

PREVALENCE OF LOW BACK PAIN AND ASSESSMENT OF QUALITY OF LIFE AMONG RESIDENTS IN AN URBAN COMMUNITY

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CERTIFICATION PAGE

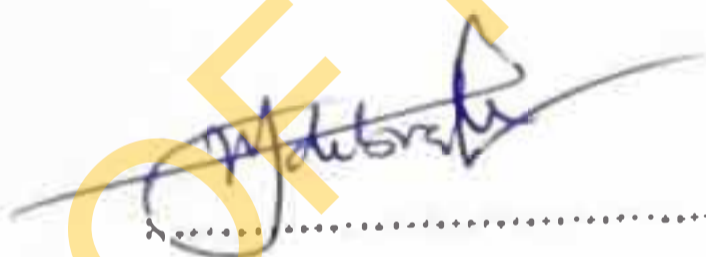
The style and content of this dissertation titled "Prevalence of Low Back Pain and Assessment of Quality of Life among Residents in an Urban Community" is approved.



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DEDICATION

This work is dedicated to the resilience of a young man who never gave up; a man who has learnt the hard way that the Fire and the Rose are the same.

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ACKNOWLEDGEMENT

How do I start expressing thanks when there are so many wonderful individuals to appreciate? There is a long list but limited pages. Albeit so many people, there is one who no doubt deserves all the glory, honor and thanks. He is the One who gave the go-ahead for this endeavor and stayed with me throughout without looking back for once. He is Jehovah God – my Father, my God, and my Friend. Like He has always done, He held my right hand and said: “Do not be afraid, I myself will help you!” How can a mortal thank Him enough? He is a wonderful God!

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ABSTRACT

Low Back Pain (LBP) constitutes a public health problem with more than 84% of the worldwide population experiencing LBP at least once during their lifetime. LBP has a greater impact on Quality of Life (QoL) compared to other chronic diseases such as hypertension, diabetes and asthma. The biggest increase in LBP prevalence is predicted in developing countries where LBP would be an economical burden to all concerned. Majority of previous studies on LBP have been in occupational or hospital based settings and are limited by lack of representativeness. This study determined the prevalence of LBP and predisposing factors in an urban Nigerian community, as well as, the assessment of QoL among LBP sufferers.

The study was a cross-sectional household survey and 741 subjects were randomly selected using a 4-stage sampling technique. A self-administered semi-structured questionnaire was used to obtain data on socio-demographic characteristics, LBP prevalence and predisposing factors. The WHOQOL-BREF questionnaire was used to obtain data on QoL from 231 respondents who reported LBP as at the time of the survey. Association between categorical variables and LBP was analyzed using the Chi-square test and multiple logistic regression model ($\alpha=0.05$). Linear regression was used to assess the QoL domain scores among LBP sufferers. Level of significance was set at 5%.

Mean age of the sample was 41.32 ± 15.24 years that comprised 46.6% males and 53.4% females. Over half (58.2%) of the respondents were married. The highest proportion (42.5%) had secondary school education. The point, annual, and lifetime prevalence of LBP was 31.2%, 61.1%, 70.6% respectively. The mean number of days taken off work due to LBP was 3.13 ± 3.12 days. Variables which remained significant associated with

LBP on multiple logistic regression analysis included being ≥ 40 years (OR=3.63, 95% CI=1.43 – 9.11), occupations as an artisan (OR=5.40, 95% CI=1.65 – 17.64), occupation as a trader (OR=4.03, 95% CI=1.48 – 11.00), continuous sitting for more than 3 – 4 hours (OR=5.55, 95% CI=2.55 – 12.09), transport duration to/from work ≥ 30 minutes (OR=6.106, 95% CI=3.04 – 12.09), computer use (OR=7.07, 95% CI=3.01 – 16.60), previous history of trauma (OR=2.72, 95% CI=1.02 – 7.26), never attending a health talk on back care (OR=4.89, 95% CI=2.12 – 11.28), ever smoked (OR=4.96, 95% CI=1.58 – 15.63) , exercising occasionally (OR=3.60, 95% CI=1.59 – 8.14), and never exercising (OR=43.28, 95 CI=4.86 – 137.93). Compared to the other domains, the Physical Health domain was the most affected with a mean score of 54.12 (SD= \pm 12.21).

The findings from this study show that LBP is common among individuals in the study area. Interventions on LBP prevention in Ibadan South-West Local Government should target risk factors correction such as poor posture, inappropriate computer use, physical inactivity and lack of information on LBP.

Key Words: Low Back Pain, Prevalence, Quality of Life, Urban Community, Risk Factors

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LIST OF ABBREVIATIONS

LBP: Low Back Pain

QoL: Quality of Life

WHO: World Health Organization

WHOQOL-BREF: World Health Organization Quality of Life - BREF

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Chapter I

INTRODUCTION

1.1 BACKGROUND

Low Back Pain (LBP) is arguably the most common medical symptom that affects the general population especially the working class (Rezaee et al., 2010). This is a global cause of concern as the perception of pain at the low back is the most common reason, after respiratory illnesses, patients are referred to their physicians (Andersson, 1999). The frequency of occurrence of LBP in the population is disturbing, as well as its effect on the active daily living. Thus, LBP is considered a major health problem (Beija et al., 2005). It is generally estimated that 84% of the world population at one point or the other would experience LBP at least once during their lifetime. Little wonder LBP is seen as a full-scale health problem (Balagué et al., 2012; Crowe et al., 2010).

Prevalence rates of LBP have been reported based on the geographical area and occupation of respondents. A survey was carried out among office workers in an automotive industry in Iran and the annual prevalence of LBP was found to be 19.7% (Mostafa, 2007). Razaee et al., (2010) in their own study reported an annual prevalence of 37.3%. Also studies conducted in developed countries like Netherlands and Finland showed the rate of 34% and 19% respectively (Burdorf et al., 1993; Riihimäki, 1989). In a study in a rural community in Nigeria, the result was 38% (Omokhodion & Sanya, 2003) while the value was 44% in an urban community (Omokhodion, 2004).

Patients with LBP feel discomfort due to the resulting intense pain but also of concern is the functional limitation that may have a resultant effect with the individuals'

quality of life (Hornig et al., 2005). LBP could affect activities of daily living such as walking, dressing and other work-related functions (Ogunlana et al., 2012). The general population has been found to have a much better quality of life than patients with chronic low back pain (Saarni et al., 2006; Ko & Coons, 2006; Suka & Yoshida, 2008). When comparing the quality of life of patients with LBP and other chronic diseases (e.g. hypertension, diabetes, and asthma), the quality of life of the former is lower than the latter group (Burstrom et al., 2001; Salaffi et al., 2005).

Several general risk factors are attributed to the incidence of LBP. Comprehensive review of literatures conducted by *National Academy of Science* (2001) noted that when individuals work in awkward postures (such as, bending, twisting and heavy physical work) they are at increased risk for occupational back disorders. This is also supported by the findings of Van Vuuren et al., (2005). The type of sitting also influences incidence of low back pain among administrative staffs (Bordes et al., 1996). Duration of sitting is also a factor; in fact, the only ergonomic hazard Rezaee et al., (2010) found with positive association was sitting more than four hours.

The association between advanced age and LBP has been reported by several studies (Razae et al., 2010; Leger et al., 1994; Adams et al., 1999; Gaudemaris et al., 1986). This may be caused by senile degeneration processes (Lallahom et al., 1990). Results of studies about relationship between physical activities and LBP are controversial (Thomas & Blotman., 1998; Beija et al., 2005; Smith et al., 2003; Matsui et al., 1997; Razae et al., 2010). Association of smoking with LBP has been noted in several studies (Omokhodron & Sanya, 2003; Connor & Marlowe, 1993).

True, studies have been done on prevalence on LBP in Nigeria but most studies have focused on a particular group. For example, Omokhodion (2004) studied an urban population but most of the respondents are those of low socioeconomic status. Omokhodion & Sanya (2003) likewise studied the prevalence of low back pain among civil servants only. While Ogunlana et al., (2012) report the predictors of health related quality of life among physiotherapy outpatients in an hospital setting with non-specific low back pain. This research work promises to fill the gaps in previous studies as it is a community survey, thus providing better estimates on the variables studied since a larger sample size would be enrolled and the respondents would cut across different socio-demographic groups.

Quality of life of patients with Low Back Pain has being found to depend more on functional status and physiological factors rather than on physical impairment (Hornig et al., 2005). This study hopes to find out the determinants of quality of life in a typical African community. The knowledge from this study would be useful in planning public health and therapeutic interventions that would ensure desirable quality of life and not just relief of pain.

1.2 RESEARCH PROBLEM

It is estimated that more than 84% of the worldwide population will experience Low Back Pain at least once during their lifetime. This disease is now recognized as a major public health problem (Balagué et al., 2012; Crowe et al., 2010). The biggest increase in the prevalence of Low Back Pain is predicted to be in developing countries where Low Back Pain would be an economical burden on the patient, caregiver, health

system and the government as it is globally (Lgumbor et al., 2011; Woolf & Pfleger, 2003; Lowu et al., 2007).

Depending on the definition used in various studies, Low Back Pain is found to be prevalent in all gender, age and occupational groups. The cumulative life-time prevalence of common Low Back Pain reported in the literature varies from 32% to 74% (Hoffmann et al., 2002; Bezzaoucha, 1992; Cassou & Gueguen, 1985; Charbotel et al., 2003; Smedley et al., 1995). The yearly prevalence of Low Back Pain among hospital staffs varies from 6% to 62.4% (De Gaudemaris et al., 1986; Burgmeier et al., 1987). Also, it seems the prevalence of Low Back Pain increases with time among the same population. For example, in 1995, Smedley et al. after a survey concerning 2405 nurses, found a Low Back Pain yearly prevalence of 45%. In 2000, Ando et al. revealed in a population of 314 hospital staffs in Japan, a Low Back Pain yearly prevalence of 54.7%. In 2005, Beija et al. found the cumulative life-prevalence as 57.7% and the annual prevalence to be 51.1% of the cases (Beija et al., 2005).

The general population has been found to have a much better quality of life than patients with chronic low back pain (Saarni et al., 2006; Ko & Coons, 2006; Suka & Yoshida, 2008). When comparing the quality of life of patients with Low Back Pain and other chronic diseases (e.g. hypertension, diabetes, asthma), the quality of life of the former is lower than the latter group (Burstrom et al., 2001; Salaffi et al., 2005). This seriously affects the functional ability and working status of young and adult population (Reid et al., 2005; Leveille et al., 2005). Thus, due to the issues raised above, it is believe this research work is valuable to look into.

1.3 RATIONALE OF STUDY

Most studies (Smedley et al, 1995; Troussier et al., 1993; Bordes et al., 1996; Massironi et al., 1999; Laubli et al., 1981) available on Low Back Pain have been on the work population; there have been a dearth of epidemiology data on community surveys. In fact, Omokhodion & Sanya (2003) reports that there is very little information about Low Back Pain in the general population in low-income countries.

Nigeria is the most populous black nation and according to the World Bank about 50 million people are within the labor force age group where LBP is expected to be more common than other age segments of the population. The illness associated with LBP is enormous and has implication on GDP and human resources of any nation. Research on contemporary population problems often neglects LBP as more emphasis is on communicable diseases. Therefore, in this study, we identified the factors associated with LBP in an urban community in Nigeria, Sub-Saharan Africa.

In a typical developing country, like Nigeria, where unemployment rate is high, not everyone is affiliated to an occupation outside the home; some stay at home most of the time and may also experience Low Back Pain. Thus, studying the work population only would disenfranchise this latter group when planning interventions to reduce Low Back Pain incidence in the populace. Thus, the results of this study is hoped not only to give informed advice on the prevalence of Low Back Pain on a community level and assess the risk factors predisposing the community members to developing Low Back Pain irrespective of their employment status but also to provide a better estimate since it is a community survey.

This research work is believed to be an upgrade of Omokhodion's (2004) study who studied an urban population of mostly participants of low socioeconomic class. The study population of this study is expected to cut across different socio-economic class and thus enable adequate and precise guide to interventions. Also, it is believed that the outcome of this study would help policy makers in making policies that would lower the incidence of this disorder in the general populace.

To date, there is no community-based epidemiological data on the quality of life of patients with Low Back Pain in Nigeria. Quality of life has been assessed only in a sample of hospital based patients (Ogunlana et al., 2012). Also, Nigerian doctors and physiotherapists take a very varied approach to the management of such patients. Obviously, there is a need for the establishment of evidence based guidelines for the management of Low Back Pain. The increasingly mechanistic model of medicine, concerned only with the eradication of disease and symptoms, reinforces the need for the introduction of a humanistic element into health care. This study aims to look into other domains (such as, the physical health, psychological, social relationships, and environment) that may influence the development of Low Back Pain among Nigerian residents.

The proposed research work would guide future research in this field as it would be the first study that would examine the effect of Low Back Pain on quality of life of individuals with Low Back Pain at the community level in a typical developing country like Nigeria.

1.4 AIMS

1.4.1 General Objective

- ❖ To determine the prevalence and risk factors of Low Back Pain in Ibadan South West Local Government.

1.4.2 Specific Objectives

- ❖ To determine the (point, annual, and lifetime) prevalence of Low Back Pain in Ibadan South West Local Government.
- ❖ To determine the factors associated with the development of Low Back Pain in Ibadan South West Local Government.
- ❖ To determine the mean working days lost due to Low Back Symptoms in Ibadan South West Local Government.
- ❖ To assess the Quality of Life of participants with Low Back Pain.

1.5 DEFINITION OF TERMS

Low Back Pain: "Pain limited to the region between the lower margins of the 12th rib and the gluteal folds" (Anderson, 1977)

Quality of Life: "Individuals' perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns" (WHO, 1994)

Chapter II

LITERATURE REVIEW

2.1 Overview of Low Back Pain

Pain is one of the most powerful drive in humans and is closely allied to fear (Waddell et al., 1993). Pain has been viewed as a complex, multidimensional developmental process attribute to various psychosocial factors (Gatchel & Turk, 1996 and Vlaeyen & Linton, 2000). Back pain, one of the most common pain manifestations, affects millions of people worldwide and mankind has suffered from back problems for at least as long as documented records exist (van Vuuren et al., 2006; Galukande et al., 2005). The oldest surviving surgical text, the Edwin Smith papyrus from 1500 BC, includes a case of back strain. Two key ideas in the nineteenth century laid the foundations for the modern approach to back pain: That pain came from the spine; and that it was due to injury (Galukande et al., 2005). There is however no evidence that back pain has changed. The symptom of back pain appears to be no different and no more severe than it has always been. What has changed is how back pain is understood and managed (Waddell, 1994) and may be its prevalence (Troyganovich et al., 1999).

Classification or categorizing of Low Back Pain has been varied making comparison of studies difficult. The term Low Back Pain (LBP) as defined by Andersson and used in most surveys is defined as "pain limited to the region between the lower margins of the 12th rib and the gluteal folds" (Anderson, 1997). Studies done to assess the most common musculoskeletal complains among the employed in various occupations reveal that Low Back Pain tops the list followed by neck and shoulder pain (Tezel, 2005;

Smith et al., 2003). Ergonomic hazards are directly linked to musculoskeletal complaints among office workers.

Lower back problems constitute one of the most challenging medical problems in industrial countries with a high prevalence and cost implication linked to chronic work-related spinal disorders. It is further commonly accepted that 50–80% of the population suffers from idiopathic lower back pain at least once in their lifetime (Zinzen, 2002; Mijiyawa et al., 2000), with annual prevalence of back pain ranging from 15% to 45% (Maniadakis and Gray, 2000 and Quittan, 2002), and point prevalence's averaging 30% (Frymoyer and Cats-Baril, 1991 and Lee et al., 2001). Low back pain exists in epidemic proportions in the western world and is on the increase there (Troyganovich et al., 1999). Data from the developing world is scanty. In fact, Omokhodion & Sanya (2003) reports that there is very little information about low back pain in the general population in low-income countries. The literature on its epidemiology from the high-income countries is accumulating yet they comprise only 15% of the world population (Ernest Volin, 1997).

2.2 Anatomy of the back

The human spinal column (spine) runs from the neck to the pelvis. It consists of five (5) segments made up from vertebrae: cervical vertebrae in the neck; thoracic vertebrae in the upper back; lumber, sacral and coccygeal vertebrae in the lower back. The vertebrae are connected by ligaments and muscles, facet joints, and intervertebral discs. The intervertebral disc serves as cushion to damp down force transmitted over the spinal column (Moore & Dalley, 2006).

Smith et al., 2003). Ergonomic hazards are directly linked to musculoskeletal complaints among office workers.

Lower back problems constitute one of the most challenging medical problems in industrial countries with a high prevalence and cost implication linked to chronic work-related spinal disorders. It is further commonly accepted that 50–80% of the population suffers from idiopathic lower back pain at least once in their lifetime (Zinzen, 2002; Mijiyawa et al., 2000), with annual prevalence of back pain ranging from 15% to 45% (Maniadakis and Gray, 2000 and Quittan, 2002), and point prevalence's averaging 30% (Frymoyer and Cats-Baril, 1991 and Lee et al., 2001). Low back pain exists in epidemic proportions in the western world and is on the increase there (Troyganovich et al., 1999). Data from the developing world is scanty. In fact, Omokhodion & Sanya (2003) reports that there is very little information about low back pain in the general population in low-income countries. The literature on its epidemiology from the high-income countries is accumulating yet they comprise only 15% of the world population (Ernest Volin, 1997).

2.2 Anatomy of the back

The human spinal column (spine) runs from the neck to the pelvis. It consists of five (5) segments made up from vertebrae: cervical vertebrae in the neck; thoracic vertebrae in the upper back; lumber, sacral and coccygeal vertebrae in the lower back. The vertebrae are connected by ligaments and muscles, facet joints, and intervertebral discs. The intervertebral disc serves as cushion to damp down force transmitted over the spinal column (Moore & Dalley, 2006).

The spinal column encloses and protects the spinal cord and spinal nerve roots. It supports the head and supports the limbs. There are many muscles and tendons attached to the spine. Deep muscles maintain the spine in good position and support the body, whereas superficial muscles provide power for movement (Moore & Dalley, 2006). Low Back Pain usually refers to pain in the tissues of the lumbosacral region, such as muscles, tendons, intervertebrae discs, and facet joints. The pain may radiate to the buttocks and the back of the thighs.

2.3 Epidemiology of Low Back Pain

2.3.1 Prevalence

Prevalence is used as an epidemiologic measure of Low Back Pain; the respondents report pain at the time of administration of the questionnaire. Other measures, besides point prevalence are reported in some studies such as annual or lifetime prevalence (Ernest Volin, 1997; Noheji et al., 1989). Because point prevalence is reported far more frequently in studies of low-income countries than these other measures, it serves as the most suitable basis of comparison between studies (Ernest Volin, 1997). Point prevalence has the added advantage that unlike other epidemiologic measures it is not based on recollection (Noheji et al., 1989; Carrey et al., 1995; Riihimaki et al., 1994).

The cumulative life-time prevalence of common Low Back Pain reported in the literature varies from 32% to 74% (Hoffmann et al., 2002; Bezzaoucha, 1992; Cassou & Gueguen, 1985; Charbotel et al., 2003; Smedley et al., 1995). The yearly prevalence of Low Back Pain among hospital staffs varies from 6% to 62.4% (De Gaudenaris et al.,

1986; Burgmeier et al., 1987). Indeed, De Gaudemaris et al. (1986) reported a Low Back Pain yearly prevalence of 62.4% among nursing helps. Whereas, Burgmeier et al. (1987) returned from a cross-sectional study conducted among 5491 hospital staffs in Strasbourg Teaching Hospital to a Low Back Pain yearly prevalence of only 6%. In 1995, Smedley et al. after a survey concerning 2405 nurses, found a LBP yearly prevalence of 45%.

In 2000, Ando et al. revealed in a population of 314 hospital staffs in Japan, a Low Back Pain yearly prevalence of 54.7%. In 2005, Beija et al. found the cumulative life-prevalence as 57.7% and the annual prevalence to be 51.1% of the cases. Chronic Low Back Pain prevalence was 12.8% of the cases (Beija et al., 2005). This divergence in Low Back Pain prevalence rates reported in the literature can be explained by methodological heterogeneity used for the assessment of common Low Back Pain and the variability of the gender and age groups concerned (Beija et al., 2005).

2.3.2 Incidence

Low Back Pain incidence in Beija et al, (2005) is 3.14%. It varies in the literature from 1% to 32% (Burgmeier et al., 1987; Lallahom et al., 1990; Fanello et al., 1994; Furber et al., 1992; Troussier et al., 1993).

2.4 Risk Factors

2.4.1 Age

Low back pain is common among people in their most productive years (35 to 45 years of age) and predominates in middle age (45 to 64 years) (Borenstein, 2000; Borenstein, 1999). The association between advanced age and Low Back Pain was

reported by several authors (Razaee et al., 2010; Leger et al., 1994; Adams et al., 1999; Gaudemaris et al., 1986). The cause may be related to senile degeneration processes (Lallahom et al., 1990). As it is the case in Beija et al., (2005), the association between advanced age and Low Back Pain was reported by several authors (Leger et al., 1994; Adams et al., 1999; De Gaudemaris et al., 1996). This association can be explained by the resistance reduction to the dynamic work observed in advanced age because of the frequent spine degenerative processes (Lallahom et al., 1990).

2.4.2 Gender

A Ugandan study done by Galukande et al., (2005) reported a significant gender difference with female: male ratio of 2:1. This is similar to Omokhodion et al.'s (2000) findings in Nigeria and Mulimba's (1988) findings in Nairobi, Kenya. In Beija et al (2005), the female gender was found to be a Low Back Pain associated risk factor ($P = 0.024$), in accordance to the literature (Bezzaoucha, 1992; Caillard et al., 1987; Burgmeier e et al., 1988).

Other studies (Waddell, 1994; Tomas Reigo et al., 1999) showed no major or significant gender differences. Only a slightly higher frequency of back pain in women was reported, similar to most other bodily symptoms. For the African region it is essential to further examine reasons why women seem to be more prone to Low Back Pain (Galukande et al., 2005).

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2.4.3 Smoking

In Omokhodion et al.'s (2000) study, the prevalence of Low Back Pain was higher among current smokers and ex-smokers than in non-smokers, but this difference was not statistically significant. Cilliers & Maart (2013) did not regard smoking as being a risk factor for Low Back Pain by any of the participants in their study.

Association of smoking with Low Back Pain has been noted in several studies. For example, Omokhodion & Sanya (2003) found that Low Back Pain was significantly associated with smoking in office workers. Also in Connor & Marlowe's (1993) research in military basic trainers similar results were obtained. It seems that smoking not only exhibits a positive association but also support a causal relationship (Goldberg et al., 2000).

Smoking has been associated with low back pain in several studies (Toroptsova et al., 1995; Harraby et al., 1996) although the biological mechanism is not understood (Skovron, 1992). The National Institute of Arthritis and Musculoskeletal and Skin Diseases (2012) provide evidence that smoking decreases the absorption of nutrients by the discs in the back. It also slows healing and leads to a prolonged pain experience.

Also, it is thought that smoking may lead to reduced perfusion and malnutrition of tissues in and around the spine and cause these tissues to respond inefficiently to mechanical stress (Eriksen et al., 1999). In Beija et al. (2005) tobacco consumption was associated to Low Back Pain ($P = 0.016$) in accordance to the literature. Tobacco consumption was demonstrated to be significantly associated to Low Back Pain and to

herniated disc (Burgmeier et al., 1987; Frank & Townsend, 1993; Thomas & Blotman, 1998).

2.4.4 Heavy Load Handling

About 69.9% of heavy load handlers were observed in Beija et al, (2005) to have Low Back Pain and in the survey of Caillard et al. (1987), the value was 56.2%. Some authors (Beija et al., 2005; Lallahom et al., 1990; Smedley et al., 2003) found a meaningful association between heavy loads handling and Low Back Pain prevalence.

2.4.5 Occupation

Higher prevalence rates occur in the occupational setting (Xu et al., 1997). A study among adults and children working in the carpet-weaving industry in India showed that backache was more common among workers ($n=200$) than among controls ($n=60$). The actual figures for point prevalence were 27% as against 10% (Das et al., 1992). In the hospital environment, nurses are known to be a high risk group because of patient lifting and other postural requirements of their job. Several studies have focussed on the prevalence and risk factors of low back pain among nurses (Hignett, 1996; Klabar Moffet et al., 1993), while other studies have highlighted the problem among physiotherapists (Mierzejewski & Kumar, 1997).

With the aforementioned findings, several professional risk factors can influence Low Back Pain prevalence. Beija et al (2005) did not find any interrelationship between professional categories and Low Back Pain. However, several studies (Froussier et al., 1993, Bordes et al., 1996, Massironi et al., 1999) showed that administrative staffs and

workers were more touched by Low Back Pain than nurses. For the formers, high Low Back Pain prevalence can be explained by the seated position and the sedentary nature of their activities (Bordes et al., 1996) and for the later by the conditions of work, particularly heavy loads handling (Caillard et al., 1987; Massironi et al., 1999).

Prevalence rates of Low Back Pain reported in available literatures vary according to occupation among other factors. For example, while the point prevalence in nurses was 82% (Beija et al., 2005) which is similar to 84% reported by (Cilliers & Maart, 2013), this result for another group of nurses reported as 69% (Tezel, 2005). Statistics from other occupation also follow this situation in which there are discrepancies (Rohrer et al., 1994; Adedoyin et al., 2005; Chen et al., 2005).

Several studies showed that administrative staffs are more at risk of Low Back Pain, which can be explained by seated position, the static nature of their activities, awkward postures, and inappropriate furniture (Smedley et al, 1995; Troussier et al., 1993; Bordes et al., 1996; Massironi et al., 1999; Laubli et al., 1981). The prevalence of low back pain had higher odds ratio compared to other regional pains among Japanese office workers (Matsudaira et al., 2010).

2.4.6 Cadre

In the study of Omokhodion & Sanya (2003), back pain was significantly higher among senior staffs. Back pain has been related to seniority in other studies (Rotgolz et al., 1992). Omokhodion & Sanya (2003) concludes that low back pain is associated with seniority. With these individual factors, several professional risk factors can influence Low Back Pain prevalence. As in Beija et al, (2005), the seniority in the establishment

and the work in the same station were shown to be associated with Low Back Pain (Lallahom et al., 1990; Valat et al., 2000). Troussier et al. (1993) reported that 10.6% of Low Back Pain agents have a seniority of less than 5 years and 37.9% have a seniority of more than 15 years. In Beija et al, (2005), these rates were 15.3% and 42.3%, respectively.

2.4.7 Posture

Respondents in Omokhodion et al., (2000), as in other studies (Xu et al., 1997; Matsui et al., 1997; Engels et al., 1996), associated low back pain with heavy physical work, bending, poor posture and prolonged sitting or standing. Van Vuuren et al., (2005) showed significant adjusted odds ratio for bending and twisting. Recent comprehensive review of literatures conducted by National Academy of Science (2001) noted that work in awkward postures (bending, twisting and heavy physical work) were associated with increased risk for occupational back disorders.

Common Low Back Pain is a major health problem in work sitting (Beija et al., 2005). The type of sitting influences incidence of low back pain in administrative staffs (Bordes et al., 1996). Duration of sitting is also a factor; in fact, the only ergonomic hazard Rezaee et al., (2010) found with positive association was sitting more than four hours. Similarly, Omokhodion & Sanya (2003) concluded that increased severity of low back pain is associated with sitting for more than three hours.

Beija et al. (2005) did not find a meaningful association between work posture and Low Back Pain prevalence. However, coercive stances particularly the standing

position and leaned forward are returned frequently in the literature to be associated to Low Back Pain (Fanello et al., 1999; Caillard et al., 1987; Bordes et al., 1996).

The seat quality is reported to be associated to Low Back Pain among administrative staffs (Burgmeier et al., 1987; Bordes et al., 1996). This has been noted in Beija et al., (2005) but without meaningful association and can be explained by the weak number of this administrative professional category, which represents only 6.3% of their sample.

2.4.8 Socioeconomic status

It has been reported by a number of researchers (Carey et al., 1995; Nagi et al., 1973; Reisbord & Greenland, 1985) that people in lower socioeconomic classes experience more Low Back Pain than those in upper socioeconomic classes. It has also been reported that the prevalence of Low Back Pain, the level of disability experienced, and the chronicity of LBP are complicated by socioeconomic (Volinn et al., 1988; Sanderson et al., 1995) and psychologic stress (Schofferman et al., 1993; Frymoyer et al., 1980; Burton et al., 1995).

Low Back Pain tends to be reported more frequently by people in lower socioeconomic classes than by those in upper socioeconomic classes (Worku, 2000). In a study in Denmark of 4753 males aged 40 to 59 years, Gyntelberg (1974) reported that men in lower social classes had a statistically significant increased frequency of Low Back Pain compared with those in higher social classes.

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Furthermore, the results are in agreement with Volinn's (1997) review of the literature on national differences in Low Back Pain in adults, wherein there is a lower point prevalence of Low Back Pain in low-income countries compared with high-income ones. In the low income countries, the rural areas' inhabitants had the lowest prevalence whilst urban area populations and particularly workers in enclosed workshops reported much higher rates (Volinn, 1997).

2.4.9 Educational Status

Reisbord & Greenland (1985) conducted a population-based study of 2762 respondents and found that a higher prevalence of Low Back Pain was associated with lower levels of education and lower income. Nagi et al (1973) and Toroitsova et al (1995) similarly found that the prevalence of Low Back Pain complaints was significantly higher in people who had low education levels.

2.4.10 Physical/ Sport Activities

Results of studies about relationship between physical activities and Low Back Pain are controversial. While some authors have indicated them as a risk factor (Thomas & Blotman., 1998), others reported protective effects of these activities (Beija et al., 2005; Smith et al., 2003; Matsui et al., 1997), while some research showed no association between the two variables (Rezaee et al., 2010). It seems that several factors interfere with the relationship between physical activity and Low Back Pain including activity nature and spine injuries.

Sports activity was seen in Beija et al, (2005) to be a protective factor of Low Back Pain and an associated risk factor to chronic Low Back Pain. Reported results on sports activity and Low Back Pain in the literature are contradictory. For Demblans-Dechans et al. (1988), sports activity was considered as a risk factor of Low Back Pain. Otherwise, Fanello et al. (1994) found among physicians that regular sports practice was associated with low rate of Low Back Pain prevalence. Several factors seem to interfere, of which are competition levels, sports activity nature and spine injuries (Demblans-Dechans et al., 1988; Le Goff & Bontoux, 1998). As it is the case in Beija et al, (2005) extraprofessional activity was demonstrated by several authors to be a precipitating factor of Low Back Pain (Owen & Stachler, 2003; Rainville et al., 2000).

Regarding sports activities, basketball, swimming and bowling were found to be associated with Low Back Pain, but football and bowling were associated with chronic Low Back Pain. Exercise has been considered a risk factor for Low Back Pain and chronic Low Back Pain, especially if intense and competitive (Kujala et al., 1996; Kujala et al., 1997; Le Goff & Bontoux, 1998; Troussier et al., 1998).

2.4.11 Psychological Factors

Back pain is not only a physical problem, but may also depend on the person's attitudes and beliefs, psychological distress, and illness behavior (Van Tulder et al., 2000). As for the psychological symptoms, they can be an etiological factor or the consequence of Low Back Pain, mainly when it takes a chronic evolution. The psychological factors play a role in the experience of LBP (Beija et al., 2005). In fact

poor self-perception of health (health belief) could be a factor behind reporting Low Back Pain (Szpalski et al., 2002).

Furthermore, pain perception and psychological factors were associated with Low Back Pain (Staes et al., 2003). Adverse psychosocial factors and the presence of other preexisting somatic pain symptoms (abdominal pain, headaches, and sore throats) were also predictive of future Low Back Pain for Jones et al., (2003). Poor well-being, in particular poor self-perceived fitness, was associated with Low Back Pain among adolescents in the study of Sjolie (2002). The psychological factors were significantly associated with reported nonspecific Low Back Pain and its consequences in the study of Balague et al., (1995). It was well demonstrated that an unsettled psychological profile is a risk factor of common Low Back Pain, mainly chronic Low Back Pain (Beija et al., 2005; Gonge et al, 2001; Alcalay et al., 1998; Epping-Jordan et al., 1998).

There is increasing evidence that psychosocial factors related to the job and work environment are associated with the development of work-related lower back pain (Weiser & Cedraschi, 1992; Bernard, 1997; Turk, 1997; Linton, 2000; Harkness et al., 2003). Individual psychological factors, such as personal traits and cognitive and behavioral variables, are also categorized as psychosocial factors in addition to the psychosocial factors observed at work and in private life (van Vuuren et al., 2005). Researchers have also found the direct relationship between pain and disability, to be low (Riley et al., 1988; Williams & Thorn, 1989; Linton et al., 2000) while the impact of cognitive processes, like beliefs and expectations have been found to be important (Troup, 1988; Buer & Linton, 2002).

2.4.12 The Socio-Cultural/Environmental Hypothesis

Prista et al, (2004) found differences in children in one metropolitan area of a developing country based on district of residence, a surrogate for socio-cultural and environmental factors. These findings are consistent with the socio-cultural/environmental hypothesis to explain cross-national differences in prevalence of back pain in young adolescents. Relevant studies in adults can add strength to the socio-cultural/environmental hypothesis. Hameed and Gibson (1997) studied the prevalence of several musculoskeletal disorders among Pakistani adults living in England and Pakistan. Subjects living in England showed clear evidence of "cultural continuity." The prevalence of Low Back Pain was higher in England (2.6%) than in Pakistan (1%).

The authors suggested a role of "some aspect of living or working conditions in the West," like the weather invoked by the surveyed subjects themselves (Hameed & Gibson, 1997), to explain the geographical differences in Low Back Pain. The finding is in agreement with Volinn (1997). The relationships were not simple, however, for among those persons living in Pakistan Low Back Pain was more common in the poor compared with the affluent; thus, the cultural hypothesis suggested by Deyo (1997) does not entirely explain the results of Hameed & Gibson (1997).

The role of cultural beliefs and practices has also been highlighted among Australian Aboriginals (Honeyman & Jacobs, 1996). The role of pain perception was suggested to explain the low prevalence of chronic widespread pain and shoulder disorders among the adult Pima Indians compared with Caucasian populations (Jacobsson et al., 1996). These factors may also play a role in Western societies. Skovron et al.

(1994) found significantly different prevalence of Low Back Pain between French-speaking and Flemish-speaking subjects in Belgium.

2.4.13 Other Factors

According to Volinn (1997) and Deyo (1997) other possible explanations to the development of Low Back Pain may be differences in pain threshold, access to modern medicine, subjects' constitution, culture, and exposure to stress factors.

2.4.13.1 Body Mass Index

Burgmeier et al. (1987) showed that high BMI was associated to Low Back Pain as it is the case in Beija et al (2005). Sick leave and consequences on daily activities were more frequent among Low Back Pain agents with high BMI (Cassou & Gueguen, 1985).

2.4.13.2 Marital Status and Family Framework

In Beija et al, (2005) Low Back Pain and chronic Low Back Pain were more frequent among married or divorced employees. Some studies (Lallahom et al., 1990; Burgmeier et al., 1988) showed that Low Back Pain prevalence increases with the family's dimension and especially with the number of young children. Some authors demonstrated the association between migraine and Low Back Pain as well as pregnancy particularly, when multiple and Low Back Pain (Bezzaoucha, 1992). This result was also observed in Beija et al, (2005).

2.4.13.3 Past Medical History

In numerous studies, (Beija et al, 2005; Lallahom et al., 1990; Coste & Paolaggi, 1989; Caillard et al., 1987) Low Back Pain past medial history is found to be strongly associated to the forthcoming episodes of Low Back Pain.

2.4.13.4 Transportation Means and Journey Duration

According to Beija et al, (2005), neither transportation means, nor journey duration was associated to Low Back Pain, which were well established elsewhere (Fanello et al., 1999; Furber et al., 1992).

2.4.13.5 Vibrations Exposition

Vibrations exposition, studied more in industrial environment has been returned to be a risk factor of Low Back Pain in the literature (Johanning, 1991), as it was the case in Beija et al's (2005) investigation for chronic Low Back Pain.

2.5 Economic Impact and Absentism

Like most major health challenges, Low Back Pain consumes enormous financial resources, both direct and indirect. This has being confirmed in western industrialized countries (Linda et al., 2005) but there appears to be a dearth of information from developing countries where data available for Low Back Pain seem to be lower than there actually is. This may be due to underreporting revealed by forgetting the episode of Low Back Pain (Volinn, 1997). Developing countries, however, should be of interest because the prevalence increase of Low Back Pain has being predicted in these countries (Lgumbor et al., 2011; Woolf & Pfleger, 2003; Lowu et al., 2007).

Disability sequel to Low Back Pain is not only influenced by the physical task of the individual but also by a number of factors which include medical care, work environment, and workers' compensation process (Murphy & Volinn, 1999). Recent findings shows that the proportion of physician visit due to Low Back Pain has not changed over the past decade but what has increased substantially is the cost of treating Low Back Pain (Balagué et al., 2012). An interesting twist to this health condition is that it is progressive. It has been estimated that 10 – 15% of patients with acute Low Back Pain would develop chronic Low Back Pain. Well, some may view this cohort with a small numerical strength but it is imperative to note that this group consumes the most direct and indirect financial resources that may be quantified by the associated productivity and earning loss (Woolf & Pfleger., 2003; Crowe et al., 2010).

The economic and social impact of Low Back Pain among the general population cannot be underestimated. The impact of back pain on society is usually estimated by examining the costs (van Tulder et al., 1995). Between 1997 and 2005, 27% of all Washington State fund-accepted health insurance claims were for work-related musculoskeletal disorders (WMSDs) involving the back (51%), upper extremity (37%), neck (12%) with an average direct cost of USD 12,377 per claim (Silverstein and Adams, 2007). In Finland, the direct and indirect cost of managing patients with Low Back Symptoms was 624 EUR per visit to general practitioners (Mantyselka et al., 2002). A study in Sweden estimated the annual cost for sick listed more than one month due to back and neck problems was about 1.3% of Gross National Product (GNP) (Hansson and Hansson, 2005).

van Tulder et al (1995) estimates the cost of back pain to society in The Netherlands in 1991 to be 1.7% of the GNP. Musculoskeletal diseases are the fifth most expensive disease category regarding hospital care, and the most expensive regarding work absenteeism and disablement (van Tulder et al., 1995). One-third of the hospital care cost and one-half of the cost of absenteeism and disablement due to musculoskeletal disease were due to back pain. (van Tulder et al., 1995). Due to this figures, van Tulder et al. (1995) rightly concluded that is not only a major medical problem but also a major economic problem.

Professional consequences of Low Back Pain are usually evaluated by work stop. The rate of 26.1% of the Low Back Pain agents having had work stop in Bejia et al, (2005) is comparable to those found by Lallahom et al.(1990) and Caillard et al. (1987), which were 25% and 24.1%, respectively. High rate of 93% has also being reported (Charuel et al., 1992). In Bejia et al, (2005), mean work stop duration was 4.5 days. Lallahom et al. (1990) reported 15 days. The work stop duration varies according to gender. Indeed, Boshuizen et al. (1990) reported that 72% of women suffering from Low Back Pain stopped their professional activity for more than 8 days whereas 47% of men stopped their work for 1-8 days. In Bejia et al, (2005), 10.8% of Low Back Pain employees declared a repercussion on their professional activities, and 9.6% had a reduction or a temporary restriction of some laborious works. In the investigation of Furber et al. (1992), 38% of Low Back Pain employees declared some consequences on their professional activities. In Bejia et al, (2005), a work station change was necessary in two cases (0.6%) but Burgmeier et al. (1988) found a rate of 12.8%. None of the Low

Back Pain employees in Bejia et al, (2005) benefited from a professional reclassifying.

Troussier et al. (1993) reported a rate of 12%.

Low back pain is one of the most common reasons for long-term sickness absence (Barbara et al., 2003) in industrialized countries but little information has been reported from developing countries (Murphy & Volinn, 1999). Absenteeism has been found to be directly related to aches and pain, and comfort levels in the computer intensive environment (Barbara et al., 2003). Linton (2001) reported that 15% of those studied took time off work because of Low Back Pain. The value is however lower in the study by Mostafa (2007) that estimated 3.3% of industrial workers had sickness absence due to Low Back Pain.

The social impact of Low Back Symptoms, including its severity, may be assessed in terms of the extent to which people are prevented from carrying out their normal activities (i.e. reduced activities) and absenteeism. The social consequences of LBS arise from disability (i.e. diminished capacity for everyday activities and gainful employment, etc) (Waddell, 1991) and absenteeism.

2.6 Preventive Measures

The need for re-design of jobs to reduce work load has been discussed in the literature but this is not a likely option in a low income country like Nigeria where the unemployment rate is high and individuals tend to hold on to their jobs even if it is detrimental to their health. In fact some organizations do not make procurement of automated equipments a priority. It is not surprising that the cost of manual handling equipment is not affordable for a rural hospital studied by Omokhodion et al., (2000).

These factors reduce the scope of preventive measures among the general or work population.

Some respondents to the study by Omokhodion et al., (2000) suggested the need to increase staff numbers in order to reduce the workload of each individual. As many sufferers from low back pain complain about being overworked, this may offer some relief. Other simple measures suggested by the respondents in the aforementioned study to reduce the brunt of low back pain is the provision of good chairs. This was suggested by two out of three laboratory staff. Laboratory stools are a particular problem as many are designed without any support for the back (Omokhodion et al., 2000). Omokhodion & Sanya (2003) recommended adequate back support for senior staff and workers should be encouraged to alter their posture on a regular basis.

2.7 Etiology of Low Back Pain

Low back pain is clearly an important health problem whose etiology is largely indefinable. The definable entities of nerve root entrapment due to disc herniation and the serious spinal pathologies due to various etiologies: infective, neoplastic, inflammatory and degenerative lesions are important. The list of recognized causes of low back pain is vast in numerous studies (Wood II, 2000; Wood II, 2000; Apley & Solomon, 1999).

In the literature review, simple back pain due to a non-specified cause accounted for over 90% of the etiology. The other name used to refer to nonspecific low back pain is mechanical low back pain and it accounted for 62.3% of the patients reviewed by Galukande et al., (2005). Nerve root pain or entrapment due to disc herniation or prolapsed accounted for 19.1% in the latter study. In a number of studies reviewed by

Galukande et al., (2005) nerve root pain or entrapment due to disc herniation or prolapsed disc accounted for about 5%. Serious spinal pathology due to various causes accounted for 17.1%. In others studies, (Nuki, 1995; Von Korff et al., 1996; Delecoevillerie et al., 1994) it accounted for less than 1%!

In the serious spinal pathology category infective processes accounted for 11 cases out of the 35.8 due to Tuberculosis (non pyogenic infection) and 3 due to brucellosis (pyogenic infection) (Galukande et al., 2005). In the literature *Staphylococcus aureus* was the commonest cause of pyogenic infection but it did not appear in Galukande et al., (2005). This reflects on the high burden of infectious diseases in the tropics. Such figures are not found in the literature reviewed from the western world (Souhami & Moxham, 1998; Wood II, 2000). The second commonest cause of serious spinal pathology was spondylolisthesis with degenerative changes (Galukande et al., 2005). This appeared with a mean age of 47 years. Rheumatoid arthritis contributed 0.1% compared to 6% in the literature (Galukande et al., 2005). Rheumatoid arthritis is not as common a disease in Africa as in Europe or the rest of the western world.

Hospital-based studies have shown that low back pain is the reason for 30 to 40% of visits to rheumatologists (Bileckot et al., 1992; Bwanahali et al., 1992; Mijiyawa et al., 1991; Adebajo, 1991). As in western countries, degenerative disk disease is the leading cause of low back pain in sub-Saharan Africa. However, infections seem more common and ankylosing spondylitis less so (Chalmers, 1980; Stein et al., 1991; Mbayo et al., 1998; Burch et al., 1999). Furthermore, a marked increase has been noted in the proportion of cases caused by HIV-associated spondyloarthropathy (Njobvu et al., 1998; Stein & Davis, 1996; Blanche et al., 1993; Stein et al., 1990).

2.8 Pathophysiology

A review of literature reveals a few mechanical factors and their impact as follows:

- 1) Irritation of spinal nerves causes spinal segmental sensitization which limits the dynamic range of spinal segment mobility (Sarbmann, 1988; Naguszewski et al., 2001).
- 2) Unguided movement at the spine may strain the interspinous ligament to irritate the spinal segment (Cassius et al., 2002; Klein et al., 1986).
- 3) Matthews & Yates (1969) had demonstrated with the help of epidurography the presence of disc hernia which was resolved following mobilization thus confirming disc hernia as causative factor.
- 4) In addition, degeneration of the disc, leads to a loss in disc height thus reducing interpedicular distance, neural foraminal vertical height which may become stenotic and painful (Naguszewski et al., 2001; Lamb, 1979).
- 5) Disc injury or gradually progressive micro trauma ends up in motion segment fusion and facilitates the deposition of collagen, hypomobility, and pain (Naguszewski et al., 2001; Sinclair, 1997; Gosc et al., 1998).
- 6) Vertebral degenerative changes place the sclerotome, autonomic, motor and sensory systems in a hyper-excitable state, increase blood vessel tone thus facilitating

the releases of endogenous analgesic chemicals that irritate nociceptors (Gunn & Mibrant, 1978; Wells, 1982; Egwu et al., 2003).

7) Facet changes and end-plate degeneration lead to osteophytes and leaping which may encroach on the neural foramina anteriorly and/or posteriorly (Lamb, 1979; Wells, 1982)

All of these end up forming irritant focus, impairment, dysfunction and distorted neurodynamics with ectopic discharge (pain) that are the problems challenging the back pain patient which needs to be identified and labeled by the treater (Zola, 1973; Amir et al., 1999; Amir et al., 2002). It is because these disorders driving pain end up with distorted neurodynamics that neuroprovocative or neurodynamic tests can be used to trace their location and spread (Egwu, -) .

A study by Puckree et al., (2004) tries to explain how school bag carriage could cause neck and back pain among scholars. When a person carries a backpack there is counter rotation of the pelvis and thorax (Lai & Jones, 2001). However, this counter rotation is decreased as the weight in the backpack is increased. This limitation of movement is a risk factor for back pain (Steele et al., 2001). The heavier the backpack, the more pressure it exerts on the spinal column and back muscles as these scholars will bend forward in an attempt to support the weight on the back rather than on their shoulders (Lai & Jones, 2001). These postural imbalances could often trigger a condition called vertebral subluxation, (Steele et al., 2001; Tanner et al., 1976) which leads to restricted movement of the dysfunctional areas in the spine and predisposes patients to a

number of ailments such as neck and back pain, headaches and osteoarthritis (Puckree et al., 2004).

2.9 Signs and Symptoms

Patients with Low Back Pain may have the following symptoms:

- 1) Low back muscle tension and soreness on movement
- 2) Low back muscle sores and aches after standing or sitting for long periods
- 3) Numbness, weakness or pain in the leg or around the buttocks

2.10 Diagnosis

A systematic and logical approach to making a diagnosis is important through history taking, physical examination, baseline investigations and specialized ones if indicated. There is need for research to establish the precise etiology of this large indefinable entity. Knowledge of precise etiology may throw more light on management of individual cases and in designing preventive measures. While managing low back pain, it is essential to consider infection processes which are not emphasized by literature from the western world (Galukande et al., 2005).

2.11 Treatment of Low Back Pain

Treatment of back pain remains unsatisfactory as reported by a study by Omokhodion et al., (2000). Twenty-nine percent of the respondents in Omokhodion et al., (2000) with back pain took some rest to relieve their back pain while 70% took analgesics. Acute back pain may not be relieved by bed rest (Waddell et al., 1997) while

some studies have shown the positive effects of exercise (Gundewall et al., 1993; Ljunggren et al., 1997) and continuous activity (Lau et al., 1995).

Low Back Pain sufferers needed medicine treatment in 42.1–79% of the cases (Lallahom et al., 1990; Caillard et al., 1987). In Bejia et al. (2005), medicine treatment was used by 42% of LBP sufferers. Thermalwater care and physiotherapy in Bejia et al. (2005) were used in, respectively, 15.9% and 9.6% of the cases, and in 6.5% and 11.5%, respectively, in the study of Lallahom et al. (1990). Only one employee suffering from Low Back Pain in Bejia et al. (2005) has been operated for a herniated disc. Fanello et al. (1999) reported a rate of 1.2% of cases operated. No agent has been operated in the survey of Lallahom et al. (1990).

2.12 Complications of Low Back Pain

In some cases, chronic or severe back pain can lead to complications:

2.12.1 Disability

Low Back Pain is the most common reason for disability in working adults resulting in sick leave. As discussed by the University of Maryland Medical center, this is usually because back pain limits mobility and range of motion required for standing, bending, and sitting (Kassem, 2013).

2.12.2 Nerve Damage

If the back pain results from a slipped or herniated disc, this may irritate, compress and damage the spinal nerve as it passes through the nerve canal between the

vertebrae. This results in a variety of complications such as weakness and numbness in the leg and severe shooting pain travelling from the back to the leg at one side of the body due to sciatica. This occurs when the sciatic nerve is compressed or damaged causing symptoms in the leg. In severe cases, nerve damage can also cause problems in bladder or interstitial functions (Kassem, 2013).

2.12.3 Depression

Chronic back pain or pain that last for more than a few days can disrupt sleeping, eating patterns and other activities such as socializing and entertainment. This loss of mobility can result in emotional distress, anxiety and depression. Depression can become severe and impede recovery time as individuals lack motivation and energy to exercise and do other activities. Long-term use of medications for back pain can also cause dependency and addiction (Kassem, 2013).

2.12.4 Weight Gain

Back pain causes a loss of activity and restricts movement leading to weight gain and obesity. Muscles may also become weaker due to staying in one position for long periods and body posture may worsen due to muscles and ligament weakness, resulting in body fat accumulation (Kassem, 2013).

2.13 Quality of Life

Non-specific Low Back Pain is rarely fatal but greatly affects the functional status of patients. While the main problem affecting quality of life and disability in patients with acute low back pain is the intensity of pain itself, in patients with chronic low back

pain individual, psychosocial and work related factors are more important (Schiphorst Preuper et al., 2008; Rocchi et al., 2005). The patient with Low Back Pain not only suffers from physical discomfort, but also from functional limitation, which might cause disability and interfere with their quality of life (Horng et al., 2005). Low Back Pain can interfere with basic activities of daily living like walking and dressing, and many work related functions. The result of this study is consistent with previous reports (Coste et al., 2004, Waddell, 1992) that revealed that LBP causes activity limitation and participation restriction.

The measurement of HRQOL has been widely used to evaluate the broad impact of various diseases on patients and the effectiveness of interventions (Testa & Simonson, 1996). In the context of Low Back Pain, it may be useful in understanding the natural history of the condition, which may help improve the clinical management of patients by extending the assessment process beyond the traditional, and clearly insufficient, clinical and functional disability variables (Coste et al., 2004). Biological and psychosocial factors have been reported to affect the HRQOL of patients with Low Back Pain (Coste et al., 2004). Also, it has been reported that HRQOL in patients with Low Back Pain is more dependent on functional status and psychological factors, than on physical impairment (Horng et al., 2005).

In general, disability of patients with chronic low back pain is predicted by pain duration, and the quality of life of such patients is predicted by disability (Kovacs et al., 2005). Functional status, as well as psychological factors, seems to determine the health-related quality of life (Horng et al., 2005). Previous studies have shown that the quality of life of patients with low back pain is affected by female sex, (Suka & Yoshida, 2008;

Rabini et al., 2007; Antonopoulou et al., 2009; Ogunlana et al., 2012) growing age, (Antonopoulou et al., 2009; Ogunlana et al., 2012) occupation, physical and emotional stress (Antonopoulou et al., 2009; Oksuz, 2006) and level of pain (Kovacs et al., 2004).

The effect of female gender, pain intensity, anxiety and depression and chronic co-morbidities on the quality of life and disability of patients with low back pain has been found in many studies (Suka & Yoshida, 2008; Schiphorst Preuper et al., 2008; Antonopoulou et al., 2009; Oksuz, 2006; Tucer et al., 2009). Lifetime depression was found to be an independent risk factor for the patients who experience first episode of low back pain (Currie & Wang, 2004). Depression also worsens the prognosis of low back pain and is poorly recognized and treated in those patients (Harris, 1999). Also, a correlation between depression, low back pain and disability exists (Currie & Wang, 2004). It is though very important that each patient with chronic low back pain is evaluated for the presence of anxiety and depression. Because depression also correlates with some other chronic diseases (Klemenc-Ketis et al., 2009; Moussavi et al., 2007), doctors should focus specially on patients with chronic low back pain with co-morbidities.

A couple of studies (Kovacs et al., 2005; Horng et al., 2005) have concluded that the parameters defining the quality of life of patients with chronic low back pain are a combination of physical and psychological ones. When faced with the management of such patients, doctors should bear this in mind. Doctors should focus on active search for signs of depression and anxiety and better pain management in patients with chronic low back pain, especially in the presence of somatic co-morbidities. This can importantly

lowers self-reported disability and improves quality of life, which can be expected to improve management of those patients.

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Chapter III

METHODOLOGY

3.1 BRIEF DESCRIPTION OF STUDY AREA

Ibadan is located in South-western part of Nigeria. It lies within latitude $7^{\circ} 19' 08''$ and $7^{\circ} 29' 25''$ of the equator and longitude $3^{\circ} 47' 50''$ and $4^{\circ} 0' 22''$. It is the capital of Oyo state and made up of eleven (11) Local Government Areas. Ibadan South-West is a Local Government Area in Oyo state, Nigeria. Its headquarters are at Oluyole Estate in Ibadan. It has an area of 40km^2 and a population of 282,585 according to the 2006 census. The Local Government is bounded in the West by Ido Local government, in the East by Ibadan North and Ibadan South-East Local governments, in the North by Ibadan North-West and Ido Local Governments, and in the South by Oluyole Local Government. Ibadan South-West local government is made up of twelve (12) wards. It is an urban area with the inhabitants' majorly civil servants and private business owners.

3.2 RESEARCH DESIGN

This research work is a community-based cross-sectional survey design which made use of questionnaires to collect data.

3.3 STUDY POPULATION

Consenting men and women at least 18 years of age and resident in Ibadan South-West Local Government Area were the study population of this research work.

3.4 INCLUSION CRITERIA

- ❖ All consent giving individuals above the age of 18.

3.5 EXCLUSION CRITERIA

- ❖ Individuals who have a residual medical condition such as a congenital deformity or recently underwent surgical procedures to their back.

3.6 SAMPLE SIZE

The conventional sample size formula for proportions was used.

$$n = [(Z_{\alpha})^2 \cdot (p) \cdot (1-p)] / d^2$$

Where n = minimum sample size

Z_{α} = confidence level of 95% [1.96]

p = prevalence of LBP [0.39, (Omokhodion, 2004)]

1-p = 0.61

d = estimate of tolerance [0.05]

This gives a 'n' value of 366.

Multiply 366 by the design effect, which is taken to be 2.0 i.e. $366 \times 2 = 732$

This gives a minimum sample size of 732 study participants.

3.7 SAMPLING TECHNIQUE

A minimum of seven hundred and thirty two (732) consenting eligible individual was selected through a four (4) stage sampling technique. From the list of the EAs provided by the National Population Census of Ibadan Southwest Local government, five (5) EAs were randomly selected using Systematic Random Sampling. Further, a cluster sampling of the five (5) enumeration areas (EAs) was done. A minimum of One hundred and forty seven (147) consenting eligible adults were selected from each EA to meet up with the overall sample size and provide representativeness. From each EA, one household was randomly selected by balloting in all the clusters. The random walk and quota sampling method was thereafter employed in which the randomly selected household served as the starting point and subsequent houses were visited in odd numbers. Each consenting eligible individual in consecutive households in each of the cluster were interviewed for the survey until the pre-determined quota was reached.

3.8 INSTRUMENT

There were two (2) research instruments that were used in this study. The first is a semi structured questionnaire that is divided into five sessions and was completed by every consenting study participant. The second questionnaire is the WHOQOL-BREF questionnaire constructed by the World Health Organization for quality of life assessment purposes in large epidemiological studies. Only consenting participants with LBP were required to fill out this questionnaire.

The first questionnaire was designed into five sections. Section A was designed to determine the socio-demographic status of the participants. Section B provided

information about the participant's activities of daily living such as participants work schedule, mode of transport, duration of transport to and from work and use of computer.

Section C provided information about Low Back Pain experience. To determine the lifetime prevalence of LBP, participants were asked the question: "Can you describe your Low Back Pain as always been present?" To determine the pain severity, a Visual Analogue Scale was utilized. On a scale of one (1) to ten (10), with one representing the least pain and 10 the worst pain, participants were asked to indicate their level of pain. An indication between 1-3, 4-6, and 7-10, is as mild, moderate and severe respectively. Section D provided information about care seeking practices while Section E provided information about behavioral practices.

The second questionnaire – the WHOQOL-BREF - consists of 26 questions and covers one general and four specific domains (physical, psychological, social relations and environment). Quality of life scores in the WHOQOL- BREF domains range between zero and 100. The higher the score in each domain, the better the quality of life will be.

3.9 DATA COLLECTION TECHNIQUE

Questionnaires were self-administered. The maximum time allotted for return of questionnaire to the researcher was two calendar days. The telephone contact of each consenting participant was collected (if allowed) and archived with the serial number of the questionnaire they received. This was useful to monitor a few participants who did not return the questionnaire and were not seen any more at home. The researcher retrieved the completed questionnaires after the maximum allotted time elapsed. Also, questionnaires not returned within the allotted time period were monitored.

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In order to ensure uniformity, respondents were shown a diagram in which the region between the lower margins of the 12th rib and the gluteal folds were highlighted and asked to indicate if they had pain in that anatomical region.

3.10 VARIABLES:

❖ Independent Variables:

Gender, Age, Marital Status, Occupation, Level of Education, Religion, Posture, Form of Transport, Continuous sitting, Work Schedule, Transport Duration, Use of Computer, History of Trauma, Back Care Health Talk by Employer, Ever attended Back Care Health Talk, Current Smoking Status, Previous Smoking Status, and Exercise.

❖ Dependent Variables:

Low Back Pain Status, Quality of life

3.11 DATA ANALYSIS

Analysis of the data was carried out using SPSS v20. Descriptive statistics was used to describe the general characteristics of the sample. Association between categorical variables and LBP were examined using chi-square test. Effect of presence of Low Back Pain and its relationship with variables that were significant in the bivariate analysis were further analyzed using the logistic regression model. Results of the logistic regression analysis were presented with a 95% confidence interval (CI). Linear regression model was used to assess the quality of life of LBP sufferers. A probability level of $p < 0.05$ was accepted as being of statistical significance.

3.12 ETHICAL ISSUES

Ethical approval for this study was sought from the Oyo State Ethics Review Committee. A pre-survey visit was made to the study area during which discussions was held with the Community Head (Chairman of Landlord Association) who assisted in informing the community members of the purpose of the survey. Each consenting participant gave consent and signed the informed consent form.

3.12.1 Confidentiality of Data: All participants were anonymous. No participant was required to provide information about their names, telephone numbers and/or address in the questionnaire. Thus, the data cannot be linked to any of the participants in anyway. Also, names of participants or any other identifier was not used in any publication or reports from this study. Telephone numbers that was archived for each consenting participant which was written in a separate notebook was used only for monitoring purposes and was only available to the researcher during the duration of the research. The record of each participant was destroyed immediately the completed questionnaire was received.

3.12.2 Translation of protocol and questionnaire to the Local language: All the protocols that was used which included the consent forms and procedures for collection of samples for this study was communicated to the consenting participants in the language best understood by them, to ensure holistic understanding of all the processes involved in this study. The questionnaire was translated into Yoruba Language for individuals who are more comfortable with the local language.

3.12.3 Beneficence to participants: No financial reward was given to any of the study participants. The external validity of the outcome of this study is promising and if implemented by policy makers, all will enjoy better health which will go a long way in preventing the occurrence of Low Back symptoms in the populace. Individuals who reported experiencing Low Back Pain were encouraged to visit a healthcare facility for adequate treatment.

3.12.4 Non-maleficence to participants: This study is not detrimental to the consenting participants in any way as no clinical assessment, treatment or trial was involved.

3.12.5 Voluntariness: Participation in this study was totally voluntary and without any compulsion. Each prospective participant was required to give assent and also sign the informed consent form with the understanding that they had the right to withdraw their interest in the survey at any time.

3.12 CONCEPTUAL FRAMEWORK

Low Back Pain

Posture Variables

- ❖ Posture Assume (Omokhodion et al., 2000; Matsui et al., 1997)
- ❖ Form of Transport (Fanello et al., 1999; Furber et al., 1992)
- ❖ Continuous Sitting (Rezaee et al., 2010; Omokhodion & Sanya 2003)
- ❖ Work Schedule()
- ❖ Transport Duration (Fanello et al., 1999; Furber et al., 1992)
- ❖ Use of Computer (Adedoyin et al., 2003; Waverley 1999)

Lifestyle Variables

- ❖ Smoking Status (Omokhodion & Sanya, 2003; Connor & Marlowe, 1993)
- ❖ Physical Activities/Exercise (Beija et al., 2005; Smith et al., 2003; Thomas & Blotman., 1998)

Other Variables

- ❖ History of Trauma (Omokhodion, 2004)
- ❖ Exposure to information/Knowledge about Low Back Pain (Hall et al., 2012)

Socio-demographic Variables

- ❖ Gender (Galukande et al., 2005; Omokhodion et al., 2000)
- ❖ Age (Razace et al., 2010; Adams et al., 1999)
- ❖ Marital Status (Beija et al., 2005)
- ❖ Occupation (Matsudaira et al., 2010; Xu et al., 1997)
- ❖ Level of Education (Toroptsova et al., 1995; Reisbord & Greenland, 1985)

Chapter IV

RESULTS

4.1 Preamble

This chapter contains the results of this study aimed at determining the prevalence and associated risk factors of Low Back Pain in an urban community in Nigeria. Also, this section contains the results on the effect of Low Back Pain on the Quality of Life of respondents' with Low Back Pain. Thus this section is divided into two parts.

The first part (4.2.1 – 4.2.10) shows the results of the Prevalence and risk factors of Low Back Pain in the entire sample. It also reports the frequency of absenteeism due to Low Back Pain and care seeking practices of individuals who have ever experienced Low Back Pain. The results from this section are gotten from the responses of 741 respondents in this study.

The second part (4.3.1 – 4.3.3) of the results reveals the findings about the effect on Low Back pain on the Quality of Life among individuals who reported that they currently experience Low Back pain as at the time of the survey. This aspect reveals the effect of socio-demographic variables on each domain of the World Health Organization Quality of Life BREF (WHO-BREF) questionnaire. Two hundred and thirty one respondents with Low Back pain as at the time of the survey filled the WHO-BREF questionnaire and the results obtained are used to prepare the results.

4.2.1 Age, Gender, Marital Status, Level of Education, Religion and Tobacco Smoking Status Characteristics of the Sample

There were 741 respondents, 345 males (46.6%) and 396 females (53.4%). The respondents were aged between 18 and 82 years with a mean age of 41.32 (SD = \pm 15.24 years) (Table 1). A sizeable number, 431 (58.2%), of the respondents were married, 250 (33.7%) were single, and 60 (8.1%) were separated, divorced or widowed. Forty four (5.9%) of the sample had no formal education, 107 (14.4%) had primary school education, 315 (42.5%) had secondary school education, while 275 (37.1%) of the sample had post secondary education. Four hundred and fifty one (60.9%) of the sample were Christians while 290 (39.1%) were Muslims. Seventy (9.4%) respondents smoke tobacco as at the time of the survey while 197 (26.6%) of the respondents have ever smoked tobacco.

Table 1: Age distribution of study respondents

	N	Minimum	Maximum	Mean	±SD
Total					
All Respondents	741	18	82	41.32	15.240
Gender					
Males	345	18	82	40.66	15.142
Females	396	18	81	41.89	15.320
Low Back Pain Status					
Respondents with Point LBP ^a	231	18	82	47.29	16.778
Respondents with Annual LBP	453	18	82	45.86	15.177
Respondents with Lifetime LBP	523	18	82	45.68	15.089
Respondents free of LBP	218	18	74	30.85	9.393

^a=Low Back Pain

4.2.2 Prevalence of Low Back Pain

As at the time of the survey, 231 respondents reported having Low Back Pain, thus Point Prevalence was 31.2%. Four hundred and fifty three individuals had experienced Low Back Pain within the last 12 months representing an Annual Prevalence of 61.1%. The Lifetime Prevalence is 70.6% which is representative of 523 respondents who reported they have experienced pain at the Low Back at least once in their lifetime (Table 2).

Table 2: Point, Annual, and Lifetime Prevalence by sex

Prevalence	Male		Female		Total	
	N	n (% LBP)	N	n (% LBP)	N	n (% LBP)
Point	345	108 (31.2)	396	123 (31.1)	741	231 (31.2)
Annual	345	203 (58.8)	396	250 (63.1)	741	453 (61.1)
Lifetime	345	238 (69.0)	396	285 (72.0)	741	523 (70.6)

N= Total Number, n= number with low back pain

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4.2.3 Distribution of Low Back Pain by Age, Sex and occupation

The distribution of Low Back pain by age and sex is outlined in Table 3. In both sexes and in the overall sample, the prevalence of Low Back Pain is found to increase steadily as age increases; the lowest Lifetime Prevalence (47.6%) was experienced by those in the 18-30 age category while the highest prevalence (97.2%) was among respondents in the 60 and above age category. An interesting fact is that the prevalence of Low Back Pain is found to be roughly about 50% between the ages of 18 – 29 and 30 – 39 but the prevalence increased exponentially from age 40 and above to roughly 90% as the age increases.

Table 4 outlines the distribution of Low Back Pain based on occupation and stratified by gender. In males, the highest prevalence was among Traders (76.1%) while the lowest prevalence (62.6%) was among Artisans. In females, Low Back Pain prevalence was highest among Teachers (81.0) while the lowest prevalence was found among those who work in an office setting (57.4%).

Table 3: Distribution of Low Back Pain (LBP) by Age and Sex

Age (Years)	Male		Female		Total	
	N	n (% LBP)	N	n (% LBP)	N	n (% LBP)
18-29	90	43 (47.8)	101	48 (47.5)	191	91 (47.6)
30-39	89	43 (47.8)	90	45 (50.0)	179	88 (49.2)
40-49	70	61 (87.1)	73	65 (89.0)	143	126 (88.1)
50-59	51	47 (92.2)	71	68 (95.8)	122	115 (94.3)
60 and Above	45	44 (97.8)	61	59 (96.7)	106	103 (97.2)
Total	345	238 (69.0)	396	285 (72.0)	741	523 (70.6)

N= Total Number, n= number with low back pain

Table 4a: Distribution of Low Back Pain (LBP) among occupational groups (in males)

Occupation	Yes	No	Total
	n (%)	n (%)	n (% LBP)
Office Worker	56 (72.7)	21 (27.3)	77 (100)
Artisan	77 (62.6)	46 (37.4)	123 (100)
Trader	54 (76.1)	17 (23.9)	71 (100)
Teacher	28 (68.3)	13 (31.7)	41 (100)
Unemployed	23 (69.7)	10 (30.3)	33 (100)
Total	238 (69.0)	107 (31.0)	345 (100)

Table 4b: Distribution of Low Back Pain (LBP) among occupational groups (in females)

Occupation	Yes	No	Total
	n (%)	n (%)	n (% LBP)
Office Worker	54 (57.4)	40 (42.6)	94 (100)
Artisan	61 (71.8)	24 (28.2)	85 (100)
Trader	112 (79.4)	29 (20.6)	141 (100)
Teacher	34 (81.0)	8 (19.0)	42 (100)
Unemployed	24 (70.6)	10 (29.4)	34 (100)
Total	235 (72.0)	111 (28.0)	396 (100)

4.2.4 Associated Factors of Low Back Pain

Bivariate analysis was done with 'Have you ever experienced Low Back Pain?' as the dependant variable against variables considered as risk factors. The results are presented in Table 5 below. Higher prevalence of Low Back Pain was found among respondents with age 40 and greater (92.7%) compared to those between ages 18 – 39 who experience a prevalence of 48.4% ($p < 0.001$). There was a significant difference ($p < 0.001$) in the prevalence of Low Back Pain based on marital status. Single respondents have a prevalence of 45.6%, married respondents have a prevalence of 82.1% while respondents who are either separated, divorced or widowed have a prevalence of 91.7%. A statistical significant relationship was found in the relationship between Lifetime prevalence of Low Back Pain and occupation as respondents with office related work have the lowest prevalence of 64.3% and the highest prevalence was among traders who had a prevalence of 74.7% ($p = 0.019$).

Based on educational status, prevalence of Low Back Pain is highest among respondents with either no formal education or those with primary school education (96.0%), lowest among those with secondary education (63.2) and those with post secondary education has a prevalence of 65.1%. This relationship is statistically significant ($p = 0.000$). Muslims (77.6%) had a higher risk of ever experiencing Low Back Pain compared to Christians (66.1%). A statistically significant association is found for the latter relationship ($p = 0.001$).

Posture assumed had a statistically significant relationship with Low Back Pain experience ($p < 0.001$). The highest prevalence was among respondents who often 'lean

Forward' (80.0%) and lowest among those who lift (37.5%). Prevalence of Low Back Pain was lowest among respondents who often uses foot (49.0%) as their main form of transport compared to those who uses the public transport system (74.9%). Respondents who utilize their private transport had a prevalence of 70.7%. This association is statistically significant ($p < 0.001$)

The relationship between continuous sitting and occurrence of Low Back Pain was statistically significant ($p < 0.001$). A higher proportion of individuals who sit for more than 3 – 4 hours developed Low Back Pain (93.7%) as against respondents who are used to sitting continuously less than 3 – 4 hours (50.1%). The duration of transport to and from work is a statistically significant factor in Low Back Pain occurrence ($p < 0.001$). Respondents whose transport duration is more than 30 minutes had a higher proportion (93.8%) of those with Low Back Pain compared to those whose transport duration is less than 30 minutes (47.2%).

Users of computer are more likely to experience Low Back Pain than non-users due to the higher proportion of the former (84.1%) as compared to 63.9% of the latter. This relationship is statistically significant ($p < 0.001$). The relationship between previous history of trauma (fall or accident on the back) and Low Back Pain experience was found to be statistically significant ($p < 0.001$), as 96.1% of respondents with previous history of trauma reported ever experiencing Low Back Pain as against 59.1% of those without history of trauma.

It appears that when employers organize health care talk on back care, employees are less likely to experience Low Back Pain. Only 38.1% of respondents whose

employers organize health care talk on back care reported ever experiencing Low Back Pain as against 72.9% of employees whose employers do not organize health care talk on back care. This relationship is statistically significant ($p < 0.001$). Also, ever attending a health care talk on back care appears to be protective of ever experiencing Low Back Pain. The association is statistically significant ($p < 0.001$). Only 35.3% of those who have ever attended a health care talk on back care have ever experienced Low Back Pain compared to 80.8% of those who have never attended a health care talk on back care.

A statistically significant relationship was found in the association between current smokers and experiencing Low Back Pain ($p < 0.001$). A high proportion (92.9%) of current smokers has ever experienced Low Back Pain as against 68.3% of non-smokers. In a similar finding, previous history of smoking also had a statistically significant relationship with experiencing Low Back Pain ($p < 0.001$). Among respondents who have ever smoked, 94.4% have experienced Low Back Pain as against 61.9% of respondents who have never smoked tobacco.

Exercise seem to be statistically significant factor when considered in terms of Low Back Pain experience ($p < 0.001$). A lower proportion of respondents (27.7%) were found in respondents' who 'regularly' exercise as against a proportion of 96.0% of respondents who 'never' exercise.

Table 5: Bivariate analysis of associated risk factors; characterized by lifetime prevalence of Low Back Pain (LBP)

Risk Factor	Categories	Yes (%)	No (%)	Total (%)	χ^2	p-value
Sex	Male	238 (69.0)	107 (31.0)	345 (100)	0.791	0.374
	Female	285 (72.0)	111 (28.0)	396 (100)		
Age	18 – 39	179 (48.4)	191 (51.6)	370 (100)	175.431	<0.001
	40 and Above	344 (92.7)	27 (7.3)	371 (100)		
Marital Status	Single	114 (45.6)	136 (54.4)	250 (100)	115.688	<0.001
	Married	354 (82.1)	77 (17.9)	431 (100)		
	Others ^a	55 (91.7)	5 (8.3)	60 (100)		
Occupation	Office Worker	110 (64.3)	61 (35.7)	171 (100)	11.787	0.019
	Artisan	138 (66.3)	70 (33.7)	208 (100)		
	Trader	166 (78.3)	46 (21.7)	212 (100)		
	Teacher	66 (74.7)	21 (25.3)	83 (100)		
	Unemployed	47 (70.1)	20 (29.9)	67 (100)		
Level of Education	None ^b /Primary	145 (96.0)	6 (4.0)	151 (100)	59.398	<0.001
	Secondary	199 (63.2)	116 (36.8)	315 (100)		
	Post Secondary	179 (65.1)	96 (34.9)	275 (100)		
Religion	Christian	298 (66.1)	153 (33.9)	451 (100)	11.263	0.001
	Muslim	225 (77.6)	65 (22.4)	290 (100)		
Posture	Lifting	9 (37.5)	15 (62.5)	24 (100)	25.274	0.001
	Leaning Forward	32 (80.0)	8 (20.0)	40 (100)		
	Standing	111 (61.7)	69 (38.3)	180 (100)		
	Sitting	313 (74.9)	105 (25.1)	418 (100)		
	Varied	58 (73.4)	21 (26.6)	79 (100)		
Form of Transport	Foot	48 (49.0)	50 (51.0)	98 (100)	26.384	<0.001
	Private Transport	111 (70.7)	46 (29.3)	157 (100)		
	Public Transport	364 (74.9)	122 (25.1)	486 (100)		

^a= Separated/Divorced/Widowed, ^b= No Formal education

Table 5 (Cont'd): Bivariate Analysis of associated risk factors; characterized by lifetime prevalence of Low Back Pain (LBP)

Risk Factor	Categories	Yes (%)	No (%)	Total (%)	χ^2	p-value
Continuous Sitting	Less than 3-4 hours	197 (50.1)	196 (49.9)	393 (100)	168.588	<0.001
	Greater than 3-4 hours	326 (93.7)	22 (6.3)	348 (100)		
Work Schedule	Day Only	440 (70.2)	189 (29.8)	627 (100)	0.757	0.384
	Others ^a	38 (76.0)	12 (24.0)	50 (100)		
Transport Duration ^b	Less than 30 minutes	159 (47.2)	178 (52.8)	337 (100)	177.411	<0.001
	Greater than 30 minutes	319 (93.8)	21 (6.2)	340 (100)		
Use of Computer	Yes	190 (84.1)	26 (15.9)	226 (100)	29.637	<0.001
	No	288 (63.9)	163 (36.1)	451 (100)		
History of Trauma	Yes	221 (96.1)	9 (3.9)	230 (100)	104.499	<0.001
	No	302 (59.1)	209 (40.9)	511 (100)		
Back Care Health	Yes	16 (38.1)	26 (61.9)	42 (100)	23.079	<0.001
Talk by Employer	No	463 (72.9)	172 (27.1)	635 (100)		
Attended Back	Yes	59 (35.3)	108 (64.7)	167 (100)	129.016	<0.001
Care Health Talk	No	464 (80.8)	110 (19.2)	574 (100)		
Currently Smoke	Yes	65 (92.9)	5 (7.1)	70 (100)	18.475	<0.001
	No	458 (68.3)	213 (31.7)	671 (100)		
Ever Smoked	Yes	186 (94.4)	11 (5.6)	197 (100)	73.422	<0.001
	No	337 (61.9)	207 (38.1)	544 (100)		
Exercise	Regularly	36 (27.7)	94 (72.3)	130 (100)	228.441	<0.001
	Occasionally	175 (61.2)	111 (38.8)	286 (100)		
	Never	321 (96.0)	13 (4.0)	325 (100)		

^a = Both Day and Night/Night Only, ^b = Transport duration to and from work

4.2.5 Multivariate Analysis

The variables in the bivariate analysis were further analyzed using the multiple logistic regression model. The result of the multivariate analysis is presented in Table 6 below.

The multivariate analysis shows that individuals 40 years and older are about 4 times more likely than those younger than 40 years old to experience Low Back Pain ($p=0.006$). Also, occupation as an artisan ($p=0.005$) and a trader ($p=0.007$) is a risk factor as individuals in this category are about 5 and 4 times respectively to ever develop Low Back Pain.

Individuals who continuously sit for more than 3 – 4 hours are about 6 times more likely than individuals who sit continuously less than 3 – 4 hours to develop Low Back Pain ($p<0.001$). Transporting to or from work with a duration more than 30 minutes is a risk factor to developing Low Back Pain ($p<0.001$) as individuals who transport themselves more than 30 minutes to or from work are about 6 times more likely to ever experience Low Back Pain.

Users of computer are about 7 times more likely to experience Low Back Pain in their lifetime. This relationship is significant in the multivariate analysis ($p<0.001$). History of trauma is another factor that was significant ($p=0.045$). Individuals with previous history of trauma are about 3 times more likely to develop Low Back Pain in their lifetime. Individuals who have ever attended a health care talk on back care are about 5 times less likely to ever experience Low Back Pain. This association is statistically significant ($p<0.001$).

Individuals who have ever smoked tobacco are about 5 times more likely than those who have never smoked tobacco to experience Low Back Pain in their lifetime. The relationship is statistically significant ($p=0.006$). Frequent regular exercise is a protective factor as individuals who occasionally exercise are about 4 times more likely to experience Low Back Pain in their lifetime. The relationship is statistically significant ($p=0.002$). While those who never exercises are about 45 times more likely to experience Low Back Pain in their lifetime. The association is statistically significant ($p<0.001$).

In a recap, after the multiple logistic regression, being 40 years and older, occupation as an artisan, occupation as a trader, assuming varied posture and continuous sitting for more than 3 – 4 hours are significant risk factors. Other risk factors include transport duration to work more than 30 minutes, use of computer, previous history of trauma, never attending a health care talk on back care, ever smoked and not having a regular exercise culture.

Table 6: Results of Multiple Logistic Regression in respondents with Low Back Pain (LBP).

Characteristics associated with reporting ever experienced LBP.

Variable	Categories	OR	95% C.I	p-value
Age	18-39 (Ref)	1		
	40 and Above	3.631	1.433 – 9.114	0.006
Occupation	Office Worker (Ref)	1		
	Artisan	5.399	1.652 – 17.640	0.005
	Trader	4.028	1.475 – 11.000	0.007
	Teacher	4.161	0.885 – 19.564	0.071
Posture	Lifting (Ref)	1		
	Leaning Forward	2.712	0.324 – 22.719	0.358
	Standing	3.933	0.639 – 24.185	0.140
	Sitting	4.556	0.766 – 27.090	0.095
	Varied	8.311	1.239 – 55.741	0.029
Continuous Sitting	Less than 3-4 hours (Ref)	1		
	Greater than 3-4 hours	5.557	2.554 – 12.093	<0.001
Transport Duration ^a	Less than 30 minutes (Ref)	1		
	Greater than 30 minutes	6.106	3.035 – 12.093	<0.001
Use of Computer	No (Ref)	1		
	Yes	7.074	3.015 – 16.601	<0.001
History of Trauma	No (Ref)	1		
	Yes	2.728	1.024 – 7.266	0.045

^a= Transport duration to and from work

Table 6 (Cont'd): Results of Multiple Logistic Regression in respondents with Low Back Pain (LBP). Characteristics associated with reporting ever experienced LBP.

Variable	Categories	OR	95% C.I	p-value
Attended Back	Yes (Ref)	1		
Care Health Talk	No	4.896	2.124 – 11.285	<0.001
Ever Smoked	No (Ref)	1		
	Yes	4.964	1.576 – 15.631	0.006
Exercise	Regularly (Ref)	1		
	Occasionally	3.603	1.595 – 8.140	0.002
	Never	43.276	14.863 – 137.926	<0.001

4.2.6 Absentism from work due to Low Back Pain

Seventy six respondents (16.1% of the 473 respondents who are gainfully employed and have ever experience Low Back Pain) reported that they were absent from work due to the Low Back Pain they experienced. The 76 respondents took a total of 238 days off. The minimum period off work was 1 day while the maximum period taken off work due to Low Back Pain was 24 days. This gives a mean of 3.13 ± 3.12 days off work per employee.

Table 7 shows the distribution of absenteeism due to Low Back Pain based on occupation. The highest period taken off work was among Artisans (34.45%) while the Teachers took the least period off work due to Low Back Pain (10.51%).

Table 7: Days absent from work due to Low Back Pain (LBP) based on occupation

Occupation	n	Minimum*	Maximum*	Sum*	Mean*	±SD	%
Artisans	27	1	24	82	3.04	4.407	34.45
Traders	21	1	14	75	3.57	2.803	31.51
Office Workers	18	1	6	56	3.11	1.491	23.53
Teachers	10	1	5	25	2.50	1.509	10.51
Total	76	1	24	238	3.13	3.12	100.00

*=In days

4.2.7 Severity of Low Back Pain

On the Visual Analogue Scale, the least score by a respondent with Low Back Pain was 0 while the highest score was 9. Stratifying the responses in terms of severity, 294 (56.2%) described the pain they experience as mild, 216 (41.3%) described the pain the experience as moderate, while 13 (2.5%) of the respondents who have ever experience Low Back pain described the pain as severe (Table 8).

Among the 523 respondents who reported ever experiencing Low Back pain, 38 (7.3%) reported that the pain occurred less than 2 weeks to the survey. One hundred and ninety six (37.5%) reported they have been experiencing the Low Back Pain between 2 weeks and 3 months and 289 representing 55.3% describe their pain as occurring for more than 3 months. This scale classify respondents' Low Back Pain as Acute, Sub-Acute, and Chronic respectively (Table 9).

Table 8: Severity of Low Back Pain based on Visual Analogue Scale (VAS)

	Male	Female	Total
	<i>n (%)</i>	<i>n (%)</i>	<i>n (%)</i>
Mild (0 – 3)	133 (55.9)	161 (56.5)	294 (56.2)
Moderate (4 – 7)	98 (41.2)	118 (41.4)	216 (41.3)
Severe (8 – 10)	7 (2.9)	6 (2.1)	13 (2.5)
	238 (100)	285 (100)	523 (100)

Table 9: Severity of Low Back Pain based on duration

	Male	Female	Total
	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)
Acute (Less than 2 Weeks)	22 (9.2)	16 (5.6)	38 (7.3)
Sub-Acute (2 Weeks – 3 Months)	74 (31.1)	122 (42.8)	196 (37.5)
Chronic (Greater than 3 Weeks)	142 (59.7)	147 (51.6)	289 (55.3)
	238 (100)	285 (100)	523 (100)

Table 9: Severity of Low Back Pain based on duration

	Male	Female	Total
	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)
Acute (Less than 2 Weeks)	22 (9.2)	16 (5.6)	38 (7.3)
Sub-Acute (2 Weeks – 3 Months)	74 (31.1)	122 (42.8)	196 (37.5)
Chronic (Greater than 3 Weeks)	142 (59.7)	147 (51.6)	289 (55.3)
	238 (100)	285 (100)	523 (100)

4.2.8 Care Seeking Practice

Five hundred and twenty three respondents with Low Back Pain responded to the multiple choice question which reads: "Which medical help have you consulted due to your Low Back Pain?" The Local Chemist proved to be the most frequently consulted health care for Low Back Pain with a total number of 215 (41.1%) reported to have consulted the Local Chemist for care due to their Low Back Pain. The other health care consulted by respondents with Low Back Pain are the Medical Doctor (32.7%), Physiotherapist (29.1%), Traditional Healer (21.0%), Nurse (11.7%), and the Dietitian was consulted by only 4.2% of the respondents with Low Back Pain. Eighty nine respondents representing 17.0% reported they did not seek any care due to their Low Back Pain (Table 10).

When asked what respondents with Low Back Pain often do when they start perceiving the pain in their low back, the majority (35.2%) of respondents reported that they bed rest. One hundred and sixty one respondents (30.8%) responded that they carry on with their activities. One hundred and thirty eight (26.4%) respondents reports they immediately self medicate with the drugs they have in possession at hand. While only a meager 40, representing 7.6% of all respondents with Low Back Pain said they immediately see a health care provider. The distribution is represented in Table 11.

Table 10: Care seeking practice of respondents with Low Back Pain (LBP)

	Male	Female	Total
	<i>n (%)</i>	<i>n (%)</i>	<i>n (%)</i>
Medical Doctor	80 (33.6)	91 (31.9)	171 (32.7)
Physiotherapist	68 (28.6)	84 (29.5)	152 (29.1)
Nurse	22 (9.2)	39 (13.7)	61 (11.7)
Dietitian	8 (3.4)	14 (4.9)	22 (4.2)
Local Chemist	86 (36.1)	129 (45.3)	215 (41.1)
Traditional Healer	56 (23.5)	54 (18.9)	110 (21.0)
None	43 (18.1)	46 (16.1)	89 (17.0)

Table 11: Immediate response among Respondents with Low Back pain when pain is perceived

	Male	Female	Total
	<i>n (%)</i>	<i>n (%)</i>	<i>n (%)</i>
Immediately Consult an Health Care Provider	17 (7.1)	23 (8.1)	40 (7.6)
Bed rest	66 (27.7)	118 (41.4)	184 (35.2)
Carry on with Activities	101 (42.4)	60 (21.1)	161 (30.8)
Self Medication	54 (22.7)	84 (29.5)	138 (26.4)
Total	238 (100)	285 (100)	523 (100)

Table 11: Immediate response among Respondents with Low Back pain when pain is perceived

	Male	Female	Total
	<i>n (%)</i>	<i>n (%)</i>	<i>n (%)</i>
Immediately Consult an Health Care Provider	17 (7.1)	23 (8.1)	40 (7.6)
Bed rest	66 (27.7)	118 (41.4)	184 (35.2)
Carry on with Activities	101 (42.4)	60 (21.1)	161 (30.8)
Self Medication	54 (22.7)	84 (29.5)	138 (26.4)
Total	238 (100)	285 (100)	523 (100)

Table 11: Immediate response among Respondents with Low Back pain when pain is perceived

	Male	Female	Total
	<i>n (%)</i>	<i>n (%)</i>	<i>n (%)</i>
Immediately Consult an Health Care Provider	17 (7.1)	23 (8.1)	40 (7.6)
Bed rest	66 (27.7)	118 (41.4)	184 (35.2)
Carry on with Activities	101 (42.4)	60 (21.1)	161 (30.8)
Self Medication	54 (22.7)	84 (29.5)	138 (26.4)
Total	238 (100)	285 (100)	523 (100)

4.2.9 Health Care Talk on Back Care

A total of 677 respondents were gainfully employed. When asked if their employers or union/association (in case of those self employed) organize health care talk on back care, only 42 respondents (6.2%) reported that their employers organize health care talk on back care for them. The majority (93.8%) reported their employers do not organize health care talk on back care for their employees (Table 12). This shows that the vast majority of employers do not see the need to organize health care talk on back care for their employees despite the associated pain and discomfort it may cause.

The entire sample was asked if they have ever attended a health talk on back care. One hundred and sixty seven (22.5%) answered in the affirmative while 574 (77.5%) responded in the negative (Table 12). This clearly shows that health talk on back care is a very rare area which is considered when health care lectures are being organized.

Table 12: Distribution of Employers who organize Health Talk on Back Care and individuals who have ever attended a Health Talk on Back care.

	Yes	No	Total
	<i>n (%)</i>	<i>n (%)</i>	<i>n (%)</i>
Employer Organize Health Talk on Back Care	42 (6.2)	635 (93.8)	677 (100)
Ever Attended Health Talk on Back Care	167 (22.5)	574 (77.5)	741 (100)

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4.2.10 Exercise Routine

The exercise culture of respondents was examined. One hundred and thirty (17.5%) self reported that they regularly exercise, 286 (38.6%) reported that they only exercise occasionally, while the majority, 325 (43.9%) reported that they never exercise (Table 13). This shows a poor exercise culture among the respondents.

Table 13: Exercise routine of respondents.

	<i>n</i>	(%)
Regularly	130	(17.5)
Occasionally	286	(38.6)
Never	325	(43.9)
Total	741	(100.0)

Table 13: Exercise routine of respondents.

	<i>n</i>	(%)
Regularly	130	(17.5)
Occasionally	286	(38.6)
Never	325	(43.9)
Total	741	(100.0)

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4.3.1 Age, Gender, Marital Status, Level of Education, Religion and Tobacco Smoking Status Characteristics of the Low Back Pain – Quality of Life (LBP-QOL) Sample

There were 231 respondents, 108 males (46.8%) and 123 females (53.2%). The respondents were aged between 18 and 82 years with a mean age of 47.29 (SD = ± 16.78 years) (Table 14). The socio-demographic characteristics of the LBP-QOL sample are represented in Table 15. A sizeable number, 160 (69.3%), of the respondents were married, 50 (21.6%) were single, and 21 (9.1%) were separated, divorced or widowed. Fifteen (6.5%) of the sample had no formal education, 38 (16.5%) had primary school education, 98 (40.3%) had secondary school education, while 85 (36.8%) of the sample had post secondary education. One hundred and twenty-nine (55.8%) of the sample were Christians while 102 (44.2%) were Muslims. Fifteen (6.5%) respondents smoke tobacco as at the time of the survey while 62 (26.8%) of the respondents have ever smoked tobacco.

The Visual Analogue Scale (VAS) score for pain rating was between the range of 1 and 9 with a mean of 4.22 (SD = ± 1.998) (Table 16). Each of the domains in the World Health Organization BREF questionnaire was well represented in Table 16. The mean scores for the domains are 54.124 (SD = ± 12.214), 63.22 (SD = ± 12.580), 61.61 (SD = ± 14.329), and 64.88 (SD = ± 13.509) for the Physical Health domain, Psychological domain, Social domain, and the Environmental domain respectively (Table 16).

Table 14: Age distribution of Low Back Pain – Quality of Life (LBP-QOL) respondents

	N	Minimum	Maximum	Mean	±SD
Total					
All Respondents	231	18	82	47.29	16.778
Gender					
Males	108	18	82	46.60	17.320
Females	123	18	81	47.90	16.334

Table 15: Socio-demographic characteristics of the (LBP-QOL) respondents

Variable	Category	Frequency	%
Sex	Male	108	46.8
	Female	123	53.2
Age	18 – 29	43	18.6
	30 – 39	40	17.3
	40 – 49	41	17.7
	50 -59	35	15.2
	60 and Above	72	31.2
Marital Status	Single	50	21.6
	Married	160	69.3
	Others ^a	21	9.1
Occupation	Office Worker	50	21.6
	Artisan	53	22.9
	Trader	70	30.3
	Teacher	30	13.0
	Unemployed	28	12.1
Level of Education	None ^b	15	6.5
	Primary	38	16.5
	Secondary	93	40.3
	Post Secondary	85	36.8
Religion	Christian	129	55.8
	Muslim	102	44.2

^a= Separated/Divorced/Widowed, ^b= No Formal education

Table 15 (Cont'd): Socio-demographic characteristics of the (LBP-QOL) respondents

Variable	Category	Frequency	%
Duration of Low Back Pain	Acute (Less than 2 Weeks)	8	3.5
	Sub-Acute (2 Weeks – 3 Months)	90	39.0
	Chronic (More than 3 Months)	133	57.6
Low Back Pain Severity	Mid (VAS ^a 0 – 3)	93	40.3
	Moderate (4 – 7)	126	54.5
	Severe (8 – 10)	12	5.2
Currently Smoke	Yes	15	6.5
	No	216	93.5
Ever Smoked	Yes	62	26.8
	No	169	73.2
Exercise Routine	Regularly	19	8.2
	Occasionally	79	34.2
	Never	133	57.6

^a = Visual Analogue Scale

Table 16: Visual Analogue Scale (VAS) Score and World Health Organization Quality of Life (WHO-QOL) BREF Measurement; All Respondents

Variable	Minimum	Maximum	Mean	±SD
VAS Score	1	9	4.22	1.998
WHO-QOL BREF Domains				
Physical	25	81	54.24	12.214
Psychological	31	94	63.22	12.580
Social	25	100	61.61	14.329
Environmental	25	100	64.88	13.509

4.3.2 Bivariate analysis of influence of Domain score of QOL on associated variables

4.3.2.1 Physical Domain Score (PDS): The influence of socio-demographic and other associated variables on the physical domain summary score of WHO-QOL BREF is as presented in Table 17. The female respondents had a significantly better PDS (57.74 ± 12.318) as against males PDS of 50.24 ± 10.844 ($p < 0.001$). Also, there was a reduction in PDS with increase in age ($p = 0.017$) as those between the ages of 18 – 39 years had a PDS of 56.81 ± 13.640 compared to those 40 years and above (52.80 ± 11.128).

4.3.2.2 Psychological Domain Score (PsDS): The influence of socio-demographic and other associated variables on the psychological domain summary score of WHO-QOL BREF is as presented in Table 18. Male respondents had a significantly better PsDS of 65.59 ± 12.685 compared to females with a PsDS of 61.14 ± 12.160 . This difference is statistically significant ($p = 0.007$). Also, there was a reduction in PsDS with increasing age ($p = 0.044$). Respondents 40 years and above reported a PsDS of 61.97 ± 11.895 compared to respondents between the ages of 18 and 39 years. Married respondents had a significantly better PsDS (67.82 ± 13.194) compared to married respondents (61.73 ± 12.269) and respondents who are either separated, divorced or widowed (63.62 ± 11.223) ($p = 0.011$). The PsDS of respondents who reported their Low Back Pain to have started less than 2 weeks duration before the time of the survey is significantly higher (69.63 ± 12.059) than respondents with Low Back Pain of between 2 weeks and 3 months duration (60.18 ± 13.171) and those above 3 months duration (64.89 ± 11.809) ($p = 0.007$).

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4.3.2.1 Physical Domain Score (PDS): The influence of socio-demographic and other associated variables on the physical domain summary score of WHO-QOL BREF is as presented in Table 17. The female respondents had a significantly better PDS (57.74 ± 12.318) as against males PDS of 50.24 ± 10.844 ($p < 0.001$). Also, there was a reduction in PDS with increase in age ($p = 0.017$) as those between the ages of 18 – 39 years had a PDS of 56.81 ± 13.640 compared to those 40 years and above (52.80 ± 11.128).

4.3.2.2 Psychological Domain Score (PsDS): The influence of socio-demographic and other associated variables on the psychological domain summary score of WHO-QOL BREF is as presented in Table 18. Male respondents had a significantly better PsDS of 65.59 ± 12.685 compared to females with a PsDS of 61.14 ± 12.160 . This difference is statistically significant ($p = 0.007$). Also, there was a reduction in PsDS with increasing age ($p = 0.044$). Respondents 40 years and above reported a PsDS of 61.97 ± 11.895 compared to respondents between the ages of 18 and 39 years. Married respondents had a significantly better PsDS (67.82 ± 13.194) compared to married respondents (61.73 ± 12.269) and respondents who are either separated, divorced or widowed (63.62 ± 11.223) ($p = 0.011$). The PsDS of respondents who reported their Low Back Pain to have started less than 2 weeks duration before the time of the survey is significantly higher (69.63 ± 12.059) than respondents with Low Back Pain of between 2 weeks and 3 months duration (60.18 ± 13.171) and those above 3 months duration (64.89 ± 11.809) ($p = 0.007$).

4.3.2.3 Social Domain Score (SDS): The influence of socio-demographic and other associated variables on the social domain summary score of WHO-QOL BREF is as presented in Table 19. The SDS reduced significantly with increasing age ($p = 0.048$). Respondents between the ages of 18 and 39 years reported a SDS of 64.10 ± 16.099 as against respondents 40 years and above with a SDS of 60.21 ± 13.084 . Single respondents had a SDS of 66.12 ± 17.314 , Married respondents had a SDS of 60.31 ± 13.130 , while respondents who are either separated, divorced or widowed had a SDS of 60.71 ± 13.817 . The SDS change based on marital status is statistically significant ($p = 0.041$). The SDS of respondents with a Low Back Pain with a duration of less than 2 weeks was significantly better (72.63 ± 19.493) compared to respondents with Low Back Pain of between 2 weeks and 3 months (58.37 ± 13.364) or respondents with Low Back Pain of a duration more than 3 months (63.14 ± 14.153) ($p = 0.004$). Respondents whose work schedule require them to work both Day and Night had a significantly better SDS (68.42 ± 14.815) in comparison with respondents who work Day only (61.28 ± 14.083) ($p = 0.037$). The SDS of current smokers (68.80 ± 10.523) was significantly better than respondents who do not currently smoke (61.11 ± 14.443) ($p = 0.044$). While the SDS of respondents who have ever smoked is also significantly better (66.26 ± 12.254) than respondents who have never smoked tobacco (59.90 ± 14.685) ($p = 0.003$).

4.3.2.4 Environmental Domain Score (EDS): Table 20 shows the influence of the socio-demographics and associated variables on the environmental domain summary score of WHO-QOL BREF. Female respondents reported a significantly better EDS (69.18 ± 11.882) compared to males with an EDS of 59.99 ± 13.635 ($p < 0.001$). Being older significantly relates to a better EDS ($p = 0.009$). Respondents 40 years and above

reported an EDS of 66.61 ± 11.973 compared to respondents within the 18 – 39 age group who reported an EDS of 61.81 ± 15.490 . The difference in the EDS among respondents based on their exercise routine was significant ($p = 0.003$). Respondents who never exercise had a better EDS (66.64 ± 12.325) as against respondents who occasionally exercise (64.14 ± 12.169), while respondents who regularly exercise had the lowest EDS of 55.68 ± 21.499 .

Table 17: Influence of Physical domain summary score of QOL on associated variables

Variable	Category	Mean ± SD	Test Statistics	P-Value
Gender	Male	50.24 ± 10.844	- 4.868	0.000
	Female	57.74 ± 12.318		
Age	18 – 39	56.81 ± 13.640	2.415	0.017
	40 and Above	52.80 ± 11.128		
Religion	Christian	54.88 ± 12.126	0.886	0.376
	Muslim	53.44 ± 12.325		
Level of Education	None ^a	52.13 ± 10.211	1.927	0.124
	Primary	57.18 ± 10.924		
	Secondary	55.27 ± 12.260		
	Post Secondary	52.18 ± 12.795		
Marital Status	Single	57.06 ± 13.258	2.404	0.093
	Married	53.08 ± 12.044		
	Others ^b	56.38 ± 9.816		
Occupation	Office Worker	51.12 ± 12.391	1.427	0.226
	Artisan	56.32 ± 11.315		
	Trader	55.31 ± 13.209		
	Teacher	53.00 ± 11.510		
	Unemployed	54.54 ± 11.230		
Duration of Low Back Pain	Acute ^c	61.13 ± 10.947	1.626	0.197
	Sub-Acute ^d	53.21 ± 12.525		
	Chronic ^e	54.53 ± 12.005		
Low Back pain Intensity	Mild	53.41 ± 11.848	0.527	0.591
	Moderate	54.62 ± 12.780		
	Severe	56.75 ± 8.656		
Work Schedule	Day Only	54.23 ± 12.438	-0.205	0.838
	Both Day and Night	54.84 ± 11.625		

^a = No Formal Education, ^b = Separated/Divorced/Widowed, ^c = Less than 2 Weeks, ^d = Between 2 weeks and 3 Months, ^e = More than 3 Months

Table 17 (Cont'd): Influence of Physical domain summary score of QOL on associated variables

Variable	Category	Mean ± SD	Test Statistics	P-Value
Knowledge on Back Care through Health Talk	Yes	50.69 ± 13.989	-1.782	0.076
	No	54.81 ± 11.844		
Currently Smoke	Yes	52.60 ± 9.341	-0.538	0.591
	No	54.36 ± 12.398		
Ever Smoked	Yes	55.97 ± 10.634	1.302	0.194
	No	53.61 ± 12.715		
Exercise Routine	Regularly	57.53 ± 14.151	1.252	0.288
	Occasionally	55.04 ± 12.884		
	Never	53.30 ± 11.477		

Table 18: Influence of Psychological domain summary score of QOL on associated variables

Variable	Category	Mean \pm SD	Test Statistics	P-Value
Gender	Male	65.59 \pm 12.685	2.722	0.007
	Female	61.14 \pm 12.160		
Age	18 – 39	65.45 \pm 13.506	2.027	0.044
	40 and Above	61.97 \pm 11.895		
Religion	Christian	62.43 \pm 12.532	-1.069	0.286
	Muslim	53.44 \pm 12.325		
Level of Education	None ^a	61.07 \pm 13.477	0.770	0.512
	Primary	62.63 \pm 9.559		
	Secondary	64.70 \pm 13.086		
	Post Secondary	62.25 \pm 13.073		
Marital Status	Single	67.82 \pm 13.194	4.614	0.011
	Married	61.73 \pm 12.269		
	Others ^b	63.62 \pm 11.223		
Occupation	Office Worker	62.04 \pm 14.251	0.232	0.920
	Artisan	63.64 \pm 12.836		
	Trader	64.13 \pm 10.849		
	Teacher	62.77 \pm 13.690		
	Unemployed	63.22 \pm 12.580		
Duration of Low Back Pain	Acute ^c	69.63 \pm 12.059	5.016	0.007
	Sub-Acute ^d	53.21 \pm 12.525		
	Chronic ^e	54.53 \pm 12.005		
Low Back pain Intensity	Mild	62.30 \pm 12.681	0.471	0.625
	Moderate	63.95 \pm 12.642		
	Severe	62.67 \pm 11.594		
Work Schedule	Day Only	63.35 \pm 12.726	0.256	0.798
	Both Day and Night	54.84 \pm 11.625		

^a = No Formal Education, ^b = Separated/Divorced/Widowed, ^c = Less than 2 Weeks, ^d = Between 2 weeks and 3 Months, ^e = More than 3 Months

Table 18: Influence of Psychological domain summary score of QOL on associated variables

Variable	Category	Mean \pm SD	Test Statistics	P-Value
Gender	Male	65.59 \pm 12.685	2.722	0.007
	Female	61.14 \pm 12.160		
Age	18 – 39	65.45 \pm 13.506	2.027	0.044
	40 and Above	61.97 \pm 11.895		
Religion	Christian	62.43 \pm 12.532	-1.069	0.286
	Muslim	53.44 \pm 12.325		
Level of Education	None ^a	61.07 \pm 13.477	0.770	0.512
	Primary	62.63 \pm 9.559		
	Secondary	64.70 \pm 13.086		
	Post Secondary	62.25 \pm 13.073		
Marital Status	Single	67.82 \pm 13.194	4.614	0.011
	Married	61.73 \pm 12.269		
	Others ^b	63.62 \pm 11.223		
Occupation	Office Worker	62.04 \pm 14.251	0.232	0.920
	Artisan	63.64 \pm 12.836		
	Trader	64.13 \pm 10.849		
	Teacher	62.77 \pm 13.690		
	Unemployed	63.22 \pm 12.580		
Duration of Low Back Pain	Acute ^c	69.63 \pm 12.059	5.016	0.007
	Sub-Acute ^d	53.21 \pm 12.525		
	Chronic ^e	54.53 \pm 12.005		
Low Back pain Intensity	Mild	62.30 \pm 12.681	0.471	0.625
	Moderate	63.95 \pm 12.642		
	Severe	62.67 \pm 11.594		
Work Schedule	Day Only	63.35 \pm 12.726	0.256	0.798
	Both Day and Night	54.84 \pm 11.625		

^a= No Formal Education, ^b= Separated/Divorced/Widowed, ^c=Less than 2 Weeks, ^d= Between 2 weeks and 3 Months, ^e= More than 3 Months

Table 18 (Cont'd): Influence of Psychological domain summary score of QOL on associated variables

Variable	Category	Mean \pm SD	Test Statistics	P-Value
Knowledge on Back	Yes	61.47 \pm 12.255	-0.848	0.397
Care through Health Talk	No	63.50 \pm 12.639		
Currently Smoke	Yes	68.07 \pm 10.396	1.547	0.123
	No	62.88 \pm 12.669		
Ever Smoked	Yes	65.42 \pm 11.696	1.614	0.108
	No	62.41 \pm 12.828		
Exercise Routine	Regularly	66.84 \pm 13.574	1.335	0.265
	Occasionally	63.99 \pm 12.925		
	Never	62.25 \pm 12.195		

Table 18 (Cont'd): Influence of Psychological domain summary score of QOL on associated variables

Variable	Category	Mean \pm SD	Test Statistics	P-Value
Knowledge on Back Care through Health Talk	Yes	61.47 \pm 12.255	-0.848	0.397
	No	63.50 \pm 12.639		
Currently Smoke	Yes	68.07 \pm 10.396	1.547	0.123
	No	62.88 \pm 12.669		
Ever Smoked	Yes	65.42 \pm 11.696	1.614	0.108
	No	62.41 \pm 12.828		
Exercise Routine	Regularly	66.84 \pm 13.574	1.335	0.265
	Occasionally	63.99 \pm 12.925		
	Never	62.25 \pm 12.195		

Table 19: Influence of Social domain summary score of QOL on associated variables

Variable	Category	Mean ± SD	Test Statistics	P-Value
Gender	Male	62.77 ± 15.594	1.156	0.249
	Female	60.59 ± 13.098		
Age	18 – 39	64.10 ± 16.099	1.991	0.048
	40 and Above	60.21 ± 13.084		
Religion	Christian	61.81 ± 13.773	0.247	0.805
	Muslim	61.34 ± 15.067		
Level of Education	None ^a	55.47 ± 14.995	1.434	0.234
	Primary	60.47 ± 12.210		
	Secondary	63.32 ± 14.777		
	Post Secondary	61.14 ± 14.472		
Marital Status	Single	66.12 ± 17.314	3.235	0.041
	Married	60.31 ± 13.130		
	Others ^b	60.71 ± 13.817		
Occupation	Office Worker	60.26 ± 14.168	0.927	0.449
	Artisan	64.64 ± 15.580		
	Trader	61.73 ± 13.404		
	Teacher	60.03 ± 13.927		
	Unemployed	59.64 ± 14.883		
Duration of Low Back Pain	Acute ^c	72.63 ± 19.493	5.642	0.004
	Sub-Acute ^d	58.37 ± 13.364		
	Chronic ^e	63.14 ± 14.153		
Low Back pain Intensity	Mild	61.17 ± 14.583	0.370	0.691
	Moderate	62.19 ± 14.585		
	Severe	58.83 ± 9.124		
Work Schedule	Day Only	61.28 ± 14.083	-2.096	0.037
	Both Day and Night	54.84 ± 11.625		

^a= No Formal Education, ^b= Separated/Divorced/Widowed, ^c= Less than 2 Weeks, ^d= Between 2

weeks and 3 Months, ^e= More than 3 Months

Table 19 (Cont'd): Influence of Social domain summary score of QOL on associated variables

Variable	Category	Mean \pm SD	Test Statistics	P-Value
Knowledge on Back	Yes	61.00 \pm 13.344	-0.257	0.797
Care through Health Talk	No	61.70 \pm 14.510		
Currently Smoke	Yes	68.80 \pm 10.523	2.024	0.044
	No	61.11 \pm 14.443		
Ever Smoked	Yes	66.26 \pm 12.254	3.042	0.003
	No	59.90 \pm 14.685		
Exercise Routine	Regularly	62.53 \pm 21.185	0.528	0.590
	Occasionally	62.78 \pm 14.763		
	Never	60.77 \pm 12.889		

Table 20: Influence of Environmental domain summary score of QOL on associated variables

Variable	Category	Mean \pm SD	Test Statistics	P-Value
Gender	Male	59.99 \pm 13.635	-5.473	0.000
	Female	69.18 \pm 11.882		
Age	18 – 39	61.81 \pm 15.490	-2.625	0.009
	40 and Above	66.61 \pm 11.973		
Religion	Christian	64.89 \pm 13.632	0.011	0.992
	Muslim	64.87 \pm 13.418		
Level of Education	None ^a	63.87 \pm 8.305	1.376	0.251
	Primary	68.92 \pm 12.133		
	Secondary	64.30 \pm 15.051		
	Post Secondary	63.89 \pm 12.895		
Marital Status	Single	61.13 \pm 16.099	3.000	0.052
	Married	65.57 \pm 12.989		
	Others ^b	68.62 \pm 8.273		
Occupation	Office Worker	63.58 \pm 14.618	1.297	0.272
	Artisan	62.02 \pm 17.904		
	Trader	67.13 \pm 9.635		
	Teacher	65.57 \pm 10.670		
	Unemployed	66.29 \pm 12.448		
Duration of Low Back Pain	Acute ^c	63.50 \pm 12.212	0.410	0.664
	Sub-Acute ^d	63.99 \pm 13.605		
	Chronic ^e	65.57 \pm 13.569		
Low Back pain Intensity	Mild	64.71 \pm 11.875	0.540	0.584
	Moderate	65.37 \pm 14.667		
	Severe	61.17 \pm 13.174		
Work Schedule	Day Only	65.32 \pm 13.272	1.939	0.054
	Both Day and Night	59.00 \pm 15.913		

^a= No Formal Education, ^b= Separated/Divorced/Widowed, ^c=Less than 2 Weeks, ^d= Between 2 weeks and 3 Months, ^e= More than 3 Months

Table 20 (Cont'd): Influence of Environmental domain summary score of QOL on associated variables

Variable	Category	Mean \pm SD	Test Statistics	P-Value
Knowledge on Back	Yes	63.44 \pm 15.703	-0.651	0.515
Care through Health Talk	No	65.12 \pm 13.152		
Currently Smoke	Yes	65.67 \pm 9.186	0.232	0.817
	No	64.83 \pm 13.772		
Ever Smoked	Yes	67.26 \pm 10.706	1.624	0.106
	No	64.01 \pm 14.331		
Exercise Routine	Regularly	55.68 \pm 21.499	5.889	0.003
	Occasionally	64.14 \pm 12.169		
	Never	66.64 \pm 12.321		

4.3.3 Multiple Regression relating Domain score to predictor variables

4.3.3.1 Physical Domain Score (PDS) and Predictor Variables: Table 21 represents the multivariate analysis relating PDS to predictor variables. Being a female ($p < 0.001$) is a significant positive predictor. While increasing age is a significant negative predictor of PDS ($p = 0.007$).

4.3.3.2 Physiological Domain Score (PsDS) and Predictor Variables: Table 22 shows the multivariate analysis relating PsDS to predictor variables. Being a male is a significant positive predictor ($p = 0.013$). Being married is a significant negative predictor ($p = 0.027$).

4.3.3.3 Social Domain Score (SDS) and Predictor Variables: Table 23 shows the multivariate analysis relating SDS to predictor variables. Low Back Pain experience between 2 weeks and three months (Sub-Acute) is a significant negative predictor ($p = 0.038$). History of ever smoking tobacco is a significant negative predictor ($p = 0.013$).

4.3.3.4 Environmental Domain Score (EDS) and Predictor Variables: Table 24 shows the multivariate analysis relating EDS to predictor variables. Being a female is a significant positive predictor ($p < 0.001$). Exercising occasionally ($p = 0.047$) and never exercising ($p = 0.010$) are significant positive predictors.

Table 21: Multiple regression relating physical domain score to predictor variables

Physical Domain	Beta	P-Value	Lower CI	Upper CI
Constant		0.000	42.732	56.491
Gender (Female)	0.313	0.000	4.657	10.633
Age Group (≥ 40 years)	-0.170	0.007	-7.426	-1.211

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Table 22: Multiple regression relating Psychological domain score to predictor variables

Psychological Domain	Beta	P-Value	Lower CI	Upper CI
Constant		0.000	64.164	85.941
Gender (Female)	-0.161	0.013	-7.234	-0.874
Age Group (≥ 40 years)	-0.065	0.445	-2.664	6.049
Marital Status (Married)	-0.215	0.027	-11.039	-0.655
Marital Status (Others)	-0.112	0.206	-12.482	2.711
Low Back Pain Duration (Sub-Acute)	-0.225	0.157	-15.712	2.560
Low Back Pain Duration (Chronic)	-0.090	0.617	-11.222	6.671

Table 23: Multiple regression relating Social domain score to predictor variables

Social Domain	Beta	P-Value	Lower CI	Upper CI
Constant		0.000	65.972	108.689
Age Group (\geq 40 years)	-0.041	0.647	-6.353	-3.957
Marital Status (Married)	-0.081	0.397	-8.583	3.417
Marital Status (Others)	-0.028	0.728	-12.858	8.996
Low Back Pain Duration (Sub-Acute)	-0.378	0.038	-21.424	-0.612
Low Back Pain Duration (Chronic)	-0.300	0.097	-18.831	1.574
Work Schedule (Others)	0.111	0.124	-1.507	12.377
Current Smokers	0.070	0.348	-12.704	4.499
Ever Smoked	-0.188	0.013	-10.714	-1.252

Table 24: Multiple regression relating Environmental domain score to predictor variables

Environmental Domain	Beta	P-Value	Lower CI	Upper CI
Constant		0.000	30.625	47.727
Gender (Female)	0.319	0.000	5.364	11.868
Age Group (≥ 40 years)	0.123	0.051	-0.016	6.912
Exercise Routine (Occasional)	0.225	0.047	0.075	12.722
Exercise Routine (Never)	0.297	0.010	1.918	14.264

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Table 24: Multiple regression relating Environmental domain score to predictor variables

Environmental Domain	Beta	P-Value	Lower CI	Upper CI
Constant		0.000	30.625	47.727
Gender (Female)	0.319	0.000	5.364	11.868
Age Group (≥ 40 years)	0.123	0.051	-0.016	6.912
Exercise Routine (Occasional)	0.225	0.047	0.075	12.722
Exercise Routine (Never)	0.297	0.010	1.918	14.264

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Table 24: Multiple regression relating Environmental domain score to predictor variables

Environmental Domain	Beta	P-Value	Lower CI	Upper CI
Constant		0.000	30.625	47.727
Gender (Female)	0.319	0.000	5.364	11.868
Age Group (≥ 40 years)	0.123	0.051	-0.016	6.912
Exercise Routine (Occasional)	0.225	0.047	0.075	12.722
Exercise Routine (Never)	0.297	0.010	1.918	14.264

4.3.4 Percentile Classification of Respondents' QOL

The overall QOL of each respondent was further computed by adding up all domains and they were classified based on percentile score. The overall best score attainable for any respondent is 400 (100 from each domain). Respondents with a $\geq 70^{\text{th}}$ percentile (score of ≥ 280) was classified as having a good QOL, respondents score between 50^{th} and 69^{th} percentile (score of between 200 and 279) were classified as having a fairly good QOL, while respondents with scores less than the 50^{th} percentile (score of < 200) were classified as having a poor QOL.

The percentile classification of respondents QOL is as shown in Table 25. Thirty-four respondents (14.7%) have a good QOL. The majority, 156 (67.5%) has a fairly good QOL while 41 respondents (17.8%) has a poor QOL.

Table 25: Percentile Classification of Respondents' QOL

QOL Classification	n	%
Poor (< 50 th Percentile)	41	17.8
Fairly Good (Between 50 th and 69 th percentile)	156	67.5
Good (≥70 th percentile)	34	14.7
Total	231	100

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Chapter V

DISCUSSION, CONCLUSION AND RECOMMENDATION

5.1 DISCUSSION

The point, annual, and lifetime prevalence found in this study are 31.2%, 61.1% and 70.6% respectively which is similar to those found in industrialized developed countries. The predisposing factors that were significant in the multivariate analysis include being 40 years and older, occupation as an artisan, occupation as a trader, assuming varied posture and continuous sitting for more than 3 – 4 hours. Other risk factors are transport duration to work more than 30 minutes, use of computer, previous history of trauma, never attending a health care talk on back care, ever smoked and not having a regular exercise culture. Of 473 respondents who are gainfully employed and have ever experienced Low Back Pain, 76 respondents (16.1%) reported taking a total of 238 days off work (Mean = 3.13 days \pm 3.117). The most affected quality of life domain found in this study was the Physical domain which has a mean quality of life score more than the psychological, social or environmental domains. The results of this study that found that being female, increasing age, ever smoked tobacco, and increasing exercise intensity has again reemphasized the effects of socio-demographic variables on the outcome of Low Back Pain.

5.1.1 Prevalence

The point prevalence of Low Back pain in this study is 31.2%. This is similar to the study by Frymoyer & Cats-Baril (1991) and Lee et al., (2001) with a point prevalence

averaging 30%. The findings of this study are however higher than those of Beija et al., (2005) who reported a point prevalence of 12.8%. This difference may be due to the fact that Beija et al., (2005) conducted their study among health workers in a hospital setting.

The annual prevalence of Low Back Pain is 61.1%. This is higher than the annual prevalence reported by Omokhodion (2004) which was 44%. This may be due to the fact that Omokhodion's survey was on those of low socioeconomic status only. Meanwhile, Maniadakis & Gray (2000) and Quittan (2002) both argued that the annual prevalence of Low Back Pain in any given population ranges from 15% to 45%. Beija et al., (2005) reported an annual prevalence of 57% in a Tunisian population while Jordann et al., (2005) found an annual prevalence of 52% in a South African Population. The result of this study may indicate an increasing trend in the annual prevalence of Low Back Pain over the years. This is in agreement with the report of Mayosi et al., (2009) who predicted the burden of non-communicable disease would probably increase as the roll out of antiretroviral therapy takes effect and reduces mortality from HIV/AIDS. Although, reporting majorly about health workers, De Gaudemaris et al., (1986) and Burgmeier et al., (1987) reported that the yearly prevalence of Low Back Pain varies from 6% to 62.4%. The result of this study falls within this range.

It is commonly reported that 50–80% of the any sampled population suffers from idiopathic lower back pain at least once in their lifetime (Zinzen, 2002; Mijiyawa et al., 2000). This appears to be corroborated by this study which found that 70.6% of the population reported having experienced Low Back Pain at least once in their lifetime. This finding is in line with related studies (Hoffmann et al., 2002; Bezzaoucha, 1992; Cassou & Gueguen, 1985; Charbotel et al., 2003; Smedley et al., 1995).

5.1.2 Risk Factors

Being aged 40 years and above is a significant risk factor in developing Low Back Pain. This study found that those aged 40 years and above are about 4 times more likely to develop Low Back Pain. This is expected and in line with the findings of Borenstein (2000) and Borenstein (1999) who reported that Low back pain predominates in middle age (45 to 64 years). The association between advanced age and Low Back Pain was reported by several authors (Razaee et al., 2010; Beija et al., 2005; Leger et al., 1994; Adams et al., 1999; Gaudemaris et al., 1986). This association may be explained by the senile spinal degeneration processes that accompany increasing age. This means the effect of the inconveniences that are associated with Low Back Pain is felt in the general populace as the middle class, which is the most productive group are affected physically, socially, and economically.

Traders in this study are found to be about 4 times more likely to develop Low Back Pain. An explanation as to why this is so may be explained by the studies of Smedley et al, (1995), Troussier et al., (1993), Bordes et al., (1996), Massironi et al., (1999), and Laubli et al., (1981) who reported that those at high risk of Low Back Pain are individuals who often assume the seated position, experience static nature of their activities, assume awkward postures, and sit on inappropriate furniture. This is similar to the characteristics of traders in the population in this study. Traders are a group of people whose absence from work often results in zero income for the period they are away. The findings of this study could inform policy makers to ensure adequate information through different trade unions to their members on back care for this group of individuals to help improve their health.

This study found that sitting continuously for more than 3-4 hours is a significant risk factor as individuals with this characteristic are about 6 times more likely to develop Low Back Pain. This is similar to the findings of Rezaee et al., (2010) who found with positive association that the only ergonomic hazard for developing Low Back Pain was sitting more than four hours. Similarly, Omokhodion & Sanya (2003) concluded that increased severity of low back pain is associated with sitting for more than three hours. Continuous sitting for more than 3 – 4 hours could prove dangerous to health. The association could be due to the fact that habitual continuous sitting may result in a sedentary lifestyle, lead to obesity, and a compromise of the musculoskeletal integrity results especially when the individual sits continuously on an un-ergonomic furniture.

This study found that computer users are about 7 times more likely than non users to develop Low Back Pain. This association was predicted by Waverley (1999) and this prediction informed the study of Adedoyin et al., (2003) who found this relationship to be significant. Adedoyin et al., (2003) reported that Low Back Pain is linked with poor sitting posture especially when computer users spend a lot of time behind the device. In the population studied, this association may have being due to a dearth of ergonomic furniture for computer users.

Information is often said to be key. This study found individuals who have ever attended a health talk on back care to be about 5 times less likely to ever experience Low Back Pain. This finding is supported by Hall et al., (2012) who mentioned the importance of information about a chronic disease (through the media) would greatly reduce the incidence of the disease and also improve health care as individuals are better informed of what to expect. In the population studied, respondents who have ever attended or heard

This study found that sitting continuously for more than 3-4 hours is a significant risk factor as individuals with this characteristic are about 6 times more likely to develop Low Back Pain. This is similar to the findings of Rezaee et al., (2010) who found with positive association that the only ergonomic hazard for developing Low Back Pain was sitting more than four hours. Similarly, Omokhodion & Sanya (2003) concluded that increased severity of low back pain is associated with sitting for more than three hours. Continuous sitting for more than 3 – 4 hours could prove dangerous to health. The association could be due to the fact that habitual continuous sitting may result in a sedentary lifestyle, lead to obesity, and a compromise of the musculoskeletal integrity results especially when the individual sits continuously on an un-ergonomic furniture.

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a health talk through the media are better informed on back care and thus they do not engage in activities of assume postures that may be detrimental to their back. Thus, this finding could guide policy makers to make policies that would encourage employers of labour to organize health talk on health topics including back care as this would assist reduce the incidence of Low Back Pain in the community.

Transport duration to and from work has been a controversial topic in literature. This study found that transport duration more than 30 minutes predisposes individuals to developing Low Back Pain by a factor of 6. This is in line with the findings of Fanello et al., (1999) and Furber et al., (1992) in which the association is well established. Although it is against the findings of Beija et al, (2005) who reported that neither transportation means, nor journey duration was associated with Low Back Pain. Our study may have found transport duration a significant risk factor because most of respondents who answered in the affirmative of transport duration greater than 30 minutes use the public transport system. It may be beneficial to investigate the effect of the public transport system on developing Low Back Pain among this population in future studies.

Respondents who had ever smoked are about 5 times at risk of developing Low Back Pain according to this study. This is similar to the findings of numerous studies in literature that have found a significant relationship between smoking and occurrence of Low Back Pain (Beija et al, 2005; Omokhodion & Sanya, 2003; Connor & Marlowe, 1993; Burgmeier et al., 1987; Frank & Townsend, 1993; Toroptsova et al., 1995; Harreby et al., 1996; Thomas & Blotman, 1998). However, some studies have shown a lack of significant association between smoking tobacco and occurrence of Low Back Pain (Cilliers & Maart, 2013; Omokhodion et al., 2000). Although the biological mechanism is

not fully understood, this association can be as a result that smoking decreases the absorption of nutrients by the discs in the back. It also slows healing and leads to a prolonged pain experience. Also, it is thought that smoking may lead to reduced perfusion and malnutrition of tissues in and around the spine and cause these tissues to respond inefficiently to mechanical stress. Therefore, smoking does not only come along with respiratory morbidities but also have an impact on the musculoskeletal integrity which may have an economic impact on the public as most individuals who smoke are those in the active productive age group.

Results of studies about relationship between physical activity and Low Back Pain are inconclusive. While some authors have indicated regular physical activities/exercise as a risk factor (Thomas & Blotman., 1998; Deniblans-Dechans et al., 1988) and some research showed no association between the two variables (Rezaee et al., 2010), the findings of this research is similar to those of a number of studies (Beija et al., 2005; Smith et al., 2003; Matsui et al., 1997; Fanello et al., 1994) that reported protective effects of regular physical activities. In fact, our study found out that compared to those who regularly exercise and engage in physical activities, those who occasionally engage in physical activities or exercises are about 4 times more likely to develop Low Back Pain while individuals who never engage in physical activities have an extremely higher odds of 45 times to develop Low Back Pain. This association has been explained by the benefits of regular graded exercises which help to maintain and/or improve the dexterity of the joints and keep the musculoskeletal structures intact. Studies which found an direct or zero relationship between physical activities and Low Back Pain occurrence may have been due to the fact that the physical exercises inquired of respondents were not graded.

A number of Low Back Pain cases are as a result of sharp movements such as rotation and bending down which the individual is not used to previously. Thus, regular physical activities would condition the body to tolerate moderate movement as required. A public appeal to engage in regular graded physical activity thus is advantageous not only in maintaining a better cardiovascular health but also to improve musculoskeletal integrity.

5.1.3 Abscentism

Out of the population who are gainfully employed and have ever experienced Low Back pain, 16.1% reported taking time off work due to their Low Back Pain. This proportion was similar to those reported by Linton (2001) – 15%. The value is however not as low as the findings of Mostafa (2007) that estimated 3.3% of industrial workers had sickness absence due to Low Back Pain. The rate reported in our study is also not as high as those reported by Bejia et al. (2005), Lallahom et al. (1990) and Caillard et al. (1987), which were 26.1%, 25% and 24.1%, respectively but definitely not as astronomical like those reported by Charuel et al. (1992) which was 93%, although the study was among work population alone.

Similar to our findings, which found a mean of 3.13 days taken off work due to Low Back Pain, Omohkhodion (2004) reported a mean days off work of 3 days and Bejia et al. (2005) reported mean work stop duration was 4.5 days. It is not as high as reported by Lallahom et al. (1990) who reported a mean of 15 days. Unlike the developed world, there is no state compensation or benefits for time loss off work due to Low Back Pain (Omohkhodion, 2004). In most developing countries like Nigeria, a substantial number of blue collar workers earn their wages through daily pay. Thus, individuals (and their dependent families) absent from work due to Low Back Pain may be financially

handicapped when they could not earn the money to survive for the day. This may take a greater toll on the overall economic situation when a large number of employees report in sick. Productivity is reduced and economic stability is shaky.

5.1.4 Quality of Life

Although, Low Back Pain does not often come with fatal outcomes, the functional disability and emotional disturbance experienced cannot be simply ignored. The most affected quality of life domain found in this study was the Physical domain compared with the Psychological domain, Social domain, and the Environmental domain. This is in accordance with other studies (Wallace et al., 2009; Ekman et al., 2005; Keeley et al., 2008; Kindermans et al., 2011; Stefane et al., 2013). The Physical quality of life domain comprises questions related to pain, discomfort, energy, fatigue, sleep and rest, revealing the extent to which these factors are negatively influenced in respondents with Low Back Pain. Hence, we may conclude that Low Back Pain affects the physical health domain of the patients more than the psychological, social or environmental domains. This is in concord with the results of other studies (Patrick et al, 1995; Suarez- Almazor et al, 2000).

The result from this study shows that individuals who are females and of lower age tend to have a better physical domain of quality of life than individuals who do not have these characteristics. Although in the Psychological domain, being male is a positive predictor but a look at the environmental domain shows that female individuals have better quality of life than males. The fact that being female has an effect on the quality of life has been reported in numerous studies (Suka & Yoshida, 2008; Rabini et al., 2007;

Antonopoulou et al., 2009; Ogunlana et al., 2012). Also, increased age has an effect on the quality of life as reported by our study and also by Antonopoulou et al. (2009) and Ogunlana et al. (2012). The result of this study has again emphasized the effects of socio-demographic variables on the outcome of Low Back Pain. Some studies (Picavet et al, 2002; Nyland and Grimmer, 2003; Webb et al, 2003; Steenstra et al, 2001) have shown that increasing age and being of the female gender are factors that predispose people to Low Back Pain, reduced QOL and subsequent disability.

5.2 CONCLUSION

Findings from this study show that the prevalence of low Back Pain in a developing country like Nigeria is similar to those of industrialized countries. Also, the predisposing factors to developing Low Back Pain in the urban population surveyed are similar to those of the westernized world. As such, Low Back Pain is clearly not a disease of the industrialized world. This may be due to Africans adopting western lifestyles. Although, the economic impact due to absenteeism from work is similar to those of the developed world, when compared with the economy of a typical developing country like Nigeria, the loss could be immense.

Evidence from this study shows the effect of socio-demographic characteristics especially gender and age on quality of life in Low Back Pain patients. Females have a better quality of life in the Physical and environmental domain while males have a better quality of life in the psychological domain. Hence, this study underscores the importance of taking into account the sociodemographic characteristics (gender, age, and marital status) of patients with LBP in line with all aspect of the patients' life when considering

adequate therapy, and moving away from the medical approach of eliminating the pain to a more bio-psycho-social approach of empowering the patient to continue as actively as possible with their usual life during interventions in both the hospital and community level. Health workers (Medical Doctors and Physiotherapist) would be better informed on the need for the introduction of a humanistic element into back care by considering other lifestyle factors (exercise routine of the patients) and the duration of LBP experience.

5.3 RECOMMENDATION

Considering the results from this study, the following recommendations are hereby made:

1) This study discovered that ever attending a health talk on back care is protective for Low Back Pain. As such, it is recommended that employers are encouraged to organize health care talk on back care periodically for their employees as this would help reduce the proportion of individuals with Low Back Pain in the community. Health education on the avoidance of postures and activities predisposing to Low Back Pain should be provided to all occupational groups.

2) This study also found out that transport duration for more than 30 minutes is a risk factor in developing Low Back Pain. The majority of those with transport duration of more than 30 minutes actually use the public transport system which is usually characterized by ricochet movement due to bad roads and unkempt vehicles. As such, it would be helpful for future research works to look at the effect of the public transport system on Low Back Pain occurrence.

3) To ensure an introduction of a humanistic element into back care, it may be good if Health professionals utilize the WHOQOL-BREF questionnaire to periodically assess the effectiveness of their intervention on the patient and especially how the intervention is really having a positive effect on the patients QOL.

4) Future research works may aim to determine the correlation between low back pain and psychological issues as a number of studies have concluded that the parameters defining the quality of life of patients with chronic low back pain are a combination of physical and psychological ones. When faced with the management of such patients, doctors should bear this in mind. Doctors should focus on active search for signs of depression and anxiety and better pain management in patients with chronic low back pain, especially in the presence of somatic co-morbidities. This can importantly lowers self-reported disability and improves quality of life, which can be expected to improve management of those patients.

5.4 LIMITATIONS

This study has a number of limitations:

1) Strength of this study is the use of a standardized and validated questionnaire in WHOQOL-BREF to assess quality of life but the instrument is, however, not primarily designed to assess anxiety or depression, which could be a limitation of our study as a number of studies have shown a correlation between Low Back Pain and psychological issues which is worth researching into.

2) Although a community survey which provides a better estimate and larger sample than research work studying occupational groups alone, this study is not a randomized clinical trial, the generalization of the results should therefore be cautious.

3) When considering the quality of life, we did not have a control group with respondents without low back pain, which affects the comparability of data. It would have been interesting to compare the quality of life of respondents with and without Low Back Pain.

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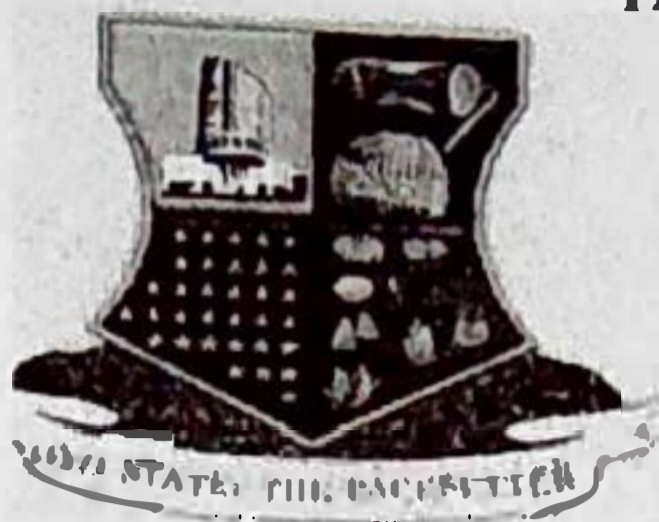
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TELEGRAMS.....

TELEPHONE.....



MINISTRY OF HEALTH
DEPARTMENT OF PLANNING, RESEARCH & STATISTICS DIVISION
PRIVATE MAIL BAG NO. 5027, OYO STATE OF NIGERIA

Your Ref. No.

All communications should be addressed to

the Honorable Commissioner quojing

Our Ref. No. AD 13/ 479/ 686

[Signature] October, 2014

The Principal Investigator,
Department of Epidemiology and Statistics,
Faculty of Public Health,
College of Medicine,
University of Ibadan,
Ibadan.

Attention: Ogunsanya Gbolade

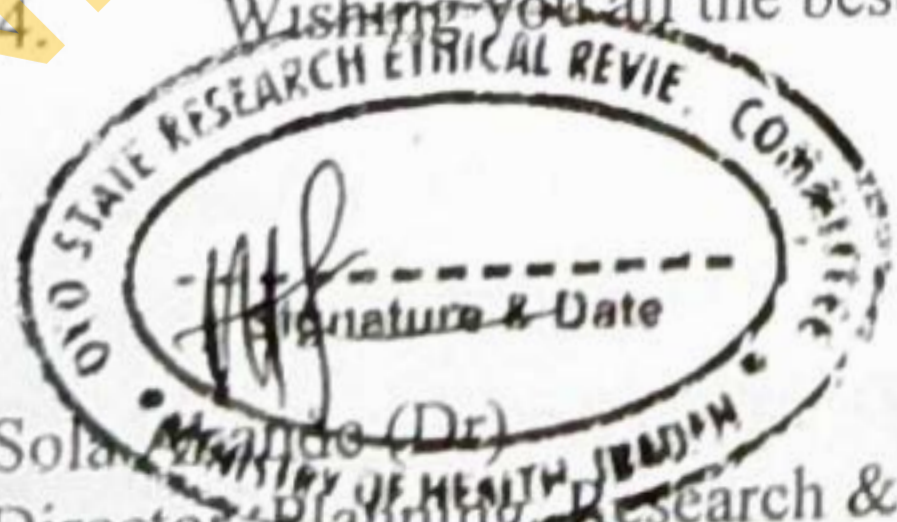
Ethical Approval for the Implementation of your Research Proposal in Oyo State

In response of your letter requesting for Renewal of your Research Proposal titled:
"Prevalence of Low Back Pain and its Effect on Quality of Life Among Residents in an
Urban Community."

2. The committee has noted your compliance with all the ethical concerns raised in the initial review of the proposal. In the light of this, I am pleased to convey to you the approval of committee for the implementation of the Research Proposal in Oyo State, Nigeria.

3. Please note that the committee will monitor closely and follow up the implementation of the research study. However, the Ministry of Health would like to have a copy of the results and conclusions of the findings as this will help in policy making in the health sector.

4. Wishing you all the best.



Sola *[Signature]* (Dr)
Director, Planning, Research & Statistics
Secretary, Oyo State, Research Ethical Review Committee

STUDY PROTOCOL

Title of Research: "Prevalence of Low Back Pain and Assessment of Quality of Life among Residents in an Urban Community"

Name of Researcher(s): This study is conducted by OGUNSANYA, Gbolade Isaac of the Department of Epidemiology and Medical Statistics, University of Ibadan under the supervision of Dr. ADEDOKUN B.O and Dr. ADEBOWALE A.S.

Purpose of the Research: The purpose of this study is to determine the prevalence of Low Back Pain at the community level and to assess its occurrence with the quality of life. Also, it is hoped the results from this study give informed advice on the risk factors predisposing the community members to developing LBP.

Procedure of the Research: All eligible consenting adults in the study area will be selected through a Multistage sampling technique from each household and the investigator will obtain information from respondents through the use of a questionnaire.

Duration of Research: It is estimated that it would take an average of fifteen (15) minutes for each eligible consenting adult to completely fill the part one questionnaire. The Quality of Life questionnaire is estimated to equally take an average of fifteen (15) minutes. The entire research is expected to span three (3) months.

Risks: No risk is expected during the process of this research as the planned procedure does not include any invasive procedure.

Cost to Participants: Your participation in this research will not cost the participants anything financially.

Benefits: The outcome of this study would increase the scientific knowledge base about the prevalence of Low Back Pain at the community level. Also, this study would help identify factors that may predispose individuals to developing Low Back Pain. It is hoped that the findings of this study would help influence policy makers in improving the overall health status of the populace. Individuals who report experiencing Low Back Pain would be encouraged to visit a healthcare facility for adequate treatment.

Confidentiality: All information provided by you would be tagged with special codes. Your name would not be requested from you, thus your information cannot be linked to you directly or indirectly in any way before, during, and after the study.

Voluntariness: Your participation in this research is totally voluntary and you have the absolute right to withdraw your participation from the study at any time.

Due Inducements: No compensation in the form of lost wages, cost of transport to and from the research site, and/or incentives will be provided you; the researcher(s) will be coming to your community for the study.

Consequences of Participant's Decision to Withdraw from Research: Although you have the absolute right to withdraw your participation from this research at any time, please note that some of the information that has been obtained about you before you chose to withdraw may have been modified or used in reports and publications and these cannot be removed anymore. However, the researcher(s) promise to make effort in good faith to comply with your wishes as much as it is practicable.

What Happens to Research Participants and Communities When the Research is Over?: You would be duly informed about the outcome of this research through the head of your community. The information provided would include the prevalence of Low Back Pain in the community, the identified risk factors, and recommendations as to how to prevent Low Back Pain occurrence

Any Apparent or Potential Conflict of Interest: In good faith, the researcher(s) declare that there is no conflict of interest in this study; thus, there is no envisioned situation that may prevent the researcher(s) from performing their work with fear or favor.

Confidentiality: All information provided by you would be tagged with special codes. Your name would not be requested from you, thus your information cannot be linked to you directly or indirectly in any way before, during, and after the study.

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INFORMED CONSENT FORM

I,, hereby declare that I understand to the best of my ability the intent of the research titled "Prevalence of Low Back Pain and Assessment of Quality of Life among Residents in an Urban Community"

I have had the opportunity to ask questions about the study and all questions I have asked have been answered to my satisfaction. I would take part in this study with the understanding that I know enough about the purpose, methods, risks and benefits of the research study and I have the absolute right to withdraw from the study anytime at my own will. I have also received a copy of this consent form and additional information sheet to keep for myself.

I therefore give the researcher absolute right to obtain my information and use it under the terms of this research.

Name of Participant:

Signature of Participant:

Date:/...../ 2014

Name of Researcher: OGUNSANYA, Gbolade Isaac

Signature of Researcher:

Phone Number of Researcher: 0703 912 1112

Name of Research Supervisor: Dr. ADEDOKUN B.O

Signature of Research Supervisor:

Phone Number of Research Supervisor: 080* *** ****

ETO ISE IWADI LESEESE

Akori Ise Iwadi: Iwadi ojule de ojule lori itankale eyin didun ati amuye igbe aye laarin awon olugbe igboro.

Oruko Awon Oniwadi: Oruko eni ti n o se iwadi yi ni OGUNSANYA Gbolade Isaac lati ile eko fasiti ti Ibadan labe akoso dokita ADEDOKUN B.O ati omowe ADEBOWALE A.S.

Koko Iwadi: koko iwadi yii ni lati mo ipinnu lori itankale isoro eyin didun ninu agbegbe ati lati lawa loye nipa amuye igbe aye awon tie eyin dun. Eyi yio pese ifitonileti ti yio mu ki a mo inira ati isokunfa ipalara ati eyi ti yio se igbelaruge eto akoso nipa ifilele ati atunse to dara fun awon olugbe orileede Naijiria.

Ilana Iwadi: A o yan awon eniyan ti won to tun si ipo gege bi ise isedale agbegbe onikaluku lati ojule de ojule, awon oluwadi yio gba oro lenu oludahun nipa lilo awon ibeere ti a ti seto sile.

Akoko ti ise iwadi yi ati ti olukopa yoo kopa yoo gba: lkookan iforowanilenu wo fun ipcle akoko yio gbawa ni iseju medogun. Iwe iforowanilenuwo nipa amuye igbe aye yio gbawa ni iseju medogun. Iwadi yio si gba wa fun osu meta.

Ewu ti o wa ninu kikopa ninu ise iwadi yi: Ise iwadi yi koni pa e lara rara ni ona Kankan.

Oun ti yo na olukopa lati je ara ise iwadi yi: kikopa re ninu ise iwadi yi ko ni na o ni nnkan kan nipa oro owo.

Ere to wa ninu ise iwadi yi: Abo ise iwadi yi yio lawa loye nipa itankale eyin didun ninu agbegbe. Fun afikun, ise iwadi yi yio lawaloye nipa awon isokunfa eyin didun. A lero pe abo iwadi yi yio wulo fun ijoba ati awon ti n se eto ilera lati dekun eyin didun ninu awujo. Awon ti o ba sope eyin dun won yio ni anfani lati gba itonisona losi ile iwosan lati gba itoju.

Ifokantan: Gbogbo esi iwadi ti a ba ko jo ninu iwadi yi ni a o fi nomba si dipo oruko re. Ko si eni ti yo mo esi iwadi re nitori a o ni ko oruko re tabi oun ti eniken le fi da o mo si inu gbogbo oun ti a ba ko sile nipa abajade ise iwadi yi. Sugbon gege bi eto wa lati jeki ise iwadi yi muna doko, awon oloogun oyibo ti o ba kopa ninu iwadi yi le mo awon esi iwadi yi.

Gbigba lati kopa: A o ni fi ipa mu eniken lati kopa ninu ise iwadi yi. Igbakigba si ni o le yo ara re kuro ninu ise iwadi yi ti e ba fe.

Fifi ebun muni duro ninu ise iwadi: Ko si ebun bi fifuni ni owo ise wahala, owo oko lati wa ati lati lo kuro ni ibi agbegbe ise iwadi, gegebi oluwadi ohun tikalara re yio wa si ojule de ojule lati se ise iwadi naa.

Oun ti pipinu lati dekun ati je olukopa yo fa ati igbese fun di dekun ati ma kopa: O le pinu lati ma kopa ni igbakugba. Kiyesi pe gbogbo esi iwadi ti a ti ri ninu awon idahun ibeere ti o fi sile la le tilo fun ise iwadi yi. A o le yo awon wonyi kuro mo, sugbon awon onise iwadi se ileri lati sa agbara won lati se oun ti o ba fe.

Kini yo se si awon olukopa ati gbogbo ilu nigba ti ise iwadi yi ba pari: Awon onise iwadi yio je ki o mo esi abajade ise iwadi yi. Ao kede esi iwadi yi fun awon olori ilu yin. Bi ise yi ba se nlo, a o ma fi to o leti oun ti o le je ki o ma le tesiwaju ninu ise iwadi yi ati nipa ilera ara re.

Awon atako ise iwadi yi: Ko si itako kankan ninu ise iwadi yi, a o si mo nnkan kan ti o le di awon oluwadi yi lowo lati se ise won pelu iberu tabi la i saanu.

IWE IPINU ATI IMO

EMI, fi
gbogbo okan so wipe gege bi oye mi se mo, koko iwadi, pelu akori “Iwadi ojule de ojule
lori itankale eyin didun ati amuye igbe aye laarin awon olugbe igboro” yi yemi daada.

Mo ti ni anfaani lati beere awon ibeere nipa ise iwadi yi, mo de ti ri idahun to temi lorun
gba lowo oluwadi. Maa kopa nini ise iwadi yi pelu idaniloju wipe mo mo nipa idi, liana,
cwu ati ere to wa ninu ise iwadi yi. Mo si mo wipe mo ni agbara lati yo ara mi kuro ninu
ise iwadi yi nigba toba wunmi. Mo ti gba eda iwe ipinu yi fun araa mi.

Fun idi eyi, mo fun oluwadi ni anfaani lati gba idahun mi at lati lo idahun mi fun ise
iwadi yi.

Oruko Olukopa:

Ifowosiwe Olukopa:

Ojo:/...../ 2014

Oruko Oluwadi: OGUNSANYA, Gbolade Isaac

Ifowosiwe Oluwadi:

Ero Alagheka Oluwadi: 0703 912 1112

Oruko Oludari Ise Iwadi: Dr. ADEDOKUN B.O

Ifowosiwe Oludari Oluwadi:

Ero Alagheka Oludari Oluwadi: 080* *** ****

Prevalence of Low Back Pain and Assessment of Quality of Life among Residents in an Urban Community

Dear Prospective Respondent,

Thank you for your interest in this research work. My name is OGUNSANYA, Gbolade Isaac. I am a postgraduate student of the Department of Epidemiology and Medical Statistics, Faculty of Public Health, University of Ibadan. I am undertaking a research work to determine the prevalence of Low Back Pain at the community level and to assess its occurrence with the Quality of Life. Also, it is hoped the results from this study give informed advice on the risk factors predisposing community members to developing Low Back Pain.

This is a semi-structured health questionnaire and information provided will be used for intended research purposes only. All information provided by you will be tagged with special codes. Your name would not be requested from you, thus the information you provide cannot be linked to you directly or indirectly in any way before, during, and after the study. Your participation in this research is totally voluntary and you have the absolute right to withdraw your participation from the study at any time.

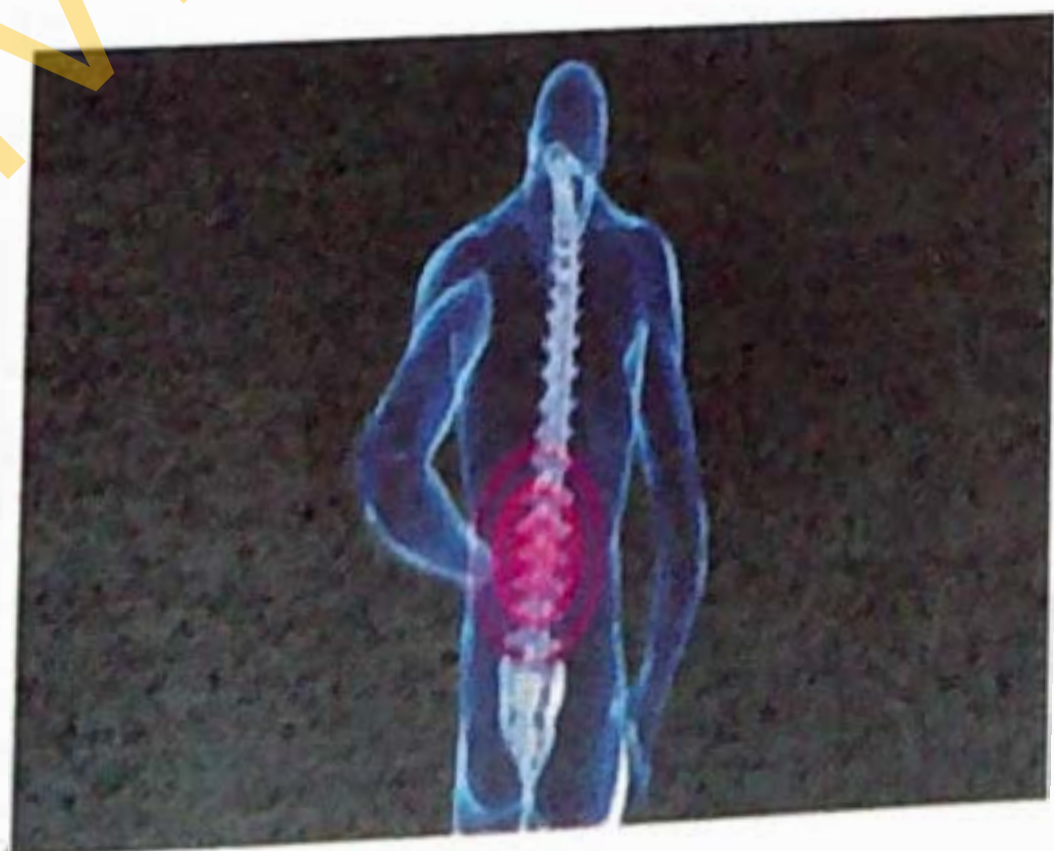
It would be greatly appreciated if your answers to the questions reflect what the situation really is. Please, indicate your interest to participate in this research by signing below.

Thanks for your cooperation.

Signature of Participant:

Date:/...../ 2014

Note: We define individuals with Low Back Pain as those who have pain in the region indicated in circles below.



Prevalence and Associated Risk Factors of Low Back Pain

Section A: Socio – Demographic Information

- 1) Sex:
- a) Male b) Female
- 2) Age (In Years):
- 3) Marital Status:
- a) Single b) Married c) Separated d) Divorced e) Widowed
- 4) Occupation:.....
- 5) Level of Education
- a) No formal Education b) Primary c) Secondary
d) Graduate e) Postgraduate
- 6) Religion
- a) Christian b) Muslim c) Traditionalist d) Others:.....

Section B: Predisposing Factors

- 7) Which of the following postures do you assume **most** at home or at work? [tick the most appropriate]
- a) Leaning forward b) Lifting c) Standing
d) Sitting e) Varied
- 8) Which of the following is your most frequently used form of transport? [tick the most appropriate]
- a) Foot b) Private Car c) Public Transport
- 9) How much time do you *continuously spend at once* in the sitting position on average per day? [tick the most appropriate]
- a) Less than 3-4 hours b) More than 3-4 hours

If you work, please provide answers to questions 10 to 15. Otherwise, skip to Section C

- 10) What is your work schedule? [tick the most appropriate]
- a) Day only b) Night only c) Day/Night
- 11) Do you think your work predisposes you to developing Low Back Pain? [tick the most appropriate]
- a) Yes b) No
- 12) How long does it take you to transport yourself from your work to home? [tick the most appropriate]
- a) Less than 30 minutes b) More than 30 minutes

Prevalence and Associated Risk Factors of Low Back Pain

Section A: Socio – Demographic Information

- 1) Sex:
a) Male b) Female
- 2) Age (In Years):
- 3) Marital Status:
a) Single b) Married c) Separated d) Divorced e) Widowed
- 4) Occupation:.....
- 5) Level of Education
a) No formal Education b) Primary c) Secondary
d) Graduate e) Postgraduate
- 6) Religion
a) Christian b) Muslim c) Traditionalist d) Others:.....

Section B: Predisposing Factors

- 7) Which of the following postures do you assume **most** at home or at work? *[tick the most appropriate]*
a) Leaning forward b) Lifting c) Standing
d) Sitting e) Varied
- 8) Which of the following is your most frequently used form of transport? *[tick the most appropriate]*
a) Foot b) Private Car c) Public Transport
- 9) How much time do you *continuously spend at once* in the sitting position on average per day? *[tick the most appropriate]*
a) Less than 3-4 hours b) More than 3-4 hours

If you work, please provide answers to questions 10 to 15. Otherwise, skip to Section C

- 10) What is your work schedule? *[tick the most appropriate]*
a) Day only b) Night only c) Day/Night
- 11) Do you think your work predisposes you to developing Low Back Pain? *[tick the most appropriate]*
a) Yes b) No
- 12) How long does it take you to transport yourself from your work to home? *[tick the most appropriate]*
a) Less than 30 minutes b) More than 30 minutes

13) Does your work require your use of a computer while sitting behind a desk for an extended period of time?
[tick the most appropriate]

- a) Yes b) No

14) How would you describe your seat quality at work? *[tick the most appropriate]*

- a) Good (Comfortable; does not elicit back pain)
b) Moderate/Fair (Occasional discomfort)
c) Poor (uncomfortable; elicits back pain)

15) Have you ever had a trauma (fall, accident, and/or injury) on your back?

- a) Yes b) No

Section C: Low Back Pain Experience (Please take a look at picture on page 1)

16) Do you experience Low Back Pain at present? *[tick the most appropriate]*

- a) Yes b) No

17) Have you experienced Low Back Pain in the last 12 months? *[tick the most appropriate]*

- a) Yes b) No

18) Have you ever experienced Low Back Pain? *[tick the most appropriate]*

- a) Yes b) No

If you answered 'Yes' to Question(s) 16, 17 and/or 18 above, please provide answers to questions 19 to 24. Otherwise, skip to Section D

19) How long have you been experiencing your low back pain?

20) Which of the following does the period you indicate in Question 19 fits appropriately?

- a) Acute; Less than 2 weeks
b) Sub-Acute; Between 2 weeks and 3 months
c) Chronic; More than 3 months

21) How would you rate the severity of your back pain? *[Assume 0 represent no pain and 10 represent the worst unbearable pain imaginable; tick the box most appropriate to your pain]*

0	1	2	3	4	5	6	7	8	9	10

22) How often do you experience your back pain? *[tick the most appropriate]*

- a) Once a year b) Every six months c) Monthly
d) Weekly e) Daily

23) Has your Low back Pain ever made you absent from work? *[tick the most appropriate; if you do not work please skip to section D]*

- a) Yes b) No

24) If 'Yes' to Question 23 above, in the last 12 months, how many *days* have you being absent from work due to Low Back pain? *[If you do not work please skip to section D]*

Section D: Care Seeking Practices

25) Which medical help have you consulted due to your Low Back pain? *[tick all that apply]*

- a) Medical Doctor b) Physiotherapist c) Nurse
d) Dietitian e) Local Chemist f) Traditional Healer
g) None h) Not Applicable

26) What do you often do when you start experiencing Low Back Pain? *[tick the most appropriate]*

- a) Immediately go to see a health care provider b) Bed rest
c) Carry on with activities d) Self medication e) Not Applicable

27) Does your place of work organize health care talk on Back Care for employees? *[tick the most appropriate; if you do not work please skip to Question 28 below]*

- a) Yes b) No c) Not Applicable

28) Have you ever attended a health care talk on Back Care? *[tick the most appropriate]*

- a) Yes b) No

Section E: Behavioral Practices

29) Do you currently smoke tobacco? *[tick the most appropriate]*

- a) Yes b) No

30) Have you ever smoked tobacco? *[tick the most appropriate]*

- a) Yes b) No

31) If 'Yes' to Question 29 above, how many sticks of cigarette do you smoke daily?

32) How often do you exercise? *[tick the most appropriate]*

- a) Regularly b) Occasionally c) Never

Thank you for your time; it is highly appreciated.

23) Has your Low back Pain ever made you absent from work? *[tick the most appropriate; if you do not work please skip to section D]*

- a) Yes b) No

24) If 'Yes' to Question 23 above, in the last 12 months, how many *days* have you being absent from work due to Low Back pain? *[If you do not work please skip to section D]*

Section D: Care Seeking Practices

25) Which medical help have you consulted due to your Low Back pain? *[tick all that apply]*

- a) Medical Doctor b) Physiotherapist c) Nurse
d) Dictitian e) Local Chemist f) Traditional Healer
g) None h) Not Applicable

26) What do you often do when you start experiencing Low Back Pain? *[tick the most appropriate]*

- a) Immediately go to see a health care provider b) Bed rest
c) Carry on with activities d) Self medication e) Not Applicable

27) Does your place of work organize health care talk on Back Care for employees? *[tick the most appropriate; if you do not work please skip to Question 28 below]*

- a) Yes b) No c) Not Applicable

28) Have you ever attended a health care talk on Back Care? *[tick the most appropriate]*

- a) Yes b) No

Section E: Behavioral Practices

29) Do you currently smoke tobacco? *[tick the most appropriate]*

- a) Yes b) No

30) Have you ever smoked tobacco? *[tick the most appropriate]*

- a) Yes b) No

31) If 'Yes' to Question 29 above, how many sticks of cigarette do you smoke daily?

32) How often do you exercise? *[tick the most appropriate]*

- a) Regularly b) Occasionally c) Never

Thank you for your time; it is highly appreciated.

23) Has your Low back Pain ever made you absent from work? *[tick the most appropriate; if you do not work please skip to section D]*

- a) Yes b) No

24) If 'Yes' to Question 23 above, in the last 12 months, how many *days* have you being absent from work due to Low Back pain? *[If you do not work please skip to section D]*

Section D: Care Seeking Practices

25) Which medical help have you consulted due to your Low Back pain? *[tick all that apply]*

- a) Medical Doctor b) Physiotherapist c) Nurse
d) Dietitian e) Local Chemist f) Traditional Healer
g) None h) Not Applicable

26) What do you often do when you start experiencing Low Back Pain? *[tick the most appropriate]*

- a) Immediately go to see a health care provider b) Bed rest
c) Carry on with activities d) Self medication e) Not Applicable

27) Does your place of work organize health care talk on Back Care for employees? *[tick the most appropriate; if you do not work please skip to Question 28 below]*

- a) Yes b) No c) Not Applicable

28) Have you ever attended a health care talk on Back Care? *[tick the most appropriate]*

- a) Yes b) No

Section E: Behavioral Practices

29) Do you currently smoke tobacco? *[tick the most appropriate]*

- a) Yes b) No

30) Have you ever smoked tobacco? *[tick the most appropriate]*

- a) Yes b) No

31) If 'Yes' to Question 29 above, how many sticks of cigarette do you smoke daily?

32) How often do you exercise? *[tick the most appropriate]*

- a) Regularly b) Occasionally c) Never

Thank you for your time; it is highly appreciated.

23) Has your Low back Pain ever made you absent from work? *[tick the most appropriate; if you do not work please skip to section D]*

- a) Yes b) No

24) If 'Yes' to Question 23 above, in the last 12 months, how many *days* have you being absent from work due to Low Back pain? *[If you do not work please skip to section D]*

Section D: Care Seeking Practices

25) Which medical help have you consulted due to your Low Back pain? *[tick all that apply]*

- a) Medical Doctor b) Physiotherapist c) Nurse
d) Dietitian e) Local Chemist f) Traditional Healer
g) None h) Not Applicable

26) What do you often do when you start experiencing Low Back Pain? *[tick the most appropriate]*

- a) Immediately go to see a health care provider b) Bed rest
c) Carry on with activities d) Self medication e) Not Applicable

27) Does your place of work organize health care talk on Back Care for employes? *[tick the most appropriate; if you do not work please skip to Question 28 below]*

- a) Yes b) No c) Not Applicable

28) Have you ever attended a health care talk on Back Care? *[tick the most appropriate]*

- a) Yes b) No

Section E: Behavioral Practices

29) Do you currently smoke tobacco? *[tick the most appropriate]*

- a) Yes b) No

30) Have you ever smoked tobacco? *[tick the most appropriate]*

- a) Yes b) No

31) If 'Yes' to Question 29 above, how many sticks of cigarette do you smoke daily?

32) How often do you exercise? *[tick the most appropriate]*

- a) Regularly b) Occasionally c) Never

Thank you for your time; it is highly appreciated.

WORLD HEALTH ORGANIZATION QUALITY OF LIFE QUESTIONNAIRE (WHOQOL-BREF)

Note: Only respondents with Low Back Pain are to provide answers to this questionnaire.

The following questions ask how you feel about your quality of life, health, or other areas of your life. Please, carefully read each question, along with the response options. Please choose the answer that appears most appropriate. If you are unsure about which response to give to a question, the first response you think of is often the best one. Please keep in mind your standards, hopes, pleasures and concerns. We ask that you think about your life in the last four weeks.

		Very poor	Poor	Neither poor nor good	Good	Very good
1	How would you rate your quality of life?	1	2	3	4	5

		Very dissatisfied	Dissatisfied	Neither dissatisfied nor satisfied	Satisfied	Very satisfied
2	How satisfied are you with your health?	1	2	3	4	5

The following questions ask about how much you have experienced certain things in the last four weeks.

		Not at all	A little	A moderate amount	Very much	An extreme amount
3	To what extent do you feel that physical pain prevents you from doing what you need to do?	5	4	3	2	1
4	How much do you need any medical treatment to function in your daily life?	5	4	3	2	1
5	How much do you enjoy life?	1	2	3	4	5
6	To what extent do you feel your life to be meaningful?	1	2	3	4	5

		Not at all	A little	A moderate amount	Very much	Extremely
7	How well are you able to concentrate?	1	2	3	4	5
8	How safe do you feel in your daily life?	1	2	3	4	5
9	How healthy is your physical environment?	1	2	3	4	5

WORLD HEALTH ORGANIZATION QUALITY OF LIFE QUESTIONNAIRE (WHOQOL-BREF)

Note: Only respondents with Low Back Pain are to provide answers to this questionnaire.

The following questions ask how you feel about your quality of life, health, or other areas of your life. Please, carefully read each question, along with the response options. Please choose the answer that appears most appropriate. If you are unsure about which response to give to a question, the first response you think of is often the best one. Please keep in mind your standards, hopes, pleasures and concerns. We ask that you think about your life in the last four weeks.

		Very poor	Poor	Neither poor nor good	Good	Very good
1	How would you rate your quality of life?	1	2	3	4	5

		Very dissatisfied	Dissatisfied	Neither dissatisfied nor satisfied	Satisfied	Very satisfied
2	How satisfied are you with your health?	1	2	3	4	5

The following questions ask about how much you have experienced certain things in the last four weeks.

		Not at all	A little	A moderate amount	Very much	An extreme amount
3	To what extent do you feel that physical pain prevents you from doing what you need to do?	5	4	3	2	1
4	How much do you need any medical treatment to function in your daily life?	5	4	3	2	1
5	How much do you enjoy life?	1	2	3	4	5
6	To what extent do you feel your life to be meaningful?	1	2	3	4	5

		Not at all	A little	A moderate amount	Very much	Extremely
7	How well are you able to concentrate?	1	2	3	4	5
8	How safe do you feel in your daily life?	1	2	3	4	5
9	How healthy is your physical environment?	1	2	3	4	5

The following questions ask about how completely you experience or were able to do certain things in the last four weeks.

		Not at all	A little	Moderately	Mostly	Completely
10	Do you have enough energy for everyday life?	1	2	3	4	5
11	Are you able to accept your bodily appearance?	1	2	3	4	5
12	Have you enough money to meet your needs?	1	2	3	4	5
13	How available to you is the information that you need in your day-to-day life?	1	2	3	4	5
14	To what extent do you have the opportunity for leisure activities?	1	2	3	4	5

		Very poor	Poor	Neither poor nor good	Good	Very good
15	How well are you able to get around?	1	2	3	4	5

		Very dissatisfied	Dissatisfied	Neither dissatisfied nor satisfied	Satisfied	Very satisfied
16	How satisfied are you with your sleep?	1	2	3	4	5
17	How satisfied are you with your ability to perform your daily living activities?	1	2	3	4	5
18	How satisfied are you with your capacity for work?	1	2	3	4	5
19	How satisfied are you with yourself?	1	2	3	4	5
20	How satisfied are you with your personal relationships?	1	2	3	4	5
21	How satisfied are you with your sex life?	1	2	3	4	5
22	How satisfied are you with the support you get from your friends?	1	2	3	4	5
23	How satisfied are you with the conditions of your living place?	1	2	3	4	5
24	How satisfied are you with your access to health services?	1	2	3	4	5
25	How satisfied are you with your transport?	1	2	3	4	5

The following question refers to how often you have felt or experienced certain things in the last four weeks.

		Never	Seldom	Quite often	Very often	Always
26	How often do you have negative feelings such as blue mood, despair, anxiety, depression?	5	4	3	2	1

Thank you for your time and patience.

For official use only (Please do NOT fill)

		Equations for completing domain scores	Raw score	Transformed Scores	
				4-20	0-100
27	Domain 1	$(6-Q3) + (6-Q4) + Q10 + Q15 + Q16 + Q17 + Q18$	a:	b:	c:
28	Domain 2	$Q5 + Q6 + Q7 + Q11 + Q19 + (6-Q26)$	a:	b:	c:
29	Domain 3	$Q20 + Q21 + Q22$	a:	b:	c:
30	Domain 4	$Q8 + Q9 + Q12 + Q13 + Q14 + Q23 + Q24 + Q25$	a:	b:	c:

The following question refers to how often you have felt or experienced certain things in the last four weeks.

		Never	Seldom	Quite often	Very often	Always
26	How often do you have negative feelings such as blue mood, despair, anxiety, depression?	5	4	3	2	1

Thank you for your time and patience.

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29	Domain 3	$Q20 + Q21 + Q22$	a:	b:	c:
30	Domain 4	$Q8 + Q9 + Q12 + Q13 + Q14 + Q23 + Q24 + Q25$	a:	b:	c:

The following question refers to how often you have felt or experienced certain things in the last four weeks.

		Never	Seldom	Quite often	Very often	Always
26	How often do you have negative feelings such as blue mood, despair, anxiety, depression?	5	4	3	2	1

Thank you for your time and patience.

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29	Domain 3	$Q20 + Q21 + Q22$	a:	b:	c:
30	Domain 4	$Q8 + Q9 + Q12 + Q13 + Q14 + Q23 + Q24 + Q25$	a:	b:	c:

The following question refers to how often you have felt or experienced certain things in the last four weeks.

		Never	Seldom	Quite often	Very often	Always
26	How often do you have negative feelings such as blue mood, despair, anxiety, depression?	5	4	3	2	1

Thank you for your time and patience.

For official use only (Please do NOT fill)

		Equations for completing domain scores	Raw score	Transformed Scores	
				4-20	0-100
27	Domain 1	$(6-Q3) + (6-Q4) + Q10 + Q15 + Q16 + Q17 + Q18$	a:	b:	c:
28	Domain 2	$Q5 + Q6 + Q7 + Q11 + Q19 + (6-Q26)$	a:	b:	c:
29	Domain 3	$Q20 + Q21 + Q22$	a:	b:	c:
30	Domain 4	$Q8 + Q9 + Q12 + Q13 + Q14 + Q23 + Q24 + Q25$	a:	b:	c:

IWE IFOROWANILENUWO

Abala A: Iwa ati ise isedale olu kuluku

- 1) Irufe eda eniyan ti o je:
- a) Okunrin b) Obirin
- 2) Omo odun melo nio:
- 3) Ipo Ibagbepo:
- a) Mio ti fe oko tabi iyawo b) Moni oko tabi aya
- c) Emi ati oko/iyawo mi ko gbe papo d) Emi ati oko/iyawo mi ti ko ara wa sile
- e) Oko/Iyawo mi ti se aliasi
- 4) Ise ti ohun se:
- a) Osise inu ofisi b) Onise owo c) Onisowo
- d) Agbe e) Duro sile fun opolopo Igba
- 5) Iye iwe kika
- a) Mi o lo ile iwe rara b) Ilewe alakobere c) Ile eko girama
- d) Yunifasiti e) Ile eko giga agba
- 6) Esin
- a) Kristiani b) Musulumi c) Elesin abalaye

Abala B: Ise Ojumo

- 7) Ipo wo ni o maa n wa fun opo igba ninu ile abi nibi ise re? [mu idahun ti o ba o lara mu julo]
- a) Tite siwaju b) Gbigbe inkan soke c) Diduro
- d) Jijoko e) Orishirisi
- 8) Eto irinna wo ni o maa n lo julo? [mu idahun ti o ba o lara mu julo]
- a) Irinse b) oko ayokele adaani c) eto irinna gbogbo eniyan
- 9) Igba melo loman lo ti o ba joko? [mu idahun ti o ba o lara mu julo]
- a) Ko to wakati meta si merin b) Oju wakati meta si merin lo

Ti o ba n sise, jowo, dahun ibeere keerin si ibeere kejo. Bibeeko, losi abala B.

- 10) Igba wo ni o maa n sise? [mu idahun ti o ba o lara mu julo]
- a) Owuro b) Oru c) Owuro ati Oru

11) Inje o rope ise re le fa ki Eyin maa dun o? *[mu idahun ti o ba o lara mu julo]*

- a) Beeni b) Beeko

12) Iseju melo ni o maa n gba o lati rin lati ibi ise re de ile re? *[mu idahun ti o ba o lara mu julo]*

- a) Ko to ogbon iseju b) O ju ogbon iseju lo

13) Inje o maa n lo komputa ni ibi ise re? *[mu idahun ti o ba o lara mu julo]*

- a) Beeni b) Beeko

14) Sapejuwe bi ijoko re se ri ni ibi ise re? *[mu idahun ti o ba o lara mu julo]*

- a) O dara gaan b) O dara c) o dara die d) ko dara

Abala D: Iriri Eyin Didun

15) Inje Eyin ndun o lowo bayi? *[mu idahun ti o ba o lara mu julo]*

- a) Beeni b) Beeko

16) Ni osu mejila seyin, inje eyin dun o? *[mu idahun ti o ba o lara mu julo]*

- a) Beeni b) Beeko

17) Inje eyin ti dun o ri? *[mu idahun ti o ba o lara mu julo]*

- a) Beeni b) Beeko

Ti o ba dahun 'Beeni' si Ibeere kini, keji, ati/tabii keta, jowo dahun ibeere kerin si ibeere kejo. Bibeeko, losi Abala E

18) Odun melo sehin ni eyin ti n dun o?:

19) Bawo lo sele sapejuwe didun eyin re? *[roope () tumosi pe ko si didun kaakan ai wipe 10 tumosi didun to po julo; mu idahun ti o ba o lara mu julo]*

0	1	2	3	4	5	6	7	8	9	10

20) Bawo ni eyin re se n dun o lorekoore? *[mu idahun ti o ba o lara mu julo]*

- a) Eekan lodun b) Eekan losu Mefa c) Eekan losu
d) Eekan lose e) Lojojumo

21) Inje igbakan ti wa tie yin dun o to si fa ki o ma le lo si ibi ise re? *[mu idahun ti o ba o lara mu julo; to o ba sise, jowo losi Abala E]*

- a) Beeni b) Beeko

11) Inje o rope ise re le fa ki Eyin maa dun o? *[mu idahun ti o ba o lara mu julo]*

- a) Beeni b) Beeko

12) Iseju melo ni o maa n gba o lati rin lati ibi ise re de ile re? *[mu idahun ti o ba o lara mu julo]*

- a) Ko to ogbon iseju b) O ju ogbon iseju lo

13) Inje o maa n lo komputa ni ibi ise re? *[mu idahun ti o ba o lara mu julo]*

- a) Beeni b) Beeko

14) Sapejuwe bi ijoko re se ri ni ibi ise re? *[mu idahun ti o ba o lara mu julo]*

- a) O dara gaan b) O dara c) o dara die d) ko dara

Abala D: Iriri Eyin Didun

15) Inje Eyin ndun o lowo bayi? *[mu idahun ti o ba o lara mu julo]*

- a) Beeni b) Beeko

16) Ni osu mejila seyin, inje eyin dun o? *[mu idahun ti o ba o lara mu julo]*

- a) Beeni b) Beeko

17) Inje eyin ti dun o ri? *[mu idahun ti o ba o lara mu julo]*

- a) Beeni b) Beeko

Ti o ba dahun 'Beeni' si Ibeere kini, keji, ati/tabii keta, jowo dahun ibeere kerin si ibeere kejo. Bibecko, losi Abala E

18) Odun melo sehin ni eyin ti n dun o?:

19) Bawo lo sele sapejuwe didun eyin re? *[roope 0 tunosi pe ko si didun kaakan ai wipe 10 tunmosi didun to po julo; mu idahun ti o ba o lara mu julo]*

0	1	2	3	4	5	6	7	8	9	10

20) Bawo ni eyin re se n dun o lorekoore? *[mu idahun ti o ba o lara mu julo]*

- a) Eekan lodun b) Eekan losu Mefa c) Eekan losu
d) Eekan lose e) Lojojumo

21) Inje igbakan ti wa tie yin dun o to si fa ki o ma le lo si ibi ise re? *[mu idahun ti o ba o lara mu julo; to o ba sise, jowo losi Abala E]*

- a) Beeni b) Beeko

22) Ti o ba dahun Beeni si Ibeere keje, ninu Odunkan sehin, *oju* melo ní o fi lo sibi ise re nitoripe eyin ndun o? [*to o ba sise, jowo losi Abala È*]

Section È: Eto Itoju

23) Eto itoju wo ni oti janfani nipa eyin didun re? [*mu gbogbo idahun ti o ba o lara mu julo*]

- a) dokita oyinbo b) fisio c) Noosi d) akosemose eto olunje
e) kemisti Adugbo f) Dokita Abalaye g) kosi

24) Kini inkan ti o ma n se tie yin re ba bere sini dun o? [*mu idahun ti o ba o lara mu julo*]

- a) lo ri eleto ilera ni kiakia b) sun lori beedi
c) maa ba ise lo d) lilo ogun funrawa

25) Inje idanilee idanileko fun itojufun itoju eyin wa ni ibi ise re? [*mu idahun ti o ba o lara mu julo*]

- a) Beeni b) Beeko

26) Inje oti lo fun idanileko lori itoju eyin ri? [*mu idahun ti o ba o lara mu julo*]

- a) Beeni b) Beeko

Abala È: Iwa

27) Inje oti mu siga ri? [*mu idahun ti o ba o lara mu julo*]

- a) Beeni b) Beeko

28) Inje ohun mi siga lowo? [*mu idahun ti o ba o lara mu julo*]

- a) Beeni b) Beeko

29) Igi siga melo ní o maa n mu lojunro?

30) Inje o ma n se ere idaraya loorekore? [*mu idahun ti o ba o lara mu julo*]

- a) Beeni b) Beeko

Adupe fun asiko re; a mo riri e gidi gaan.

WHOQOL-BREF

Akiyesi: Awon olukopa ti eyin dun nikan ni ki won dahun iwe iforowanilenuwo yi.

Awon ibeere wonyi ni a funwa nidahun nipa amuye igbe aye re, ilera re, tabi awon igbe aye re miran. Maa ka awon ibeere yi fun o, pelu awon idahun ti o tele. **Jowo mu idahun ti o ba o lara mu ju lo.** Ti o ba mo idahun si ibeere kan, idahun ti oba koko wasio lokan loseese ko je eyi to dara ju. Jowo ni awon erongba e, idunu re, ati inkan tio je o lokan. Awon ibeere yi yio wadi nipa igbese ayere ni ose merin seyin.

		Ko da rara	Ko da	Ko buru, ko si daa	O da	O da gaani
1	Bawo losele se gbelewon aye re?	1	2	3	4	5

		Ko temi lorun rara	Ko temi lorun	Ko temi lorun, ko si daa na	O temi lorun	O temi lorun gaani
2	Bawo leto ilera re se te o lorun si?	1	2	3	4	5

Awon ibeere wonyi yio bere bi ose ni irir awon inkan to ni ose merin sehin.

		Ko sele rara	O sele die	O sele	O sele gaan	O sele gidi gaan
3	Bawo losele seh igbelewon bi oo seh le seh ohun ti o ni lati seh nitori irora?	5	4	3	2	1
4	Igba melo lo nilo eto itoju ilera re ni igbese aye re?	5	4	3	2	1
5	Bawo lo seh n gbadun igbese aye re si?	1	2	3	4	5
6	Bawo losele seh igbelewon bi igbesi aye re seh ni tunmo si?	1	2	3	4	5

		Rara	Di e	Kekere	Daada	Daada gidi gaan
7	Bawo lo seh le fokan si inkan si?	1	2	3	4	5
8	Kini igbelewon bi o seh rope abo wa fun o ni igbesi aye re?	1	2	3	4	5

9	kini eto ilera ayika re?	1	2	3	4	5
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Awon ibeere woyin n bere nipa iriri re tabi bi o seh kopa ninu awon inkan ni ose merin sehin.

		Rara	Di e	kekere	Ni o po igba	Ni gbogbo igba
10	Inje o ni okun tooto fun igbesi aye re lojoojumo?	1	2	3	4	5
11	Inje bi ara re she ri te o lorun?	1	2	3	4	5
12	Inje o ni owo tooto lati seh awon ohun ti oni lati seh?	1	2	3	4	5
13	Bawo ni awon isofuni to nilo lojoojumo she wa larowotoo re?	1	2	3	4	5
14	Seh igbelewon bi o seh lanfani fun awon ere idaraya?	1	2	3	4	5

		Ko da rara	Ko da	Ko buru, ko si daa	O da	() da gaani
15	Bawo lo seh le lo kaakiri fun raara re?	1	2	3	4	5

		Ko temi lorun rara	Ko temi lorun	Ko temi lorun, ko si daa na	() temi lorun	() temi lorun gaani ni
16	Bawo ni orun re seh te o lorun si?	1	2	3	4	5
17	Bawo ni bi o seh le seh ise ojoojumo she te o lorun si?	1	2	3	4	5
18	Bawo ni agbara re lati sise seh te o lorun si?	1	2	3	4	5
19	Bawo ni ara re seh te o lorun si?	1	2	3	4	5
20	Bawo ni ibasepo ti o ni pele elomiran seh te o lorun si?	1	2	3	4	5
21	Bawo ni ibasepo toko taya seh te o lorun si?	1	2	3	4	5
22	Bawo ni iranlowo ti ohun rigba lowo awon ore re seh te o lorun si?	1	2	3	4	5

23	Bawo ni ibi ti ohun gbe seh te o lorun si?	1	2	3	4	5
24	Bawo ni arowoto eto ilera seh te o lorun si?	1	2	3	4	5
25	Bawo ni eto irinna re seh te o lorun si?	1	2	3	4	5

Awon ibeere yi toka si igba melo loti ni iriri awon inkankan ni ose merin sehin.

		Ko sele ri	O sele le kan kan	Ohun sele	Ohun sele lorekoore	Ohun sele ni ghogbo igba
26	Bi igba melo ni oma n ni irewesi okan?	5	4	3	2	1

Fun lilo oluwadi nikan (Jowo MASE dahun)

		Isiro fun awin eka	Maaki apapo	Eda maaki	
				4-20	0-1(%)
27	Eka kini	$(6-Q3) + (6-Q4) + Q10 + Q15 + Q16 + Q17 + Q18$	a:	b:	c:
28	Eka keji	$Q5 + Q6 + Q7 + Q11 + Q19 + (6-Q26)$	a:	b:	c:
29	Eka keta	$Q20 + Q21 + Q22$	a:	b:	c:
30	Eka kerin	$Q8 + Q9 + Q12 + Q13 + Q14 + Q23 + Q24 + Q25$	a:	b:	c:

Adupe fun asiko re ati suuru ti o ni.