



**THE UNIVERSITY OF ZAMBIA**  
**SCHOOL OF MEDICINE**

Effect of Low Back Pain on Activities of Daily Living in Patients  
Seen at the University Teaching Hospital, Lusaka, Zambia: A  
Cross- Sectional Study Using the Oswestry Disability Index

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In Orthopaedics and Trauma Surgery of the University Of Zambia

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## **DECLARATION**

I hereby declare that this dissertation entitled “effect of low back pain on activities of daily living in patients seen at University Teaching Hospital; Lusaka, Zambia: a cross-sectional study using the Oswestry Disability Index” represents my own work and has not been presented either wholly or in part for a degree at the University of Zambia or any other University elsewhere.

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**CERTIFICATE OF APPROVAL**

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## **ABSTRACT**

**Background:** Low back pain (LBP) is an important cause of disability and work absenteeism. World health organization defines Disability as impairment of activity-limitations, participation restriction. The majority of low back pain stems from benign musculoskeletal problems and it is referred to as non-specific low back pain; this type may be due to muscle or other soft tissue sprain or strain. Over 99% of back pain fall within this category. Oswestry Disability Index (ODI) was used to evaluate the quality of life in individuals with low back pain.

**Objectives:** To establish the effect of low back pain on daily living activities among the patients seen at University Teaching Hospital, Orthopedics clinic, Lusaka, Zambia using the Oswestry Disability Index.

**Methodology:** This was the cross sectional study that was conducted at University Teaching Hospital, Orthopaedic clinic. A total of 167 patients were enrolled both female and male, and evaluated using ODI. Sex, height, weight, age and occupation were used as independent variables. ODI questionnaires were used as an instrument for collecting data.

**Results:** 37% of the patients were males and 63% females. It was found that among the variables; sex, height, weight, age and occupation, occupation was significant in association with low back pain. It revealed that 75% of patients with severe low back pain were from informal sector of occupation while 18% were from formal sector. Additionally, it was also noted that those with high BMI regardless of gender had more disability due mechanical low back pain as compared to those with low BMI.

**Conclusion:** The results showed that there is an association between occupation and ODI. 75% of the candidates with mechanical low back pain were in informal sector and 18.8% were in formal. Furthermore, males were more severely affected than females. Additionally, obesity revealed more disability as compared to those patients with normal weight.

## **DEDICATION**

I am highly indebted to my wife Dorothy and my brother Cliff for giving both spiritual and moral support during the preparation and writing of this dissertation. Thank you very much.

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## **ABBREVIATIONS AND ACRONYMS**

LBP	–	Low Back Pain
WHO	–	World Health Organization
ODI	–	Oswestry Disability Index
UTH	–	University Teaching Hospital
Ss	–	Sample size
SPSS	–	Software Package for Social Sciences
BMI	-	Body Mass Index
UNZA	-	University Of Zambia
SD	-	Standard Deviation

## CHAPTER ONE

### **1.1 Introduction;**

Low back pain (LBP) is an important cause of disability and work absenteeism (Anderson, 1999). Approximately 60—80% of the population will have at least one episode of LBP and related conditions in some moments of their lives (Frymoyer et al, 1983). In the United Kingdom, the rate prevalence of LBP in adults is estimated at 19%, while in Canada it was reported as 28.7% (Loney and Stratford, 1999). World Health Organization (WHO) defines disability as impairment, activity limitations, participation restriction (WHO, 2001). The majority of lower back pain stems from benign musculoskeletal problems, and it is referred to as non-specific low back pain; this type may be due to muscle or other soft tissue sprain or strain, particularly in instances where pain arose suddenly during physical loading of the back. Over 99% of back pain fall within this category (Henschke et al, 2009).

To evaluate the quality of life in individuals with LBP the Oswestry Disability index (ODI) is one of common instruments (Davison and Keating, 2002; Fairbank et al, 1980). Patients with acute low back pain and associated disability improve rapidly within one month. Further improvement is apparent until about three months. However, pain and disability remain ongoing and recurrences are common (Pengel et al, 2003). This study used the ODI to assess the effect of low back pain on activities of daily living.

## **1.2 Literature review**

Back pain is pain felt in the back that usually originates from the muscles, nerves, bones, joints and other related structures in the spine. The spine is a complex interconnecting network of nerves, joints, muscles, tendons and ligaments; all are capable of producing back pain. Large nerves that originate from the spine and go to the legs and arms can radiate pain to the extremities.

In the United States of America (U.S.A), for example, acute low back pain is the fifth most common reason for physician visits (Patel Ogle et al, 2007). About nine out of ten adults experience back pain at some point in their life, and five out of ten working adults have back aches every year. This is a job-related disability, a leading contributor to missed work, and the second most common neurological ailments from headache see as above.

Many environmental and personal factors influenced the outset and course of low back pain. Studies have found that the incidence of low back pain is highest in the third decade and overall prevalence increases with age until the 60 – 65 year age group and then gradually declines (White and Gordon, 1982).

Other commonly reported risk factors include low educational status, stress, anxiety, depression, job dissatisfaction, low levels of social support in the work place and whole body activities (Hoy et al, 2010). A study on disability associated with low back pain in Mulago Hospital, Kampala, Uganda was carried out and a Validated Modified Oswestry instrument was used to collect data (Galukande et al, 2006). Results revealed that 87% of the respondents reported a mean of 14 days off work during the 4 week prior to interview of back problems (Galukande et al, 2006).

All activities were interfered with: lifting was the most affected with a mean score of 4.5, walking and running was 3.6, standing was 3.3, sex life was 2.9, travelling was 2.9, sitting was 2.7, social and recreation activities was 2.7, getting dressed was 2.1 and sleeping was 1.8. The conclusion was that low back pain is a significant cause of disability of daily activities (Galukande et al, 2006).

A few observational studies suggest that two conditions to which back pain is often attributed, lumbar disc herniation and degenerative disc disease may not be more prevalent among those in pain than among the general population, and that the mechanisms by which these conditions might cause pain are not known (Borenstein et al, 2001). While other studies suggest that for as many as 85% of cases, no physiological cause can be shown (White and Gordon, 1982). According to Friedman et al (2006), use of medications in chronic back pain is controversial. However, short term use of muscle relaxants is effective in pain relief of acute back pain. Opioids have not shown to be better than placebo for chronic back pain. Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) have shown to be more effective than placebo, but have not been shown to be more effective than paracetamol. Additionally, there has been insufficient clinical trials to determine if injection therapy e.g. corticosteroids, helps in cases of low back pain. A study of intramuscular steroids found no benefit.

Exercises can be an effective approach to reducing pain e.g. some form of stretching is believed to be an essential component in treatment of low back pain (Hayden et al, 2005).

Therefore, this study sought to establish to what extent low back pain affects daily living activities such as walking, standing, sitting, sleeping, sex, social life and travelling in patients with LBP at UTH, Lusaka, Zambia.

### **1.3 STUDY JUSTIFICATION**

Out of 5819 of the patients seen at out- patient orthopaedic clinic, 408 come with complaints of low back pain of unknown origin.

Every clinic day, patients seen earlier with low back pain come for reviews with no significant change in pain pattern. These patients are frequently given sick off, analgesia and physiotherapy but these give temporal relief. The study of low back pain and how it affects daily living activities is necessary to be done at University Teaching Hospital and that will help quantify the burden of low back pain and perhaps open up further studies.

In the US mechanical low back pain is most common cause of work related disabilities for persons aged less than 45yrs. While there's no mortality associated with mechanical low back pain , morbidity in terms lost productivity ,use of medical services and cost to society is high, total workers compensation costs for cases occurring in 1989 in the US amounted to \$11.4 billion, making it the mostly costly ailment for working age adults (Hills Everett, 2005). However, in Latin America it presents a serious public health problem too (Nordia et al, 2000). However, work related disability due to low back pain in Zambia has not been documented. Hence the need to study the disability caused by LBP in a Zambian population.

#### **1.4. RESEARCH QUESTION**

To what extent does mechanical low back pain affect activity of daily living in patients seen at UTH?

## **CHAPTER TWO**

### **2.1. General objective**

To establish the effect of mechanical low back pain on the daily living activities among the patients seen at the University Teaching Hospital, Orthopaedic clinic, Lusaka, Zambia using the Oswestry Disability Index.

### **2.2. Specific objectives**

1. To determine to what extent, low back pain affects the patients' daily living activities as measured by the Oswestry Disability Index.
2. To determine the prevalence of mechanical low back pain at the UTH orthopaedic clinic.
3. To establish association between socio-demographics and disabilities of patients with low back pain.



## CHAPTER THREE

### 3.1. RESEARCH METHODOLOGY

**Study designs:** This was a Cross – Sectional descriptive study that was carried out at the University Teaching Hospital, Orthopaedic Clinic between February and July, 2015.

A researcher administered questionnaire was used as the research tool.

**Target population;** all patients seen at outpatient orthopaedic clinic,UTH, with low back pain as the main complaint.

Age, sex, weight, height and occupation were the independent variables used.

**Study population;** all the patients that come to the orthopaedic clinic with low back pain and meet the inclusion criteria

### 3.2. Inclusion Criteria

1. Mechanical low back pain for at least six months (with or without referred pain)
2. Age between 18 and 55 years old
3. Patients able to travel independently to hospital
4. Patients without a diagnosed medical condition that may explain the low back pain.
5. Plain X ray examination of the lumbar spine within the past year
6. Those that consented to inclusion in the study.

### 3.3. Exclusion Criteria

1. Younger than 18yrs
2. Other musculoskeletal disabilities –e.g. congenital spinal defects
3. Major surgery (abdominal and spinal surgery) within the past year

4. Renal pathology
5. Pregnancy or known / gynaecological condition
6. Refusal to consent to inclusion in the study

### **3.4. Instruments;**

The Oswestry Disability Index instrument was used. It involved use of an Oswestry index questionnaire which has 10 activities e.g. are; sleep, sex, lifting, travelling, sitting, standing, walking, and social and recreation, pain intensity.

2. Each question had a 6 point item system, for example, with this kind of general description:
  1. Doing the activity in question without any pain
  2. Without increase in present pain
  3. Activity done but pain increase
  4. Activity done but with significant pain
  5. Activity done but with very severe pain
  6. Activity cannot be done at all

The closer the score is to 1, the lesser the disruption of the activity in question. The closer it is to 6, the greater the disruption or interference to daily livelihood.

### **3.5. Sampling and sample size**

The sampling method was the convenience sampling method. Candidates were enrolled in the study on voluntary basis. The confidence level was set at 95% or P – value was considered statistically significant if it is equal or less than 0.05 ( $p=$  or  $< 0.05$ )

### 3.6. Sample size:

$$Ss=z^2xp(1-p)/E^2$$

Z= confidence level which is 95% that refers to the degree of certainty/accuracy and is fixed constant of 1.98

P= the prevalence of condition in the community being studied-expressed as 0.5

(If undetermined 50% is commonly used)

E=confidence interval =refers to the accuracy range, the power of study 0.05(+/-5)

X =multiplication sign

### Data collection /analysis;

The Oswestry low back pain disability questionnaire will be used. From the questionnaire you only get the item describing your disability. If the limitations fill- in between two questions, pick the higher point value question. Then add up your points from each question are added up and divided by 50, and multiply by 100 to get the percentage disability.

Scoring: - 0% - 20% = minimal disability

21 – 40% moderate disability

41 – 60% severe disability

61 – 80%: crippled

-81 – 100% - bed bound (moribund patients)

### 3.7. Variables;

Independent	Dependent
Age	ODI
Sex	Back pain
Weight	
Height	
Occupation	

An Oswestry instrument was used to collect data.

Data was analyzed using fisher' exact test

SPSS for windows version 20 for computation

### **3.8. ETHICAL CONSIDERATION**

In carrying out this research paramount consideration was exercised with regard to Patient /client confidentiality. Consent was obtained from the participants prior to their enrolment into the study. And furthermore approval was sought between Surgery Department and UNZABREC.

## CHAPTER FOUR

### 4.0 Results

This chapter presents the results of the study and should be mentioned outright that all population pain studies are based entirely on the subjects' report and there is no objectivity and no pathological information for comparison.

### 4.1 Demographic characteristics of the patients

A hundred and sixty-seven patients were involved in this study. Figures 1-5 present the demographic characteristics of the patients. One hundred and six (63.5%) were females and 61 (36.5%) were males. Fourteen (8.4%) patients were aged 18-26 years, 33 (19.8%) were aged 27-35 years; 52 (31.1%) were aged 36-44 years; and 68 (40.7%) were aged 45 and above. The minimum age was 18, the maximum age was 56, and the average age was 41 (SD=9.574). Sixty-five (38.9%) were 1.60m and below tall; 65 (38.9%) were 1.61-1.70m tall; and 65 (38.9%) were 1.71-1.90m tall. The minimum height was 1.32m, the maximum height was 1.90m, and the average height was 1.6m (SD=0.8974). Eighty-two (49.1%) patients weighed between 40-69kg Fifty-eight (34.7%) patients weighed 70-84kg ; 25 (15%) patients weighed 85kg and above .The minimum weight was 40kg ,the maximum was 115kg , and the average weight was 70.2kg (SD=14.43196) . Fifty-two (31.1%) patients were in the formal sector, 106 (63.5%) were in the informal sector, and 9 (5.4%) were students.

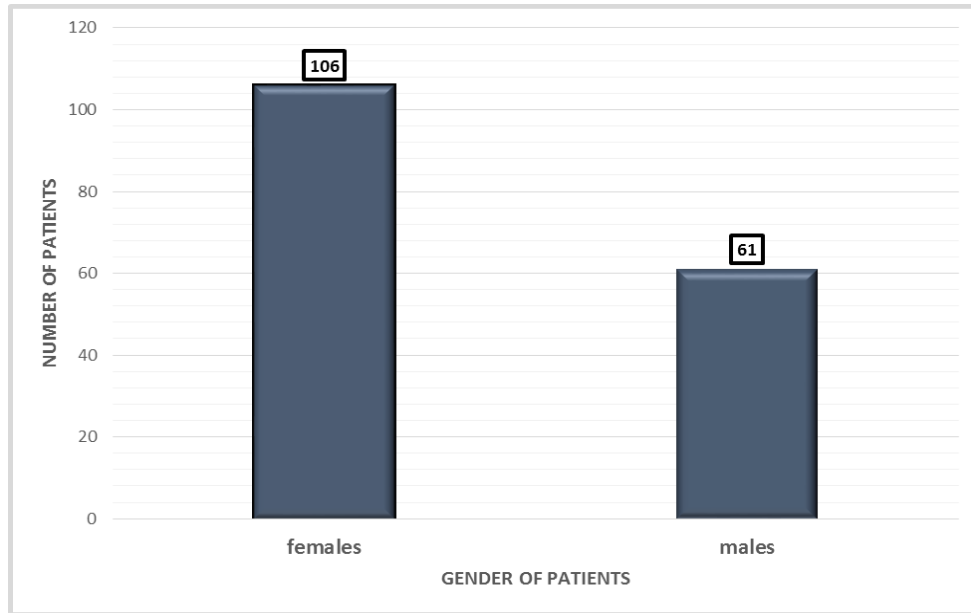


Figure 1: Gender of patients

The figure above represents the gender of patients interviewed in the Orthopaedic clinic. 106 were females and 61 were males.

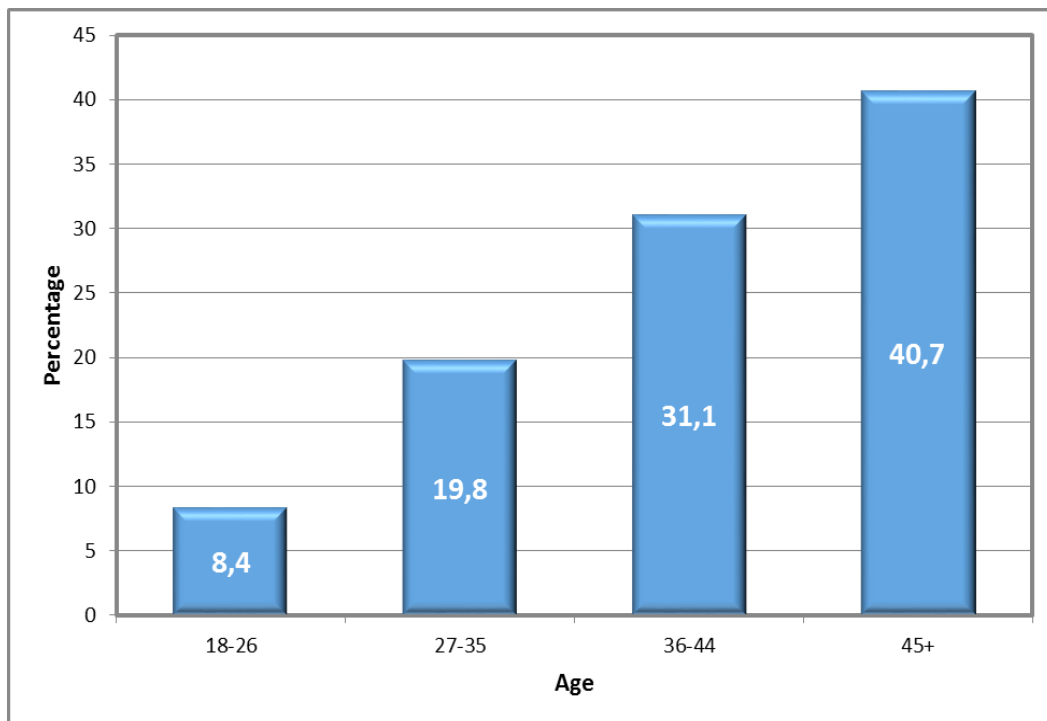


Figure 2: Age of patients

Figure 2; above represents the age of patients from 18years as minimum age and 56 years as maximum age. Mean age being 41 (SD=9.574)

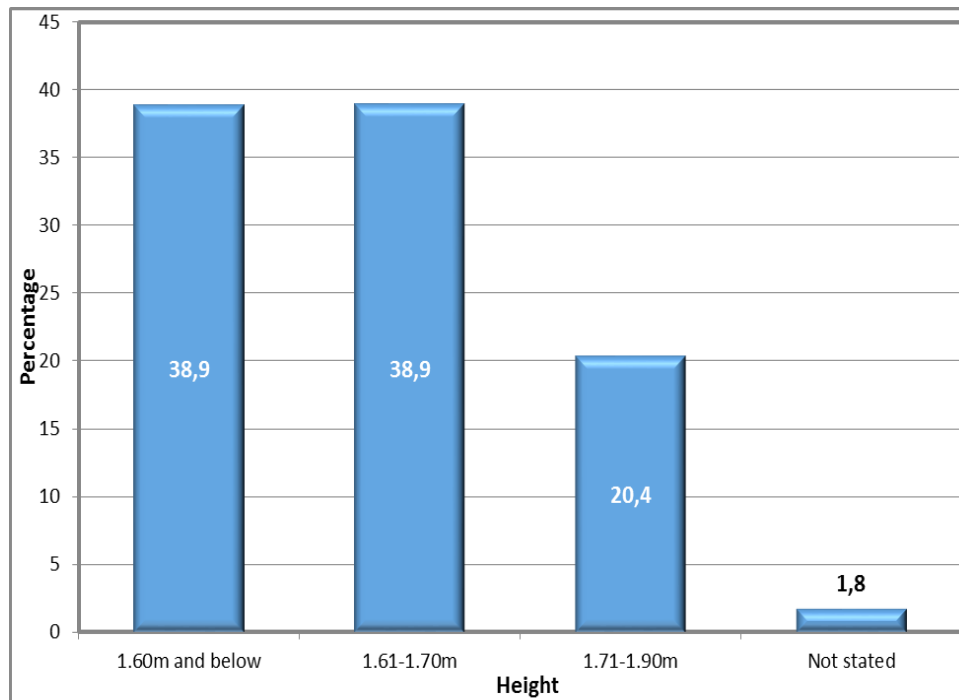


Figure 3: Height of patients (meters)

Figure 3; above shows the heights in meters of the patients. The minimum height was 1.32m and maximum height was 1.90m. Mean height was 1.6m (SD=0.8974).

Figure 4; below represents the weights of the patients. The minimum weight was 40kg and the maximum weight was 115kg. The mean weight was 70.2kg (SD=14.43196).

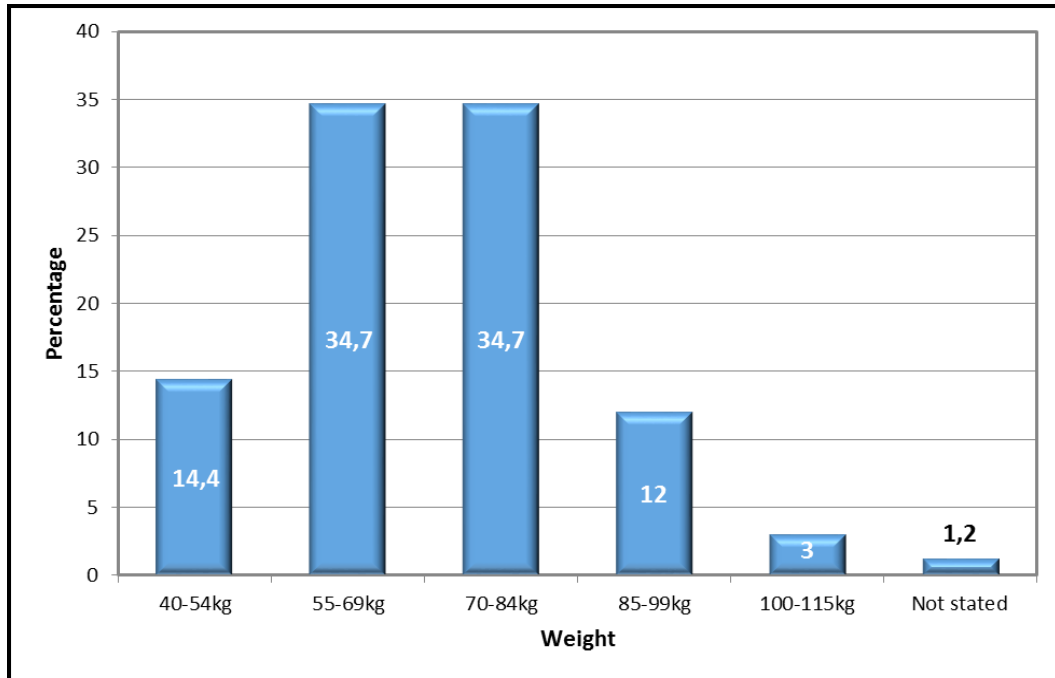


Figure 4: Weight of patients

Figure 5; below shows the occupation of patients. Fifty two (31.1%) patients were in the formal sector, 106 (63.5%) were in the informal sector, and 9 (5.4%) were students (others).



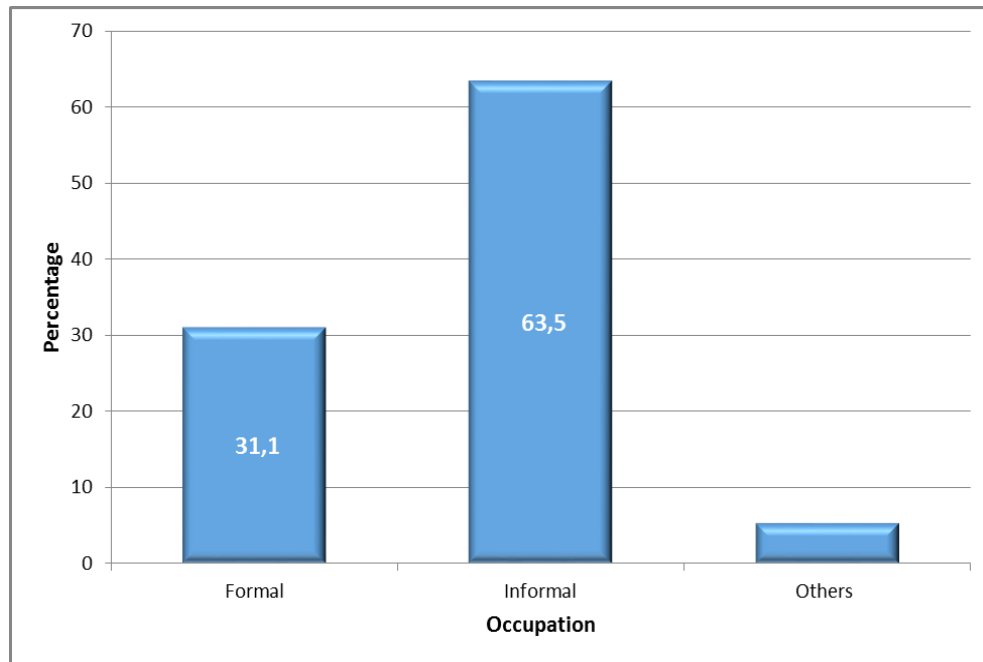


Figure 5: Occupation of patients

#### 4.2. Burden of low back pain at the UTH Orthopaedic Clinic

The findings revealed that out of 5819 cases seen at Clinic 3 during the six months period of data collection for this study, 408 were back pain. Therefore, low back pain constituted 7.0% of the disease burden at Clinic 3 (Figure 6).

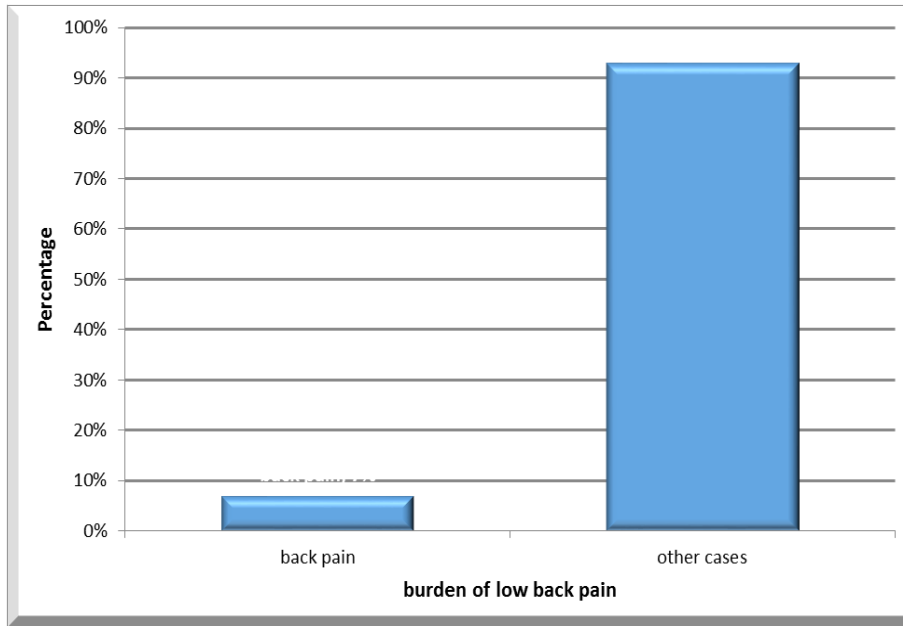


Figure 6: Burden of low back pain at UTH in the past six months

#### 4.3 The extent to which low back pain affects patients' daily living activities

Figure 7 below shows the extent to which low back pain affects patients' daily living activities, as measured by ODI. Eighteen (11%) patients were experiencing minimal disability; 73 (44%) patients were experiencing moderate disability; 48 (29%) patients were experiencing severe disability; 24 (14%) patients were crippled; and 4 (2%) patients were bed bound (moribund).

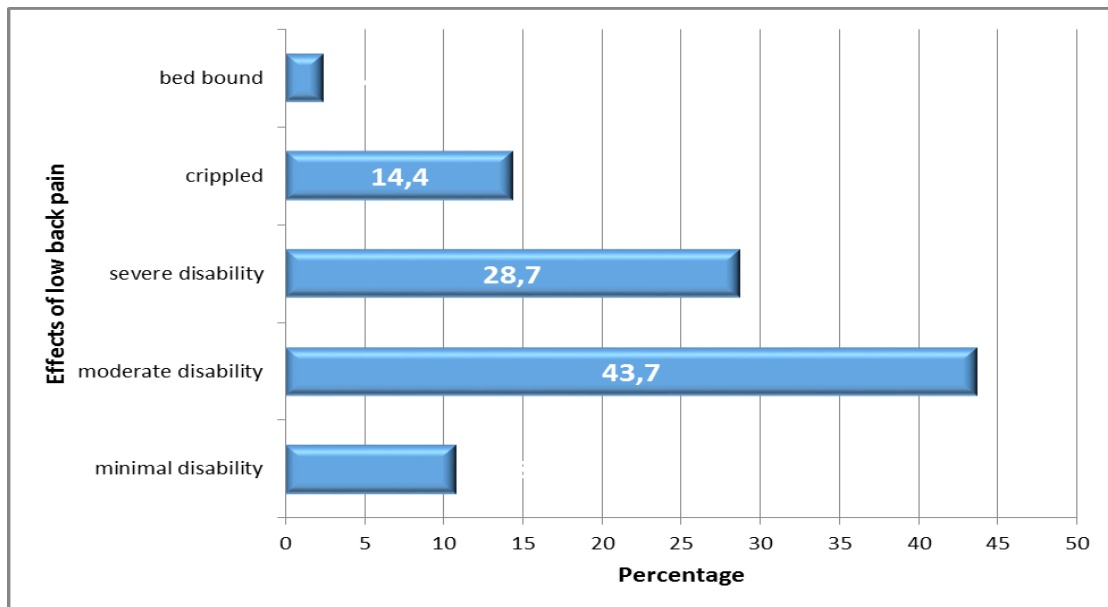
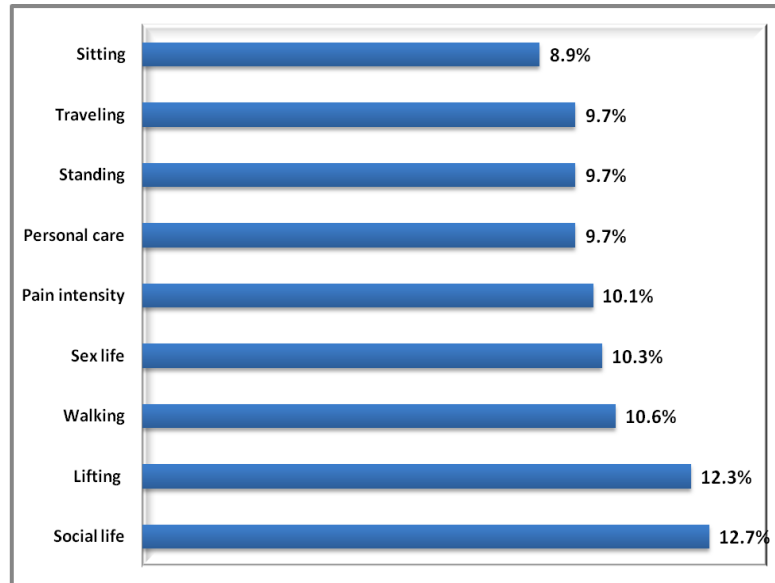


Figure 7: Extent to which low back pain affects daily living activities

Visual analogue scale (VAS) was used to measure the intensity of pain of the patients on daily living activities. Figure 8 reveals that the disability areas that were reported in the pretreatment period were social life (12.7%), lifting (12.3%), walking (10.6%), sex life (10.3%), pain intensity (10.1%), personal care (9.7%), standing (9.7%), traveling (9.7%), and sitting (8.9%).



**Figure 8: Effects of low back pain on specific activities**

#### **4.4 Association between socio-economic demographics and disabilities of patients with low back pain**

Fishers' Exact tests were conducted to establish whether there were any associations between socio-economic demographics and disabilities of patients with low back pain. The tests were conducted at a significance level of 0.05. The dependent variable was ODI scores while the independent variables were sex, age, weight, height, and occupation. The results are summarized in Table 2 below. The results were not significant with regard to sex ( $\chi^2 = 3.515$ ;  $df=3$ ;  $p=0.327$ ) and age ( $\chi^2 = 11.846$ ;  $df=9$ ;  $p=0.201$ ). The results were significant with regard to occupation ( $\chi^2 = 16.487$ ;  $df=6$ ;  $p=0.006$ ) and BMI ( $\chi^2 = 14.992$ ;  $df=9$ ;  $p=0.035$ ). Furthermore, patients who were obese suffered more severe disabilities and more were crippled or moribund.

**Table 1: Fishers' Exact Tests results on association between demographic factors and disabilities**

Independent variable	Fishers' Exact test value	df	P Value
Sex	3.515	3	.327
Age	11.846	9	.201
BMI	14.992	9	.035
Occupation	16.487	6	.006

Table 2. Below; the results showed that patients in the informal sector suffered more severe disabilities and more were crippled or moribund than patients in the formal sector

Table 2; Further analyses revealed that out of the 48 patients who suffered severe disabilities due to low back pain, 36 (75.0%) were from the informal sector while only 9 (18.8%) were from the formal sector . Furthermore, out of the 4 patients who suffered severe disabilities due to low back pain, 3 were from the informal sector while only 1 was from the formal sector

**Table 2: ODI Score vs. Occupation**

		Occupation			Total
		formal	informal	Others	
minimal disability	Count	3	13	2	18
	% within ODI Score	16.7%	72.2%	11.1%	100.0%
	% within Occupation	5.8%	12.3%	25.0%	10.8%
	% of Total	1.8%	7.8%	1.2%	10.8%
moderate disability	Count	34	36	3	73
	% within ODI Score	46.6%	49.3%	4.1%	100.0%
	% within Occupation	65.4%	34.0%	37.5%	44.0%
	% of Total	20.5%	21.7%	1.8%	44.0%
severe disability	Count	9	36	3	48
	% within ODI Score	18.8%	75.0%	6.2%	100.0%
	% within Occupation	17.3%	34.0%	37.5%	28.9%
	% of Total	5.4%	21.7%	1.8%	28.9%
crippled	Count	5	18	0	23
	% within ODI Score	21.7%	78.3%	0.0%	100.0%
	% within Occupation	9.6%	17.0%	0.0%	13.9%
	% of Total	3.0%	10.8%	0.0%	13.9%
bed bound	Count	1	3	0	4
	% within ODI Score	25.0%	75.0%	0.0%	100.0%
	% within Occupation	1.9%	2.8%	0.0%	2.4%
	% of Total	0.6%	1.8%	0.0%	2.4%
Total	Count	52	106	8	166
	% within ODI Score	31.3%	63.9%	4.8%	100.0%
	% within Occupation	100.0%	100.0%	100.0%	100.0%
	% of Total	31.3%	63.9%	4.8%	100.0%

## CHAPTER FIVE

### Discussion

#### 5.1. Demographic characteristics of the patients

All population studies are based on entirely on the subjects' self-report and there is no objectivity or pathological information for comparison. In this study a hundred and sixty-seven patients were enrolled. Of these 63.5% were female while 36.5% were male, therefore, more females than males. However, there are no studies that show or explain why there preponderance of females with low back pain as disability. The age range was between 18years and 56years. Studies have shown that the incidence of low back pain is highest in the third decade and overall prevalence increases with age until the 60-65 year age group (White and Gordon, 1982). Therefore, in this study, it has shown that 71.8% of cases LBP were 36years and above. Fifty-two (31.1%) patients were in formal sector, 106 (63.5%) were in informal sector and 9 (5.4%) were students. It has been reported that other risk factors for disability due to LBP include low education status, stress, anxiety, depression, job dissatisfaction, low levels of social support in work places and whole body activities (Hoy et al, 2010). And in this study, it has been shown that more patients with LBP are in informal sector.

#### 5.2. Burden of mechanical low back pain at the UTH Orthopaedic clinic

The findings revealed that out of 5819 cases seen at clinic 3 during the six months period of data collection for this study 408 were mechanical low back pain. Therefore, low back pain constituted 7.0% of the disease burden at clinic 3. This is a large number in terms morbidity and disruption of daily activities including cost of lost work time and materials used during treatments.

#### 5.3. The extent to which low back pain affects patients' daily living activities

Figure 7 shows the extent to which low back pain affects patients' daily living activities, as measured by ODI. Eighteen (10.8%) patients were experiencing minimal disability; 73 (43.7%) patients were experiencing moderate disability; 48 (28.7%) patients were experiencing severe disability; 24 (14.4%) patients were crippled; and 4 (2.4%) patients

were bed bound (moribund). It further shows that more half of patients seen fell between moderate to severe disability.

**Figure 8** .Visual analogue scale (VAS) was used to measure the intensity of pain of the patients on daily living activities. Figure 8 reveals that the disability areas that were reported in the pretreatment period were social life (12.7%), lifting (12.3%), walking (10.6%), sex life (10.3%), pain intensity (10.1%), personal care (9.7%), standing (9.7%), traveling (9.7%), and sitting (8.9%). Among the activities that were affected most are sex life, walking, lifting, and social life. According to Galukande et al ( 2006) , all activities were interfered with ; lifting was the most affected with score of 4.5 ,walking and running was 3.6, standing was 3.3, sex life was 2.9, sitting was 2,social and recreation was 2.7, getting dressed was 2, sleeping was 1. In this study it has been clearly demonstrated that the activities that were mostly affected were sex life, walking, lifting and social life.

#### **5.4. Association between socio-economic demographics and disabilities of patients with low back pain**

Fishers' Exact tests were conducted to establish whether there were any associations between socio-economic demographics and disabilities of patients with low back pain. The tests were conducted at a significance level of 0.05. The dependent variables were LBP and ODI scores while the independent variables were sex, age, weight, height and occupation. Weight and height were taken as BMI. The results in table 1, established that sex and age were not significant. The results were significant with regard to occupation and Body Mass Index. The results in table 2 showed that patients in the informal sector suffered more severe disabilities and more were crippled or moribund than patients in the formal sector. Further analyses revealed that out of the 48 patients who suffered severe disabilities due to low back pain, 36 (75.0%) were from the informal sector while only 9 (18.8%) were from the formal sector. Furthermore, out of the 4 patients who suffered severe disabilities due to low back pain, 3 were from the informal sector while only 1 was from the formal sector. It has been reported that other risk factors for disability due to LBP include low education status, stress, anxiety, depression, job dissatisfaction, low levels of social support in work places and whole

body activities (Hoy et al, 2010). Therefore, in this study it has been established that patients in informal employment suffered severe disabilities due to LBP than those in formal employment. Furthermore, patients who are obese suffered more severe disabilities than those within normal BMI.

## **CHAPTER SIX**

### **6.1. CONCLUSION**

In this study it was found that mechanical lower back pain was a significant cause of disability, particularly those patients in informal occupations and obese in their productive years of adult life .Among the ten daily living activities it was shown that sex life, walking, lifting and social life were the most affected activities. It has also been shown from the study that the prevalence of low back pain is high at UTH Orthopaedic clinic as compared to other ailments

### **6.2. LIMITATIONS:**

When using the questionnaire, some respondents opted not answer questions about sex because felt embarrassed or uncomfortable. On recreation other patients thought the question was inappropriate because they don't do such activities.

Since this study was volunteer based, it was difficulty to collect the projected number of patients in six months period of data collection.

### **6.3. RECOMMENDATIONS:**

From this study the following recommendations are made:

More studies of this nature should be carried out to focus more on the cost of lost worktime and to look at better treatment modalities.

Among other instruments that are used to assess the quality of life e.g. Roland-Morris Disability questionnaire, I recommend a study in future which will compare Roland-Morris and ODI.



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## APPENDICES

## APPENDIX 1

### Consent form

I have read the information provided concerning this study, or I have had it read out to me. I was given a chance to ask questions about it and it was explained to me clearly. I, therefore, consent voluntarily to participate in this research.

**Name of participant** \_\_\_\_\_

**Signature/thumb print of participant** \_\_\_\_\_

**Date** \_\_\_\_ / \_\_\_\_ / \_\_\_\_\_

**Name of researcher** \_\_\_\_\_

**Signature of researcher** \_\_\_\_\_

**Date;** \_\_\_\_ / \_\_\_\_ / \_\_\_\_\_

## APPENDIX 2

### INFORMATION SHEET

**TITLE OF RESEARCH : Effect of low back pain on activities of daily living in patients seen at University Teaching Hospital, Lusaka, Zambia: - A cross-sectional study using Oswestry Disability Index.**

#### **Introduction**

My name is Dr Owen ngwata; I'm a final year student studying for a Master of Medicine Degree in Orthopaedic Surgery. This study aims to use Oswestry Disability Index to assess the effect of low back pain on activities of daily living.

This questionnaire has 10 items that includes characteristics such as sex, standing, walking, sleeping, travelling, lifting, personal care, social life and pain.

#### **Purpose of the study**

The purpose of this study is to use this tool to determine how low back pain affects the activities of daily living in patients seen in UTH.

#### **Study procedures**

If you consent to enter the study you will be given a questionnaire from which you indicate the characteristic that appropriately correlates with your feeling. You will then be regularly followed up as you come for reviews.

#### **Risks**

There is no risk involved in study as it involves noninvasive procedures. But should you be unwilling to answer some of the questions you can do so without this jeopardizing the treatment you receive from the clinic.

#### **Benefits**

If you enroll in the study, there will be some benefit accrued to you in that care and follow up will be individualized.

#### **Confidentiality**

The information collected in the study will be kept confidential. Your name will not be used in any records pertaining to this study. You will be identified by a number that will only be known to me as the Principal Investigator.

**Withdrawing from the study**

You are free to withdraw from the study and that has no consequence regarding treatment whatsoever.

**Cost of participation**

There will be no cost for being part of the study. You will not be expected to come for unscheduled visits and you not be kept longer in the clinic than you normally would.

**Payment for research related injuries**

As mentioned earlier, the study is noninvasive and therefore no injuries will be expected.

**Persons to contact for questions**

If there is any doubt about the study you can contact Dr. Owen Ngwata Department of Surgery Orthopaedic unit P/B RW1, UTH, Lusaka.Cel. 0975762554.

Or the secretary to Research and Ethics Committee (UNZABREC) Box 50110, Lusaka, Zambia; Tel 256067 email [unzarec@unza.zm](mailto:unzarec@unza.zm).

## APPENDIX 3

### QUESTIONNAIRE

#### INSTRUCTIONS

This questionnaire will be self and assistant administered and different languages will be used. Please answer by checking ONE box in each section for the statement which best applies to you. We realize you may consider that two or more statements in any section apply but please just shade out the spot that indicate the statement which most describes your problem.

Age/ Sex.....Weight.....Height.....

Occupation.....

How long have you been sick...?

How many times have you been on sick leave in the last 6 months?

#### **Section 1- pain intensity**

1. I have no pain at the moment
2. The pain is very mild at the moment
3. The pain is moderate at the moment
4. The pain is fairly severe at the moment
5. The pain is very severe at the moment
6. The pain is the worst imaginable at the moment

#### **Section 2- personal care (washing, dressing etc).**

1. I can look after myself normally without causing extra pain
2. I can look after myself normally but it causes extra pain
3. It is painful to look after myself and I am slow and careful
4. I need help every day but manage most of my personal care
5. I need help every day in most aspects of self-care
6. I do not get dressed, I wash with difficulty and stay in bed

### **Section 3**

1. I can lift heavy weights without extra pain
2. I can lift heavy weights but it gives extra pain
3. Pain prevents me from lifting heavy weights off the floor, but I can manage if they are conveniently placed e.g. on table
4. Pain prevents me from lifting heavy weights, but I can manage light to medium weights if they are conveniently placed positioned.
5. I can lift very light weights
6. I cannot lift or carry anything at all

### **Section 4 walking**

1. Pain does not prevent me walking any distance
2. Pain prevents me from walking more than 2 kilometers
3. Pain prevents me from walking more than 1 kilometer
4. Pain prevents me from walking more than 500 meters
5. I can only walk using a stick or crutches
6. I am in bed most of the time

### **Section 5 sitting**

1. I can sit in any chair as long as I like
2. I can only sit in my favorite chair as long as I like
3. Pain prevents me sitting more than one hour
4. Pain prevents me from sitting more 30 minutes
5. Pain prevents me from sitting more than 10 minutes
6. Pain prevents me from sitting at all

### **Section 6-standing**

1. I can stand as long as I want without extra pain
2. I can stand as long as I want but it give me extra pain
3. Pain prevents me from standing for more than one hour
4. Pain prevents me from standing for more than 30 minutes
5. Pain prevents me from standing for more than 10 minutes
6. Pain prevents me from standing at all

### **Section 7- Sleeping**

1. My sleep is never disturbed by pain
2. My sleep is occasionally disturbed by pain
3. Because of pain I have less than 6 hours sleep
4. Because of pain I have less than 4 hours sleep
5. Because of pain I have less than 2 hours sleep
6. Pain prevents me from sleeping at all

### **Section 8- sex life (if applicable)**

1. My sex life is normal and causes some extra pain
2. My sex life is normal but causes some extra pain
3. My sex life is nearly normal but causes some pain
4. My sex life is severely normal restricted by pain
5. My sex life is nearly absent because of pain
6. Pain prevents any sex life at all

### **Section 9- social life**



1. My social life is normal and gives me no extra pain
2. My social life is normal but increase the degree of pain
3. Pain has no significant effect on my social life apart from limiting my more energetic interests e.g., sport
4. Pain has restricted my social life and I do not go out as often
5. Pain has restricted my social life to my home
6. I have no social life because of pain

### **Section 10- Travelling**

1. I can travel anywhere without pain
2. I can travel anywhere but it gives me extra pain
3. Pain is bad but I manage journeys of less than one hour
4. Pain restricts me to journeys of less than one hour
5. Pain restricts me to short necessary journeys under 30 minutes
6. Pain prevents me from travelling except to receive treatment