0.001	2.3-4.3
Gender			
Male	0.7	0.02	0.5-0.9
Female	1		
Occupational variables			
Years of service groups			
1 to 10 years	1		
11 to 20 years	1.0	0.7	0.8-1.4
21 to 30 years	1.2	0.2	0.9-1.6
≥ 31 years	1.0	0.9	0.7-1.6
Job title groups			
Manager	1		
Medical staff	0.3	< 0.001	0.2-0.6
Professional Nurse	1.2	0.3	0.9-1.7
Staff Nurse	1.2	0.4	0.8-1.8
Nursing Assistant	1.3	0.3	0.8-1.9
Allied health professionals	1.1	0.6	0.7-1.7
Health district			
Ekurhuleni	1		

Variables	AOR	p value	95% CI
Johannesburg	1.7	< 0.001	1.2-2.3
Sedibeng	2.2	< 0.001	1.5-3.2
Tshwane	1.3	0.1	0.9-1.8
West Rand	1.0	0.9	0.6-1.6
Type of service groups			
Central & Tertiary hospitals	1		
Regional hospitals	0.7	0.1	0.5-1.0
District hospitals	1.4	0.0	1.0-1.8
Specialised hospitals	1.0	0.9	0.6-1.5
PHC	0.8	0.2	0.6-1.1
Other types of facility/service	0.5	< 0.001	0.4-0.7

Variables used in the model: 'Age groups', 'Gender', 'Years of service groups', 'Job title groups', 'Health district' and 'Type of service groups'.

Table 11 Unadjusted odds ratio of approved incapacity leave among health professionals in the GDoH

Variables	AOR	p value	95% CI
Demographic variables			
Age groups			
< 35 years	1		
35 to 44 years	1.8	< 0.001	1.3-2.3
45 to 54 years	3.7	< 0.001	2.9-4.7
≥ 55 years	3.8	< 0.001	2.9-5.0
Gender			
Male	0.4	< 0.001	0.3-0.6
Female	1		
Occupational variables			
Years of service groups			
1 to 10 years	1		
11 to 20 years	1.6	< 0.001	1.2-2.0
21 to 30 years	2.5	< 0.001	2.0-3.2
≥ 31 years	2.2	< 0.001	1.5-3.2
Job title groups			
Manager	1		
Medical staff	0.2	< 0.001	0.1-0.3
Professional Nurse	0.8	0.3	0.6-1.2
Staff Nurse	0.8	0.4	0.6-1.2
Nursing Assistant	0.9	0.4	0.6-1.3
Allied health professionals	0.5	0.003	0.4-0.8

Variables	AOR	p value	95% CI
Health district			
Ekurhuleni	1		
Johannesburg	1.5	0.004	1.2-2.1
Sedibeng	2.4	< 0.001	1.7-3.6
Tshwane	1.4	0.03	1.0-1.9
West Rand	1.1	0.6	0.7-1.8
Type of service groups			
Central & Tertiary hospitals	1		
Regional hospitals	0.7	0.007	0.5-0.9
District hospitals	1.4	0.008	1.1-1.8
Specialised hospitals	0.9	0.7	0.6-1.4
PHC	1.1	0.6	0.8-1.4
Other types of facility/service	0.4	< 0.001	0.3-0.6

Variables used in the model: 'Age groups', 'Gender', 'Years of service groups', 'Job title groups', 'Health district' and 'Type of service groups'.

3.5 Summary

In 2016, 518 (1.1%) of health professionals in the GDoH had 1155 episodes of approved incapacity leave. Box 2 highlights the main results of this study.

Box 2 Summary of study results

Demographic characteristics: Health professionals with approved incapacity leave were mainly female (91.3%). The mean age of health professionals with approved incapacity leave was 46 years (± 10.2 years) with just over a third of health professionals between the ages of 45 to 54 years (35.9%).

Occupational characteristics: Majority of health professionals with approved incapacity leave had between 1 and 10 years of service (61.8%). Salary levels 6 to 9 had the highest proportion of health professionals with incapacity leave (51.5%). Professional nurses accounted for 41.5% of health professionals with incapacity leave, while all categories of nurses accounted for 78.0% of health professionals with incapacity leave. Most health professionals with incapacity leave were from the Johannesburg Health district (44.8%) and employed at central and tertiary hospitals (42.7%).

Medical reasons related to approved incapacity leave: Mental and behavioural disorders (12.8%) and Musculoskeletal disorders (12.0%) were the leading medical reasons for approved incapacity leave followed by Diseases of the respiratory system and Injury, poisoning and certain other consequences of external causes (8.8%). The median duration of approved incapacity leave was higher for leave related to mental disorders (11 days) compared to leave related to musculoskeletal disorders (3 days). Incapacity leave due to Mental and behavioural disorders was highest among health professionals 35 years and younger while incapacity leave due to Diseases of the musculoskeletal system was highest among health professionals 45 to 54 years old (55.4%).

Predictors of approved incapacity leave: 45 years and older and working in the Sedibeng health district ($p<0.05$).

The discussion of the results are presented in the next chapter.

CHAPTER 4: DISCUSSION

4.1 Introduction

This is one of the first studies that focuses on an analysis of incapacity leave among all health professionals in the GDoH. In this chapter, the key findings of the study are discussed in light of the study objectives and the relevant literature (Sections 4.2 to 4.5). In Section 4.6, the study limitations and remedial steps are discussed. The chapter concludes with Section 4.7 which provides the scholarly contribution of the study.

4.2 Demographic characteristics

In 2016, 518 of the 46 812 health professionals in the GDoH had approved incapacity leave (1.1 %). In other South African studies, Kruger and Joubert reported that 12.2% of staff at a tertiary hospital in the Free State province had accessed temporary disability leave between 2001 and 2003 [21]. Lees reported a 6% sick absence among nurses at Groote Schuur hospital between 2010 and 2014 [23]. An explanation for why the proportion of health professionals with incapacity leave in my study is lower in comparison to the other studies could be due to differences in the study periods, study populations and methodologies. In addition, the year 2016 marked the beginning of a new sick leave cycle. Incapacity leave can only be accessed once sick leave credits have been depleted indicating that the 36 days of sick leave meant to be used over a three year cycle, was used within the first year of the cycle. Furthermore, in my study, there were 1155 incapacity leave approved for the 518 health professionals which indicates that some health professionals had used more than one episode of incapacity leave during the period under review. This is worrisome because this exacerbates the staff shortages experienced in the public health sector. Sick absenteeism influences the availability of health professionals and can affect patient care, as well as the morale of staff who are on duty.

In my study, there were more female health professionals with approved incapacity leave (91.3 %) compared to male health professionals (8.7%). This finding is supported by other studies conducted in South Africa which reported higher absences among female employees [18, 22]. Similarly other studies in HICs also found higher proportions of sick leave among females [17, 34]. This can partly be explained by the feminisation of the health workforce [18, 53], the reproductive health needs of women [54], and the disproportionate burden of care and family responsibilities [54] that fall on women. Considering that the majority of the health professional workforce within the GDoH are female, the study findings suggest that more efforts should be made to create a gender-sensitive work environment that takes account of

the needs of working women. Work environments need to be changed through gender transformative policies that seek to address the underlying causes of gender inequities which contribute to shortages of health workers [55]. For example, this could entail involvement of female staff in drawing up work and/or leave schedules to make sure that their needs are taken into account, while ensuring staff availability.

My study shows there was a steady increase in the proportion of health professionals with approved incapacity leave among the younger age groups with a sharp increase in the 45 to 54 age group followed by a dip in the 55 years and older age group. Although an inverse relationship of sickness absenteeism with age has been reported in some studies [6, 34], my findings are corroborated in other studies. For example, an increase in age was found was to be significantly associated with absences among Nigerian hospital workers and higher absences were found among older nurses in India [36, 56]. The higher absences among older employees could be due to diseases of lifestyle and organisation factors such as long term exposure to occupational risk factors such as working long hours and burnout [34, 35].
In my study, the finding of high proportions of incapacity leave absences among health professionals who are still at a productive age could impact on their quality of life, productivity and ultimately their performance in the health system.

4.3 Occupational characteristics

With regard to occupational characteristics, the findings of my study reflect that the majority of health professionals with approved incapacity leave had between 1 and 10 years of service. This is contrary to the study by Ndhlovu that found higher absences among employees with between 11 and 20 years of service [22]. Leao suggests that the higher risk of sickness absenteeism among employees within their first year of working could be as a result of inadequate training, inadequate or poor supervision and difficulty in adapting to a new job [10]. This could explain my findings especially for those health professionals who are in the early stages of their health careers. My study also found that 5.4% of health professionals with approved incapacity leave had more than 31 years of service. This could be indicative of greater job commitment by these health professionals. Nonetheless, these results need to be interpreted with some caution as my study did not consider leave during any periods of employment that health professionals may have worked outside of the GDoH. In this context, it would therefore be difficult to make any conclusive remarks on the years of service and incapacity leave.

In this study, more than half of health professionals (51.5 %) with approved incapacity leave were from salary levels six to nine. The results are similar to the PSC report which reported higher proportions of sick leave among employees within and below salary level 8 [18]. In contrast, Ndhlovu found higher absences within the lower salary levels (salary levels 2 to 3) in her study on absenteeism at four Gauteng hospitals [22]. Similarly, Gorman et al. reported higher rates of sickness absenteeism among employees in the lowest wage group in a study on healthcare workers in Canada [53]. The differences in results could be due to differences in the salary ranges of the occupational groups included in the studies. Both Ndhlovu and Gorman considered health professionals as well as other health sector employees in their studies including administration staff and maintenance workers whereas my study focused exclusively on health professionals who are typically at higher salary levels than the aforementioned occupational groups. An implication of having more incapacity leave absences among employees in the higher salary ranges also imply higher costs related to absenteeism.

My study found that the majority of health professionals with approved incapacity leave were nurses. A Durban hospital study found that the frequent rotations of nurses to different wards to cover staff shortages and unsatisfactory working conditions contributed to high rates of absenteeism [57]. Similarly in a study on Iranian nurses, Mollazadeh et al found that working in labour intensive situations and performing multiple job functions predispose nurses to illnesses and subsequently sickness absenteeism [29]. In South Africa, job satisfaction is influenced by the workplace and practice environment and previous studies have shown high correlations between absenteeism and job satisfaction [58]. Negative work environments can influence the absenteeism of health professionals thereby impacting on their availability and responsiveness to patients and populations.

Medical staff constituted the lowest proportion of health professionals with approved incapacity leave. This was also found in other studies that reported lower rates of sickness absenteeism for doctors and physicians compared to nurses and auxiliary staff [6, 17, 32, 39]. This could be due to a range of factors such as underreporting of sickness absenteeism, early detection and self-management of illness by medical staff [17, 39] as well as lower physical and emotional workloads.

One of my findings was that the City of Johannesburg health district had the highest proportion of health professionals with approved incapacity leave. This densely populated

health district is the smallest geographically and has the highest number of health professionals in the GDoH [52], and this could explain the finding. At the same time, HRH challenges in this district include staff relieving at different facilities, delays with staff recruitments and facilities operating without approved staffing models and organograms [52]. These and other health system challenges could perpetuate the use of incapacity leave by the health professionals, decreasing their productivity and impacting on the performance of the health system.

Although the proportion of health professionals with approved incapacity leave was higher in central and tertiary hospitals, the odds ratio of health professionals with approved incapacity leave was higher in district hospitals, compared with other types of services/facilities in the GDoH. This finding has similarities to a Kenyan study which found more health workers absent at the larger district and sub-district facilities compared to the smaller health centres [6]. A possible explanation proposed by Belita et al. is that higher absenteeism at larger organisations could be due to bureaucracy where it may be 'easier' for health worker's actions to go by unnoticed. The implications of my finding is that there would be fewer health professionals available to render the specialised services often provided at central and tertiary hospitals thereby compromising health service delivery.

4.4 Medical reasons

The study found that the leading medical reasons for incapacity leave among health professionals were mental disorders and musculoskeletal disorders followed by respiratory diseases and injury, poisoning and certain other consequences of external causes. Other studies reported similar findings [21, 29]. Mollazadeh et al., postulated that high proportions of sick leave related to musculoskeletal and mental disorders among health workers could be due to occupational hazards and ergonomic risk factors such as awkward postures, lifting or moving heavy patients, standing for long periods as well as increased work stress and poor team dynamics [29]. Other studies have found that respiratory tracts infections especially influenza to be the most frequent causes of sickness absenteeism among health workers [29, 40-42]. However, influenza is seasonal, and my study focused on the whole year, and this could explain the study findings.

My study found that incapacity leave due to mental disorders was higher among the younger health professionals under the age of 35 years as compared with the older age groups. These results are consistent with those of other studies. The findings could be because younger

employees may not necessarily have the skills to cope with stressful situations and high workloads compared to older employees [59]. On the other hand, mental illness will assume increasing importance as a contributor to the burden of disease, and hence workplaces would need to adapt to this reality [41].

In my study, incapacity leave related to musculoskeletal disorders was highest among older health professionals between the ages of 45 to 54 years. Similarly, Olivier et al who reviewed incapacity leave applications, reported that the mean age of nurses with incapacity leave related to musculoskeletal disorders specifically low back pain, was 48 years [48]. Musculoskeletal disorders were the leading reason for incapacity leave taken by managers and allied health professionals such as physiotherapists; pharmacists and EMS staff. My study findings are similar to the findings of a systematic review, where the authors reported that allied health professionals are at risk of developing work related musculoskeletal disorders. Anderson and Oakman found that the risk factors for musculoskeletal disorders include younger therapists, fewer years of work experience and exposure to high levels of repetitive tasks [44].

The distribution of the duration of incapacity leave was heavily skewed to the left indicating that most incapacity leave was of short duration. The median duration of incapacity leave was higher for incapacity leave related to mental disorders compared with musculoskeletal disorders and this finding matches those of other studies [42, 60]. The mean duration of incapacity leave was also analysed in my study and the results were highest for incapacity leave related to diseases of the circulatory system, neoplasms and mental disorders and was lowest for incapacity leave related to respiratory diseases. These results are consistent with the findings of other studies [41, 60]. The length of medically certified absence can provide an indication of the severity of the condition and there is a higher risk for recurrent absences for leave that is of longer durations [60]. The availability of health professionals is compromised when health professionals take a longer time to return to work or choose to retire early through the medical boarding processes. This has implications both for health facility managers who need to explore supportive processes and for health workforce planning.

4.5 Association between demographic and occupational characteristics and approved incapacity leave

The results of the logistic regression showed that the risk of approved incapacity leave was three times higher for health professionals 45 years and older and two times higher for health

professionals employed in the Sedibeng health district. Other significant predictors of approved incapacity leave among health professionals employed in the GDoH were being employed in the Johannesburg health district and at district hospitals. Lees found that with the exception of age, no other factors were found to be significantly associated with sick leave among nurses at Groote Schuur hospital [23] and Mollazadeh et al, found no significant relationship between sickness absenteeism and gender in their study on sickness absence among health care workers of a hospital in Iran [29]. The increased odds of approved incapacity leave among health professionals employed in the Sedibeng health district could reflect the under-served nature of the district as it has the fewest number of health professionals among the five health districts in Gauteng. The implications would be that even fewer health professionals would be available to render effective service delivery and this could compromise the performance of the health system thereby impacting on the health outcomes of the population. The study finding suggest the need for the GDoH to address the inequity in the distribution of health professionals in the province.

4.6 Study limitations and remedial steps

Despite careful planning and prior consultations with the GDoH, I was unable to access the physical incapacity leave records as initially planned due to the fire at the Head Office building in September 2018. After extensive consultations with senior officials at the GDoH and the National Treasury, electronic incapacity leave data from the PERSAL system were obtained and used in the analysis for this study. Studies by the PSC and others indicated irregular updating of PERSAL in respect of leave and that any employee who may not have submitted an incapacity leave form or whose incapacity leave was declined will not reflect on PERSAL [18, 23]. Hence, the data of incapacity leave for health professionals from the PERSAL system may be incomplete. Other limitations on the use of electronic records obtained from PERSAL included the following:

- In the GDoH, only incapacity leave applications that have been assessed by the department and which are deemed to have met the criteria for approval are entered onto the electronic database.
- Duplicate incapacity leave records were identified in the electronic data and suggests that there are errors in the data captured onto the electronic database.

However, given the circumstances, electronic records proved to be the best alternative. I followed an extensive process of data cleaning and quality assurance processes prior to analysing the final data set, which represents the best available data on incapacity leave approvals.

The study was limited to health professionals' approved incapacity leave that occurred in 2016. The selection of only one year might have introduced a potential bias as incapacity leave which commenced prior to 2016 but ended in 2016 or episodes which commenced in 2016 but ended in 2017 onwards were excluded.

Finally, the study was restricted to health professionals employed in the GDoH and cannot be generalised to health professionals in other parts of South Africa's public health service. Nonetheless, Gauteng Province and its health department are important for several reasons: the province is the economic powerhouse of South Africa, the health department is amongst the largest in South Africa (and indeed in sub-Saharan Africa), and developments in this department are of strategic importance.

4.7 Scholarly contribution of the study

My study makes an important scholarly contribution to the discourse on sick absenteeism and on health workforce performance. In studies on sickness absenteeism, the use of electronically recorded leave data is considered to be more accurate than relying on data from self-reported absence. While self-reported leave data could be influenced by recall bias, leave information which is routinely collected on an electronic platform is more reliable. Within South Africa, some of the limitations with sickness absenteeism studies conducted health sector are that many of these studies are dated, conducted at institutional/facility level and involves only the nursing profession. My study focused on incapacity leave for an entire province, including all health professional categories. Another strength of this study was the analysis of medically certified absence. In addition, while studies on absenteeism in the South African public health sector have focused mainly on all types of absence (including annual leave) or only on sick leave, this study is one of the first to explore incapacity leave.

My study findings provide an important baseline, which could serve to evaluate trends in incapacity leave in the GDoH and in other provincial health departments. The study also demonstrates the value of analysing routinely collected information. It also points to the need to improve data quality of leave capturing, given the cost implications of sick absenteeism. Overall the findings from this study were in line with other studies on sickness absenteeism among health professionals. This study adds to the existing knowledge in several ways. Firstly, the study focused exclusively on approved incapacity leave taken by health professionals and has generated empirical information for this category of leave in the public

sector. Secondly by describing the demographic and occupational profile of health professionals with approved incapacity leave, this study has expanded current knowledge on sickness absenteeism among health professionals in the public health sector by extending the study to all cadres of health professionals. Thirdly, by examining the medical reasons for approved incapacity leave, the study has provided evidence on the contribution of mental and musculoskeletal disorders in the GDoH. Medically certified sickness absenteeism has been recognised as a more valid indicator of sickness and can be used as a measure of the health status of employees [61]. Fourthly, sickness absenteeism is complex and has multiple causes. The findings of this study suggest that there are factors at individual, workplace and health system level such as age, job category and length of service, which influence absenteeism in the workplace.

The final chapter of my research report contains recommendations and suggestions for future research.

CHAPTER 5: CONCLUSION AND RECOMMENDATIONS

5.1 Study conclusions

This study set out to describe the demographic and occupational characteristics of health professionals with approved incapacity leave in the GDoH. The year 2016 marked the beginning of the new sick leave cycle and since incapacity leave can only be accessed once all 36 days paid sick leave has been exhausted, it was surprising to note the volume of approved incapacity applications for health professionals for 2016. While incapacity leave patterns will vary during the course of the sick leave cycle, it is anticipated that the volume of incapacity leave would have increased in the two years that followed the period under review. Health professionals exhausting their allotted sick leave benefits within the first 12 months could either indicate the poor health status of employees or it could indicate poor management and possibly abuse of sick leave and incapacity leave benefits. Although sick leave cannot be completely eliminated as it is a necessary benefit afforded to working populations, there are certain measures that can be implemented to reduce the impact of factors known to influence sickness absenteeism. The evidence from my study is consistent with other sickness absence studies. Taken together, my findings indicate that a range of demographic and occupational factors influence incapacity leave in the GDoH. This can impact on health worker performance by compromising the availability, productivity and responsiveness of health professionals, which in turn can affect the performance of the health system, and ultimately population health outcomes.

5.2 Recommendations

In this section, I have drawn on the study's conceptual framework presented in Chapter 1 and the study key findings to propose key recommendations. My recommendations are directed at National Treasury, the GDoH, health facility level and the individual health professional level. Table 12 provides a summary of the recommendations which are elaborated on thereafter.

Table 12 Summary of recommendations

Recommendation	Individual health professional	Facility management	GDoH	National Treasury
1. Positive work environments	**X**	**X**	**X**	
2. Employee wellness programmes	**X**	**X**	**X**	
3. Induction of new employees and leave management training	**X**	**X**	**X**	
4. Health and disease management	**X**	**X**	**X**	
5. Monitoring of sickness absenteeism		**X**	**X**	
6. Issue clear guidelines and protocols, to all health care professionals, and health facility managers on sick leave, including incapacity leave		**X**	**X**	
7. Return to work programmes		**X**	**X**	
8. Regular updating of PERSAL records, including incapacity leave		**X**	**X**	**X**
9. Provide feedback on incapacity leave approvals, including costs			**X**	**X**

At the individual health worker level, health workers should be encouraged to participate in wellness and mental health support initiatives, manage their medical conditions through appropriate disease management programmes and actively seek assistance to cope and deal with work stressors such as burnout. Health workers should also be encouraged to pay attention to their nutrition and do regular exercise.

At the workplace level, there should be regular awareness sessions to health workers informing them of the support and disease management programmes available to them at work. By creating specific mental health support programmes for health workers to participate in, such as support groups and counselling services, the workplace can assist the large number of health professionals who are utilising incapacity leave for mental health conditions. Newly appointed staff should be inducted and trained on leave management and provided with adequate support and supervision to ensure that they transition appropriately into the work environment.

At the health system level, there should be clear guidelines and policies on interventions such as employee wellness programmes, which take care of the health and well-being of health workers employed in the department. Adequate budgets need to be allocated towards such programmes and need to be accompanied by thorough monitoring and evaluation which would assist in determining the successes of these interventions. The specific recommendations are explained in further detail below.

Positive work environments

The GDoH should explore positive work environments that reduce the cumulative effects of exposure to hazardous working conditions and introduce measures which ensure that health professionals are not excessively exposed to factors (such as high workload and stress) that are known to be associated with increased sickness absenteeism. Workplace interventions can focus on promoting healthy eating, physical activity positive coping strategies and improving interpersonal relationships among employees.

Employee wellness programmes

Employee wellness is critical to any organisation with an increasing number of employers realising the importance and benefits of having a healthy workforce. The leadership of the employee wellness programmes in the GDoH should be well equipped with the most recent and successful developments in this field. Simple yet cost effective measures such as maintaining contact with employees who have been identified as frequent absentees and provide them with the necessary support, can aid in reducing leave in the department. Occupational health specialists can be consulted in verifying the nature and seriousness of illnesses and appropriately advise on how unwell employees can be better managed and accommodated in the workplace.

Induction and training

The induction and training programmes for new employees should include mandatory information on leave policies and guidelines. Through collaboration between Human Resource and the Employee Wellness departments, new employees should be equipped with information on their rights and responsibilities with regards to leave management as well as the work place support programmes available to them. Annual roadshows to health facilities can be used as a mechanism to provide refresher training to employees on leave management.

Health and disease management

This study provides information on the medical reasons related to incapacity leave approvals among health professionals and highlights the high proportion of leave due to non-communicable diseases including mental and musculoskeletal disorders. Focusing on the health of health professionals should be included in the objectives of the GDoH in improving health worker performance. Knowledge on the profile of diseases affecting health professionals can be used to inform the design of health promotion programs and interventions in the GDoH such as disease management programmes, improvements in ergonomics, physical activity programmes and mental health support initiatives. It is further recommended that the GDoH adopt a multidisciplinary approach in developing these customised interventions by collaborating with employees, line managers, human resource and occupational health specialists.

Monitoring of sickness absenteeism

The GDoH should establish robust systems to monitor sickness absenteeism and identify employees who are frequently absent on sick leave. Equipping line managers with the necessary skills and knowledge to monitor sickness absences will allow for them to identify employees at risk of incapacity leave proactively well before the allocated 36 days of sick leave have been exhausted. Sickness absenteeism monitoring will also enable line managers to identify employees who may benefit from a referral to a disease management programme (based on valid medical evidence) or employees who may require disciplinary action if abuse of sick leave benefits is suspected.

Clear guidelines on sick leave and incapacity leave

The GDoH should review existing policies and procedures for sick leave and incapacity leave in conjunction with facility management. Guidelines should be clearly worded and include the criteria required in terms of timeous notification of leave, evidence required and the adjudication of extended leave. The GDoH should engage organised labour and shop stewards on these guidelines. Updated leave guidelines should be disseminated to all facilities and should be accompanied by education on these guidelines.

Return to work programmes

The GDoH should ensure that there are return to work (RTW) programmes to support employees who return to work after a period of absence due to illness and includes the reassignment of roles for employees returning to work after a long term of absence. A subset

of RTW programmes should include line managers conducting return to work interviews with absentees. This is especially important for employees who are frequently absent due to mental or musculoskeletal disorders and chronic illnesses. Successfully implemented RTW programmes offer an opportunity for employees to transition more easily back into work after a period of serious illness and it may also positively impact the frequency and duration of subsequent sickness absence periods by decreasing them.

Regular updating of leave on PERSAL

There needs to be monitoring mechanisms to ensure that leave is regularly updated on PERSAL. Such mechanisms implemented from facility level upwards should ideally be a shared responsibility between the Human Resource department and line managers.

Feedback on incapacity leave

There are significant direct and indirect costs associated with incapacity leave. Therefore there needs to be comprehensive feedback provided by National Treasury to the GDoH on the impact of these costs on budgeting within the department.

5.3 Future research

Formal evaluation of the extent of sick leave within the GDoH

From an organisational perspective, it would be imperative to investigate which workplace, occupational group and individual factors are related to incapacity leave among health professionals in the GDoH. A comprehensive evaluation on sickness absenteeism and incapacity leave absence should be framed around four main areas, namely, the reasons provided in medically certified absences, focus on high risk groups within the health professional population, the impact these absences have on service delivery and finally the associated absenteeism costs. The results of this evaluation should be used to inform strategies on the management of HRH within the department.

Research on other factors associated with sick and incapacity leave absenteeism

In addition to the demographic and occupational factors explored in this study, there are several other factors which could influence incapacity leave in the public health sector. Future research could expand to individual, work and policy level factors such as education; smoking; marital status; shift/contract work and leave management policies. Qualitative studies which explore why health professionals take incapacity leave would provide insights

into why there is a higher incapacity leave utilisation among some occupational groups compared to others.

Another research area is an exploration of possible fraud in relation to medical certificates and whether this is a factor in sick leave and/or incapacity leave in the public sector. Future empirical research could explore incapacity leave trends over a period of time and investigate the impact on patient care.

5.4 Conclusion

Health professionals are an integral part of the health system and they need to be available and responsive in order to meet the needs of the population they serve. The performance of the health workforce is critical to the realisation of UHC. Absenteeism among the health workforce influences the performance of the health system, ultimately impacting on population health. My study has provided empirical information on incapacity leave approvals among health professionals in the GDoH and can contribute to improving the management of leave due to illness. Such improved management is critical in light of the already limited resources and sub-optimal performance of the health care system in South Africa.

REFERENCES

1. World Health Organization. Global strategy on human resources for health: Workforce 2030. Geneva: WHO; 2016.

2. Dieleman M, Harnmeijer JW. Improving health worker performance: in search of promising practices. Geneva: WHO; 2006.

3. South African National Department of Health. National Health Insurance (NHI) White Paper. Pretoria: Government Printers; 2017.

4. van Rensburg HC. South Africa's protracted struggle for equal distribution and equitable access - still not there. Human Resources for Health. 2014;12:1-16.

5. Rispel LC, Blaauw D, Ditlopo P, White J. Human resources for health and universal health coverage: progress, complexities and contestations. In: Rispel LC, Padarath A, editors. South African Health Review 2018. Durban: Health Systems Trust; 2018.

6. Belita A, Mbindyo P, English M. Absenteeism amongst health workers - developing a typology to support empiric work in low-income countries and characterising reported associations. Human Resources for Health. 2013;11(1):1-10.

7. Dionne G, Dostie B. New evidence on the determinents of absenteeism using linked employer-employee data. Industrial and Labor Relations Review. 2007;61(1):108-21.

8. Bassi I, Assuncao AA, Pimenta AM, Benavides FG, Ubalde-Lopez M. Sickness absence among health workers in Belo Horizonte, Brazil. Journal of Occupational Health. 2016;58(2):179-85.

9. Dovlo D. Wastage in the health workforce: some perspectives from African countries. Human Resources for Health. 2005;3:6.

10. Leao ALM, Barbosa-Branco A, Turchi MD, Steenstra IA, Cole DC. Sickness absence among municipal workers in a Brazilian municipality: a secondary data analysis. BMC Research Notes. 2017;10(1):773.

11. Johnson CJ, Croghan E, Crawford J. The problem and management of sickness absence in the NHS: considerations for nurse managers. Journal of Nursing Management. 2003;11(5):336-42.

12. Aalbers J. Reducing sickness absenteeism: Master's Thesis, University of Twente; 2013.

13. Sjoberg O. Positive welfare state dynamics? Sickness benefits and sickness absence in Europe 1997-2011. Social Science and Medicine. 2017;177:158-68.

14. Wright ME. Long-term sickness absence in an NHS teaching hospital. Occupational Medicine. 1997;47(7):401-6.

15. Kisakye AN, Tweheyo R, Ssengooba F, Pariyo GW, Rutebemberwa E, Kiwanuka SN. Regulatory mechanisms for absenteeism in the health sector: a systematic review of strategies and their implementation. Journal of Healthcare Leadership. 2016;8:81-94.

16. Schreuder JAH. Managing sickness absence: leadership and sickness absence behaviour in hospital care: Thesis: University of Groningen, the Netherlands; 2012.

17. Ritchie KA, Macdonald EB, Gilmour WH, Murray KJ. Analysis of sickness absence among employees of four NHS trusts. Occupational and Environmental Medicine. 1999;56(10):702-8.

18. Public Service Commission. Evaluation of the impact of the Policy and Procedure on Incapacity Leave and Ill-Health Retirement (PILIR) on sick leave trends in the public service. Pretoria: Public Service Commission; 2010.

19. Naidoo RN, Naidoo S, Hariparsad S. Disabling health: the challenge of incapacity leave and sickness absence management in the public health sector in KwaZulu-Natal Province. In: Padarath A, King J, Mackie E, Casciola J, editors. South African Health Review 2016. Durban: Health Systems Trust; 2016.

20. Parliament of the Republic of South Africa. Announcements, tablings and committee reports. 2017. Contract No.: 63.

21. Kruger WH, Joubert G. Extended sick leave usage in a tertiary hospital over a three-year period. Occupational Health Southern Africa. 2009;Jan/Feb:23-9.

22. Ndhlovu CS. Absenteeism in the Gauteng Department of Health: Master's Thesis: University of South Africa (UNISA); 2012.

23. Lees SC. Assessing sick leave absenteeism among public sector workers: a case study of nurses at Groote Schuur Hospital: 2012 and 2013: Master's Thesis: University of the Western Cape; 2015.

24. Gauteng Health pays highest amount to short temporary incapacity applications [press release]. Johannesburg: Gauteng DoH.2017.

25. Singh T, Chetty N, Karodia AM. An investigation into the impact of absenteeism on the organisational performance of a private security company in Durban, Kwazulu-Natal. Singaporean Journal of Business, Economics and Management Studies. 2016;4(11):105-59.

26. Department of Public Service and Administration. Policy and Procedure on Incapacity Leave and Ill-Health Retirement. Pretoria; 2009.

27. World Health Organization. Transforming and scaling up health professional's education and training: World Health Organization guidelines. Geneva: WHO; 2013.

28. Ticharwa M, Cope V, Murray M. Nurse absenteeism: An analysis of trends and perceptions of nurse unit managers. Journal of Nursing Management. 2019;27(1):109-16.

29. Mollazadeh M, Saraei M, Mehrdad R, Izadi N. Sickness absenteeism of healthcare workers in a teaching hospital. Hospital Practices and Research. 2018;3(1):6-10.

30. Piha K, Laaksonen M, Martikainen P, Rahkonen O, Lahelma E. Interrelationships between education, occupational class, income and sickness absence. European Journal of Public Health. 2010;20(3):276-80.

31. Merkus SL, van Drongelen A, Holte KA, Labriola M, Lund T, van Mechelen W, et al. The association between shift work and sick leave: a systematic review. Occupational and Environmental Medicine. 2012;69(10):701-12.

32. Kristensen TR, Jensen SM, Kreiner S, Mikkelsen S. Socioeconomic status and duration and pattern of sickness absence. A 1-year follow-up study of 2331 hospital employees. BMC Public Health. 2010;10(1):643.

33. Dall'Ora C, Ball J, Redfern O, Recio-Saucedo A, Maruotti A, Meredith P, et al. Are long nursing shifts on hospital wards associated with sickness absence? A longitudinal retrospective observational study. Journal of Nursing Management. 2018;27(1):19-26.

34. Thorsen SV, Friborg C, Lundstrøm B, Kausto J, Örnelius K, Sundell T, et al. Sickness Absence in the Nordic countries.: Nordic Social Statistical Committee: Copenhagen; 2015.

35. Beemsterboer W, Stewart R, Groothoff J, Nijhuis F. A literature review on sick leave determinants (1984-2004). International Journal of Occupational Medicine and Environmental Health. 2009;22(2):p.169-79.

36. Tripathi M, Mohan U, Tripathi M, Verma R, Masih La, Pandey HC. Absenteeism among nurses in a tertiary care hospital in India. National Medical Journal of India. 2010;23(3):143-6.

37. Chaudhury N, Hammer J, Kremer M, Muralidharan K, Rogers FH. Missing in action: teacher and health worker absence in developing countries. Journal of Economic Perspectives. 2006;20(1):91-116.

38. Eriksen W, Bruusgaard D, Knardahl S. Work factors as predictors of sickness absence: a three month prospective study of nurses' aides. Occupational and Environmental Medicine. 2003;60(4):271-8.

39. Lim A, Chongsuvivatwong V, Geater A, Chayaphum, N, Thammasuwan U. Influence of work type on sickness absence among personnel in a teaching hospital. Journal of Occupational Health. 2002;44(4):254-63.

40. Khawaja RA, Sikander R, Khawaja AA, Jareno RJ, Halepota AT. Medically certified sickness absence among health care workers. Journal of the Pakistan Medical Association. 2012;62(9):900-4.

41. Zechinatti AC, Belloti JC, de Moraes VY, Albertoni WM. Occupational musculoskeletal and mental disorders as the most frequent associations to worker's sickness absence: A 10-year cohort study. BMC Research Notes. 2012;5(1):229.

42. Demou E, Smith S, Bhaskar A, Mackay DF, Brown J, Hunt K, et al. Evaluating sickness absence duration by musculoskeletal and mental health issues: a retrospective cohort study of Scottish healthcare workers. BMJ open. 2018;8(1):e018085.

43. Lorusso A, Bruno S, L'abbate N. A review of low back pain and musculoskeletal disorders among Italian nursing personnel. Industrial Health. 2007;45(5):637-44.

44. Anderson SP, Oakman J. Allied health professionals and work-related musculoskeletal disorders: a systematic review. Safety and Health at Work. 2016;7(4):259-67.

45. Vieira ER, Schneider P, Guidera C, Gadotti IC, Brunt D. Work-related musculoskeletal disorders among physical therapists: A systematic review. Journal of Back and Musculoskeletal Rehabilitation. 2016;29(3):417-28.

46. Dong H, Zhang Q, Liu G, Shao T, Xu Y. Prevalence and associated factors of musculoskeletal disorders among Chinese healthcare professionals working in tertiary hospitals: a cross-sectional study. BMC Musculoskeletal Disorders. 2019;20(1):175.

47. Dlungwane T, Voce A, Knight S. Prevalence and factors associated with low back pain among nurses at a regional hospital in KwaZulu-Natal, South Africa. Health SA Gesondheid. 2018;23.

48. Olivier IPA, Kruger WH, de la Querra A, Joubert G. Low back pain resulting in temporary incapacity leave among South African nurses in the public health sector. Occupational Health Southern Africa. 2018;24(1):9-12.

49. Chopra P. Mental health and the workplace: issues for developing countries. International Journal of Mental Health Systems. 2009;3(1):1-9.

50. Gauteng Department of Health. Gauteng Department of Health Annual Report 2016/17. Johannesburg: Gauteng DoH; 2017.

51. Gauteng Department of Health. Gauteng Department of Health Annual Report 2015/16. Johannesburg: Gauteng DoH; 2016.

52. Gauteng Province. Johannesburg Metropolitan District Health Plan 2018/19-2020/21. Johannesburg; 2018.

53. Gorman E, Yu S, Alamgir H. When healthcare workers get sick: exploring sickness absenteeism in British Columbia, Canada. Work: A Journal of Prevention, Assessment and Rehabilitation. 2010;35(2):117-23.

54. Bekker MH, Rutte CG, van Rijswijk K. Sickness absence: A gender-focused review. Psychology, Health and Medicine. 2009;14(4):405-18.

55. World Health Organization. Developed by women led by men: A gender and equity analysis of the global health and social workforce. Geneva: WHO; 2019.

56. Isah EC, Omorogbe VE, Orji O, Oyovwe L. Self-reported absenteeism among hospital workers in Benin city, Nigeria. Ghana Medical Journal. 2008;42(1):2-7.

57. Mudaly P, Nkosi ZZ. Factors influencing nurse absenteeism in a general hospital in Durban, South Africa. Journal of Nursing Management. 2015;23(5):623-31.

58. Munyewende PO, Rispel LC, Chirwa T. Positive practice environments influence job satisfaction of primary health care clinic nursing managers in two South African provinces. Human Resources for Health. 2014;12(1):27.

59. Koopmans PC, Bultmann U, Roelen CA, Hoedeman R, van der Klink JJ, Groothoff JW. Recurrence of sickness absence due to common mental disorders. International Archives of Occupational and Environmental Health. 2011;84(2):193-201.

60. Leao AL, Barbosa-Branco A, Rassi Neto E, Ribeiro CA, Turchi MD. Sickness absence in a municipal public service of Goiania, Brazil. Revista Brasileira de Epidemiologia. 2015;18(1):262-77.

61. Bourbonnais R, Brisson C, Vézina M, Masse B, Blanchette C. Psychosocial work environment and certified sick leave among nurses during organizational changes and downsizing. Industrial Relations. 2005;60(3):486-509.

APPENDIX 1: Plagiarism declaration



PLAGIARISM DECLARATION TO BE SIGNED BY ALL HIGHER DEGREE STUDENTS

SENATE PLAGIARISM POLICY: APPENDIX ONE

I, Roshnee Ramsamy (Student number: 1437270) am a student registered for the degree of Master of Public Health in the academic year 2019.

I hereby declare the following:

- I am aware that plagiarism (the use of someone else's work without their permission and/or without acknowledging the original source) is wrong.
- I confirm that the work submitted for assessment for the above degree is my own unaided work except where I have explicitly indicated otherwise.
- I have followed the required conventions in referencing the thoughts and ideas of others.
- I understand that the University of the Witwatersrand may take disciplinary action against me if there is a belief that this is not my own unaided work or that I have failed to acknowledge the source of the ideas or words in my writing.

Signature: Ramsamy Date: 19 August 2019

APPENDIX 2: Ethical clearance certificate

UNIVERSITY OF THE WITWATERSRAND JOHANNESBURG

R14/49 Ms Roshnee Ramsamy

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)

CLEARANCE CERTIFICATE NO. M180522

NAME: (Principal Investigator)	Ms Roshnee Ramsamy
DEPARTMENT:	Public Health The Department of Health in the Gauteng Province
PROJECT TITLE:	Analysing approved incapacity leave among health professionals in the Gauteng Department of Health
DATE CONSIDERED:	25/05/2018
DECISION:	Approved unconditionally
CONDITIONS:	
SUPERVISOR:	Dr Prudence Ditlopo
APPROVED BY:	Professor CB Penny, Chairperson, HREC (Medical)
DATE OF APPROVAL:	20/08/2018

This clearance certificate is valid for 5 years from date of approval. Extension may be applied for.

DECLARATION OF INVESTIGATORS

To be completed in duplicate and **ONE COPY** returned to the Research Office Secretary on the Third Floor, Faculty of Health Sciences, Phillip Tobias Building, 29 Princess of Wales Terrace, Parktown, 2193, University of the Witwatersrand. I/we fully understand the conditions under which I am/we are authorized to carry out the above-mentioned research and I/we undertake to ensure compliance with these conditions. Should any departure be contemplated, from the research protocol as approved, I/we undertake to resubmit the application to the Committee. **I agree to submit a yearly progress report**. The date for annual re-certification will be one year after the date of convened meeting where the study was initially reviewed. In this case, the study was initially reviewed in **May** and will therefore be due in the month of **May** each year. Unreported changes to the application may invalidate the clearance given by the HREC (Medical).

Ramsamy
Principal Investigator Signature

28-08-2018
Date

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

APPENDIX 3: Permission from the Gauteng Province

GAUTENG PROVINCE
HEALTH
REPUBLIC OF SOUTH AFRICA

PERMISSION TO CONDUCT RESEARCH IN PUBLIC HEALTH FACILITIES

Researcher's Name (PI)	Mrs Roshnee Ramsamy
Organization / Institution	Wits
Research Title	Analysing approved incapacity leave among health professionals in the Gauteng Department of Health.
Contact Details	Tel: 0113183474 Cell Number: 0837830290 E-mail Address: rosh2811@gmail.com
NHRD Number	GP_201806_016
Sites	GDoH Offices

Your application to conduct the abovementioned study has been reviewed by the relevant provincial structures. Permission has been granted to conduct research at the site indicated above.

[×] Permission granted

[ ] Permission denied

You agree to submit a report after completion of your study and present your findings to the Gauteng Health Department.

Dr. Bridget Ikalafeng
Deputy Director: Research Unit
Date: 31/07/2018

APPENDIX 4: Record review form

ANALYSING APPROVED INCAPACITY LEAVE AMONG HEALTH PROFESSIONALS IN THE GAUTENG DEPARTMENT OF HEALTH

RECORD REVIEW FORM

1. Record number		
2. Date of application for incapacity leave	YY/MM/DD	
3. Name of institution		
4. District		□ Ekurhuleni…1 □ Johannesburg…2 □ Metsweding…3 □ Sedibeng…4 □ Tshwane…5 □ West Rand…6

		SECTION 1: SOCIO-DEMOGRAPHIC CHARACTERISTICS	
	101	Gender	□ Male…1 □ Female…0
	102	Age	
	103	Age at time of incapacity leave *(in completed years)*	
	104	Population group	□ Black…1 □ Coloured…2 □ Indian…3 □ White…4 □ Not recorded…5
		SECTION 2: OCCUPATIONAL CHARACTERISTICS	
	201	Year of employment	

	202	Years of service *(in completed years)*	
	203	Job title	□ Medical practitioner …1 □ Medical specialist …2 □ Professional nurse …3 □ Nursing assistant …4 □ Enrolled nurse …5 □ Student nurse …6 □ Dental practitioner …7 □ Pharmacist …8 □ Radiographer …9 □ Physiotherapist …10 □ Occupational therapist …11 □ Other, please specify…12
	204	Occupational bands	□ Skilled technical level 6-8…1 □ Professionally qualified 9-12 and professionals level 0,13 &14…2 □ Senior management (Chief Dir & Dir) …3 □ Top management (Deputy DG & upwards)…4 □ Other, specify…5
	205	Shift worker	□ No…0 □ Yes…1 □ Unknown…2
	206	Category of employment	□ Full time…0 □ Part time…1 □ Unknown…2

	207	Type of facility	□ CHC…1 □ PHC…2 □ District hospital…3 □ Central hospital…4 □ Regional hospital…5 □ Specialised hospital…6 □ Provincial tertiary hospital…7 □ Head office…8 □ Medical supplies depot…9 □ Nursing training college…10 □ Other…11
		SECTION 3: MEDICAL INFORMATION	
	301	Reason for absence as per sick note	
	302	Category of health provider who issued the certificate	□ General practitioner …1 □ Medical specialist …2 □ Psychologist …3 □ Other …4
	303	Does the sick note indicate the employee's capacity to work?	□ No…0 □ Yes…1
		SECTION 4: OUTCOME	
	401	Incapacity leave outcome	□ Full approval…1 □ Partial approval…2 □ Declined…3
	402	Type of incapacity leave application	□ Short temporary incapacity…1 □ Long temporary incapacity…2 □ Permanent incapacity…3
	403	Period of incapacity leave applied for, in days	

	404	Period of incapacity leave approved, in days	
	405	Start date of incapacity leave (dd/mm/yyyy)	
	406	Where applicable, end date of incapacity leave (dd/mm/yyyy)	
	407	Was the days applied for equal to the days approved?	□ Yes…1 □ No…2
	408	Was the days applied for greater than the days approved?	□ Yes…1 □ No…2
COMMENTS:			

APPENDIX 5: Plagiarism Report – Turnitin

1437270:Analysing_approved_incapacity_leave_among_health_.

ORIGINALITY REPORT

12%	11%	6%	%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	wiredspace.wits.ac.za Internet Source	1%
2	www.aihw.gov.au Internet Source	1%
3	www.globalhealthaction.net Internet Source	<1%
4	repository.up.ac.za Internet Source	<1%
5	link.springer.com Internet Source	<1%
6	www.health-e.org.za Internet Source	<1%
7	baadalsg.inflibnet.ac.in Internet Source	<1%
8	provincialgovernment.co.za Internet Source	<1%
9	citeseerx.ist.psu.edu Internet Source	<1%