FACTORS CONTRIBUTING TO OCCUPATIONAL INJURIES AMONGST HEALTH CARE WORKERS AT A SELECTED HOSPITAL IN THE LIMPOPO PROVINCE, SOUTH AFRICA.

BY

GWENDOLINE LEDILE KADI (11621359)

A MINI-DISSERTATION SUBMITTED IN PARTIAL FULFILMENT FOR THE DEGREE MASTER OF PUBLIC HEALTH (MPH) AT THE FACULTY OF HEALTH SCIENCES, UNIVERSITY OF VENDA

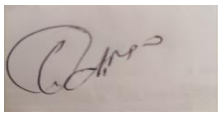
SUPERVISOR: DR NS MASHAU

CO- SUPERVISOR: DR T MALWELA

2021

DECLARATION

I, Gwendoline Ledile Kadi, hereby declare that this dissertation titled ***"Factors contributing to occupational injuries amongst health care workers at a selected hospital in the Limpopo province, South Africa,"*** has not been submitted for any degree at this University or any other institution and is my original work. All citations, sources and materials used have been acknowledged with complete references.

Signature: 

Date: 21/10/2021

DEDICATION

I dedicate this study to my family, my mother Mathoba Kadi, my father Mr Matjutla and my siblings: Tebatso, Thuli, Zandi, Ntwai and Martin. I hope this dissertation would install the spirit of furthering your studies and breaking the generational curse of the uneducated. Let's make education fashionable family, it starts with us.

ACKNOWLEDGEMENT

I thank the mighty God for granting me strength, wisdom and courage to complete the study, it was not an easy path but His mighty hand kept me strong.

A special utmost gratitude to my supervisors Dr Mashau and Dr Malwela for their insight, good advice, unfailing motherly and professional love, ensuring that I complete the study. You are my rock and I know I can always come to you for any research insights.

I will forever be grateful to the National Research Fund for funding my study, without your help I couldn't complete this study.

To Mr Mavhunga thank you very much for your wisdom, availability and prayers throughout my study, may you find favor in God and in the eyes of men.

Finally, I thank all my loved one for support and understanding throughout the research process. A special gratitude to that individual who inspired me to enroll for Masters of Public Health degree. Aluta continua Chibaba.

Last, but not least: my utmost gratitude to my study participants, this study was achievable through your voluntary participation.

ABSTRACT

Background: The occupational injuries amongst health care workers have emerged as one of the utmost challenges that health care workers face in hospitals.

Purpose: The study aims to investigate factors contributing to occupational injuries amongst health care workers at a selected hospital in the Limpopo province, South Africa.

Methodology: A quantitative approach using descriptive design was used for the study and a total population of 220 health care workers was used for sampling. A self-reporting questionnaire consisting of close- ended questions was administered to the appropriate participants. Collected data was coded and entered into a computer using the SPSS version 23.0.

Results: A total of 201 health care workers responded in this study. There were more (64.6%) female than male (35.4%) participants. Among the environmental factors contributing to occupational injuries, results revealed that 71.6% of participants disagreed that the environment that they work at was safe. Some of the participants stipulated that they experienced personal factors that contributes to occupational injuries amongst health care workers such as stress (66.6%). Working for long hours was one of the work-related factors contributing to occupational injuries (58.4%).

Conclusion: It was discovered that there was a plethora of factors that contributed to occupational injuries at the selected hospital. In conclusion, there is a high need to minimize the risk factors with the aim of preventing occupational injuries and promoting the safety of health care workers. One injury is one too many and without the help of health care workers, proper health care is compromised.

Keywords: Factors, Health care workers, Occupational injuries

Table of Contents

DECLARATION ii

DEDICATION iii

ACKNOWLEDGEMENT iv

ABSTRACT v

LIST OF FIGURES x

ACRONYMS AND ABBREVIATIONS xi

CHAPTER 1 1

1.1 INTRODUCTION AND BACKGROUND TO THE STUDY 1

1.2 STATEMENT OF THE PROBLEM 3

1.3 RATIONALE FOR THE STUDY 4

1.4 SIGNIFICANCE OF THE STUDY 4

1.5 PURPOSE 4

1.6 OBJECTIVES 4

1.7 CONCEPTUAL FRAMEWORK 5

1.8 DEFINITION OF CONCEPTS 5

1.9 OUTLINE OF THE DISSERTATION 6

1.10 CHAPTER SUMMARY 6

CHAPTER 2: LITERATURE REVIEW 7

2.1 INTRODUCTION 7

2.2 ENVIRONMENTAL FACTORS CONTRIBUTING TO OCCUPATIONAL INJURIES 7

2.3 WORK-RELATED FACTORS CONTRIBUTING TO OCCUPATIONAL INJURIES 9

2.4 PERSONAL FACTORS CONTRIBUTING TO OCCUPATIONAL INJURIES 11

2.5 CONCEPTUAL FRAMEWORK OF THE STUDY 14

2.6 CHAPTER SUMMARY 16

CHAPTER 3: METHODOLOGY 17

3.1 INTRODUCTION 17
3.2 STUDY APPROACH AND DESIGN 17
3.3 STUDY SETTING 17
3.4 POPULATION OF THE STUDY 18
3.5 SAMPLING 20
3.5.1 INCLUSION CRITERIA 20
3.5.2 EXCLUSION CRITERIA 20
3.6 MEASUREMENT INSTRUMENT 20
3.7 VALIDITY AND RELIABILITY 21
3.7.1 Validity 21
3.7.2 Reliability 22
3.8 PRE- TEST 22
3.9 PROCEDURE FOR DATA COLLECTION 22
3.10 PLAN FOR ANALYSIS OF DATA 23
3.11 ETHICAL CONSIDERATION 23
3.11.1 Ethical clearance 24
3.11.2 Permission to conduct the study 24
3.11.3 Informed consent 24
3.11. 4 Voluntary participation 24
3.11.5 Prevention of harm 25
3.11.6 Privacy and confidentiality 25
3.12 SUMMARY OF THE CHAPTER 25
CHAPTER 4: PRESENTATION OF RESULTS 26
4.1. INTRODUCTION 26
4.2 DEMOGRAPHIC CHARACTERISTICS OF PARTICIPANTS 26
4.3 ENVIRONMENTAL FACTORS CONTRIBUTING TO OCCUPATIONAL INJURIES 28
4.4 PERSONAL FACTORS CONTRIBUTING TO OCCUPATIONAL INJURIES 29
4.4.1 Personal experience 30

4.5 WORK-RELATED FACTORS CONTRIBUTING TO OCCUPATIONAL INJURIES 30
4.5.1 Personal protective clothes (PEP) 32
4.5.2 Training 32
4.5.3 Protocols for preventing occupational injuries 32
4.5.4 Chemicals 32
4.5.5 Working hours 32
4.6 CHAPTER SUMMARY 33
CHAPTER 5: DISCUSION OF STUDY RESULTS 34
5.1 INTRODUCTION 34
5.2 DEMOGRAPHIC CHARACTERISTICS OF PARTICIPANTS 34
5.3 ENVIRONMENTAL FACTORS CONTRIBUTING TO OCCUPATIONAL INJURIES 35
5.4 PERSONAL FACTORS CONTRIBUTING TO OCCUPATIONAL INJURIES 38
5.5 WORK-RELATED FACTORS CONTRIBUTING TO OCCUPATIONAL INJURIES 39
5.6 CHAPTER SUMMARY 42
CHAPTER 6: SUMMARY, CONCLUSIONS, RECOMMENDATIONS 43
6.1 INTRODUCTION 43
6.2 SUMMARY 43
6.3 CONCLUSIONS OF THE STUDY 44
6.4 LIMITATIONS OF THE STUDY 44
6.5 RECOMMENDATIONS OF THE STUDY 45
6.6 DISSEMINATION OF THE RESULTS 45
REFERENCES 46
Appendix A: Information Sheet 54
Appendix B: Consent Letter 56
Appendix C: Ethical clearance certificate 58
Appendix D: Approval letter to conduct the study from the Limpopo Department of Health 59
Appendix E: Questionnaire 60

LIST OF TABLES

Table 1: Population frame

Table 2: Demographic characteristics of participants

Table 3: Environmental factors contributing to occupational injuries

Table 4: Psychological factors contributing to occupational injuries

Table 5: work-related factors, musculoskeletal factors

LIST OF FIGURES

Figure 1: Epidemiological Triad

Figure 2: Environmental structure

Figure 3: Working hours

ACRONYMS AND ABBREVIATIONS

CFSR	: Compensation Fund Statistics Report
DHIS	: District Health Information System
ILO	: International Labour Organisation
OHSA	: Occupational and Health Safety Act
UK	: United Kingdom
UNICEF	: United Nations Children Fund
UNIVEN	: University of Venda
USA	: United States of America
USAID	: United States Agency for International Development
WHO	: World Health Organisation

CHAPTER 1

1.1 INTRODUCTION AND BACKGROUND TO THE STUDY

Amidst incidents of injuries in the public and private domain in various forms, surprisingly one of the major forms of injuries is within hospitals (Kielkowski, 2016). A hospital is supposed to be a place of specialised care and treatment of patients but unfortunately, for health care workers at times it becomes a source of injuries sustained in discharging their noble duties (Kielkowski, 2016). It is paradoxical and yet it is true that health care workers fall victim to many injuries that occur at the hospitals when they are supposed to be in the forefront of special care and treatment (Salerno, 2015).

According to the World Health Organisation (2015), 271 million people suffer from occupational injuries worldwide. This is evidenced by data obtained from the U.S. Bureau of Labour Statistics (2015) which indicates that of 4.6 million people who work in the hospitals in the USA, over 3 million are nurses. The injury rate amongst nurses is 8.4 per 100 permanent employed health workers. The Bureau of Labour Statistics (2016) further states that hospitals are environments where more occupational injuries occur than any other working environment such as companies and manufacturing, with an alarming increasing rate 58,860 work-related injuries between 1988 and 2011. This might not even be the true statistical reflection for occupational injuries because other health care workers take leave or change shift without reporting occupational injury incidents (Siddharthan, 2016). Likewise, in Australia, about 690,000 nurse's equivalent to seven percent of all health care workers over 12months have experienced at least one work-related injury or illness (Australia Bureau Statistics, 2015).

An estimated 116 million production days of health care workers in the United Kingdom are used ineffectively due to back pain related sick leaves of health care workers. As a result of sick leave days which are used ineffectively due to back pain, this contributes to putting a lot of strain on the services and on the remaining staff who are expected to cover the duties (Cunningham, 2016). According to Sub-Saharan Africa, hospital-based statistics have revealed that low back pain accounts for about 30% to 40% of health care workers' absence from work (Jabar, 2015). The ergonomic type of occupational injuries are reported more than other forms of occupational injuries (Smedley, 2013). Similarly, a study in Africa conducted in a Nigerian hospital, stipulated that 78% nurses experience back pain in almost 5 years of their delivery of service to patients. In South Africa, 5% of health care workers reported occupational injuries in hospital over a period of over 60 months (Compensation Fund Statistics Report, 2016). Manyele's (2016) study reveal that

the most common injury reported by health care workers in South Africa was needle stick related injuries estimated to be around 53%. According to Mustafa (2016), 79.7% of nurses' experience needle stick injuries during their professional life. Harmony (2014) notes that nurses under report needle stick injuries because they tend to make their own judgment regarding the extent of the injury. This means that the actual scale of needle stick injury is even higher than the reported figures. According to Bell (2013), the second most common contributory factor of injuries discovered in hospitals was slipping or falling. Furthermore, a study by Salemo (2015) indicates that nurses are mostly victims of verbal aggressive abuse behaviour by patients, especially in psychiatric wards, which often results in injuries due to physical assault. Leggett and Silvester (2014) report 18% of nurse's sustained injuries in the process of applying physical intervention. This is a method of restraint or barrier that bids nurses to exert physical force to handle or restrict the movement of a violent patient to achieve the desired goal when patients are reluctant to co-operate (Leggett and Silvester, 2014).

The South African Department of Health created a guide programme, policy and acts for health care workers after realising an alarming rate of occupational injuries and diseases amongst health care workers (Department of Health, 2012). The Occupational Health and Safety Policy promotes the wellness of employees, more specifically the health care workers, and is responsible for medical surveillance, reducing sickness and absenteeism, monitoring the risk and contributing to reducing occupational injuries (Department of Health, 2012). The policy programme also protects health care workers by offering emergency services and consultation for chronic illness, record keeping for occupational injuries and occupational hygiene that recognises any hazards at the workplace. Incident investigation, assessing hazardous exposure in the workplace, promoting health and safety issues, these are just some of the aspects included in the Occupational Health and Safety Policy program for protecting health care workers (Department of Health, 2012). Other acts that protect the health care workers include the Basic Condition of Employment Act 1997 (No 75 of 1997), the Employment Equity Act, 1998 (NO 55 OF 1998) and The Constitution of RSA and Bill of Rights. Occupational health services to health workers are essential because there is no clinic or hospital, which can perform well if there is a high statistics of ill health amongst health care workers (Pellat, 2015). Many health care workers who are affected by occupational injuries are nurses because they spend almost half of their lives at the hospital and interacting with patients. Therefore, if anything bad occurs they are the first victim of occupational injuries (Pellat, 2015).

Lekgothoane (2014) reveals the following order of occurrence of occupational injuries amongst health care workers in the districts of Limpopo province. The worst affected employees were in the Mopani district, which was 1011 per 100 000, followed by the Waterberg District which was 961 per 100 000, the Vhembe district (739 per 100 000), Sekhukhune district (681 per 100 000) and the least affected employees were in the Capricorn district (605 per 100-000). A study conducted by Mogale (2014), reveals that amongst occupational injuries, slipping, tripping and falling (STF), the Vhembe district was the second highest amongst all the five districts in the Limpopo province. An average of 100 injuries per year are reported amongst health workers at the selected hospital of study (District Health Information System (DHIS), 2016). According to the selected hospital statistic reports, 70% of the occupational injuries at a selected hospital of the study are a result of physical assaults between nurses and patients.

1.2 STATEMENT OF THE PROBLEM

Despite the availability of guidelines, policy and regulations that protect the health care workers from occupational injuries at a health care institution, occupational injuries amongst health care workers is still high. This is supported by the fact that in South Africa, the incident statistics for the year 2013-2016 stipulated that for every 20 000 health care workers, 5000 suffer occupational injuries in hospital (Compensation Fund Statistics Report, 2016). Hospitals are characterised by multifaceted environments that make health care workers susceptible to occupational injuries such as needle stick injuries, slipping or falling, musculoskeletal disorders and physical assaults. All these injuries have a negative effect on the wellbeing of health care workers and may lead to absenteeism, poor patient care and at worst the death of health care workers. The researcher observed that the selected hospital is old and has poor infrastructure equipped with outdated machinery, which may result in occupational injuries. In 2016, a nurse was killed by a psychiatric patient at the selected hospital (Claymore, 2017). A week after this incident, another nurse was injured by a psychiatric outpatient at another hospital in Limpopo province (Mahopo, 2016). Therefore, this study was aimed at investigating factors contributing to occupational injuries amongst health care workers in the selected hospital in the Limpopo province, South Africa.

1.3 RATIONALE FOR THE STUDY

Studies regarding factors contributing to occupational injuries have been conducted globally and in many African countries. However, no known study has focused specifically on factors contributing to occupational injuries amongst health care workers at the selected hospital in the Limpopo province.

1.4 SIGNIFICANCE OF THE STUDY

The results of the study may benefit the Department of Health in policy makers, informing decision makers and planning of preventative interventions in trying to reduce factors contributing to occupational injuries amongst health care workers in the hospitals.

1.5 PURPOSE

The study purpose was to investigate the factors contributing to occupational injuries amongst health care workers at a selected hospital in Limpopo province, South Africa.

1.6 OBJECTIVES

The objectives of this study were:

- To identify environmental factors contributing occupational injuries amongst health care workers at a selected hospital.
- To determine the work-related factors contributing to occupational injuries amongst health care workers at a selected hospital.
- To identify the personal factors contributing to occupational injuries amongst health care workers at a selected hospital.

1.7 CONCEPTUAL FRAMEWORK

The study was modeled by the epidemiological triad model. An epidemiological triad is a triangle framework that explains the interrelationship between the host, the agent, and the environment for occupational injuries to occur (Acutt, 2011). In this study, the host is a health care worker, the agent refers to the work-related factors such as equipment and procedure used that predispose the worker to occupational injuries and the last angle of the triad is the environment, which might be the physical and psychological source of occupational injuries. A detailed conceptual framework is discussed in the literature review.

1.8 DEFINITION OF CONCEPTS

Factors is defined as circumstances, elements and facts that lead to a result (Mohammed, 2014). In this study, factors refer to elements that contributes to occupational injuries amongst health care workers.

Occupational Injuries are defined as any damage to the body or injury that results from vulnerability to occupational risk such as chemical, biological, physical, or psychosocial risk at the workplace for example blood-borne pathogens, aerosols, hazardous chemicals, radiation, in animal or insect bites and occupational burnout (Ozanne and Smith, 2015). In this study, occupational injury is any hazard and disruption of the body and health of the health care worker that result from work-related issues.

Health care workers are defined as individuals who are involved in the prevention, promotion, and improvement of the health of the community (Diallo, Zurn, Gupta and Dal Poz, 2013). In the content of this study, health care workers refer to all individuals working directly within a hospital setting. Includes clinicians (nurses, medical officer, psychologist, pharmacist, dieticians, occupational therapy, and physiotherapy). Includes also support individuals that is (administrative personal, managers and deputy mangers, technicians and associated professional, plant and machines operators and labours and related workers.

1.9 OUTLINE OF THE DISSERTATION

Chapter 1: Introduction and background of the study

Chapter 2: Literature review

Chapter3: Methodology

Chapter4: Presentation of results

Chapter5: Discussion of study results

Chapter6: Summary, Conclusions, Recommendations

1.10 CHAPTER SUMMARY

In this chapter, the following were discussed: the introduction and background, statement of problem, rational, significance, purpose, objectives, conceptual framework, definition of concepts and outline of the dissertation of the study.

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

This chapter reviews literature about the history of occupational health and factors contributing to occupational injuries amongst health care workers. The following factors are discussed in detail: environmental factors, work-related factors and personal factors that contribute to occupational injuries amongst health care workers at the work place. The conceptual framework of this study is formulated on the epidemiological triad.

Acutt and Hattingh (2016) defines occupational health as furthering and maintaining of the advance degree of mental, physical, and social health of work in all types of work, controlling risks and the adaptation of work to the workers. Occupational health injuries have existed throughout history, it is only in the recent times that occupational health has become a recognised discipline (Slemon et al.,2017). The development of occupational health in South Africa is associated with the political and socio-economic conditions of the country. According to Acutt and Hattingh (2016), after the discovery of gold and diamond mining activities exposed many workers to dangers of high concentration of silica duct. The Mining Regulation Commission was appointed in 1970 to investigate the problem of dust in the mines. The Second World War contributed a role in the stimulation of the industries development in South Africa (Acutt and Hattingh, 2016). The first legislation to control conditions in the industry was the Factories, Machinery and Building Works Act 1941 (No 22 of 1941), today well known as the Occupational Health and Safety Act, 1993 (Act 85 of 1993). Although the Occupational Health and Safety Act (Act 85 of 1993) protects workers from any injuries or hazards in connection with work and plant or machinery and workers at the industries such as mines, little attention is stipulated regarding protection of health care workers in the hospital environment.

2.2 ENVIRONMENTAL FACTORS CONTRIBUTING TO OCCUPATIONAL INJURIES

Regardless of the Occupational and Health Safety Act (OHS), which emphasised on ensuring a safe working environment, occupational injuries as a result of working environment still occur (Ozanne and Smith, 2015). According to June and Cho (2019), environmental factors such as working space availability and working in constricted positions predisposes health care workers

to occupational health injuries such as low back pain. Lorusso, Bruno and L'Abbate, (2017) state that environmental and organisational factors associated with patient-nurse ratios and the nurse staffing may influence nurses' well-being and safety of patients at the workplace. The type of wards that health care workers work in can predispose them to high lower back pain rates (Lorusso, et al., 2017). According to WHO (2015) health care workers working in orthopaedics, obstetrics, gynaecology, surgery, intensive care units, psychiatric and medical wards are at a pick danger of experiencing low back pain compared to other health care workers in other wards. Health care workers in these wards are caring for patients that are usually bedridden, cannot do anything for themselves and need more help with transfers and handling (Tezel, 2015). Violence in the form of physical, intentional or non-intentional is one of the contributory factors leading to injuries in the state hospitals workers such as psychiatric and substance abuse hospital, which accord for 3,050 cases in 2015 at USA (Dressner, 2017). According to Dressener (2017), the most incidents of occupational injuries amongst health care workers in private, local, and state hospitals was floor or ground surface (cleaners) compared to vehicles, chemicals personal and maintenance, and the most injury experienced was falling and slipping.

Ironically in the United States of America (USA), private hospital workers experienced body reaction and overexertion injuries such as lifting or moving patients which accounts for 45% (Dressner, 2017). According to Alamgir, et al., (2016), workers who are not fully employed in the Indian hospitals experience less injury rates as compared to the full-time employed workers, but they may be at increased danger for different reasons including inadequate access to relevant training and programs, exposure to more dangerous tasks and less job security. Similarly, a study carried out in Uganda indicates that workers working shift work in any hospital experience inferior job performance, decreased levels of cognitive functioning and increased feelings of stress, all leads to a higher number of occupational injuries (Horwitz and McCall, 2014). In South Africa, health care workers are protected by the Occupational Health and Safety Act that promotes workers to work in an environment that is free from hazards and risk which might affect their health (Occupational and Health Safety Act 85 of 1993 as amended). Although the Occupational Health and Safety Act (OHSA) is stipulated in South African laws, occupational injuries still occur. This is supported by a study done in Johannesburg academic hospital that stipulated 73% of participants in the study indicated that housekeeping or storage rooms were not maintained, and this indicates non-compliance according to OHSA and the managers of the hospital (Foromo, 2016). The work environment can predispose workers to occupational injury if it has high elements of factors such as noise, bright or dim light, temperature extremities (cold or hot), poor ventilation

resulting in build-up of toxic fumes which leads to drowsiness (Acutt and Hattingh, 2016). According to Foromo (2016), the work environment should be free from any adverse effects resulting from the workplace that could harm worker. The quality of the working environment must encourage the physical, mental, and emotional health of the health care worker (Acutt and Hattingh, 2016). This is supported by the study by Foromo (2016) who states that to reduce some the occupational injuries amongst health, there must be proper staffing of health care workers and the maintenance of workers in the occupational environment and must be adapted to their physical and mental needs in relation to the work performed. According to (Sadlier, 2018), overloaded work, work that is demanding, tiredness and burn-out are common in hospital environments, and this create stress, depression and contributes to occupational injuries amongst health care workers.

2.3 WORK-RELATED FACTORS CONTRIBUTING TO OCCUPATIONAL INJURIES

The primary function of work is to provide goods and results (WHO, 2011). It also applies in the hospital whose primary goal is to ensure that health care is provided to individuals who are in need. Unfortunately, at times less attention is given to the effect of work to the health of the health care workers who provide health to other diseased individuals within a hospital setting (WHO, 2011). In addition to high expectations and demand, technological care and services also increase health care workers' workload. The demand in technological care may lead to musculoskeletal injury rates (Cohen, et al., 2014). To reduce some of occupational injuries at hospitals, installing equipment that have being engineered to protect the health of workers can reduce the occupational injuries amongst health care workers (WHO, 2011). Norman (2011) indicates that there is a link between education that is not adequate or that is poor, inadequate training, and poor occupational safety and health performance. Uchenna (2015) postulates that the issue strengthening standard precautions such as wearing aprons, gloves, eye wear, and surgical musk could decrease the risk of occupational injuries hence occupational injuries occur due to lack of training, non-availability of pre-exposure prophylaxis and handling of equipment. The study by Osungbemiro et al. (2016) found that most of the government health workers in Ondo had high occupational danger risk, poor compliance to occupational safety measures regardless of high awareness of the Occupational Health and Safety Act.

According to Punnett and Wegman (2014), musculoskeletal disorders (MSD), is a general term, that describes disorders with a wide range of inflammatory or degenerative conditions, affecting tendons, ligaments, muscles, peripheral nerves and supporting blood vessels. Manual handling type of work can predispose individuals to work-related occupational injuries (Andrews, 2017). According to Andrew (2017) occupational injuries due to manual handling results in poor posture and task-induced stress. A high percentage of occupational injuries due to manual handling was discovered amongst nurses, radiology, emergency medical transport service and patient transporters (Andrews, 2017). Work is one of the elements in psychological self-esteem of an individual (WHO, 2018) but paradoxically, at times working at psychiatric wards and emergency units can be stressful and fail to promote any psychological positive effects to the worker due to flashbacks and traumatic events that took place in the discharge of health to patients (Jabar, 2015). Moreover, the stress level might increase with the government, regulatory body and management neglecting all the responsibility (Osungbemiro et al., 2016).

According to Martin, et al., (2015) healthcare workers who handle chemicals show alarming cases of mild health symptoms such as nausea, vomiting, headaches, hair loss and even the miscarriages and fatal diseases to female health case workers. Punnett and Wegman (2014) notes that in Canada, Finland, USA, Sweden and England, MSD is the major cause of nurse's absenteeism from workplace. The study conducted by Osungbemiro, et al., (2016) indicates that most clinical health care workers are more aware of the Occupational Health and Safety Act, unlike health care workers who do not work directly with the patients. This is because health care workers who work directly to the patients are more exposed to the act and its application from their academic years of training. Kirtiganha, (2014) claims that after his study, the hospital Occupational Health Service addressed the preventative measures towards occupational injuries amongst cleaners in the hospital and there has been a notable decrease in since then. According to the results of the study by Foromo (2016), 76% of participants indicated that there was a lack of written health policy regarding occupational health in the ward, this indicates that the managers of the hospital have poor compliance to occupational health because they are the ones responsible for provision and implementation of the policy.

An African study conducted in Angola showed that important cause of occupational injury and their severity is due to working rotating shifts, working more than four night shifts consecutive, having minimum time between shifts, working more than eight hours per shift and working several workdays at once without rest (Thomas, et al., 2016). The study conducted by Shimizu, et al. (2010), reveals that nurses who work extra shifts shows signs of mental fatigue. In the Tanzanian

hospitals and elsewhere, the type of work discharged involves being in contact with patients, permanent contact with diseases and death, the use of specific techniques or procedures and chemicals which expose them to several occupational diseases and occupational injuries (Hryhorczuk, et al., 2014).

Uchenna's (2015) study conducted in Nigeria postulated that major occupational injuries in hospitals occur due to lack of proper protective tools and materials. Furthermore, equipment used at hospitals at times is the source of occupational injuries amongst health care workers. According to Mustafa (2016), 79.7% of health care workers experience needle stick injuries during their professional life. Equipment such as x-rays should be monitored very closely because they might exact some radiation that can result in occupational injuries.

Musculoskeletal disorders can lead to lower back pains, which may be formed while an individual is involved in occupational activities like repetitive lifting and tilting for example lifting a patient up and down on the bed (Thomas, et al., 2016). In South Africa due to increased occupational injuries resulting in musculoskeletal disorders, the Department of Labour is the process of formulating the Ergonomic Regulations to protect the workers (Andrews, 2017). A study conducted in Kwazulu Natal, shows a strong link between work related factors such as bending, lifting, awkward postures, twisting, transfers of patients and the development of lower back pain (Sikiru and Hanifa, 2010). Results of a study conducted by Sadlier, (2018) in South Arica, indicate a strong association between occupational health injury due to chemical, physical and organizational factors namely reduced level of safety and inadequate safety training.

Poor adherence to the Occupational Health and Safety Act (OHSA), in a Johannesburg hospital, such as not wearing personal protective clothes (PPE), resulted in 63% of participants in the study being exposed to injuries, and thus reducing their productivity in the workplace (Foromo, 2016). It is the responsibility of the managers in public hospitals to protect the workers by giving them gear and protective clothes. According to Foromo (2016), health care workers who work in public sectors do not have access to protective clothes due to lack stock.

2.4 PERSONAL FACTORS CONTRIBUTING TO OCCUPATIONAL INJURIES

The most prominent risk factors of occupational injuries are age, gender, smoking, education, and lifestyle habits (WHO, 2011). According to WHO (2015), healthcare workers who are old statistically become more susceptible to infections and musculoskeletal injuries due to a

compromised immune system. A study conducted in Europe by Thomas, et al., (2016) indicated advanced age is linked with increased risk of occupational injuries. Another contributory factor to occupational injuries is the gender of the health care worker (Owen and Damron, 2015). The Bureau of Labour Statistics (2016) of Australia, states that females dominate the nursing profession. There are more female nurses than men. Interestingly there are also more incidents of occupational injuries amongst female nurses than male. Female nurses have increased statistics of falls and lower back pain in comparison to their male counterparts. Furthermore, the Bureau of Labour Statistics (2012) indicated that nurses have the highest number of off-days or days away from work for female's nurses than male nurses. A study conducted in Texas stipulated that female cleaners had a high number of musculoskeletal symptoms than male cleaners (Andrews, 2017).

In Angola, obesity and poor life-style behaviours also contribute to increased risk of occupational injuries (Owen and Damron, 2015). Lack of exercise, smoking cigarettes and overeating, are at times used as a coping mechanisms for stress but can further increase risk of injury (Owen and Damron, 2015). According to Humphreys (2017), obesity is one of the contributory factors to occupational injuries both to the health care workers and the patient through lifting and transferring patients from one environment or to another or from one hospital bed to another. Randall (2012) postulates that obese patients constitute about ten percent of the people who visit the hospital or patient population. On the other side of the coin, obesity constitute thirty percent of all occupational injuries of health care workers at the hospital. This results in absenteeism of health care worker (Randall, 2012). Most of the occupational injuries that happen to health care workers take place during manual performance that done in patient handling tasks such as moving them from one place to another (Randall, 2012).

Moreover, a study in Namibia and Nigeria indicate that the risk of occupational injuries increases with working night shifts, over time and working full time (Shamian, et al., 2016). Such schedules that involves working longer hours and as a result, there is inadequate time to recover from strain, heightened fatigue and loss of focus and concentration. These health care workers experience more aliments, burnout and job dissatisfaction than their part-time fellow workers, further alleviate their risk of occupational injury (Shamian, O'Brien-Pallas, Thomson et al., 2016). A study conducted in Nigeria revealed that there is no specific link between the level of risk amongst health care workers and their years of working experience because all health care workers are exposed to similar degree of risk in the course of their work (Osungbemiro et al., 2016). However, experienced clinical workers do not give adequate attention to safety measures increasing the

vulnerability and risk to occupational injuries (Osungbemiro et al., 2016). In a study conducted in South Africa by Gillen and Yen (2017) revealed that fatigue, stress, burnout, and frustration play a vital role in occupational injury, with job strain that is the most important determinant predictor of functional health status. Similarly, with less staffing levels, increased stress and job strain are the results of workload and more work that is demanding physically and psychological (Gillen and Yen, 2017).

Psychological factors can result from the interaction between the health care workers and the patients (Humphreys, 2017). When patients come to the hospital or when they are admitted, there are some unique demands that are supposed to be provided to by the health care workers based on theirs physical and cognitive characteristics (Humphreys, 2017). As a result, some patients are alert, some are slow, and some patients are more mobile. These different characteristics of patients and their unique demands create a challenge for health care workers who will be taking care of them (Humphreys, 2017). In Limpopo Lekgothane (2014) reveals that certain characteristics of health care workers such as alertness or being too busy may lead to an increase in physical and mental stress too. These character traits may end up sapping the energy or draining health care workers thereby pre-disposing them to a risky of occupational injuries since they will be stressed or drained (Lekgothane, 2014). In addition, patients and family members may have high demands or expectations from health care workers. It must not be forgotten that health care workers are also human beings who burn out and patients who expect too much or are too demanding make matters worse.

2.5 CONCEPTUAL FRAMEWORK OF THE STUDY

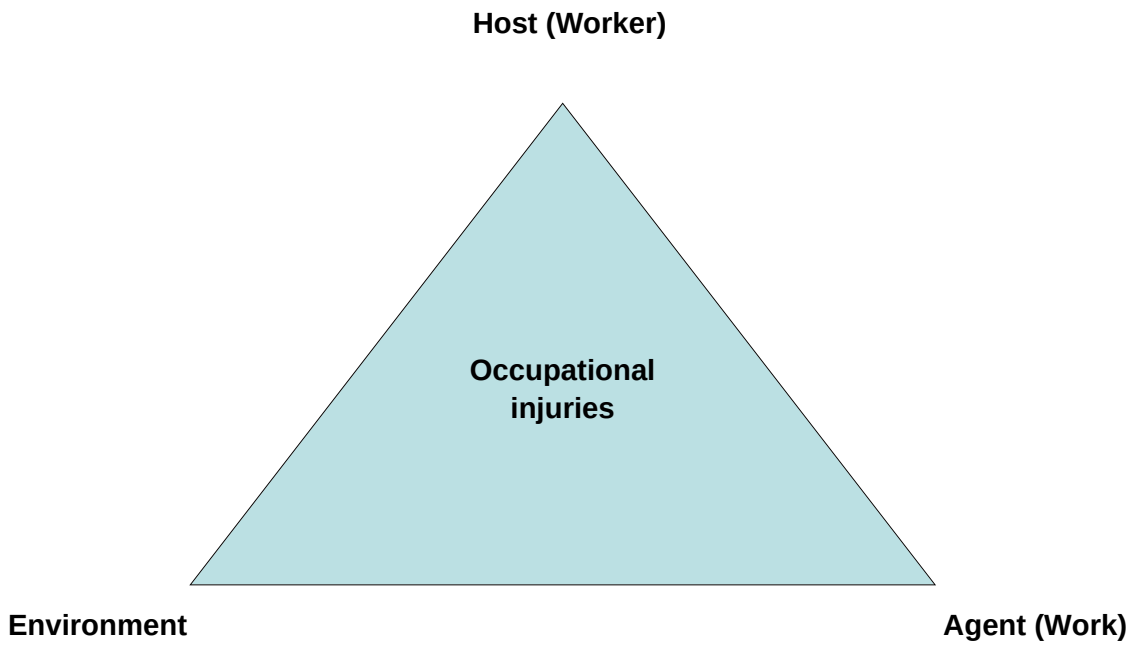


Figure 1 Epidemiological Triad (Acutt, 2011)

The conceptual framework of this study is based on the epidemiological triad. Epidemiological triad is a triangle framework that explains the interrelationship between the host, the agent, and the environment for the occupational injuries to occur, Acutt (2011). As shown in Figure 1, occupational injuries occur due to multifactorial causes, for example in this study, the agent means the type of work that the health care worker performs might predispose them to occupational injuries (Slemon, et al., 2017). For work to be performed effectively without injuries there must be proper procedure, standards and protocols that are strictly followed and performed effectively in order to reduce occupational injuries. Non-adherence to those procedures, standards and protocols might result in occupational injuries. For example, there is a procedure for disposing sharp objects like needles at the hospital and if sharp instruments are not discarded according to procedure, they might prick the health care workers resulting in occupational injuries. The type of equipment that the health care worker utilises as they discharge their duties might also predispose them to occupational injuries (Acutt and Hattingh, 2016). For example, poorly

serviced equipment might not be of good standard for utilisation in a hospital. Proper service of equipment is essential to reduce occupational injuries that might occur due to unsafe equipment (Detels, 2012). Working at a psychiatric hospital environment is dangerous (Howie, 2016). In the context of the study, the environment means the place where healthcare workers execute their duties (hospital). According to Slemon, et al., (2017), occupational injuries might occur due to the environment or because of physical or psychological factors. Working at a psychiatric hospital can be stressful because the health care worker is providing care to patients who do not respond according to the expectations at times. There is always a possibility of high levels of noise and uncontrolled aggressive behaviours from psychiatric patients at psychiatric hospitals. At times they may not even hear safety signals resulting in occupational injuries (Howie, 2016).

The host in this context is the person that can contributes to causation of injuries. Health care workers might have problems such as physiological, psychological, personal, and sociological problems that might affect their work performance, resulting in occupational injuries (Acutt, 2011). It is the responsibility of the manager to know the physiological aspects of workers that might alter with the effective delivery of patient care resulting in occupational injuries. For example, when planning a duty roster, those workers who have diabetic should be given first lunch to increase their concentration and reduce the occupational injuries because once their glucose level is low, the possibility of causing injuries due to low thinking capacity is high. Physical impairment such as eyesight, hearing loss and handicap can predispose health care workers to some occupational injuries, especially if an emergency arises (Slemon, et al., 2017).

According to Dentels (2012), some workers might be drinking alcohol or smoking some drugs even though they do not utilise them at the workplace, the possibility of the side effect of those substances might affect the work and expose them to occupational injuries. Poor working relationships between fellow working colleagues can also result in occupational injuries. Psychologically, long working hours, fatigue and boredom might also result in occupational injuries of the health care worker (Slemon, et al., 2017). According to Howie (2016), there are individuals who get bored to perform same task each day, so it is important to consider that aspect before duty delegation. Personal factors such as gender, age, occupation, and the working environment might be the contributory factors to occupational injuries causation (Howie, 2016). According to the Compensation Fund Statistic Report (CFSR) (2016), males were found to have sustained increased injuries, (188 748 as compared to 34 866 females in 2015 in South Africa). Experience and inexperience also play a role in causation of occupational injuries (Detels, 2012). These are evidenced by the study of Tadese and Kumie (2015) who indicate that youth workers

sustain occupational injuries at increased rate than older workers, because younger workers have no experience, inadequate knowledge, and underdeveloped skills.

2.6 CHAPTER SUMMARY

This section reviewed related literature regarding to factors associated with occupational injuries amongst health workers. The conceptual model of the study was based on the epidemiological tried. Environmental factors, work-related factors and personal factors that contribute to occupational injuries at the workplace were discussed in this section. Chapter 3 will discuss the research methods and design in details.

CHAPTER 3: METHODOLOGY

3.1 INTRODUCTION

The research methodology of the study outlines how the study was carried out at a selected hospital in the Vhembe District of the Limpopo Province. Research methodology is defined as the precise chain of activities that are going to be conducted in measuring the techniques and methods that will be employed (De Vos, et al., 2016). The following aspects are discussed: the approach of the study and design, setting of the study and the population, the method of collecting data, analysis of data, ethical considerations and pre-test for the study are explained in detail.

3.2 STUDY APPROACH AND DESIGN

This study used a quantitative research approach. A quantitative research approach was desirable because it gives a high degree of reliability and reduces the researcher bias because there was no direct contact with the participants in the collection of data. A cross sectional descriptive design was used for the study. The reason for using a cross sectional descriptive design was that the researcher aimed to thoroughly describe the specific details about factors contributing to occupational injuries amongst health care workers at a selected hospital without attempting to explain or determine the cause. The cross-sectional descriptive design was ideal for the study because it enabled the exhibition and depiction of the true factors contributing to occupational injuries amongst health care workers. It also allowed the researcher to describe factors contributing to occupational injuries amongst health care workers at a point in time rather than several times.

3.3 STUDY SETTING

The study was conducted at a selected hospital in the Limpopo province, South Africa. There are three psychiatric hospitals in the Limpopo province namely Hayani Psychiatric Hospital, Thabamoopo Specialized Hospital and Life Esidimeni Shiluvana Care Centre. The selected hospital is one of the three aforementioned psychiatric hospitals located in Limpopo province. The selected hospital was a 390-bed hospital that specializes in psychiatric healthcare services, which

include maximum-security wards. The selected hospital comprised of 220 health care workers (District Health Information System, 2016). The selected hospital was located in Vhembe District of Limpopo Province. Vhembe District is one of the five districts in Limpopo province. It is situated in the Northern part of Limpopo and shares borders with Botswana and Zimbabwe in the North-West and Mozambique in the South-East through Kruger National Park.

3.4 POPULATION OF THE STUDY

According to De Vos et al., (2016), population is the sum of people, occasions, organisations units, case records or other sampling units that the research problem is concerned. The study population comprised of all health care workers at the selected hospital. The total population of all health care workers were 220 (District Health Information System, 2016) The target population was compromised of all health care workers who work directly with patients in the selected hospital as shown on Table 1 which lists the categories of health care workers.

Table 1: Population frame

Categories of health care workers	**Total number in each category**
Doctors	5
Pharmacy personnel	3
Professional nurses	65
Physiotherapy personnel	5
Occupational health therapy personnel	9
Dietitian/ nutritionist personnel	3
Clinical psychologist personnel	2
Managers and deputy managers	5
Administrative personnel	33
Technicians and associated profession	7
Plant and machine operators	6
Service workers	75
Total	220

3.5 SAMPLING

The researcher used a total population sample because the size of the population with the characteristics that the researcher was intending to obtain was typically small. Total population sampling is the type of sampling where the researcher opts to inspect the whole population (Maree, 2016). As a result, failure to include all health care workers in the research may mean some significant factors contributing to occupational injuries may be missed. Out of 220 health care worker population, 201 participants responded to the study.

3.5.1 INCLUSION CRITERIA

Participants who were included in the study were permanent employees of the selected hospital who work directly with patients. This includes doctors, pharmacy personnel, professional nurses, physiotherapy personnel, occupational health therapy personnel, dietitian/ nutritionist personnel, clinical psychologists personnel, managers and deputy managers, administrative personnel, technicians and associated professions, plant and machine operators and labor and related workers.

3.5.2 EXCLUSION CRITERIA

Health care workers who were not working at the selected hospital and not permanent employees were not included in the study. Other categories of nurses who are not professional nurses were also excluded from the study.

3.6 MEASUREMENT INSTRUMENT

A self-administered questionnaire consisting of close-ended questions was used to collect data for the purpose of this study. The questionnaire was developed by the researcher according to the specific objectives, the conceptual frame work of the study and the literature reviewed. A questionnaire was used because it maintains participants' privacy hence there was no writing of personal information on the questionnaire. General rules on completing the questionnaire and the importance of completing all questions was incorporated. The questionnaire was divided into 4 categories: demographic characteristics of participants, environmental factors, personal factors, and work-related factors contributing to occupational injuries amongst health care workers. The questionnaire was developed in English and translated into Tshivenda by a language expert from

the University of Venda to accommodate those health care workers who were not familiar with the English language. The instrument was translated back from Tshivenda into English by the language expert to ensure that the questionnaire should not loose meaning.

3.7 VALIDITY AND RELIABILITY

Various methods were used in this study to ensure validity and reliability. Below each concept is defined and an explanation of how the researcher ensured the application of each concept in the study was given.

3.7.1 Validity

According to Creswell (2014), validity is the degree to which a tool measures what it was supposed to measure. In this study, methods of validity that were used include face validity and content validity.

- **Face validity**

Face validity concerns the appearance to be true only by looking closely with the naked eyes or face value of a measurement procedure (Brink, 2012). The questionnaire was sent to experts for evaluation of face validity of the questionnaire. Experts who ensured face validity include supervisors, departmental staff members, and university higher degree committee members. The questionnaire was modified and adjusted according to the feedback from these experts.

- **Content validity**

Content validity is the analysis of how well the instrument represents all the elements of the variable to be measured (Creswell, 2014). The researcher ensured content validity by developing questionnaire after extensive literature review related to the topic. The questionnaire and the proposal was presented to the School of Health Sciences Departmental and the Higher Degree Committee for content validity, to ensure the questionnaire has components of occupational injuries among health care workers. Therefore, comments received from expects after presentation of the proposal and questionnaire were used to modify the questionnaire to ensure content validity.

3.7.2 Reliability

According to Creswell (2014), reliability means the ability of an indicator to produce constant numerical results every time it is used. The researcher used the test-retest reliability method to ensure that the study yields the same results to avoid bias. A questionnaire was given to 22 health care workers from a nearby general hospital which has a psychiatric ward because it was situated in the same district and therefore possess similar characteristics. The questionnaire was repeated within an interval period of 7 days to check if they gave same answers for the second time. If the correlation coefficient is close to zero, it means the instrument has a low reliability and if it is close to one it means high reliability of the instrument (Creswell, 2014). The test-retest showed the reliability value of Cronbach Alpha correlation coefficient of 0.85, that means high reliability

3.8 PRE- TEST

According to De Vos, et al., (2016) pre-test means including few respondents who meet the inclusion criteria in the study who will not form part of the study. The research instrument was pre-tested at general hospital which had a psychiatric ward from 10% (22) of the sample size and participants shared the same characteristics with those from the selected hospital. Results from the pre-test was used to adjust the questionnaire according to the feedback from participants and the results from the pre-test did not form part of this study results. The pre-testing helped to evaluate if participants would be able to complete the questionnaire and to verify if the questions were clear and understandable. This helped to modifying the instrument and the results of the pre-test was not included in this study.

3.9 PROCEDURE FOR DATA COLLECTION

Data collection is the assembling of information to solve a research problem (Brink, 2012). The first step was to get an ethical clearance certificate from the university. The second step was to obtain the written permission from the Limpopo Provincial Department of Health. After this, a meeting was set with the hospital manager through telephonically. The researcher approached the selected hospital manager with a formal letter to request for permission to conduct the study, together with ethical data clearance certificate and approval letter from the Provincial Department of Health. After the manager's approval, the researcher made arrangements and appointments to meet participants, preferably during lunchtime when they were free, that is from 12 to 1 pm and

from 1 to 2 pm. For the purpose of the study, Wednesdays was the most appropriate day since all staff were available and a lot of information was collected on this day. This is because nurses at the selected hospital work shifts but they were all present on Wednesday according to their off-duty roster. The researcher first clarified to the participants, the reasons for conducting the study and ask them to sign consent forms as an indication of voluntary participation. The research targeted a total population of 220 health care workers, due to non-respond and spoiled questionnaire 201 health care workers participated in this study. After handing out the questionnaire, the participants of the study too between 20 to 30 minutes to fill the questionnaire. Thereafter, the data was captured in the Statistical Package for the Social Science (SPSS) version 23.0. To ensure that the data collected was safe, the questionnaires filled by the participants were locked in a steel cabinet. The researcher was the only person with access to the steel cabinet. After the analysis, original data was stored in a safe place. Privacy and confidentiality was ensured using the participant's number and not the real names of participants in filling the questionnaire and analysis of data.

3.10 PLAN FOR ANALYSIS OF DATA

The data was descriptively analysed in a quantitative manner. After collection, the data was coded and entered on the computer using the SPSS version 23.0 for data analysis. The researcher used IBM SPSS Statistics because it is a full aspect data analysis package that is purposefully made to handle large or complicated data and it is good at comparing sets of data. The series questions regarding factors contributing to occupational injuries at a selected hospital frequency distribution was calculated, analysed and represented in tables, words, graphs and figures to draw intelligible conclusions that were thoroughly described.

3.11 ETHICAL CONSIDERATION

De Vos et al., (2016) describe ethics as a guideline to decision of wrong and right principles which are suggested by an individual, or group is accepted by many, and controls how individual should behave in accordance with the societies expectations. The ethical consideration was maintained through the following:

3.11.1 Ethical clearance

The research proposal was presented at the School of Health Sciences and later to the University of Venda Higher Degrees Committee for quality assurance and approval. An application was made to the Research Ethics Committee of the University of Venda for ethical clearance to conduct the study.

3.11.2 Permission to conduct the study

The researcher obtained ethical clearance from the University of Venda Ethics Committee, then the researcher requested the Department of Health in Limpopo for permission to conduct the study. After permission was granted from the Provincial Department of Health, the researcher requested for permission to conduct the study at the selected hospital in writing. The researcher requested for permission from the selected hospital manager and potential participants.

3.11.3 Informed consent

The participants were informed about the purpose of the study by the researcher and the procedures which was followed during the investigation. The dangers which participants were exposed to in forming part of the study, the advantages and disadvantages were explained to the participants and as well as the credibility of the researcher, before giving them the questionnaire for data collection purposes. The researcher also explained to the participants that information obtained will not be shared with anyone else and all the collected data will be safely discarded once the study is completed. It is only the general results of the study that would be shared in the form of research dissertation or article. This information was detailed in an information sheet see (Appendix A).

3.11. 4 Voluntary participation

Participation must always be willing and no one should be compelled to take part in a study (Babbie and Mouton 2014). The researcher only collected data or gave questionnaires to those who are willing take part in the study. Those who did not want to take part in the study were not forced to do so. The researcher made it clear to the participants that they can only participate if they are willing to do so voluntarily. Participants were informed about their right to withdraw from participation at any time if they feel the need to so because of reasons known to them. Participants read and sign consent form to proof that participation was voluntarily.

3.11.5 Prevention of harm

The researcher has the moral responsibility to safeguard participants from any form of physical, emotional, psychological danger or any form of discomfort that may come from the study (De Vos, 2011). Given the fact that at a selected hospital, health workers are always busy, the researcher approached participants during their free time such as during lunch and tea breaks to ensure that their work routine is not disturbed, and they were relaxed and could give their full attention to the researcher. Noisy and crowded places around the hospital were avoided and the researcher chose clean and safe environments, which did not endanger participants. The questions in the questionnaire do not require participants to reveal sensitive information. There was psychological help offered by trained professional to make sure that participants were shielded from any danger or risk.

3.11.6 Privacy and confidentiality

Privacy means the right that one has to decide the time, range and general circumstances under which personal information will be shared or withheld from others (Brink 2012). In this study, privacy and confidentiality was ensured by making use of codes instead of participant's names. For example, participants were referred to as 1, 2, 3. All information collected from participants was kept private and confidential, and only used for the purpose of the research study. The questionnaire was stored at a locked safe place to maintain confidentiality of participants. After the analysis, the raw data was stored in a safe place where no unauthorized person have access. Subsequently, after the completion of the study the data was destroyed to ensure confidentiality.

3.12 SUMMARY OF THE CHAPTER

In this chapter the following were discussed: study approach and design, study setting, population and sampling, pre-test, and procedure for collection of data. The chapter also outlined the plan for data analysis, ethical considerations and dissemination of results. The results will be presented in the following chapter.

CHAPTER 4: PRESENTATION OF RESULTS

4.1. INTRODUCTION

In this chapter, the findings of the study are presented according to the objectives and analysed data collected at a selected hospital in the Limpopo province, South Africa and represented in graphs and tables. A quantitative approach using descriptive design was used for analysing the data.

4.2 DEMOGRAPHIC CHARACTERISTICS OF PARTICIPANTS

Health care workers who responded in this study were a total of 201. The female population was greater (64.7%) than male population (35.3%). The study results show that the participants were between ages 30-39 (33.8%), that (23,3%) of participants were between ages 40-49 years. The study results revealed the following percentage of categories of the health care workers: professional nurses (32.3%), followed by (31%) labour workers. It was also shown that only (2%) of respondent were doctors. According to the study results, the responded with more years of experience are between 6-10 years of experience (34%), as shown in Table 2.

Table 2: Demographic characteristics of participants (N=201)

	Variables	Frequencies	Percentage
Gender	Males	71	35.3
	Females	130	64.6
Age	21-29	55	27.3
	30-39	68	33.8
	40-49	47	23.3
	50-59	27	13.4
	Above 60	4	2
Categories	Doctors	4	2
	Pharmacy personnel	3	1.4

	Physiotherapy personnel	5	2.4
	Professional nurses	65	32.3
	Occupational health therapist personnel	9	4.4
	Dietician/ Nutritionist	3	1.4
	Clinical psychologist	2	1
	Managers and deputy managers	5	2.4
	Administrative personnel	30	14.9
	Technicians and associates	7	3.4
	Plant and machine operators	6	3
	Service workers	62	31
Years of experience	1-5	65	32.3
	6-10	68	34
	11-15	41	20.3
	16-20	21	10.4
	Over 20	6	3

4.3 ENVIRONMENTAL FACTORS CONTRIBUTING TO OCCUPATIONAL INJURIES

As shown in Table 3, participants in this study were asked a question on a scale of agree, disagree and not sure regarding environmental safety factors contributing to occupational injuries (n=201). The study results show that the participants who agreed that there was not enough security guards were (64.6%), those who disagreed (28.3%) and those who were not sure were only (6.9%). According to the results of the study (22.3%) of participants agreed that the environment they work at was safe while the participants who disagreed that the environment that they were working at was safe (71.6%) and only (5.9%) were not sure.

Table 3: Environmental factors contributing to occupational injuries

	Agree		Disagree		Not sure	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
There is not enough security guard	130	64.6%	57	28.3%	14	6.9
The environment am working at is safe	45	22.3%	144	71.6%	12	5.9
There is not enough working space	119	59.2%	72	35.8%	10	4.9
There is no store-room for	118	58.7%	59	29.3%	24	11.9

dangerous equipment						
There are no precautions to warn for danger.	113	56.2%	67	33.3%	21	10.4

The study results reveal that the majority (90.4%) of the participants agreed that the buildings are too old, while (4.9%) disagree and (4.7%) were not sure, as shown in Figure 2.

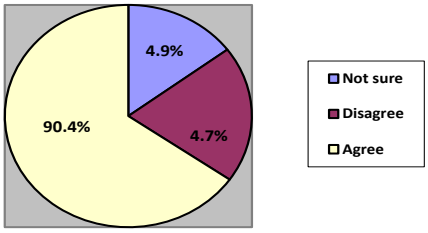


Figure 2: Environmental structure

4.4 PERSONAL FACTORS CONTRIBUTING TO OCCUPATIONAL INJURIES

Participants were asked to identify the personal factors contributing to occupational injuries (n=201) as shown on table 4. The participants indicated that they cannot have full concentration for the whole week (69.3%), (23.8%) responded that they disagree and only (6.9%) were not sure if they cannot have a full concentration for the whole week.

Table 4: Psychological factors contributing to occupational injuries

	Agree		Disagree		Not sure	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
I am stressed at work sometimes	134	66.6	59	29.3	8	3.9
Its traumatizing working at a psychiatric hospital	136	67.6	58	28.8	7	3.4
I cannot have full concentration for the whole week	139	69.1	48	23.8	14	6.9

4.4.1 Personal experience

The study results reveal that the participants agreed that they do not have enough experience handling aggressive patients (50%) as compared to participants who disagreed (41%) and those who were not sure (9%).

4.5 WORK-RELATED FACTORS CONTRIBUTING TO OCCUPATIONAL INJURIES

As shown in Table 5, participants indicated that they experience work-related musculoskeletal factors contributing to occupational injuries (n=201). The study results also reveal that 58.3% of participants agreed that they work in the same position for a long period (sitting, standing, bend over and kneeling), 36,3% disagree and 5.4% were not sure.

Table 5: Work-related factors

	Agree		Disagree		Not sure	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
I perform manual orthopedic techniques (joint mobilization, soft tissue mobilization)	101	50.2	94	46.7	6	2.9
I work in the same position for long periods (standing, bend over, sitting, kneeling)	117	58.2	73	36.3	11	5.4
I lift, carry, or move heavy materials or equipment (e.g. continuous passive motion machines)	106	52.7	84	41.7	11	5.4

4.5.1 Personal protective clothes (PEP)

The study results reveal that (56%) of participants agreed that they do not always use protective clothe, while (32%) disagreed and (12%) were not sure.

4.5.2 Training

According to the results of the study, more participants 50% agreed that there is no adequate training on injury prevention, as compared to those who disagreed 37.7% and those whose are not sure 12.3%. Only participants 32.8% agreed that there is no training for each machine before use, while 57% of participants disagreed and only 10% were not sure.

4.5.3 Protocols for preventing occupational injuries

According to the study results, 50% of participants indicated that there is no adequate training on injury prevention, while 37.7% disagree and 12.3% were not sure. The study results also stipulated that only 29.9% of participants agreed that their protocols and procedures are relevant in preventing occupational injuries, while 52% responded disagree and only 18.1% were not sure.

4.5.4 Chemicals

The study results reveal that 54.9% of the participants agreed that they used chemicals, 38.2% disagreed and 6.9% of the participants were not sure.

4.5.5 Working hours

According to the study results, participants agreed that they work for long hours (58.4%), while 37.7% of participants disagreed and 3.9% of participants were not sure if they work for long hours as shown in Figure 3.

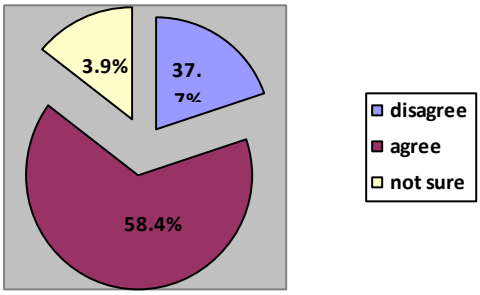


Figure 3: Working hours

4.6 CHAPTER SUMMARY

Chapter 4 outlined the study results. The study findings were presented in the categories: environmental factors, occupational factors and work-related factors contributing to occupational injuries. The discussion of study results will be detailed in chapter 5.

CHAPTER 5: DISCUSION OF STUDY RESULTS

5.1 INTRODUCTION

This chapter outlines the discussion of the study findings, according to the purpose, objectives and conceptual framework of the study in comparison with other literature reviewed. The study was intended to investigate factors contributing to occupational injuries amongst health care workers at a selected hospital in the Limpopo province, South Africa.

5.2 DEMOGRAPHIC CHARACTERISTICS OF PARTICIPANTS

The demographic characteristics that were used in the study were: gender, age, categories, and years of experience. According to the study results the female participants were 64.6% and males 35.3%. The Bureau of Labour Statistics (2012) of Australia indicates that there are more female nurses than men. Interestingly there are also more incidents of occupational injuries amongst female nurses than male. Female nurses have increased statistics of falls and low back pains in comparison to their male counterparts. Contrary, in the Compensation Fund Statistic Report (CFSR) (2016), males were found to experienced increased injuries, 188 748 as compared to 34 866 females at South Africa in 2015.

According to WHO (2015) with aging, healthcare workers statistically become more vulnerable to musculoskeletal injuries. The study conducted in Europe by Thomas, et al., (2016) also found similar results that indicates that growing up or advanced age is linked with increased risk of occupational injuries. However, this is not the case with the results of this study because it postulates that most of the participants in the study were between age 30-39 (33.8%) which is the middle age group of participants. This indicates that occupational injuries can occur at any given age and do not occur due to certain age restriction. Young or old occupational injuries can be experienced.

The study results postulate that there are more professional nurses' (32.3%) as compared to the other categories of health care workers. This is because professional nurses play a major role of providing care to patients (nurse- patient ratio), nurses are responsible to interact with other multidisciplinary term, therefore the number of nurses should be high compared to other categories because of the number of patients cared for. This supports the study conducted by

Pellat (2015) that stipulated that the majority of health care workers who are affected by occupational injuries are nurses because they spend almost half of their lives at the hospital and interacting with patients. Therefore, they are the first victim of occupational injuries (Pellat, 2015). Similarly, Bruno and L'Abbate, (2017) state that environmental and organisational factors with regard to the number of patents each nurse should take care of a patient at a specific time and the perception of nurse's duty rosters may influence nurses' health and patient safety at the workplace. The study by Cumningham (2016) also indicated that nurses were majority of health care workers in the study compared to other categories.

Experience and inexperience also play a role in causation of occupational injuries (Detels, 2012). The study results revealed that participants in the study who had 6-10 years of experience were more as compared to other years of experience. The study results also postulated that there are few participants with more years of experience. This means that there are no specific years of experience that can precipitate the health care workers to occupational injuries, occupational injuries occurs and any years of experience. This is supported by the study conducted at Nigeria that reviled that there is no specific link between the level of risk amongst health care workers and their years of experience because all health care workers are exposed to similar degree of risk in the course of their work (Osungbemiro et al., 2016). The theoretical framework of the study also supports the study results because it indicated that occupational injuries can occur due to the host, which is the health care worker discharging their noble duties irrespective of their age. However, the study of Tadese and Kumie (2015) indicates that youth workers sustain occupational injuries at higher rates than older workers, due to inadequate knowledge, reduced years of experience and underdeveloped skills.

5.3 ENVIRONMENTAL FACTORS CONTRIBUTING TO OCCUPATIONAL INJURIES

The role of security guard is to monitor, patrol and guard against any violent and rule infraction. The study results indicated that there is no enough security at the selected hospital. Not having enough security at the type of selected hospital can lead to occupational injuries moreover patient who are aggressive to the staff. According to the theoretical framework of the study, a host is a person that can contribute to the causation of the injuries. This implies that the security guards are the host in causation of occupational injuries because they are few to can manage to do their

duties of protection against any violent in this case. This is in consistent with the study conducted by Gerace and Muir-Cochrane (2019) that indicated that they applied restrictions and seclusions to aggressive patients due to lack of security guards in their units. Similarly, the study conducted in a Thailand hospital, also indicate that lack of enough security guard lead to many occupational injuries amongst health care workers (Nankongnab et al., 2021)

A hospital is supposed to be a place of specialised care and treatment of patients but unfortunately, for health care workers at times it becomes a source of injuries sustained in discharging their noble duties (Kielkowski, 2016). The study results indicated that health care workers were not feeling safe at the environment they worked at (71.6%). This suggest that working at an unsafe environment can precipitate occupational injuries. This is supported by the study by Howie (2016) who indicated that working at a psychiatric hospital environment is dangerous and could lead to occupational injuries. Slemon et al., (2017), are also of the same view that occupational injuries also occur due to the environment that health care workers work at. As a result, one can be imaging working with people who are mentally unfit, how dangerous that could result in.

The study results postulate that (59.2%) of participants indicated that there is no enough working space. Not having enough working space can predispose heath care workers in occupational injuries such as trip and fall. Health care workers requires a free working space to walk and carry their duties without any physical obstructions on the environment or surroundings. This is also supported by the theoretical framework of the study: if the environment that the healthcare worker works at do not have enough space and congested or overcrowded, this can predispose them to occupational injuries. The theoretical frame work of the study and the study results are more likely similar to the study conducted by June and Cho (2019), who indicated that the environmental factors such as availability of working space can lead health care workers to occupational health injuries such as development of low back pain. This is supported by another study by Bella (2017), indicated that not having enough working space like between the beds and working away from the body could lead to occupational injuries such as skeletal, falling, and tripping.

The study results stipulated that (58.7%) of participants indicated that there was no store-room for dangerous equipment's. Not having storage room or maintaining the storage room for dangerous equipment's such as gardening tools in the kind of selected hospital based, could predispose health care workers to occupational injuries hence psychiatric patients are mentally unfit, they could get access to use the harmful equipment to precipitate injury to the health care

worker. This is supported by the study done in Johannesburg academic hospital that stipulated (73%) of participants in the study indicated that housekeeping or storage rooms were not maintained and this is non-compliance according to OHSA and the managers of the hospital (Foromo, 2016). At times the dangerous equipment's such as needles, if not stored in the correct storage room could lead to needle stick injury of a health care worker. This is consistent with the study by Mustafa (2016), who indicated that 79.7% of health care workers experience needle stick injuries during their professional life.

The study results revealed that there are no precautions to warn for danger, that is (56.2%) of participants. Not having precaution to warm for danger signs danger signs could result in occupational injuries because there is no alert of any danger that is about to occur or being exposed to. This is supported by the study conducted by Foromo (2016) indicated that working at psychiatric hospital it is noisy and aggressive that at times one cannot hear safety signals resulting in occupational injuries. The theoretical framework of the study also supports the study findings because it stipulates that occupational injuries occurs also due to the environment that the health care workers are exposed to. At the selected hospital of study there were no precaution signs to warn for danger, for example: oxygen in use, no smoking signs or poster and other biohazard area signs. Health care workers could enter into a hazardous environment at work without the knowledge due to no precautions signs. This is supported by the study done by Wood (2021) who indicated that the lives of 82 people were lost after oxygen related fire in Iraqi because of the high need of oxygen in patient with corona virus and some health care workers and patients were left with severe occupational injuries.

The kind of environment an individual spends their life at also determines their health. The results of the study reveal that the majority (90.2%) of participants indicated that the buildings were too old. When buildings are too old it means they can contribute to occupational injuries, there is possibility of building falling and the infrastructures are not modern to some of the advance technology equipment's which can precipitate injuries among health care workers. The study by Mulaudzi et al., (2020) also found that the buildings at the same hospital as of these study were too old. Furthermore, the ward environment was not conducive to their health and participants were despair of the infrastructures (Mulaudzi et al., 2020). Similarly, the study conducted by MohammadiGorji et al., (2021) indicated that poor environmental designs or infrastructures can contribute to occupational injuries. This is also supported by theoretical framework of the study: the type of environment that the health care workers discharge their duties at can predispose them to occupational injuries, for example working at a psychiatric hospital with patient who are

not mentally fit and at times those individuals could inflict a violence to the health care worker leading to occupational injuries.

5.4 PERSONAL FACTORS CONTRIBUTING TO OCCUPATIONAL INJURIES

The physical and mental stress are less of commonly recognised contributory factors to occupational injuries at the hospital. Health care workers must be in the right mind-set and physically sound for carrying their duties. The study results stipulate that (66.6%) of the participants are stressed. Having stated that health care workers in the study are stress, this could lead to burnout, collapse and other occupational injuries. This is emphasised by the study by Mulauzi, et al., (2020) who indicated that the respondent's health care workers at a psychiatric hospital experience stress and burn out and a nurse collapsed due to high workload. The theoretical frame work of the study is in consistent with the study findings because it emphasised that the host is the health care worker who could contributes to occupational injuries to occur. When an individual is stressed the quality of decision making is compromised, predisposing to occupational injuries. Similarly, the occupational stress is the major mental and physical hazard for workers and has been found to contributes to mental health problems, musculoskeletal disorders, emotional imbalance and work place injuries (O'keefe, et al., 2014).

The results of the study indicated that (67.6%) of participants indicated that it is traumatising to work at the selected hospital. Being traumatized while at work can lead to poor service delivery and resulting in occupational injuries. Trauma of working at a psychiatric hospital could lead to flash backs of unpleasant situation, for example the nurse who was killed at the selected hospital. This is in consistent with the study by Howie (2016) who indicated that dealing with psychiatric patients its traumatising because they don't respond to how the health care worker instructed at times, unlike with the normal patients. The theoretical framework of the study also supports the study findings; occupational injuries can occur as a results of the agent, this means that the type of work performed resulting in occupational injuries. Working at a psychiatric hospital with individuals who have congenital defects such as a head with a horn, could be traumatising. When the health care worker is traumatised, the eager to report to work is diminished and this results in shortage of staff and poor service delivery leading to occupational injuries. Furthermore, in support of this study result, the study conducted by Jabar (2014), indicates that at times working at psychiatric wards and emergency units can be stressful and fail to promote any psychological

positive effects to the worker due to flashbacks and traumatic situations that happened during the discharge of health to patients.

The study results also stipulate that 69.1% of the participants did not have full concentration for the whole week. Not having full concentration could lead to injurie of a health care worker. The long schedule that the health care workers more especially nurses are supposed to work per shift are too long at the selected hospital, this results in low concentration and precipitating injuries. This is persistent with the study conducted by Slemon, et al., (2017) who indicated that working for long hours could lead health care workers not having full concentration on their work resulting in injuries.

Working at a psychiatric hospital requires almost every worker to be familiar with handling psychiatric patients in case of abscond or aggressive behaviour. The participants in the study did not have experience handling psychiatric patients. Consistent with the theoretical framework of the study, the host is an individual who can cause an injury to occur. Health care worker not having enough experience of handling a psychiatric patient while working at a psychiatric hospital could lead to injuries because a patient can relapse at any given point and eventually become aggressive that could lead to occupational injuries of a health care worker. In support of the results of the study, experience and inexperience also play a role in causation of occupational injuries (Detels, 2012). These is evidenced by the study of Tadese and Kumie (2015) who indicate that occupational injuries occur due inadequate experience, less knowledge and underdeveloped skills.

5.5 WORK-RELATED FACTORS CONTRIBUTING TO OCCUPATIONAL INJURIES

Manual handling of patients or work equipment's could result in injuries. The study results revealed that (50.2%) of participants agreed that they perform manual orthopaedic techniques (joint mobilization, soft tissue mobilization). Mobilising a patient or equipment's mostly requires two people to handle and a good posture, if a good posture is not maintained this could result in over extension, muscle pull and other musculoskeletal dysfunction. This is constituent with the study conducted by Randall (2012), who showed that the majority of occupational injuries that happen to health care workers, occur during manual performance that is needed when handling patient tasks such as moving them from one place to another. Furthermore, a high percentage of occupational injuries due to manual handling was discovered amongst nurses, radiology,

emergency medical transport service, mental health care practitioner and patient transporters (Andrews, 2017). The theoretical framework of the study also supports the study findings: the agent is the type of work that would predispose health care workers to occupational injuries. Performing manual handling orthopaedic techniques could results in musculoskeletal injuries if the correct posture is not maintained.

A recent study by Raichlen, et al., (2020) suggests that working human physiology does not adapt well to inactivity, time spend in the same position or posture increase musculoskeletal dysfunction. Moreover, the study results in this study also found that (58.2%) of participants agreed that they work in the same position for long periods (sitting, standing, bend over and kneeling). Long periods of maintaining same posture while working could increase the likelihood of developing sprain, strain and other musculoskeletal injuries. This is persistent with the study conducted in Kwazulu Natal, which indicates a strong association between work-related factors such as bending, lifting, awkward postures, twisting and transfers of patients with the development of low back pain (Sikiru and Hanifa, 2010).

Occupational injuries can occur due to the force, repetition and awkward posture. The study results also stipulated that (52.7%) of participant agreed that they carry, lift, or move heavy materials or equipment (for example: continuous passive motion machines). For example, nurses at the selected hospital work with mentally retarded patient that are bed ridden, to carry or lift such kind of patient requires a body posture and assistance and if not, occupational injuries can result. This also implies that health care workers are at risk of occupational injuries such as slip, fall and trip. This is supported by the study conducted by Dressner, (2017) who indicated that the participants experienced body reaction and overexertion injuries such as lifting or moving patients or equipment's which accounts 44% in cases of occupational injuries. Similarly, in the study conducted by Reichard, et al., (2017) it was discovered that body motion injuries were the leading contributory factor of injuries which accounts to 95%, attributed to lift, carry or transfer of patents or equipment's which was (90%).

To avoid some of the occupational injuries at hospital health care workers should wear protective clothes (PPE). According to Uchenna (2015), emphasised that wearing PPE reduces occupational injuries. Contradictorily, the study results reviled that 55.9% of health care worker do not use PPE. This implies that the health care workers in this study are prone to contracting occupational injuries due to not using PPE. The theoretical framework of the study supports the study finding because it states that occupational injuries occur due to host (which is the heath

care workers causing occupational injuries). Poor adherence to the Occupational Health and Safety Act (OHSA) such as not wearing PPE resulted in 63% of participants in the study conducted in Johannesburg hospital been exposed to injuries and this reduces their productivity in the workplace (Foromo, 2016).

According to the results of the study (50%) of participants agreed that there is no adequate training on injury prevention. Not having training in injury prevention could lead to occupational injuries because of no awareness or how to treat certain condition to prevent injury. The study results imply that occupational injuries in the selected hospital occur because health care workers are not trained on occupational injuries. In support of the study, according to Norman (2011), indicates that there is association between inadequate education and training, and poor Occupational Safety and Health performance. Consistently, according to (Kirtiganha, 2014) study claims that after the hospital Occupational Health Service addressed or training on the preventative measures towards occupational injuries amongst cleaners in the hospital there has been a notable decrease of occupational injuries prevalence.

To reduce some occupational injuries at hospitals, installing equipment that have being engineered to protect the health of workers can be a preventative measure (WHO, 2011). The study results postulated that there is no training for each machinery before using it. This indicate that, regardless the hospital could install new machines or engineered machines, occupational injuries would still occur as a result of lack of knowledge on operating machines leading to injuries of health care worker. This is consistent with the study conducted by Uchena (2015) who indicated that occupational injuries occurs because there is no training for machine use and lack of insight on how machines operate lead to occupational injurie. This is similar to the theoretical framework of the study, that stipulated that the agent means the type of work the health care worker is exposed to might contributes to occupational injuries. Using machines that the health care workers are not familiar or trained on could lead to occupational injuries.

Some paramount importance of compacting the injuries at the workplace is to follow the produces and protocols of occupational and safety health. The study results of the indicated that the protocols and procedures at the selected hospital are not relevant in preventing occupational injuries. This means that health care workers at the selected hospital are exposed to occupational injuries due to irrelevant procedure and protocols of recusing occupational injuries. This is supported by the study of Osungbemiro et al., (2016) that postulated most of the government

health workers in Ondo had high occupational danger risk, poor compliance to occupational safety measures regardless of high awareness of Occupational Health and Safety Act.

The study results stipulate that (54.9%), of the participants agreed that they used chemicals. Working with chemicals can predispose an individual to occupational injuries. Some of the chemicals used can be explosive resulting in fire. The theoretical framework of the study supports the study finding as it stipulates that some of the occupational injuries occurs because of the type of work the health care worker is exposed to (in this case, which is working with chemicals). This is consistent with the study conducted by Hryhorczuk, et al., (2014) which indicated that participants experienced occupational injuries due the use of chemicals. The study conducted by Riechard, et al., (2017) also support the study findings as they indicated that the use of occupational injuries account to seconding leading cause of occupational injuries.

According to the study results 58.4% of the participants agreed that they work for long hours. This implies that there is likelihood to develop occupational injuries as a result of strained body due to deprived sleep. The results of this study are consistent with the study results conducted by Luther et al. (2017) which shows that 52% of health care workers who work over time per week reported burnout, less job satisfaction and low quality of care than those who work normal hours. Working for long hours contributes to the physical, mental, and emotional wellbeing of the health care workers and that's contributory factors to injuries. In addition, an African study concluded that vital factor of occupational injury risk and severity include working more than four night shifts in a row, working more than eight hours per shift, having reduced time between shifts, working rotating shifts and working many follow-up workdays (Thomas, et al., 2016). Similarly, study conducted in Namibia and Nigeria hospital indicate that working full time, over time, evening and night shifts increase risks of occupational injuries). Such type of schedules and working for long hours and as a result difficulty of the body to recover from fatigue, stains and loss of concentration due to minimum rest time (Shamian, et al., 2016).

5.6 CHAPTER SUMMARY

Chapter 5 discussed the study findings and compared to other literatures. The theoretical framework of this study was used as a reference to the discussion of the study results. It was discovered that participants experienced different types of occupational injuries, namely: environmental, personal, and work-related factors.

CHAPTER 6: SUMMARY, CONCLUSIONS, RECOMMENDATIONS

6.1 INTRODUCTION

This chapter outlines a summary of the study conclusions, recommendations according to the objectives of the study and dissemination of results.

6.2 SUMMARY

Amongst the objectives of the study, one of them was to identify environmental factors contributing to occupational injuries among health care workers. The environment that an individual spends their life at, contributes to their health. A hospital is a place of special care but surprisingly amidst of all occupational injuries can results within a hospital environment. The participants in the study indicated that the environment that they work at was not safe. Furthermore, there were not enough security guards. These could result in assault by patients without any form of restrictions because the security guards are not adequate to provide a safe environment for health care works. To top it all, the participants in the study indicated that there was no storeroom for dangerous equipment's, no precautions to warn for danger signs and no enough working space. The question would be: how does a health care worker provide holistic care in such kind of environment while exposed so much injuries that could results. Amongst other environmental factors were building been too old. This means the structure of the wards was not conducive for transfer of patients and the buildings could collapse at any point resulting in a disaster.

Another objective of the study was to identify personal factors contributing to occupational injuries. The reviewed literature indicated that health care workers might be at risk of developing occupational injuries at work due to their personal reasons. According to the results of the study participants experienced stress while at work and indicated that it is traumatizing to work in a psychiatric hospital. This could intensify the probability of burnout, collapse, major long term psychological problems amongst health care workers and if not taken into consideration death could results. Working in a psychiatric hospital require one to be knowledgeable on how to deal with aggressive patient in some point in life, either working direct or indirect with the patient. The participants in the study showed that they don't have experience dealing with a psychiatric patient.

This intensifies the probability of being warmed by a patient or provoking psychiatric episode without any knowledge.

Another objective of the study was to determine work- related factors contributing to occupational injuries. At times the type of work an individual is exposed to could be the source of injures. The participants in the study indicated that they work in the same position for a long period and their working hours are too long. This could result I musculoskeletal injuries amongst health care workers due to their work. The participants in the study also revealed that they were not always using personal protective clothes (PPE). The probability of exposure to occupational injuries at stake when health care workers don't wear their PPE. The reviewed literature indicated that at times injuries occur while there are protocols and procedures that should be followed to prevent occupational injuries. Equivalent to this study, participants indicated that their protocols are not relevant in preventing occupational injuries. Amongst other worse thing that could happen, the participants of this study indicated that there was no training on injury prevention.

6.3 CONCLUSIONS OF THE STUDY

The study purpose was to investigate factors contributing to occupational injuries amongst health care workers at a selected hospital in Vhembe district, South Africa. The study results show that participants experienced environmental factors contributing to occupational injuries such as not feeling safe to work at the selected hospital and majority indicated that the buildings were too old (90%). Some respondents had personal factors contributing to occupational injuries such as stress, trauma and poor concentration and work-related factors contributing to occupational injuries. The findings of the study also showed that health care workers experience work-related factor contributing to occupational injuries as a results of working for long period in the same position.

6.4 LIMITATIONS OF THE STUDY

The study scope was restricted to the selected district and therefore findings might not be generalised to other rural areas in South Africa.

6.5 RECOMMENDATIONS OF THE STUDY

6.5.1 Recommendation to the Limpopo Department of Health

It is recommended that the Department of Health ensure renovations of old buildings to the new standards that would cater for the need of health care workers. Re-scheduling of the working hours to minimise fatigue, poor concentration, and stress, this would result in minimising occupational injuries. In-service training and workshops are of paramount importance in compacting the spread of occupational injuries amongst health care workers. Adequate PPE is a necessity in ensuring the minimisation of occupational injuries.

6.5.2 Recommendations for policy makers

Ensure the review policies, protocols and procedure that should be followed if they are in line with the scope of practice and the type of hospital that care should be rendered at least quarterly in a year to minimise occupational injuries.

6.5.3 Recommendations for further studies

A qualitative study must be done to determine factors contributing to occupational injuries amongst health care workers. Further studies on knowledge, practice at attitudes of health care workers regarding contributory factors to occupational injuries must be conducted. It is recommended that further studies compare other factors contributing to occupational injuries to another psychiatric hospital so to investigate further factors that contributes to occupational injuries amongst health care workers. The possibility that the occupational injuries not occurring only at a psychiatric hospital cannot be generalised and concluded, looking at other type of specialised care hospital can rule out some of the factors contributing to occupational injuries among health care workers.

6.6 DISSEMINATION OF THE RESULTS

A final copy of the dissertation will be submitted to the University of Venda library for use by other researchers. The results of the study will be presented in national and international conferences. The results will be published in peer-reviewed journals and presented during the University research day.

REFERENCES

Acutt, J. and Hattingh, S. (2016). Occupational Health: Management and Practice for Health Practitioners. 5th ed. Cape town South Africa: Juta and company Ltd.

Abrams, H.K. (2012). A short history of occupational health. *Journal of Public Health Policies* 22(1): 34-80.

Alamgir, H., Yu, S., Chavoshi, N. and Ngan, K. (2016). Occupational injury among full-time, part-time and casual health care workers. Jounal Occupational Medicine, 58(5): 348–354.

Anderson, J.A.D. (2016). Epidemiological aspects of back pain. *Journal of the Social' of Occupational Medicine,* 36: 90-94.

Andrews, B.N. (2017). Occupational injuries reported at Tygerberg Academic Hospital:2008-2014 (Doctoral dissertation, Stellenbosch: Stellenbosch University).

Australian Bureau of Statistics (ABS). (2015). *Work-related injuries*. Ausie.9 (34).

Babbie, E. and Mouton, J. (2014). *The Practice of Social Research*. Oxford University Press: Cape Town.

Bala, S. (2017). Practical -2 Administration of Nursing/ Clinical Units. IGNOU.

Bureau of labour Statistics 2015 and 2012. *Nonfatal Occupational Injuries and Illnesses Requiring Days Away From Work*. News release. Bereau of Statistics (BLS). USDL-16-2130.

Bless, C. and Higson-Smith, C. (2016). Fundamentals of Social Research Methods: An African Perspective. Juta. Cape Town.

Bell, J.L., Collins, J.W., Wolf, L., Grönqvist, R., Chiou, S., Chang, W.R., Sorock, G.S., Courtney, T.K., Lombardi, D.A., and Evanoff, B. (2013). Evaluation of a comprehensive slip, trip, and fall prevention programme for hospital employees. *Ergonomics,*51(12): 1906-1925.

Brink, H.I. (2012). Fundamentals of Research Methodology for Health Care Professionals. Landsdowne. Juta and Co. Ltd.

Bureau of Labour Statistics (2016). Nonfatal occupational injuries and illnesses requiring days away from work. (2016). *Bureau of Labour Statistics*, U.S. Department of Labour, Washington, DC, 2016

Bureau of Labour Statistics. (2011). For detailed citations, see OSHA's *"Facts about Hospital Workers Safety"* at www.osha.gov/dsg/hospitals.

Compensational Fund Statistics Report, (2016). Occupational Injuries. Compensation Fund. Geneva.

Cohen M., Village, J., Ostry, A.S., Ratner, P.A., Cvitkovich, Y. and Yassi, A., (2014). Workload as a determinant of staff injury in intermediate care*. International Journal of Occupational and Environmental Health,*10 (4): 375-383.

Connelly, D, (2017). Prevalence of HIV infection and Median CD4 counts Among Healthcare Workers in South Africa. *South African Medicine* Journal, 9 (97): 115-120.

Creswell, J.W. (2014). *Research Design: Qualitative & Quantitative Approaches.* London: SAGE Publications.

Cunningham, C., Flynn, T., and Blake, C., (2016). Low back pain and occupation among Irish health service workers. *Occupational Medicine*. 56 (7): 447-454.

D'Errico, A., Punnett, L., Cifuentes, M., Boyer, J., Tessler, J., Gore, R., Scollin P. and Slatin, C., (2007). Hospital injury rates in relation to socioeconomic status and working conditions. *Occupational and Environmental Medicine,* 64 (5): 325-333.

Department of Health. (2012). A Guide Booklet for Occupational Health Services. South Africa.

DHIS (2016). District Information System Limpopo Thoyandou. www.doh.gov.za

DHIS (2017). District Information System Limpopo Thoyandou. www.doh.gov.za

Detels, R. (2012) Epidemiology: The foundation of public health. In: Detels, R., McEwen, J., Beaglehole, R. and Tanaka, H., (eds) Oxford Textbook of Public Health. Vol2: Theme Methods of Public Health, (4thedn). Oxford University Press, Oxford, New York: 485–491.

De Vos, A. S., Delport, C. S. L., Fouché, C. B., and Strydom, H. (2011). *Research at Grass roots: A Primer for the Social Science and Human Professions*. Pretoria: Van Schaik Publishers.

De Vos, A. S., Strydom, H., Fouche, C.B., and Delport, C.S.L. (2016). *Research at Grassroots: For the Social Sciences and Human Service Profession (3rd edn.).* Van Schaik Publishers: Pretoria

Diallo, K., Zurn, P., Gupta, N. and Dal Poz, M. (2013). Monitoring and evaluation of Human resources for health and international perspective. *Human Resources for Health,*1(1): 1-13.

Dressner M.A., (2017). Hospital workers: Assessment of occupational injuries and illness, a monthly labour review. U.S. Bureau of Labour Statistics.

Employment Act 1997 75 of 1997. Government Gazette. Republic of South Africa.Capetown. No. 18491

Foromo, M.R., Chabeli, M. and Satekge, M.M. (2016). Survey on the implantation of the Occupational Health and Safety Act an academic hospital in Johannesburg. Department of Public Service and Administration, University of South Africa.

Gerace, A. and Muir-Cochrane, E. (2019). Perception of nurses working with psychiatric consumers regarding the elimination of seclusion and restriction in the psychiatric in patient setting and emergency department: An Australian survey. *International Journal of Mental Health Nursing*, 28 (1): 209-225.

Gillen M., Yen, I.H, Trupin, L., Swig, L., Rugulies, R., Mullen, K., Font, A., Burian, D., Ryan, G., Janowits, I. and Quinlan, P.A. (2017). The association of socioeconomic status and psychosocial and physical workplace factors with musculoskeletal injury in hospital workers. *American Journal of Industrial Medicine,* 50(4): 245–260.

Gray, M. (2009). *Social Work and the new social service professions in South Africa*. Social Work /Maatskaplike Werk, 36 (1): 99-109.

Creswell, J.W. (2014). Research Design. (4th edn). United Kingdom: Sage publishing company.

Harmony, S. (2014). Obesity in patients and nurses increases the nurse's risk of injury lifting patients. *Bariatric Nursing and Surgical Patient Care*. 2(1): 3–6.

Hattingh, S. and Acutt, J. (2012). Occupational Health Management and Practice for Health Practitioners. (3rd. edn). Juta. Lansdowne.

Hinmikaiye C.D and Bamishaiye E.I. (2012). The Incidence of Low Back Pain among Theatre Nurses: A Case Study of University of Ilorin and Obafemi Awolowo University Teaching Hospital. *International Journal of Nursing Science*. 2 (3): 23-28.

Horwitz, I.B. and McCall, B.P. (2014). The impact of shift work on the risk and severity of injuries for hospital employees: an analysis using Oregon workers' compensation data*. Occupational Medicine (London)* Dec, 54(8): 556–563.

Howie, G. and Le Roux, P. (2016). Transforming the Economy: Policy Options for South Africa. Indicator of South Africa. University of Natal

Hryhorczuk, D., Nickels, L., Forst, L. and Zanoni, J., (2014). Online training resources in occupational safety and health. *African Newsletter on Occupational Health and Safety*. 14(15): 19–22

Hughes, P. and Ferrett, E. (2010). *Introduction to International Health and Safety at Work: The Handbook for the NEBOSH International General*. Butterworth-Heinemann.

Humphreys, S. (2017). Obesity in patients and nurses increases the nurse's risk of injury lifting patients. *Bariatric Nursing and Surgical Patient Care*.2 (1): 3–6.

International Labour Organization. (2010). Occupations health disease. Geneva

Jabar, N. (2015). The Prevalence of Low Back Pain among Doctors of Hospitals. Kuala Lumpur. NCD Malaysia

June J.K. and Cho, S.H. (2019). Low Back Pain and Work-related Factors among Nurses in Intensive Care Units. *Journal of Clinical Nursing.* 20(3-4):1-8.

Kielkowski, D., Wilson, K., Vekinis, D. and Ndzungu, B. (2016). Occupational health in health care facilities in South Africa: Where does infection control stop and occupational health start? *South African Medical Journal*, 98(12): 938-939

Kirtiganha, S., Kumar, S. and Hood, J. (2014). Nonfatal Occupational Injury Rate and Musculoskeletel Symptoms among Housekeeping Employee of a Hospital in Texas. Hindawi publishing corporation

Last, J.M (2015). *A Dictionary of Epidemiology*, (4thedn). Oxford University Press, New York, Oxford, Toronto.

Leggett, J. and Silvester, J. (2014). Care staff attributions for violent incidents involving male and female patients: a field study. *British Journal of Clinical Psychology*. 42: 393–406

Leigh, J.P., Cone, J.E. and Harrison, R. (2011). Costs of occupational injuries and illnesses in California. Prev Med, 32(5): 393-406.

Lekgothloane , A.M. (2014). Occupational disease and injuries amongst health care workers of the department of health in Limpopo province. *Journal of Health Sciences*, 5(1): 44.

Lorusso, A., Bruno, S. and L'Abbate, N. (2017). A review of Low Back Pain and Musculoskeletal Disorders among Italian Nursing Personnel. *Industrial health*, 45(5): 637-644.

Luther, A., Gearhart, T., Fukui, S., Morse, G., Rollins, A.L. and Salyers, M.P. (2017). Working Overtime in Community Mental Health: Associations with Clinical Burnout and Perceived Quality of Care. *Psychiatric Rehabilitation*, 40(2): 252-259.

Mahopo, Z (2016). *Sowetan Live.* April p1.

Mannyele, S.V., Ngonyani, H.A.M., and Eliakimu, E. (2016). The status of occupational safety among health service providers in hospitals in Tanzania. *Tanzania Journal of Health Research*, 10(3): 159-165

Maree, K. (2016). First Steps in Research. Van Schaik Publishers: Pretoria.

Martin, D.B., Mullennix, J. and Pisoni, W. (2015). Experimental Psychology- Human Perception and Performance. New York: Nova Science Publishers.

MohammadiGorji, S., Bosch, S.J., Valipoor, S. and De Portu, G., (2021). Investigating the impact of healthcare environment design on staff security: a systemic review. *HERD: Health Environments Research and Design Jounal*,14(1): 251-272.

Mohammed, S., Singh, D., Johnson, G.T., Xu, P., McCluskey, J.D. and Harbison, R.D. (2014) Evaluation of Occupational Risk Factors for Healthcare Workers through Analysis of the Florida Workers' Compensation Claims Database. *Occupational Diseases and Environmental Medicine*, 2: 77-88.

Mulaudzi, N.P., Mashau, N.S., Akinsola, H.A. and Murwira, T.S. (2020) Working conditions in a mental health institution: An explorative study of professional nurses in Limpopo Province, South Africa, *Curationis,* 43(1): 1-8.

Mustafa, N., Elif D., Evin A., Sertac T. and Remzi, A. (2016). Long working hours increase the risk of sharp and needle stick injury in nurses: the need for new policy implication. *Journal of Advanced Nursing,* 56(5): 563-568.

Nankongnab, N., Kongtip, P., Tipanyamongkholgul, M., Silpasuwan, P., Kaewboonchoo, O., Luksamijarulkul, P.and Woskie, S. (2021). Occupational hazards, health conditions and personal protective equipments used among healthcare workers in hospitals, Thiland. *Human and Ecological Risk Assessment: An International journal, 27(3): 804-824.*

Norman, SJ (2011). Improving Safety and Health in Mines: A Long and Winding Road? Geneva: International Institute for Environment and Development.

Occupational and Health Safety Act 85 of 1993. Government Gazette Department of Labour South Africa.

O'Keefo, L.C., Brown, K.C. and Christian, B.J. (2014). Policy perspectives on occupational stress. *Workplace Health and Safety*, 62(10): 432-438.

Osungbeniro, B.W., Adejumo, O.A., and Akindodewa, A.A. (2016). Assessment of occupational health safety and hazard amongst government health care workers in Ondo city, South West Nigeria: *British Journal of Medical Research*.13 (8): 1-8.

Owen, B. and Damron C.F. (2015). Personal characteristics and back injury among hospital nursing personnel. *Research Nursing Health December*; 7(4): 305–313.

Ozanne, D. and Smith, J. (2015). Principals of Injury Prevention. Clayton: Monash University Accident Research Centre.

Pellat, G.C. (2015). The safety and dignity of patients and nurse during patient handling. *British Journal of Nursing*, 14: 1150–1156.

Punnet, L. and Wegman, D.H. (2014). Work-related musculoskeletal disorders: the epidemiological evidence and debate. Journal of Electromyography and Kinesiology,14(1): 13-23.

Raichlen, D.A., Pontzer, H., Zderic, T.W., Harris, J.A., Mabulla, A.Z., Hamilton, M.T. and Wood, B.M. (2020). Sitting, squatting and evolutionary biology of human inactivity. *Proceedings of the National Academy of Sciences*, 117(13): 7115-7121.

Randall, S.B, Pories, W.J, Pearson, A. and Drake, D. (2012). Expanded OSHA 300 log as metric for bariatric patient-handling staff injuries. July– August, 5(4): 463–8.

Reichard, A.A., Marsh, S.M., Tonozzi, T.R., Konda, S. and Gormley, M.A. (2017). Occupational injuries and exposure among emergency medical services workers. Prehospital Emergency Care, 2(4): 420-431.

Sadlier, B. (2018). Environmental and Occupational Health Issues in Hospitals Retrieved May 2018, from www.tropmed.org/rreh/voll 2.htm.

Salerno, S., Dimitri, L. and Talamanca, I.F. (2015). *Occupational Risk due to Violence in a Psychiatric Ward*. J Occupational Health, 51: 349-354.

Shamian, J., O'Brien-Pallas, L., Thomson, D., Alksnis. C. and Kerr M.S. (2016). Nurse Absenteeism, Stress and Workplace Injury: What are the contributing factors and what can/should be done about it? *International Journal Social Policy*; 23: 81–103.

Shimizu, T., Sakai, R. Okumura, A and Marui, E. (2010). Does the paediatricians work setting or years of experience influence febrile seizure education? *Journal of Medicine,* 41(3): 6768.

Siddharthan, K.M., Hodgson, D., Rosenberg, D and Nelson, A. (2016). Under-reporting of work-related musculoskeletal disorders in the Veterans Administration*. International Journal of Health Care Quality Assurance,* 19(6): 463-476.

Sikiru, L. and Hanifa, S. (2010). Prevalence and risk factors of low back pain among nurses in a typical Nigerian hospital. *African Health Sciences*, 20 (1): 26-30.

Slemon, A., Jenkins, E. and Bungay, V. (2017). Safety in psychiatric inpatient care: The impact of risk management culture on mental health nursing practice. *Nursing inquiry*, 24(4): 12199.

Smedley, J., Trevelyan, F., Inskip, H., Buckle, P., Cooper, C. and Coggon, D. (2013). Impact of ergonomic intervention on back pain among nurses. Scandinavian Journal Work, Environmental and Health: 17-123.

Smith, D.R., Kondo N., Tanaka, E., Tanaka, H., Hirasawa, K. and Yamagata, Z. (2014). Musculoskeletal disorders among hospital nurses in rural Japan. *The International Journal of Rural and Remote Health Research, Education, Practice and Policy,* 3(3): 241.

Tadese, M.L. and Kumie, A. (2015). Health care waste generation and management practice in government health centres of Addis Ababa, Ethiopia. *Bmc Public Health*, 14(1): 1-9.

Tezel, A. (2015). Musculoskeletal Complaints among a group of Turkish nurses. *International Journal of Neuroscience*, 115(6): 871-880.

Thomas, N.I., Brown, N.D., Hodges, L.C., Gandy, J., Lawson, L., Lord, J.E. and Williams, D.K. (2016). Factors associated with work-related injury among hospital employees: a case-control study. *Am Association Occupational Health Nurses,* 54(1): 24–31.

Uchenna, J.A. (2015). *Knowledge of occupational safety by hospital cleaners and hospital managers towards HIV and blood borne pathogens transmission in Abakalili region in Eastern Nigeria*. Doctoral dissertation. Stellenbosch: University of Stellenbosch.

Wood, M.H., Hailwood, M. and Koutelos, K. (2021). Reducing the risk of oxygen-related fire and explosions in hospitals treating COVID-19 patients. *Process Safety and Environmental Protection.*

World Health Organization. (2010). Healthy Workplace Framework and Model: Background Document and Supporting Literature and Practices: 1-123.

World Health Organisation (2011). Occupational Health: A Manual for Primary Health Care Workers. Regional office for Eastern Mediterranean.

World Health Organization (2015) The World Health Report - Working Together for Health. Geneva, Switzerland.

Appendix A: Information Sheet

Dear participant, thank you for showing interest in participating in the study.

Research topic: 'Factors contributing to occupational injuries amongst health care workers at a selected hospital in the Limpopo province, South Africa'.

Name and qualifications of the researcher: Gwendoline Ledile Kadi, BURCP, currently 2nd year Masters of Public Health student.

Name and qualifications of supervisor: Dr N.S Mashau, PHD (UNIVEN)

Brief introduction and purpose of the study: Occupational injuries amongst health care workers emerged as one of the greatest challenges facing health care workers at the hospitals. The purpose of this study is to investigate the factors contributing to occupational injuries amongst health care workers at a selected hospital in Limpopo province, South Africa.

Outline of the procedures: Before data collection, the researcher will explain the purpose, the ethical principles to be adhered to and giving the participants the informed consent form. The data will be collected at a selected hospital during lunch times when health care workers are free to participate. The data will be collected by the researcher using questionnaire instrument. The researcher will allow the participants to fill in the questionnaire while present but ensuring privacy at all costs. This is to help with clarification were there are uncertainties as well as reducing the level of non -responses.

Risks or discomforts to the participant: In this research, the researcher will ensure that the benefits surpass the risks. The researcher will ensure that no physical, psychological or emotional harm is inflicted on the participants during the course of the study. Other possible dangers will be looked at and the researcher shall guard against them. In addition, in case the respondent is harmed, the researcher will do follow up and refer the participants to appropriate health workers for treatment. The positive participation in the study will enable the researcher to draw conclusions from the findings and be able to give recommendations to the study

Benefits: Participating in the study will be beneficial to the researcher to discover true factors contributing to occupational injuries and meet with the standard of the university of Venda to graduate for Masters of Public Health. The participants will indirectly benefit from this study

because department of health might formulate strategies or policies that protect participants from occupational injuries

Reason/s why the participant may be withdrawn from the study: In this research study, participation is free and voluntary. The participants are encouraged to withdraw from the project at any time should they feel uncomfortable or threatened in any way to continue participating in the study. There will be no consequences if the participants choose to withdraw from the study due to illness, adverse effect and non-compliance.

Remuneration: In this study, remuneration or tip will not be provided to the participants for taking part in the study.

Costs of the study: participants are also not expected to pay any cost to take part in the study or any cost related to the study.

Confidentiality: The researcher is going to handle the gathered data in utmost confidentiality, meaning that no unauthorized people will handle the data in any way. The data will be kept classified at all times and will be discarded as soon as the study is complete. The researcher will explain the format of the questionnaire to the participants and urge them to omit their names or any form of identification to ensure anonymity. Instead the researcher is going to use codes rather than respondent names.

Research-related injury: In case the participants is harmed, the researcher will do follow up and refer the participants to appropriate health workers for treatment.

Persons to Contact in the Event of Any Problems or Queries:

(Dr Mashau N.S., University of Venda, Department of Public Health) Please contact the researcher (0671040346), my supervisor (015 962 8310) or the University Research Ethics Committee Secretariat on 015 962 9058. Complaints can be reported to the Director: Research and Innovation, Prof G.E. Ekosse on 015 962 8313 or Georges Ivo.Ekosse@univen.ac.za

Appendix B: Consent Letter

Statement of agreement to participate in the research study:

• I hereby confirm that I have been informed by the researcher, (Gwendoline Ledile Kadi), about the nature, conduct, benefits and risks of this study - Research Ethic Clearance Number:

•I have also received, read and understood the above written information (Information sheet, appendix A) regarding the study.

•I am aware that the results of the study, including personal details regarding my sex, age, date of birth, initials and diagnosis will be anonymously processed into a study report.

•In view of the requirements of research, I agree that the data collected during this study can be processed in a computerized system by the researcher.

•I may, at any stage, without prejudice, withdraw my consent and participation in the study.

•I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the study.

•I understand that significant new findings developed during the course of this research which may relate to my participation will be made available to me.

Full Name of Participant	Date	Time	Signature
I, …….	…….	…….	…….

(Gwendoline Ledile Kadi) herewith confirm that the above participant has been fully Informed about the nature, conduct and risks of the above study.

Full Name of Researcher

……. Date……. Signature……

Appendix C: Ethical clearance certificate

RESEARCH AND INNOVATION
OFFICE OF THE DIRECTOR

NAME OF RESEARCHER/INVESTIGATOR:
Ms GL Kadi

Student No:
11621359

PROJECT TITLE: **Factors contributing to occupational injuries amongst health care workers at a selected hospital in Vhembe District, South Africa.**

PROJECT NO: **SHS/18/PH/16/2106**

SUPERVISORS/ CO-RESEARCHERS/ CO-INVESTIGATORS

NAME	INSTITUTION & DEPARTMENT	ROLE
Dr NS Mashau	University of Venda	Supervisor
Mrs T Malwela	University of Venda	Co - Supervisor
Ms GL Kadi	University of Venda	Investigator – Student

ISSUED BY:
UNIVERSITY OF VENDA, RESEARCH ETHICS COMMITTEE

Date Considered: June 2018
Decision by Ethical Clearance Committee Granted
Signature of Chairperson of the Committee: .....
Name of the Chairperson of the Committee: Senior Prof. G.E. Ekosse

UNIVERSITY OF VENDA
DIRECTOR
RESEARCH AND INNOVATION
2018 -06- 25
Private Bag X5050
Thohoyandou 0950

University of Venda
PRIVATE BAG X5050, THOHOYANDOU, 0950 LIMPOPO PROVINCE SOUTH AFRICA
TELEPHONE (015) 962 8504/8313 FAX (015) 962 9060
"A quality driven financially sustainable, rural-based Comprehensive University"

Appendix D: Approval letter to conduct the study from the Limpopo Department of Health

LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF HEALTH

Enquiries: Stander SS (015 293 6650) Ref: LP_2018_

Kadi GL
Uuniveristy of Venda

Greetings,

RE: Factors contributing to occupational injuries amongst health care workers at a selected hospital in Vhembe District, South Africa

The above matter refers.

1. Permission to conduct the above mentioned study is hereby granted.
2. Kindly be informed that:
   - Research must be loaded on the NHRD site (http://nhrd.hsrc.org.za) by the researcher
   - Further arrangement should be made with the targeted institutions, after consultation with the District Executive Manager.
   - In the course of your study there should be no action that disrupts the services, or incur any cost on the Department.
   - After completion of the study, it is mandatory that the findings should be submitted to the Department to serve as a resource.
   - The researcher should be prepared to assist in the interpretation and implementation of the study recommendation where possible.
   - The above approval is valid for a 3 year period.
   - If the proposal has been amended, a new approval should be sought from the Department of Health.
   - Kindly note, that the Department can withdraw the approval at any time.

Your cooperation will be highly appreciated.

Head of Department

06/08/2018
Date

Private Bag X9302 Polokwane
Fidel Castro Ruz House, 18 College Street, Polokwane 0700. Tel: 015 293 6000/12. Fax: 015 293 6211.
Website: http/www.limpopo.gov.za

The heartland of Southern Africa – Development is about people!

Appendix E: Questionnaire

The questionnaire to be used to collect data from health workers at a selected hospital, in Vhembe District of Limpopo Province of South Africa.

Questionnaire Number..... Date.....

Instructions:

Please do not write your name or number on any part of this questionnaire.

Do not tear any page.

Pease answer every question

Please tick or fill the gap in the spaces provided as appropriate.

SECTION A: Demographic Information

1. Sex

Male	1	Female	2

2. Age

21-29 Years	1	30-39 Years	2	40-49 Years	3	50-59 Years	4	Over-60 Years	5

3. Category

1. Professional nurse, 2. Doctor, 3. Clinical psychologist, 4. Pharmacist, 5. Occupational therapy, 6. Physiotherapy, 7. Manager and deputy managers, 8. Administrative personnel, 9. Technicians 10. Dietician/ nutritionist, 11. Plant and machine operators, 12. Labour and related work

4. Years of experience

1-5 Years	1	6-10 Years	2	11-15 Years	3	16-20 Years	4	Over-20 Years	5

Environmental factors that are associated with occupational injuries at a selected hospital (*Please tick or put place X in the appropriate box corresponding to your response to each statement)*

	SECTION B: Environmental Factors	Agree	Not Sure	Disagree
1	There is no enough security guard			
2	The environment I am working at is safe			
3	I have fell down or trip before			
4	There is enough ventilation in maximum ward			
5	It's not safe to work next to the seclusion room			

6	The buildings are too old			
7	The ward structure is not conducive for transfer of patient from maximum ward to semi close ward			
8	It is too hot to work in here sometimes			
9	It is too cold to work in here sometimes			
10	There is not enough working space			
11	There are no battlers in each door and window			
12	There are physical obstructions on the environment			
13	There is no precocious to warn for danger			
14	The stairs at forensic ward are not safe to use in emergency			
15	There is no store room for dangerous equipment			
16	All store rooms have locks			

Personal factors that are associated with occupational injuries at a selected hospital (*Please tick or put place X in the appropriate box corresponding to your response to each statement*

	SECTION C Personal Factors	Agree	Not Sure	Disagree

17	I am stressed sometimes at work			
18	I was screened for occupational injuries before employment			
19	Its traumatising to work at psychiatric hospital			
20	I don't attend enough workshops and training related to my work			
21	I don't have experience handling aggressive patient			
22	I have physiological problems that affect my work at times			
23	I get bored working at a psychiatric hospital			
24	I use substances for socialisation at times			
25	My body size cannot allow me to lift objects			
26	I work very hard that at times my body pains			
27	I get tired to work night shift			
28	I cannot have full concentration for the whole week at work			
29	I feel part of the term in decision making			
30	I feel out-sided when coming to work-related decision making			
31	My immune is too low to work at a psychiatric hospital			

Work-related factors that are associated with occupational injuries at a selected hospital (*Please tick or put place X in the appropriate box corresponding to your response to each statement*

	SECTION C Work-related Factors	Agree	Not sure	Disagree
32	I Perform the same task over and over			
33	I perform manual orthopaedic techniques (Joint mobilizations, soft tissue mobilisation)			
34	I do not get enough rest breaks or pauses during the workday			
35	I work in awkward and cramped positions			
36	I have bend or twist my back in an awkward way			
37	I work in the same positions for long periods (Standing, bend over, sitting, kneeling)			
38	I work near or at my physical limits			

39	I reach or work away from the body			
40	I continue to work while injured or hurt			
41	I lift or transfer dependent patients			
42	I don't always use protective clothes			
43	I carry, lift, or move heavy materials or equipment (e.g., continuous passive motion machines)			
44	I modify my position before lifting object			
45	I get someone else to help me handle a heavy objects			
46	our protocols are relevant in preventing workers from injuries			
47	There is no adequate training on injury prevention			
48	I work with chemicals			
49	I pricked myself with a needle			
50	I follow every procedure while taking care of patients			
51	I am not familiar with all the equipment's that we use			

52	There is training for each machinery before using it			
53	I attend workshops for new procedures and protocols			
54	I work for long hours			
55	I work with harmful equipment			
56	The standard of the work is good			
57	I work overtime sometimes			
58	I cut myself from the equipment in use at work			
59	I was once assaulted by the patient			

Thank you for taking time to complete this questionnaire