

## **CHAPTER ONE**

### **1.0 INTRODUCTION/BACKGROUND**

Injuries at a work place comprise a substantial part of injury burden and are an important public health problem that affects not only the person sustaining the injury but also other household members that depend on the injured adult for support (Smith et al, 2005). The International Labour Organisation (ILO) estimates that approximately 270 million occupational accidents that lead to absence from work, medical treatment, disability and the payment of survivor benefits to worker families occur each year (ILO, 2008). Furthermore, work-related injuries are often regarded as different from non-work related injuries in terms of aetiology, surveillance and prevention but oftenly are overlooked despite them having a large impact on the economy.

Although health workers frequently treat patients with work-related injuries, they also suffer from the same injuries. The injury rate among hospital workers has been estimated to be twice that of other service industries (Campo et al, 2008; Bork et al, 1996; Stellman & Olson, 1989). The activities involving patient contact are highly correlated to occupational injuries among health care workers (Nelson, 2003; Holder et al, 1999). An occupational injury has been described as an injury resulting from a work-related event or environment leading to death, lost work time, medical treatment other than first aid, loss of consciousness, work restriction or transfer to another job (Cromie et al, 2000; Holder et al, 1999).

In the work place, health care professionals are vulnerable to sustaining musculoskeletal disorders during the course of their work routine (Russo et al, 2006). The cause of these disorders is attributed to high levels of patient contact, as well as other variables in the health care environment (Nelson, 2003; Holder et al, 1999). These variables include, features of work place design, cognitive demands, organizational arrangements and psychological factors (Nelson, 2003). Work-related musculoskeletal disorders (WRMDs) have been defined as musculoskeletal injuries that result from a work-related event (Salik & Ozcan, 2004). They have also been defined as disorders of the muscles, nerves, tendons, joints, cartilages and spinal discs associated with exposure to risk factors in a work place (Bourrin et al, 1995). These disorders have been described as the most notorious and common cause of severe

long-term pain and physical disability affecting hundreds of millions of people across the world (Adegoke et al, 2008; Warren et al, 2005).

There are a number of factors that can lead to one developing musculoskeletal disorders. Bork et al (1999) identified three primary risk factors associated with WRMDs as repetitive movements, awkward postures and high force levels. In the field of physiotherapy the three primary risk factors are very common because, the nature of therapeutic procedures are often repetitive, labour intensive and involves direct contact with patients.

Physiotherapy is the promotion of a state of health and well being of the whole person so that an optimum level of function and independence may be achieved by the use of movement, manual procedures, electrotherapy, psychosocial and educational skills (Hong Kong Physiotherapy Association, 1997).

## **1.1 STATEMENT OF THE PROBLEM**

About one third of a person's life is spent at work or in a work-related environment according to anecdotal data. In addition, safety at a work place is often neglected thereby, endangering the health of the employee and compromising with productivity. The World Health Organization (WHO) states that the work environment contributes significantly to work-related diseases, which may be partially caused by adverse working conditions or aggravated, accelerated or exacerbated by work place exposures (WHO, 1997). Musculoskeletal disorders in a study on work-relatedness have been attributed to work (Lotters et al, 2003). In another study it was submitted that work only contributes partly to the occurrence of musculoskeletal disorders (Palmer & Smedley, 2007). Physiotherapy is associated with job tasks that are physically challenging and the elements of practice demand continuous bending, repetitive movements, quick response to unanticipated movements by patients and maximum patient support during treatments. Some of the routine procedures include manual therapy and soft tissue mobilizations which require higher levels of force and may be performed in hazardous or awkward postures (Cromie et al, 2000). In addition, they perform activities that involve transferring of dependant patients (for instance exercise mats to chairs and parallel bars), assisting patients in gait, providing manual resistance during exercise, assisting with mat activities, also lifting and use of heavy equipment during treatment. These hazardous postures

and repetitive activities that physiotherapy personnel (PTP) use may contribute to the occurrence of WRMDs.

Physiotherapy personnel work in very close physical contact with patients and are frequently exposed to risk factors of acute and cumulative pain. Some literature reviewed indicates that WRMDs among physiotherapists may be age or gender related and sometimes associated with professional years of work experience. In previous studies on WRMDs among physiotherapists, Females were more affected than males (Abidemi et al, 2008; Adegoke et al, 2008; Glover et al, 2005; Useh et al, 2002; Bork et al, 1996). Physiotherapists above the age of 50 had a low prevalence of WRMDs (Bork et al, 1996). Majority of the initial episodes occurred within 5 years after graduation and before the age of 30 (Adegoke et al, 2008; Glover et al, 2005; Useh et al, 2002; Cromie et al; 2000; Molumphy et al,1985).

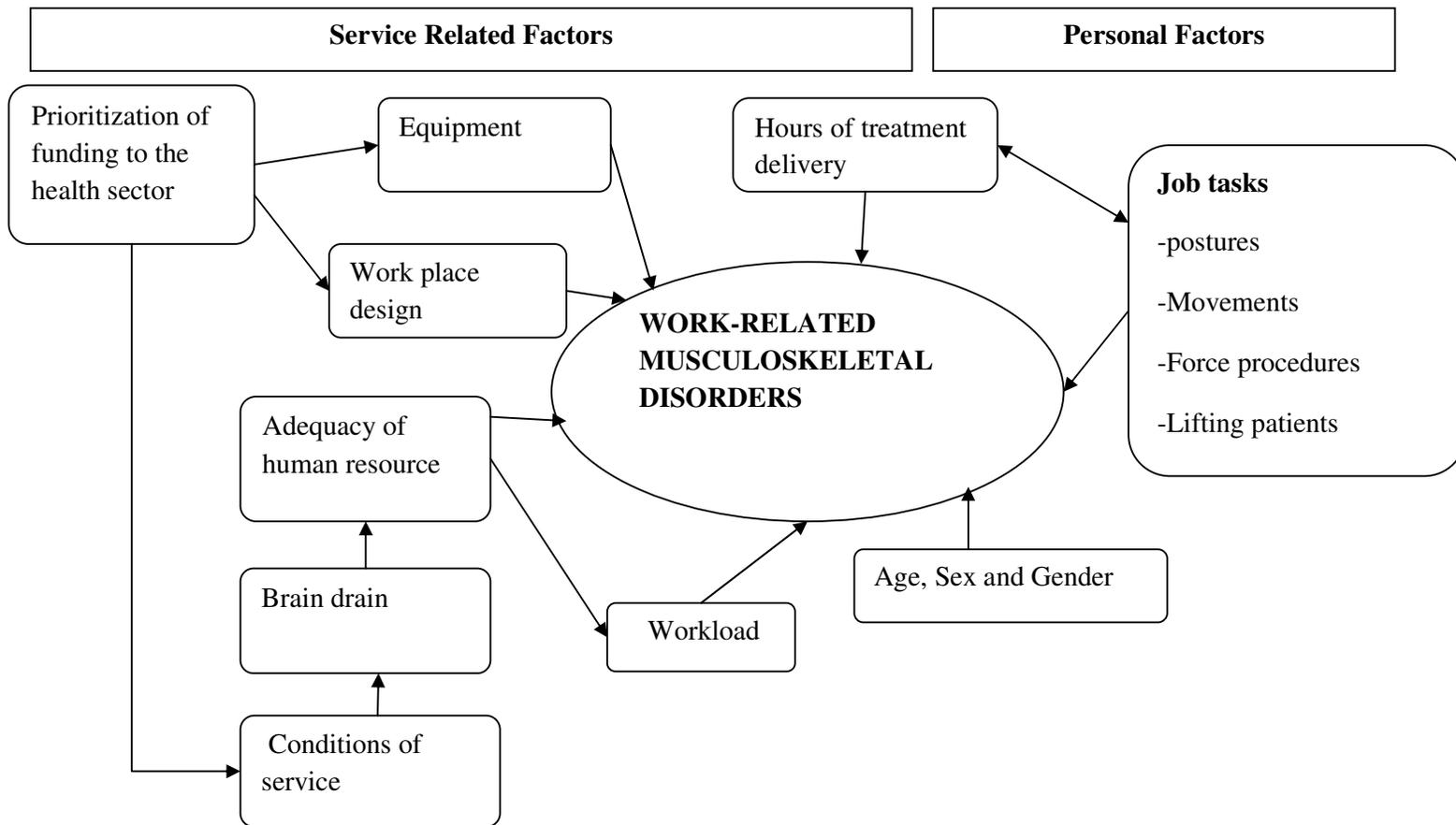
The Zambian population is currently estimated at 11.3 million, with an annual average growth rate of 3% and life expectancy at birth of 50 years (Central Statistical Office, 2007). Zambia like many other sub-Saharan countries has been adversely affected by the HIV/AIDS pandemic with an infection rate of 14.3% among adults aged 15-49 years (National Aids Council, 2009). This has caused a continued increase in the disease burden. The high disease burden is also, compounded by resurgent epidemics, and high poverty levels (Ministry of Health, 2005). Furthermore, diseases such as diabetes, hypertension, renal failure, tumours, traumatic injuries and substance and alcohol abuse are becoming more prevalent due to changes in lifestyles leading to an increase in the rate of non communicable diseases which consequently contributes to a high burden of disease. The increasing burden of disease in Zambia has brought about an increased demand on health staff due to increases in the number of patients (Ministry of Health, 2005). It is therefore, an assumption that there are more patients seeking physiotherapy services because of complications associated with HIV/AIDS such as stroke and other medical sequelae. The high number of patients could expose physiotherapy personnel to WRMDs.

The health sector in Zambia has in the past decade experienced a high brain drain of health care professionals leading to inadequate human resource in health institutions (Ministry of Health, 2005). The physiotherapy profession like any other has not been spared. The Zambia Society of Physiotherapy, reports that only 300 registered physiotherapists are working in the

country (Zambia Society of Physiotherapy, 2008). This is despite the continued training at the University of Zambia and Evelyn Hone College.

With Zambia's population estimated at 11.3 million, the ratio of physiotherapy personnel to the population is approximated 1 to every 3,766 persons. It is, therefore, assumed that inadequate human resource can contribute to the risk of WRMDs among personnel.

**PROBLEM ANALYSIS DIAGRAM FOR WRMDs (Figure 1)**



## **1.2 PROBLEM ANALYSIS DIAGRAM FOR WRMDS**

In determining factors that may be associated with the prevalence of WRMDs among physiotherapists, it is important to take into account a multi-dimension nature of elements that may contribute to occurrence of WRMDs. The possible factors are outlined in the problem analysis diagram (figure 1).

## **1.3 SIGNIFICANCE OF THE STUDY**

The physical demands associated with physiotherapists exposes them to a high risk of WRMDs. These are vividly exposed within 5 years of practice. Since the physiotherapy profession in Zambia started in the early 1970's there are inadequate studies on WRMDs. The prevalence of WRMDs among physiotherapy personnel in Zambia has not been reported and little seems to be known about the occupational hazards of physiotherapy practice in Zambia despite the wealth of information on WRMDs among physiotherapists around the world. This study therefore, determined the prevalence and factors for WRMDs among physiotherapy personnel in Lusaka, Kitwe and Ndola districts. It was hoped that, information obtained from the study would benefit training programmes in physiotherapy and add to the existing body of knowledge in the area of clinical practice of physiotherapy and other health professions.

## **1.4 RESEARCH QUESTIONS**

The study sought to answer the following questions:

- i. What proportion of physiotherapy personnel in Lusaka, Kitwe and Ndola have experienced WRMDs?
- ii. What are the factors associated with WRMDs?

## **CHAPTER TWO**

### **2.0 LITERATURE REVIEW**

#### **2.1 INTRODUCTION**

In this chapter literature is presented and discussed from the works of previous scholars from around the globe with regard to; Global, Regional and National perspectives. A number of researchers worldwide, have investigated occupational injuries within the health care setting. The results of these studies indicate that approximately 67% of health care workers studied in a variety of settings have experienced a work-related injury (Nelson & Olson, 1996). This study focuses on the prevalence and risk factors for WRMDs among physiotherapists.

#### **2.2 PREVALENCE**

In epidemiology the prevalence of a disease in a statistical population is defined as the total number of cases of the disease in the population at a given time (Spitzer, 1998). It is used as an estimate of how common a condition is within a population over a certain period of time. Worldwide studies have been performed reporting on the lifetime and annual prevalence of WRMDs among physiotherapists. Lifetime prevalence is the number of individuals in a statistical population that at some point in their life up to the time of assessment, have experienced a "case" compared to the total number of individuals (Spitzer, 1998). It is expressed as a rate or percentage.

Rozenfeld et al (2009) reported 83% lifetime prevalence of WRMDs among physiotherapists in Israel. In the United States Campo et al (2008) reported 20.7% prevalence of WRMDs among physiotherapists. In other surveys Holder et al (1999) and Bork et al (1996) found that only 32% of physiotherapists in the United States suffered from WRMDs during their professional life. In Great Britain scholars in one study reported an annual prevalence of 68% WRMDs among physiotherapists (Glover et al, 2005) while, in another study Scholey & Hair (1989), reported 38% of WRMDs. In Turkey it was 85% (Salik and Ozcan, 2004). Surveys conducted in Australia, revealed 91% prevalence of WRMDs among physiotherapists (West & Gardner, 2001).

These researchers also determined that younger physiotherapists had the highest prevalence of WRMDs. In addition, the initial episode most oftenly occurred within the first five years of

work experience. Furthermore, most physiotherapists, suffered from symptoms in more than one body area. Low back injury is the most common disorder reported (45%) followed by wrists and hands (30%) and (29%) for the upper back (Rozenfeld et al, 2009; Campo et al, 2008; Salik and Ozcan, 2004; West and Gardner, 2001; Cromie et al, 2000; Holder et al, 1999; Bork et al, 1996).

A few studies on WRMDs among physiotherapists have been conducted in Africa. Outcomes showed that prevalence of WRMDs among physiotherapists was higher than most values reported in advanced countries around the world. In Nigeria the reported 12 months prevalence of WRMDs was 91.3% (Adegoke et al, 2008). Zimbabwean scholars submitted that 78% of physiotherapists experienced WRMDs (Useh et al, 2002). Prevalence was significantly higher in female therapists and those with a lower body mass index (Abidemi et al, 2008; Adegoke et al, 2008; Useh et al, 2002). Furthermore, the lower back (69.8%) was the most commonly affected body part, followed by the neck (34.1%). Most of the respondents like in the advanced countries around the world first experienced their WRMDs within 5 years of graduation and the highest prevalence was found among therapists younger than 30 years.

From the literature review it is evident that the prevalence of WRMDs among physiotherapy personnel in Zambia has not been reported. This study, therefore, seeks to obtain information on the prevalence and factors for WRMDs among physiotherapy personnel in Lusaka, Kitwe and Ndola districts. It is hoped that information which will be obtained from this study will add to the existing body of knowledge in the area of clinical practice of physiotherapy and other health care professions.

### **2.3 RISK FACTORS**

Physiotherapists may be exposed simultaneously to a number of different risk factors (Cromie et al, 2000). In addition it is likely that risk factors may interact making identification of the cause of injury difficult. These are discussed below;

**Practice setting:** Practice setting has proved to be an important factor in the development of WRMDs among physiotherapists (Rozenfeld et al, 2009; Cromie et al, 2000; Bork et al,

1996; Holder et al, 1999). Furthermore, prevalence of injury in different anatomical areas depends on the practice settings. Physiotherapists practicing in hospitals have reported a higher prevalence of musculoskeletal injuries in every anatomical area except the wrists and hands than non-hospital-based therapists (Bork et al, 1986). This may be attributed to the level of physical dependence of patients who are more likely to have acute or more extensive injuries than those seen in ambulatory settings. However, Holder et al, (1999) submitted that physiotherapists in a rehabilitation environment have reported a higher prevalence of WRMDs than their colleagues in outpatients and hospital settings.

**Hours of treatment delivery:** Number of treatment hours per week for rehabilitation has been associated with an increased risk of WRMDs (Rozenfeld et al, 2009; Adegoke et al, 2008; Salik and Ozcan, 2004; Cromie et al, 2000). In addition each hour of additional work per week performing rehabilitation treatment is associated with a 5% likelihood of injury.

**Job tasks and workload:** Performing the same task over and over, lifting or transferring patients have been described as the most dangerous factor which contributes to injury and development of WRMDs in a significant way (Rozenfeld et al, 2009; Abidemi et al, 2008; Adegoke et al, 2008; Cromie et al, 2000; Holder et al, 1999). Working in awkward and same positions for long periods of time are also considered a major problem.

**Age:** Physiotherapists' ages have an effect on the prevalence of WRMDs (Rozenfeld et al, 2009; Abidemi et al, 2008; Adegoke et al, 2008; Useh et al, 2002; Cromie et al, 2000; Glover et al, 2002; Holder et al, 1999). Further, it has been submitted that younger physiotherapists have a high prevalence of musculoskeletal injuries which occur during the first 5 years of practice. Glover et al (2002) reports that newly licensed physiotherapists are inexperienced in proper patient handling or in judging patient capabilities and are embarrassed to seek help from colleagues. Scholars have also, submitted that after the age of 50 years, WRMDs symptoms declines in most body areas especially, the lower back (Cromie et al, 2000; Holder et al, 1999; Bork et al, 1986). It is attributed to the fact that older therapists have less direct contact with patients because of moving out of patient care into administrative positions which are less physically demanding.

**Gender:** It is indicated that prevalence of WRMDs is higher among female physiotherapists than in males (Rozenfeld et al, 2009; Abidemi et al, 2008; Adegoke et al, 2008; Salik and Ozcan, 2004; Glover et al, 2002; Useh et al, 2002; Cromie et al, 2000; Holder et al, 1999; Bork et al, 1986). The high prevalence of WRMDs among female physiotherapists has been attributed to their weight and height (Holder et al, 1999). It has been submitted that female physiotherapists are generally smaller than their male counterparts, which puts them at a physical disadvantage when lifting and transferring dependant patients (Adegoke et al, 2008; Salik and Ozcan, 2004; Glover et al, 2002; Useh et al, 2002; Cromie et al, 2000; Holder et al, 1999). In addition, most female physiotherapists have reported that stress of pregnancy has often led to an exacerbation of symptoms particularly sacroiliac problems.

From the foregoing it is evident that physiotherapy personnel are exposed to the occupational risk factors leading to WRMDs despite their knowledge regarding body mechanics and injury prevention. However, it is also evident that no study has been conducted on the occupational hazards that affect the profession and in particular on WRMDs among physiotherapy personnel in Zambia. Hence, this study hopes to generate information which will fill the gap in the health care professions body of knowledge.

## **CHAPTER THREE**

### **3.0 STUDY OBJECTIVES**

#### **3.1 INTRODUCTION**

In this chapter the outline of the general and specific objectives of this study are given.

#### **3.2 GENERAL OBJECTIVE**

The general objective of this study was to determine the prevalence and factors for WRMDs among physiotherapy personnel in Lusaka, Kitwe and Ndola districts.

#### **3.3 SPECIFIC OBJECTIVES**

In order to achieve the general objective, the specific objectives were as follows:

- To determine the proportion of physiotherapy personnel in Lusaka, Kitwe and Ndola that had experienced WRMDs.
- To determine the extent to which perceived work-load was associated with the development of WRMDs among physiotherapy personnel.
- To establish the extent to which job tasks were associated with the development of WRMDs among physiotherapy personnel?
- To identify possible measures that could be put in place to reduce occurrence of WRMDs among physiotherapy personnel?

## CHAPTER FOUR

### 4.0 METHODOLOGY

#### 4.1 INTRODUCTION

In this chapter, the methodology of the study is presented. It gives a description of the study variables, study design, study setting, study population, inclusion and exclusion criteria, sampling method and sample size, data collection tool, data analysis procedures, data quality control checks and ethical considerations.

**Table 1: Study variables, indicators and scale of measurement.**

Variable Type		Indicator	Scale of Measurement
<b>Dependent Variable</b>	Work-related musculoskeletal disorders	Yes No	1. Lasted for more than 3 days 2. None
	<b>Independent Variables</b>	Work load	Number of patients attended to in a day
	Job Tasks	Patient- related Personal	1. Always 2. Often 3. Sometimes
	Availability of qualified physiotherapists	Adequate Inadequate	Number of trained physiotherapy personnel in a department ( with regards to establishment)
	Availability of equipment	Adequate Inadequate	1. 5 or more units 2. Less than 5 units

## **4.2 STUDY VARIABLES**

There were dependant and independent variables to this study. Table 1 shows the study variables, indicators and scale of measurements that were used in this study.

## **4.3 STUDY DESIGN**

This was a cross-sectional quantitative study whose aim was to determine the prevalence and factors for WRMDs among physiotherapy personnel in Lusaka, Kitwe and Ndola districts.

## **4.4 STUDY SETTINGS**

The study was conducted in Lusaka, Kitwe and Ndola districts. Health care services in these districts is provided by both the public and private sectors and is widespread in urban and rural parts (Ministry of Health, 2005). In addition, public facilities include hospitals and clinics under the Ministry of Health, Ministry of Defence and the Ministry of Home affairs. Private facilities include those run by church organisations, non-governmental organizations (NGOs) and corporate companies. Physiotherapy units are found in most of these facilities.

Lusaka is located in the southern part of the central plateau of the country, at an elevation of 1, 300m and has a surface area of 70 square kilometres (Wikipedia, 2009). Furthermore, the district was established in 1905 and is the largest city of Zambia. According to the 2010 census statistics the population of Lusaka is approximately 1.7 million and the population density stands at 44. 285. 7 per square kilometre (Wikipedia, 2011). As a national capital, Lusaka is a commercial centre as well as the centre of government and seats the legislative, executive and judicial branches of government. The sample was drawn from government hospitals (University Teaching Hospital, Chainama Hills College Hospital, Maina Soko Military Hospital, and Sikanze Police Camp Hospital); Private hospitals (Care for Business Hospital, Italian Orthopaedic Hospital, Beit Cure trust, and Victoria Hospital); Lusaka District Health Management Team clinics (Chilenje, Chawama, Kanyama, George, Chingwere, and Mutendere); Private clinics (Protouch, Physio Care, Mini-bank, and P & J clinic); and nongovernmental Organizations' health facilities (Cheshire Homes Kabulonga, Cheshire Homes Mandevu, Chilanga Hospice, Our Ladys' Hospice Kalingalinga, and Community Based Intervention Association).

Kitwe and Ndola districts are located on the copperbelt province of Zambia. Ndola has an estimated population of 774, 757 (Central Statistical Office, 2007). It is the provincial headquarters of the copperbelt province and the commercial city of Zambia (Wikipedia, 2010). In Ndola, the respondents were drawn from governmental hospitals (Ndola Central Hospital, and Arthur Davison Children's Hospital); government institution (Vocational Training Rehabilitation Centre); and Catholic's Ndola Diocese Community Based Rehabilitation Programme.

Kitwe is one of the largest cities in Zambia with a population estimate of 547, 700 (Central Statistical Office, 2007). It has a complex of mines on the western and north-western edges (Wikipedia, 2010). The participants were drawn from government hospitals (Kitwe Central Hospital, and Wusakile Mine Hospital); and private health facilities (Company clinic, and Sino-zam Hospital).

#### **4.5 STUDY POPULATION**

The research population consisted of qualified and practicing physiotherapy personnel in all public and private health facilities that had active physiotherapy units in Lusaka, Kitwe and Ndola.

#### **4.6 INCLUSION CRITERIA**

The following criterion was fulfilled.

- i. Should have been qualified PTP.
- ii. Should have been PTP that were in clinical practice.
- iii. Should have been PTP who consented to take part in the study.

#### **4.7 EXCLUSION CRITERIA**

- i. All those who were not qualified.
- ii. All those who were not practicing.
- iii. All those who did not consent to take part in the study.

#### **4.8 SAMPLE SIZE AND SAMPLING**

In the 2009, Medical Council of Zambia register, there are 139 registered PTP in both public and private health facilities in Lusaka, Kitwe and Ndola. The aim was to recruit all PTP who were practicing at the time of the study. However, a total of 120 PTP were captured out of the 139. Some of the PTP (n=19) were reported to be either on leave (n=8), deceased (n=2) or were no longer working at the health facilities (n=9).

#### **4.9 DATA COLLECTION TOOL**

A self- administered semi structured questionnaire based on previous studies was used (Adegoke et al, 2008; Cromie et al 2000). The questionnaire was divided into three parts that is, section A, B and C. Demographic data was collected in section A, this included information on work settings, experience and training. Information on WRMDs and work factors was collected in section B. Participants were asked whether they had experienced work related pain or discomfort that lasted for more than 3 days in any body part in the last 12 months. Those that indicated having experienced WRMDs in any body part were further, requested to indicate body parts where they had experienced pain or discomfort. Information on job tasks and coping strategies was collected in section C.

#### **4.10 DATA QUALITY CONTROL CHECKS**

To ensure validity and reliability of the study method, pre-testing of the tool was done on 10 PTP at Kabwe general and mine hospitals. This enabled the researcher to evaluate methods of measurement and analysis and also identified unanticipated problems and benefits with minimal costs compared to the full-scale project.

The pre-test also, provided opportunities that established whether responses could be interpreted in terms of the information that was required. The researcher was also able to ascertain whether or not questions needed re-wording or re-scaling. To this effect typographic errors in the questionnaire were noted and corrected.

#### **4.11 DATA ANALYSIS**

Data was entered into a computer using epi-data. Information was then exported from the epi-data file to SPSS version 16.0 for windows for analysis. Association of factors was tested using the uncorrected Pearson's chi-square test. The Fisher's exact two-tailed p-value was used where the Pearson's chi-square result was not valid. The cut off point for statistical significance was set at 5%.

#### **4.12 ETHICAL CONSIDERATION**

The researcher paid attention to issues such as permission to conduct the study, informed consent and confidentiality.

**Permission to conduct study:** Ethical clearance and approval was sought from the Biomedical Research Ethics Committee of the University of Zambia and written permission to conduct the research was obtained from heads of institutions with active physiotherapy units.

**Informed Consent:** Informed consent was obtained from all participants before any interview.

**Confidentiality and privacy:** Information collected on personal data was confidential and not given to any partner or project for further analysis. No names were used, questionnaires were allocated serial numbers which were used for identity and data entry in the computer in place of names. The computer was protected with a password to prevent access to information

## CHAPTER 5

### 5.0 RESULTS

#### 5.1 SAMPLE DESCRIPTIONS

Respondents that took part in the study were 120 which included 74 females (61.7%). Both male and female participants had a mean age of 34.4 (SD 7.85) years, and BMI of 25.8 (SD 5.0). Most participants (92.5%) were in full time employment. About 2 in 3 participants had diplomas in physiotherapy and only 2.5% had master degrees. The median years of physiotherapy experience was 7.0 (Q1=3.5, Q3=13.0) years. The rest of the description is shown in table 2.

**Table 2: Socio-demographic characteristics of participants (n=120)**

<b>Demographics</b>	
<b>Age (years)</b>	
Mean (SD)	34.4 (7.85)
<b>Height (Metres)</b>	
Mean (SD)	1.66 (0.09)
<b>Weight (Kilograms)</b>	
Mean (SD)	70.5 (12.43)
<b>Body Mass Index</b>	
Mean (SD)	25.8 (5.0)
<b>Years of Physiotherapy Experience</b>	
Median	7.0
(Q1, Q3)	(3.5, 13.0)
<b>Gender</b>	
Male	46 (38.3%)
Female	74 (61.7%)
<b>Work Status</b>	
Full Time	111 (92.5 %)
Part Time	9 (7.5%)
<b>Work Setting</b>	
Government Hospital	88 (73.3%)
Private facilities	21 (17.5)
Rehabilitation	11 (9.2%)
<b>Education</b>	
Diploma	82 (68.3%)
Bachelor's Degree	35 (29.2%)
Master's Degree	3 (2.5%)
<b>Ergonomic Training</b>	
Yes	52 (48.2%)
No	56 (51.8%)

## 5.2 WORK-RELATED MUSCULOSKELETAL DISORDERS

Questionnaire responses indicated that the majority of respondents 68.3% (n=82) experienced work-related pain or discomfort in any body region that lasted for more than 3 days in the last 12 months to the survey (table 3).

**Table 3: Work-related musculoskeletal disorders among respondents**

	<b>n</b>	<b>%</b>
Yes	82	68.3
No	38	31.7
<b>Total</b>	<b>120</b>	<b>100.0</b>

### 5.2.1 Work-related musculoskeletal disorders in association with work load

Most of the respondents 47 (58.8%) that had experienced WRMDs indicated treating above 10 patients per day (table 4). However, this prevalence rate was not statistically significant ( $p= 0.207$ ) compared to 65.8% who had not experienced WRMDs.

**Table 4: Prevalence of work-related musculoskeletal disorders in association with workload**

<b>Characteristics</b>	<b>WRMD</b>		<b>Chi Statistics (p-value)</b>
	<b>n</b>	<b>(%)</b>	
	<b>No WRMD</b>		
	<b>n</b>	<b>(%)</b>	
<b>Patients per day</b>			
Low (0 - 5)	8	(10.0)	
Moderate (6 - 10)	25	(31.3)	
High (>10)	47	(58.8)	3.15 ( $p=0.207$ )

### 5.2.2 Work-related musculoskeletal disorders in association with demographic characteristics

No demographic factors were significantly associated with WRMDs as shown in table 5.

**Table 5: Prevalence of work-related musculoskeletal disorders by demographic characteristics**

<b>Characteristics</b>	<b>WRMD n (%)</b>	<b>No WRMD n (%)</b>	<b>Chi Statistics (p value)</b>
<b>Age Groups</b>			
=< 30	25 (30.5)	10 (26.3)	0.22 (p=0.640)
>30	57 (69.5)	28 (73.7)	
<b>Body Mass index</b>			
Underweight	2 (2.4)	1 (2.6)	1.11 (p=0.774)
Normal	38 (46.3)	18 (47.4)	
Overweight	32 (39.0)	12 (31.6)	
Obese	10 (12.2)	7 (18.4)	
<b>Years of Physiotherapy Experience</b>			
=< 5	30 (37.5)	13 (35.1)	0.30 (p=0.861)
6 – 15	37 (46.3)	19 (51.4)	
> 15	13 (16.3)	5 (13.5)	
<b>Gender</b>			
Male	30 (36.6)	16 (42.1)	0.34 (p=0.563)
Female	52 (63.4)	22 (57.9)	
<b>Work Status</b>			
Full Time	77 (93.9)	34 (89.5)	0.462*
Part Time	5 (6.1)	4 (10.5)	
<b>Work Setting</b>			
Government	56 (63.3)	32 (84.2)	3.37 (p=0.186)
Private facilities	17 (20.7)	4 (10.5)	
Rehabilitation	9 (11.0)	2 (5.3)	
<b>Had Ergonomics Training</b>			
Yes	40 (51.3)	12 (40.0)	1.12 (p=0.293)
No	38 (48.7)	18 (60.0)	
<b>Education</b>			
College Diploma	57 (69.5)	25 (65.8)	0.17 (p=0.683)
University Bachelors' Degree	24 (29.3)	11 (28.9)	
University Master's Degree	1 (1.2)	2 (5.3)	

\*Fisher's exact value

### 5.2.3 Work-related musculoskeletal disorders in association with sets of equipment

Responses to the questionnaire show that the majority of respondents 49 (65.3%) that reported WRMDs indicated having more than 5 sets of equipment in their departments compared with 74.3% who did not report WRMDs. However, there was no association between WRMDs and sets of equipment in a department as shown in table 6.

**Table 6: Prevalence of work-related musculoskeletal disorders by sets of equipment**

Characteristics	WRMD	No WRMD	Chi Statistics (p-value)
	n (%)	n (%)	
<b>Sets of equipment</b>			
None	6 (8.0)	1 (2.9)	1.41 (p= 0.495)
1 – 4	20 (22.7)	8 (20.0)	
>5	49 (65.3)	26 (74.3)	

#### 5.2.4 Work-related musculoskeletal disorders in association with number of physiotherapy personnel

As shown in table 7 the number of physiotherapy personnel in the department was not significantly associated with WRMDs.

**Table 7: Prevalence of work-related musculoskeletal disorders by number of personnel**

Characteristics	WRMD	No WRMD	Chi Statistics (p value)
	n (%)	n (%)	
<b>Number of personnel</b>			
5 or less	50 (62.5)	22 (57.9)	0.08 (p=0.782)
Greater than 5	30 (31.3)	16 (42.1)	

### 5.3 AFFECTED BODY PARTS OF WORK-RELATED MUSCULOSKELETAL DISORDERS AMONG RESPONDENTS

The lower back was the most commonly affected body part at 52.4% (n=43). The shoulders 30.5% (n=25), upper back 26.8% (n=22), neck 25.6% (n=21) and wrists/hands 15.9% (n=13) are other sites that were also frequently affected (table 8).

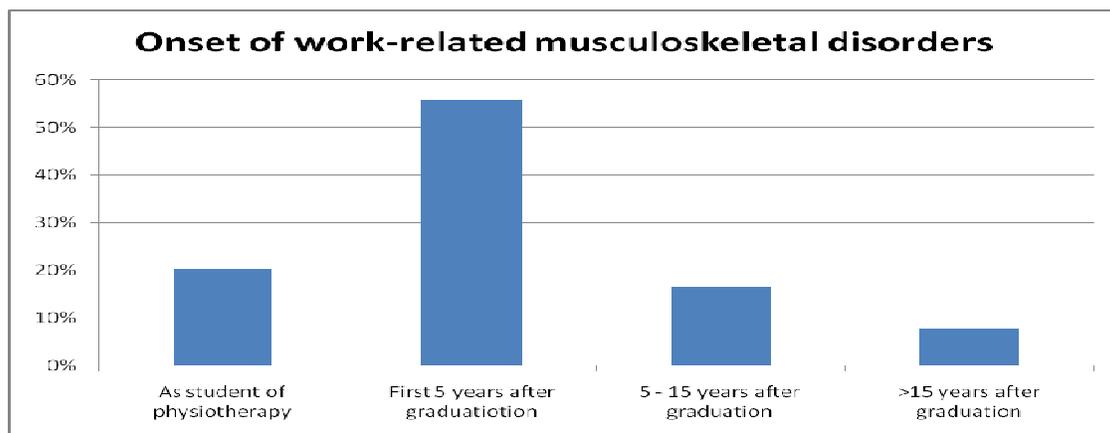
**Table 8: Commonly affected body parts (Total = 82)**

<b>Pain Location</b>	<b>n</b>	<b>(%)</b>
Neck	21	(25.6)
Upper Back	22	(26.8)
Lower Back	43	(52.4)
Thumbs	2	(2.4)
Knees	8	(9.8)
Shoulder	25	(30.5)
Elbow/Forearm	6	(7.3)
Wrist/Hands	13	(15.9)
Hips	1	(1.2)
Ankles/Feet	7	(8.2)

#### **5.4 ONSET OF WORK-RELATED MUSCULOSKELETAL DISORDERS AMONG RESPONDENTS**

Majority of participants 40.7% (n=44) experienced their work-related injuries within the first five years of their graduation, 22.3% (n=24) could not remember when the first episode occurred, while 14.8% (n=16) had their first experience as physiotherapy students (Figure 2). For most of the respondents, the onset of WRMDs was gradual in 72 (70.6%), sudden in 26 (25.5%) and as a result of an accident 4 (3.9%).

**Figure 2: Onset of work-related musculoskeletal disorders among respondents**



## 5.5 WORK FACTORS IDENTIFIED AS CONTRIBUTING TO WORK-RELATED MUSCULOSKELETAL DISORDERS

The most prevalent work factor commonly identified by respondents as having contributed to the development of WRMDs was treating a large number of patients per day 97.5% (n=77). Other factors included performing the same task over and over 94.9% (n=77), performing manual therapy techniques 93.2% (n=69), working in the same positions for long periods 92.1% (n=70) and lifting and transferring of dependant patients 88.6% (n=70). Details are shown in table 9.

**Table 9: Work factors identified by respondents as contributing to work-related musculoskeletal disorders**

<b>Job tasks</b>	<b>Total</b>	<b>n</b>	<b>(%)</b>
Performing same tasks over and over	78	77	(94.9)
Treating a large number of patients in one day	79	77	(97.5)
Not enough rest breaks during the day	74	65	(87.8)
Performing manual techniques	74	69	(93.2)
Working in cramped positions	72	57	(79.2)
Working in same position for long periods	76	70	(92.1)
Bending or twisting back in an awkward way	77	65	(84.4)
Reaching or working away from your body	73	59	(80.8)
Unanticipated sudden movement or falls by patient	77	48	(62.3)
Assisting patient during gait training	76	54	(71.1)
Lifting or transferring dependent patients	79	70	(88.6)
Working with confused or agitated patients	75	45	(60.0)
Lifting heavy material or equipment	77	52	(67.5)
Working at or near your physical limits	74	60	(81.1)
Continuing to work when injured or hurt	76	51	(67.1)
Work scheduling (overtime, length of work day)	74	50	(67.6)
Inadequate training in injury prevention	68	31	(45.6)

## 5.6 COPING STRATEGIES

As a result of work-related pain or discomfort 68.3% (n=77) respondents reported having modified their treatment approaches towards patients. The most commonly adopted coping strategies identified by the respondents included, modifying patients positions or their position 58.5% (n=48), selecting techniques that would not aggravate or provoke discomfort 56.1% (n=46) and adjusting plinth/bed height before treatment 47.6% (n=39). Other details are shown in table 10.

**Table 10: Coping strategies used by respondents**

Strategy	Always		Sometimes		Never		No Response	
	n	(%)	n	(%)	n	(%)	n	(%)
I get someone else to handle a heavy patient	33	(40.2)	40	(48.8)	7	(5.8)	2	(1.7)
I modify patient's position/my position	48	(58.5)	32	(39.0)	0	(0.0)	2	(1.7)
I use different part of my body to administer a manual technique	23	(28.0)	44	(53.7)	6	(7.3)	9	(11.0)
I warm up and stretch before performing manual techniques	7	(8.5)	32	(39.0)	38	(46.3)	5	(6.1)
I use electrotherapy instead of manual techniques	5	(6.1)	49	(59.8)	22	(26.8)	6	(7.3)
I pause regularly so I can stretch and change posture	24	(29.3)	41	(50.0)	12	(14.6)	5	(6.1)
I adjust plinth or bed height before treating a patient	39	(47.6)	28	(34.1)	10	(12.2)	5	(6.1)
I select techniques that will not aggravate or provoke my discomfort	46	(56.1)	30	(36.6)	1	(1.2)	5	(6.1)
I stop a treatment if it causes or aggravates my discomfort	24	(29.3)	40	(48.8)	14	(17.1)	4	(4.9)

## **CHAPTER 6**

### **6.0 DISCUSSION**

#### **6.1 INTRODUCTION**

The discussion is based on the findings from the data that was obtained from 120 physiotherapy personnel that took part in the study. The aim of this study was to determine the prevalence and factors for WRMDs among physiotherapy personnel in Lusaka, Kitwe and Ndola.

#### **6.2 PREVALENCE OF WORK-RELATED MUSCULOSKELETAL DISORDERS**

Information that was obtained from this study indicates that WRMDs were common. Eighty two (68.3%) respondents reported having experienced work-related pain or discomfort at least in one anatomical area that lasted for more than 3 days. This result is similar to the reported prevalence of 68% in Great Britain (Glover et al, 2005). However, it is lower compared to the reported prevalences of WRMDs among physiotherapists in the African region. Nigeria reported 91.3% prevalence Adegoke et al (2008) and in Zimbabwe it was 78% Useh et al (2002). The differences in the results may be attributed to differences in the number of participants. Also, the range of conditions, number of patients attended to per day, the set up of the practice and the availability of basic equipment may influence the development of WRMDs.

The lower back was the most commonly affected body part at 52.4% (n=43) in this study. These findings are consistent with the results of previous studies in the African region and elsewhere that implicated the lower back as the most commonly affected anatomical area among physiotherapists ranging between 45% and 79.6% (Hesham et al, 2010; Rozenfeld et al, 2009; Abidemi et al, 2008; Bork et al, 2005; Useh et al, 2002). These results are also correlated to the daily treatment tasks being performed by PTP which may contribute to stress in these anatomical areas, such as treating a large number of patients per day, lifting or transferring of dependant patients, working in the same position for a long period, doing the same task over and over and performing manual therapy techniques. Also, most of the practice settings are general hospitals. Patients in these facilities are usually, very ill because of complications associated with HIV/AIDS such as stroke and the number of patients attended to per day is quite high thereby, increases on staff demand.

Majority of respondents 40.7% noted having experienced their first episodes of WRMDs during the first five years of professional practice. A proportion of these respondents (70.6%) also, reported a gradual onset of musculoskeletal symptoms. These outcomes are very similar to those reported in most of the other studies done on WRMDs among physiotherapists (Rozenfeld et al, 2009; Adegoke et al, 2008; Campo et al, 2008; Glover et al, 2005; Salik and Ozcan, 2004). This according to Glover et al (2005), is attributed to newly qualified staff being inexperienced in handling patients and reluctant or embarrassed in seeking assistance from colleagues when doing physically demanding tasks. Furthermore, newly qualified staff may not have yet developed strategies for coping with the physical demands of the job.

To avoid symptoms of WRMDs, respondents commonly associated with modifying patients position or “my position”, selecting techniques that will not aggravate or provoke “my discomfort”, adjusting plinth or bed height before treating a patient, getting someone else to handle a heavy patient, stopping a treatment if it causes or aggravates or provokes my discomfort and pausing regularly so I can stretch and change posture. This result is consistent to that of Abidemi et al (2008) and Glover et al (2005) who reported that the four most important preventive strategies commonly adopted by physiotherapists in response to sustaining musculoskeletal disorders at work as: adjusting plinth or bed height, modifying their position or that of their patients, obtaining assistance when handling a heavy patient and ceasing a patients treatment if such treatments aggravates or provokes their symptoms. Further, Glover et al (2005) states that physiotherapists changed their field of work or departments due to WRMDs. In this study most respondents work in government hospitals, these tend to be more restrictive settings in terms of change in work habits or areas of practice or limiting patient contact. Also, positions for PTP in these facilities are limited. This gives a “ limited career option Change.” It is therefore, unlikely for PTP to change their field of work or departments as a way of avoiding or relieving WRMDs.

### **6.3 WORK-RELATED MUSCULOSKELETAL DISORDERS BY DEMOGRAPHIC CHARACTERISTICS.**

Previous studies on WRMDs among physiotherapists (Adegoke et al, 2008; Useh et al, 2002) revealed high prevalences of musculoskeletal symptoms among younger physiotherapists (30

years and below), which was attributed to inexperience. Further, more female physiotherapists and those with a low BMI were prone to musculoskeletal symptoms especially in the lower back which was attributed to weight and height. They said, females were generally smaller than males and were at a physical disadvantage when lifting or transferring larger patients. In the current study prevalence of WRMDs was not associated with respondents demographic characteristics.

#### **6.4 WORK-RELATED MUSCULOSKELETAL DISORDERS BY WORKLOAD, SETS OF EQUIPMENT AND NUMBER OF PTP IN A DEPARTMENT**

Adegoke et al (2008) in a study on the prevalence and work factors of WRMDs among physiotherapists in Nigeria, cited bedevilled unwholesome work settings, under staffing and lack of appropriate and basic equipment as some of the conditions that predisposed physiotherapists to WRMDs. It was therefore, an assumption in this study that work load because of high patient turnover could expose physiotherapy personnel to WRMDs. It was also an assumption that PTP that had basic equipment (at least five sets and above) and adequate staffing levels in their departments would have lower incidences of WRMDs. However, outcomes in the present study show that there were no statistically significant WRMDs between workload, sets of equipment and number of PTP in a department.

#### **6.5 WORK-RELATED MUSCULOSKELETAL DISORDERS BY JOB TASKS**

Treating a large number of patients per day, performing same tasks over and over, performing manual therapy techniques and working in the same position for a long period, in this order, are across cutting job tasks or work factors that respondents in the present study commonly identified as contributing to the development of WRMDs. In previous studies investigations revealed similar results (Hesham et al, 2010; Campo et al, 2008; Glover et al, 2005; Salik and Ozcan, 2004). However, in these other studies, the researchers also, analysed the muscle work during such activities and linked the factors to individual musculoskeletal disorders. For example, performing manual therapy techniques was linked to wrist/hand musculoskeletal disorders. (Salik and Ozcan, 2004; Cromie et al, 2000). It is important to note that while performing various tasks PTP may also be simultaneously exposed to a number of different other factors that interact, thereby, making it difficult to identify the real cause of injury.

Again, it is important to note that participants self identified the work factors. The responses may, therefore, be a reflection of their own beliefs rather than the actual contribution to their disorder.

## **6.6 LIMITATIONS FOR THE STUDY**

The main limitation of this study is the convenient sampling technique that was used. Only personnel who were present at the time of data collection took part in the study. The number of PTP who were not present at the time of data collection had a negative effect on the population as it was already restrictive. To this effect, there was no generalization of results even though similar scenarios were expected in other parts of the country.

This study also, relied on self reported data and respondents may not have easily recalled all incidences surrounding episodes of WRMDs.

The researcher also, had a limited time period in which to carry out the project.

## **6.7 CONCLUSION**

This study revealed that WRMDs were common among physiotherapy personnel in Lusaka, Kitwe and Ndola. The study reflected that PTP in these districts suffer similar WRMDs as their counterparts elsewhere. Also, the study revealed similar work factors and coping strategies for physiotherapists around the globe. The lower back was the most frequently affected body part. Onset of symptoms for the majority was gradual and their first episode was within five years of graduation. WRMDs in this study were not related to respondents demographic characteristics, workload, sets of equipment and number of PTP in a department.

## **6.8 RECOMMENDATIONS**

This study has provided a base of data on the prevalence for work-related musculoskeletal disorders among physiotherapy personnel here in Zambia. The study also shows that though, PTP have knowledge on injuries and treatment they are as individuals not exempted from developing injuries at work. This therefore, underlines the importance of;

- i. Further research with large sample sizes to examine factors associated with WRMDs among physiotherapy personnel in this country.
- ii. Providing in-service education on safe patient handling in order to equip PTP with a range of strategies to reduce the risk of WRMDs.
- iii. Also, identifying work practices that contribute to injury with a view to formulating preventive strategies.

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## APPENDICES

### APPENDIX (I)

#### QUESTIONNAIRE:

Serial No:

#### OCCUPATIONAL HEALTH AND THE PRACTICE OF PHYSIOTHERAPY

The prevalence and factors for work-related musculoskeletal disorders (WRMDs) among physiotherapy personnel in Zambia is not documented. You are kindly requested to answer the following questions either by filling the blank or by putting a cross in the appropriate box-one cross for each question. You may be in doubt as to how to answer, but please do your best anyway. Please answer every question.

#### SECTION A.

1. Age (as at last birthday)
2. Height (m)
3. Weight (kg)
4. Gender- 1. Male  2. Female
5. (a) Year of Graduation from physiotherapy school \_\_\_\_\_  
(b) Years of Professional experience \_\_\_\_\_
6. School of physiotherapy from which qualification was obtained \_\_\_\_\_
7. Qualification (s) \_\_\_\_\_
8. Work Status in the Last 12 Months  Full Time  Part Time
9. Where do you currently practice?  Public  Private
10. What is your area of specialty?  
 Neurology  Pediatrics  General practice  Orthopedics  Others,\_\_\_
11. Please indicate your work setting.

Government hospital     Private clinic     Private hospital     Rehabilitation specialized centre.

12. Approximately how many patients do you attend to in a day?
13. Please give the approximate hours per week (HPW) you spend in direct patient care as part of your practice of physiotherapy
14. How many physiotherapists are your department?
15. How many units/sets of physiotherapy equipment are in your department?  
None     Less than 5     Five     More than 5

## SECTION B.

16. Have you ever experienced work-related pain or discomfort in any part of your body that lasted for more than 3 days in the last 12 months?

1. Yes     2. No

17. If you answered “yes” in Q16, consider the most significant work- related problem you have experienced and indicate the location? If you answered “no” in Q16 proceed to Q18.

<input type="checkbox"/> Neck	<input type="checkbox"/> Shoulders
<input type="checkbox"/> Upper Back	<input type="checkbox"/> Elbow/forearm
<input type="checkbox"/> Low back	<input type="checkbox"/> Wrists/hands
<input type="checkbox"/> Thumbs	<input type="checkbox"/> Hips/thighs
<input type="checkbox"/> Knees	<input type="checkbox"/> Ankles/feet

18. When did you first experience work-related pain or discomfort

<input type="checkbox"/> Before training as a physiotherapist	<input type="checkbox"/> As a physiotherapy student
<input type="checkbox"/> In the first 5 years after graduation	<input type="checkbox"/> 5-15 years after graduation
<input type="checkbox"/> >15 years after graduation	<input type="checkbox"/> Cannot remember

19. Was the onset: 1. Gradual     2. Sudden     3. An accident

20. Have you ever changed or modified treatment as a result of work-related discomfort?

1. Yes       2. No

21. Have you changed the area/ specialty in which you practice as a result of work-related discomfort?

1. Yes       2.No

22. If the answer is yes, what did you change from?

- From \_\_\_\_\_
- And to \_\_\_\_\_

23. Have you undergone ergonomics training in ways to alter your environment to reduce strain on your body?

1. Yes       2. No

24. Which of the following do you use to reduce to the strain on your body when working?

Adjustable bed/plinth      Stool/chair      Splint      Other

## SECTION C

### JOB TASKS

25. This list describes factors that could contribute to work related discomfort or injury. In your opinion, how have the following factors contributed to your work-related discomfort or injury? Tick what is applicable to you.

S/no	Risk factors	(1)Never	(2)Sometime	(3)Often	(4)Always
1	Performing the same task over and over				
2	Treating a large number of patients in one day				
3	Not enough rest				

	breaks during the day				
<b>4</b>	Performing manual techniques (Jt or soft tissue mobs)				

<b>5</b>	Working in cramped positions				
<b>6</b>	Working in the same position for long periods (standing, bend )				
<b>7</b>	Bending or twisting back in an awkward way.				
<b>8</b>	Reaching or working away from your body				
<b>9</b>	Unanticipated sudden movement or falls by patient				
<b>10</b>	Assisting patient during gait training				
<b>11</b>	Lifting or transferring dependent patients				
<b>12</b>	Working with confused or agitated patients				
<b>13</b>	Lifting heavy materials or equipment				
<b>14</b>	Working at or near your physical limits				
<b>15</b>	Continuing to work when injured or hurt.				

<b>16</b>	Work scheduling (over time, length of workday)				
<b>17</b>	Inadequate training in injury prevention.				

**Coping Strategies:** The response to the following statements should reflect what you actually do in practice rather than what you think you should do. Please tick what is applicable to you.

26. In order to reduce the strain on my body when working

<b>S/no</b>	<b>Strategies</b>	<b>Always(1)</b>	<b>Sometime(2)</b>	<b>Never(3)</b>
1	I get someone else to help me handle a heavy patient			
2	I modify patient's position/ my position			
3	I use a different part of my body to administer a manual technique			
4	I warm up and stretch before performing manual technique.			
5	I use electrotherapy instead of manual techniques to avoid stressing an injury			
6	I pause regularly so I can stretch and change posture.			
7	I adjust plinth/bed height before treating a patient.			
8	I select techniques that will not aggravate or provoke my discomfort.			
9	I stop a treatment if it causes or aggravate my discomfort			

27. Please tick on the type of patients you usually treat.

<b>S/no</b>	<b>Patients</b>	<b>Always(1)</b>	<b>Sometime(2)</b>	<b>Never(3)</b>
1	Requires minimal or no assistance			
2	Requires moderate assistance (1 person to assist)			
3	Requires maximum assistance (2 people to assist)			

28. Can you suggest any ways in which you could better prepare for work as a physiotherapist in terms of looking after your health?

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29. Have you any other comments?

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Thank you and God bless you

## **APPENDIX (II)**

### **INFORMATION SHEET AND CONSENT FORM**

#### **INFORMATION SHEET**

##### **Dear participant,**

I am a Master of Public Health student at the University of Zambia, School of Medicine. In partial fulfilment of the programme of study students are expected to undertake research in any area of health care that will contribute to the provision of quality health care and improve on the body of knowledge.

**The aim of this study is to determine the prevalence and factors for Work-related Musculoskeletal Disorders (WRMDs) among physiotherapy personnel in Lusaka, Kitwe and Ndola districts.**

Information that will be obtained from this study will add to the existing body of knowledge in the area of clinical practice of physiotherapy. Results of this study will also be submitted to UNZA-Department of community medicine and will be made available to physiotherapy training schools (UNZA & EHC) and health policy makers.

**Voluntary participation:** Your participation in this study is purely voluntary. You are free to decline to participate or to withdraw from the study at any time if you wish to do so.

**Risks and discomforts:** There are no risks or discomforts involved in taking part in this study, except a bit of your time (about 15-30 minutes) will be taken in answering questions from the questionnaire.

**Benefits:** There are no monetary benefits that will be given in exchange for information obtained. However, taking part in this study will generate information that will be of help in physiotherapy training schools and will contribute to the provision of quality health services among health care professions.

**Confidentiality:** Pieces of information that you will give shall be handled with strict confidence. You are not required to write your name or initials on the questionnaire to give identity. However, research findings will be submitted to UNZA and released to relevant authorities but such information released will not have a direct lead to you as anonymity will be maintained.

**Clarification:** Your generous support to this study will be greatly appreciated. However, should you need any clarifications do not hesitate to contact;

**Ms. Loveness Nkhata**

University of Zambia, SOM

Department of Community Medicine

P.O. Box 50110, Lusaka.

**E-mail:** [Lnhata@yahoo.com](mailto:Lnhata@yahoo.com)

**Mobile:** +260-966-435366/ 955-435366.

You can also get in touch with the Biomedical Research Ethics Committee at UNZA on;

**The UNZA Biomedical Research Ethics Committee**

University of Zambia

Box 50110, Lusaka.

**E-mail:** [unzarec@zamtel.zm](mailto:unzarec@zamtel.zm)

**Fax:** +260- 211-250753; **Telephone:** +260- 211- 256067

**INFORMED CONSENT FORM**

**Study title: The prevalence and factors for Work-related Musculoskeletal Disorders (WRMDs) among physiotherapy personnel (PTP) in Lusaka, Kitwe and Ndola districts.**

The aim and benefits of this study have been explained to me. I am aware of my right in not taking part in the study. **I will participate in this study out of my own free will.**

Signed:.....Participant

Signed:.....Witness

Signed:.....Researcher

Date:.....

Should you need any clarifications please do not hesitate to contact;

**Ms. Loveness Nkhata**

University of Zambia, SOM

Department of Community Medicine

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**E-mail:** [Lkhata@yahoo.com](mailto:Lkhata@yahoo.com)

**Mobile:** +260-966-435366/ 955-435366.

You can also get in touch with the Biomedical Research Ethics Committee at UNZA on;

**The UNZA Biomedical Research Ethics Committee**

University of Zambia

Box 50110, Lusaka.

**E-mail:** [unzarec@zamtel.zm](mailto:unzarec@zamtel.zm)

**Fax:** +260- 211-250753; **Telephone:** +260- 211- 256067

**APPENDIX (III)**

**WORK PLAN**

**GANTT CHART**

Description of activities	Time plan												Responsible person	
	1	2	3	4	5	6	7	8	9	10	11	12		
Presentation of proposal														<b>Principle investigator</b>
presentation ethics committee														<b>Principle investigator</b>
Mobilisation of resources														<b>Principle investigator</b>
Data Collection														<b>Principle investigator</b>
Data Analysis														<b>Principle investigator</b>
Report Writing														<b>Principle investigator</b>
Submission of research project														<b>Principle investigator</b>

**APPENDIX (IV)**

**BUDGET**

<b>ITEM</b>	<b>QUANTITY</b>	<b>UNIT COST (ZMK)</b>	<b>COST (ZMK)</b>
<b>A4 BOND PAPER</b>	5REAMS	30,000	150,000
<b>PENCILS &amp; PENS</b>	20	2000	40,000
<b>PRINTING &amp; P/COPY</b>			800,000
<b>RUBBERS</b>	5	2,000	10,000
<b>RING FOLDERS</b>	5	25,000	125,000
<b>PERFORATOR</b>	1	25,000	25,000
<b>STAPLER &amp; STAPLES</b>		75,000	75,000
<b>FLASH DISKETTS</b>	3	200,000	600,000
<b>SUBTOTAL</b>			<b>1,825,000</b>
<b>INTERNET FACILITIES</b>			2,000,000
<b>PROPOSAL DRAFTING</b>			2,000,000
<b>ETHICS COMMITTEE</b>			500,000
<b>LODGE &amp; TRANSPORT</b>			5,000,000
<b>DATA ENTRY</b>			2,000,000
<b>DATA ANALYSIS</b>			2,500,000
<b>RESPONENT GRATUITY</b>			2,000,000
<b>PRE-TESTING</b>			600,000
<b>LITERATURE SUPPORT</b>			2,500,000
<b>REPORT WRITING &amp; BINDING</b>			2,000,000
<b>SUBTOTAL</b>			<b>22,925,000</b>
<b>CONTINGENCY FUND 10% of Total Budget.</b>		2,292,500	2,292,500
<b>TOTAL AMOUNT</b>			<b>25,217,500</b>

**APPENDIX (V)**

**REQUEST FOR PERMISSION (INSTITUTIONAL LETTER)**

The University of Zambia - SOM  
Department of Community Medicine  
P.O.BOX 50110  
LUSAKA.  
January, 2010.

The Managing Director  
University Teaching Hospital  
P.O. Box 50001  
Lusaka.

U.F.S. The Head Department of Community Medicine UNZA.

Dear Sir,

**RE: REQUEST TO COLLECT RESEARCH PROJECT INFORMATION**

I am a Master of Public Health student at the University of Zambia, School of Medicine. In partial fulfillment of the requirements of this program, I am required to conduct a research study.

The aim of my study is; **To determine the prevalence and factors for Work-related Musculoskeletal Disorders (WRMDs) among physiotherapy personnel in Lusaka, Kitwe and Ndola districts.**

I therefore, request your permission to collect information among physiotherapy personnel in your reputable institution

Your favorable response will be greatly appreciated.

Yours faithfully,

Loveness Nkhata.

**MPH STUDENT 2009/2010**



THE UNIVERSITY OF ZAMBIA  
SCHOOL OF MEDICINE

Telephone: 252641  
Telegram: UNZA, Lusaka  
Telex: UNZALU ZA 44370  
Email: kbowa@yahoo.com

P.O. Box 50110  
Lusaka, Zambia

=====

22<sup>nd</sup> February, 2010

Ms Loveness Nkhata  
Department of Community Medicine  
LUSAKA

Dear Ms Nkhata,

**Re: GRADUATE PROPOSAL PRESENTATION FORUM**

Following the Graduate Proposal Presentation Forum (GPPF) which was held on Thursday, 11<sup>th</sup> February, 2010 in the Main Lecture Theatre (UTH) at 14:00 hours; we wish to inform you that your research proposal titled: **“Prevalence and Risk Factors for Work – Related Musculoskeletal Disorders among Physiotherapy Personnel in Lusaka, Kitwe and Ndola”** was approved by the Board of Graduate Studies of the School of Medicine. The assessors gave you a mark of 75%.

The study is judged as a pass.

Mr. K. Bowa, MSc, M.Med, FRCS, FACS, FCS (Urol)  
**ASSISTANT DEAN, POSTGRADUATE**

CC: Director, Graduate studies  
Dean, School of Medicine  
Head of Department – Community Medicine



## THE UNIVERSITY OF ZAMBIA

### BIOMEDICAL RESEARCH ETHICS COMMITTEE

Telephone: 260-1-256067  
Telegrams: UNZA, LUSAKA  
Telex: UNZALU ZA 44370  
Fax: + 260-1-250753  
E-mail: unzarec@unza.zm

Ridgeway Campus  
P.O. Box 50110  
Lusaka, Zambia

**Assurance No. FWA0000338**  
**IRB00001131 of IORG0000774**

10 June, 2010  
Ref.: 023-05-10

Ms Loveness A. Nkhata  
Department of Community Medicine  
University Teaching Hospital  
P/Bag RW1  
LUSAKA

Dear Ms Nkhata,

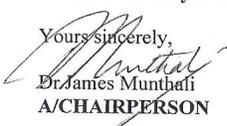
RE: SUBMITTED RESEARCH PROPOSAL: "THE PREVALELNC E AND FACTORS FOR WORK RELATED MUSCULOSKELETAL DISORDER AMONG [HYSIONTHERAPY PERSONNEL IN LUSAKA, KITWE AND NDOLA]"

The above-mentioned research proposal was presented to the University of Zambia Biomedical Research Ethics Committee where changes/clarifications were recommended. We would like to acknowledge receipt of the corrected version with clarifications. The proposal is now approved.

#### CONDITIONS:

- This approval is based strictly on your submitted proposal. Should there be need for you to modify or change the study design or methodology, you will need to seek clearance from the Research Ethics Committee.
- If you have need for further clarification please consult this office. Please note that it is mandatory that you submit a detailed progress report of your study to this Committee every six months and a final copy of your report at the end of the study.
- Any serious adverse events must be reported at once to this Committee.
- Please note that when your approval expires you may need to request for renewal. The request should be accompanied by a Progress Report (Progress Report Forms can be obtained from the Secretariat).
- Ensure that a report on the findings is submitted to this Committee.
- **Ensure that you submit the final report of the study to this Committee**

Yours sincerely,

  
Dr. James Munthali  
A/CHAIRPERSON

Date of approval: 10 June, 2010

Date of expiry: 9 June, 2011