DURBAN UNIVERSITY OF TECHNOLOGY

THE PREVALENCE OF AND ASSOCIATED RISK FACTORS FOR LOW BACK PAIN IN MEDICAL OUTPATIENTS OF A SELECTED UMDONI MUNICIPALITY PRIMARY HEALTH CARE CLINIC

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BY

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Declaration

This is to certify that the work is entirely my own and not of any other person, unless, explicitly acknowledged (including citation of published and unpublished sources). The work has not previously been submitted in any form to the Durban University of Technology or to any other institution for assessment or for any other purpose.

_____ _____

Khanyisile P Khumalo Date

Approved for final submission:

_____ _____

Dr F Haffejee Date

PhD

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Abstract

Background:

Low back pain (LBP) can affect any population and is experienced by any race, gender or age group. The lifetime prevalence of LBP is reported to vary from 44.4% to 90% in different populations in Western countries and 36% to 70.9% in African countries. Studies have been conducted in developed countries, or urban areas of developing countries regarding LBP and they report the LBP prevalence to vary from 48% to 90%. However, very limited literature about LBP and its risk factors in rural areas exist. There are few studies that have been conducted in rural areas; however, none of these investigated a South African rural area and since the demographics and type of work of this population differs, it may affect the prevalence of LBP.

Aim of study:

The aim of this study was to determine the prevalence of and associated risk factors for low back pain in medical out patients of a selected Umdoni Municipality Primary Health Care Clinic.

Methodology:

This study design was a cross-sectional survey, set in a quantitative paradigm, in which data was collected by means of a questionnaire. This study was conducted in a primary health care clinic of the Umdoni Municipality. The convenience sequential sampling method was used to select the qualifying participants (as per inclusion/ exclusion criteria) from the patients in the waiting room of the clinic. Participants (n=400) were recruited by the researcher in the clinic waiting room / reception. All collected data was captured on an Excel spreadsheet and subsequently transferred to the statistical program for the Social Sciences (SPSS) version 23. A *p* value less than 0.05 was considered statistically significant. Pearson's chi square tests and Fisher's exact test were utilized in order to determine the association between low back pain and various factors. Odds ratios were calculated to determine risk factors for LBP. LBP was correlated with demographics as well as daily activities or chores.

Results:

A total of 400 questionnaires were completed by the participants in the form of an interview with the researcher. The lifetime and point prevalence of LBP was 79.3% (*n* = 317) and 32.5% (*n* = 130) respectively. LBP increased with an increasing age (*p* = 0.028). Similarly, LBP increased in people with higher BMI (*p* < 0.001). More females (83.4%, *n* = 231) suffered from LBP than did males (69.9%, *n* = 86, *p* = 0.002). The prevalence of LBP was not correlated with other demographic factors. More females (98%, *n* = 272) performed household chores than did males (78.8%, *n* = 97, *p* < 0.001). These chores included fetching firewood (*p* < 0.001), washing clothes (*p* < 0.001) and cooking (*p* < 0.001). Although there was no relationship between performing household chores and the lifetime prevalence LBP (*p* = 0.842), there was a relationship between performing these chores and the point prevalence of LBP (*p* = 0.004). More females (96%, *n* = 266) than males (65.9%, *n* = 81) fetched water (*p* = 0.001). Bivariate analysis indicated that LBP was increased with an increasing number of pregnancies (*p* < 0.001). The risk of LBP was increased in those who underwent a C-section (OR = 2,748, 95% CI: 1,108-6,819, *p* = 0.024). Similarly the risk of LBP was increased in those women who had an epidural (OR = 3.115, 95% CI: 1,355 -7,157, *p* = 0.005).

Almost a fifth of the participants lifted heavy objects for a prolonged period of time (19.5%, *n* = 78, *p* < 0.001). Lifting heavy objects was strongly associated with an increased lifetime prevalence of LBP (OR = 6.014, 95% CI: 2.131 - 16.976, P < 0.001). There was no correlation between physical activity and the prevalence of LBP (*p* = 0.084). However Pearson's chi square test showed that those that walked experienced more LBP compared to those involved in other physical activities (*p* = 0.024). In addition, those who walked, were often walking to fetch water and this may have caused the LBP. Low back pain affected daily activities such as bending (30.5%, *n* = 122, *p* < 0.001) and lifting of objects (18%, *n* = 72, *p* < 0.001). It also resulted in absenteeism from work and loss of jobs. Knowledge of chiropractic was poor (1%, *n* = 4, *p* < 0.001) and 99% (*n* = 396, *p* < 0.001) of the participants had never been treated by a chiropractor.

Conclusion:

Low back pain prevalence was high in the Umdoni Municipality population. Activities related to life in poor socio-economic backgrounds, such as fetching water from the river, were highly associated with LBP. Participants were unaware of the field of chiropractic treatment and since chiropractors are involved in manually treating low back, it is recommended that chiropractic treatment be incorporated into the services provided at primary health care clinics in the area.

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Acronyms

AIDS	Acquired immune deficiency syndrome
C-section	Caesarean section
HIV	Human immunodeficiency virus
LBP	Low back pain
MOB	Mobilization
SA	South Africa
SMT	Spinal manipulative therapy
SPSS	Statistical program for the Social Sciences
TB	Tuberculosis

Chapter One: Introduction

1.1 Background of the study

Low back pain (LBP) is one of the most frequent and costly musculoskeletal conditions. It causes a reduced quality of life and also places a burden on health care (Majid and Truumees, 2008, Wai et al., 2010c, Maniadakis and Gray, 2000). According to Jin et al. (2004), in economically developed countries, LBP is experienced as one of the most common work-related health problems among the working population. However, there seems to be considerably less information about the impact of LBP in developing countries due to lack of research conducted in these countries (Jin et al., 2004). Low back pain reduces the quality of health and also places a burden on health care (Yilmaz and Kaya, 2009). It involves an interaction between socioeconomic, psychological, anatomical and occupational risk factors (Wai et al., 2010a). To lessen the impact (i.e. work absenteeism, disability, pain, depression and treatment costs) of LBP it is relevant for the physician and the patient to understand the risk factors associated with it, to improve patient care (Bejia et al., 2005, Roffey et al., 2010b).

The economic burden of LBP may be of particular distress in Africa since Africa is one of the financially deprived continents, with the already limited health funds being directed toward epidemics such as TB, HIV and AIDS (Louw et al., 2007). Therefore, the aim of the study is to determine the prevalence and associated risk factors for LBP in medical out patients of a selected Umdoni Municipality Primary Health Care Clinic.

There are various risk factors which may variably predispose an individual to LBP. For instance, LBP may be genetic or caused by the individual's lifestyle (Majid and Truumees, 2008). This interrelationship may be demonstrated by the type of occupation such as heavy work or lifting, which is one of the most common risk factors for LBP (Wai et al., 2010c, Punnett et al., 2005). In addition, psychosocial factors i.e. emotions, avoidance behaviours and beliefs may be associated with outcomes of LBP (Pincus and McCracken, 2013, Hertzman-Miller et al., 2002, Geisser et al., 2005).

Furthermore, the availability of health care and the seeking thereof has been implicated as having a major role in the course of diseases including LBP (Stevens, 2007).

1.2 Research problem

The prevalence of LBP in rural communities in South Africa has not been investigated. It is important to ascertain this prevalence as this condition largely affects the working population

(Dagenais et al., 2008). The lifestyle in urban and rural settings differs in terms of income, literacy and access to health care services (Worku, 2000, Leboeuf-Yde et al., 2002, Galukande et al., 2005). Individuals who reside in rural areas are generally poor, illiterate and have limited access to health care services which may compromise their health status (Worku, 2000, Galukande et al., 2005) since higher income allows better access to health care services, good nutrition and clean water, all of which promote better health (Galukande et al., 2005). Chiropractors are involved in the treatment of musculoskeletal disorders such as LBP and there is no chiropractic clinic in the area. The significance of the study is that should there be a high prevalence of LBP in this community, that would indicate a need for a chiropractic clinic in the area as manual treatments are more effective than usual drug therapy for LBP (Hill et al., 2011). In addition, this study may assist in giving an insight on what LBP risk factors are rural dwellers exposed to and if those risk factors differ from those of urban dwellers. Furthermore, literature shows that treating LBP using chiropractic treatment is more cost effective than using medical treatment (Manga et al., 1993). In addition evidence from Canada shows that chiropractic treatment reduces chronic problems, decreases hospitalisation and furthermore, individuals who are treated for LBP by chiropractors, as opposed to physicians, return to work earlier (Dagenais et al., 2010).

1.3 Aim of the study

The aim of the study is to determine the prevalence of and associated risk factors for low back pain in medical out patients of a selected Umdoni Municipality Primary Care Clinic.

1.4 Objectives of the study

- To determine the lifetime and point prevalence of LBP in the Umdoni Municipality.
- To determine self-reported risk factors for LBP.
- To determine the associations between LBP and risk factors.

1.5 Conclusion

This chapter is followed by chapter two which is a comprehensive literature review of LBP. Chapter three will deliberate the methodology of the study, which includes; the study design, data collection and analysis. The results are presented in chapter four and the results are discussed in chapter five. Chapter six outlines the conclusion of the study.

Chapter Two: Literature Review

2.1 Introduction

This chapter provides a review of the literature on low back pain (LBP). The review elaborates on the anatomy of the spine, epidemiology of LBP, risk factors and causes of LBP. The following search engines were used to source the data: Google Scholar, Summons, Medscape, Kenhub, BioMed research International and ScienceDirect.

2.2 Anatomy of the spine

The anatomy of the spine includes; osseous structures, muscles, joints, ligaments, blood and nerve supply.

The spine is divided into cervical, thoracic, lumbar and sacroiliac regions (Zheng et al., 2004). As seen in Figure 2.1, the back consists of seven cervical, twelve thoracic and five lumbar bony vertebrae, as well as five fused vertebrae forming the sacrum and another four fused vertebrae forming the coccyx. These bones form the vertebral column, also known as the back (Ebraheim et al., 2004, Middleditch and Oliver, 2005b, Drake et al., 2009). The back is composed of the posterior aspect of the trunk below the neck and above the gluteal region and includes the skin, muscles, spine, ribs and several blood vessels and nerves (Cramer and Darby, 2013). It is divided into upper and lower back; and the upper back is classified as the area that begins from the base of neck to the bottom of the rib cage. Whereas, the lower back is usually classified as the area that begins from the posterior aspect of the 12^{th} rib superiorly and ends at the inferior gluteal folds (Zheng et al., 2004, Krismer and Van Tulder, 2007). However, for the purpose of this study the lower back will explained in more detail. The gluteal region starts from the superior buttocks at the level of the iliac crests, to the gluteal folds that separate the thighs from the buttocks (inferiorly) (Moore and Dalley, 1999, Standring et al., 2008).

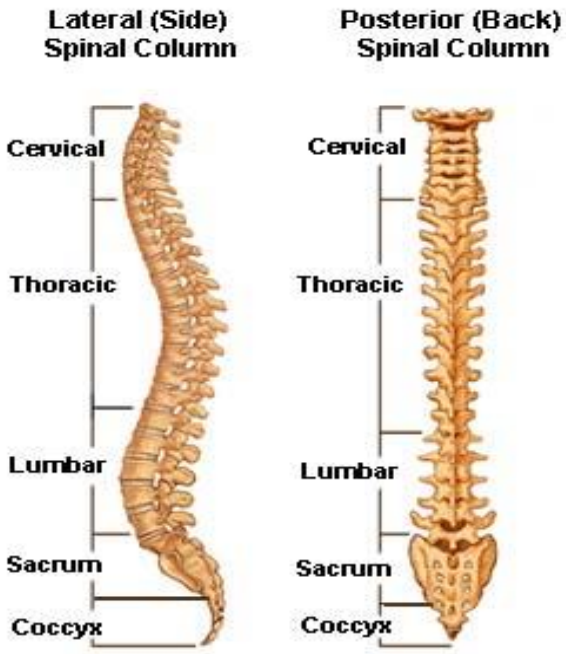

Figure 2.1 Anatomical structure of the spine (Bridwell, 2016)

2.2.1 Osseous structures of the lower back

The lumbar spine consists of five lumbar vertebrae, the sacrum and coccyx, as well as two os coxa which comprise of three fused bones called ilium, ischium and pubis (Moore and Dalley, 1999). The lumbar spine provides mobility of the back and is able to bear considerable loads (Zheng et al., 2004).

2.2.1.1 Lumbar vertebrae

There are five lumbar vertebrae which are recognised by their large size when compared to the other vertebrae (Standring et al., 2008, Standring, 2015). Figure 2.1 illustrates the structure of a lumbar vertebra. Each vertebra is composed of anterior and posterior segments (Ebraheim et al., 2004, Kishner, 2016). The anterior segment is composed of the vertebral body and pedicles, while the posterior segment is composed of laminae, transverse processes, a spinous process and superior and inferior articular processes (Clancy and McVicar, 2002, Ebraheim et al., 2004, Standring et al., 2008).

The spinous process is formed by the union of the two laminae and it is a broad centrally located bony structure that serves as a lever during spinal motion (Cramer and Darby, 2013). In addition, the spinous process also serves as an attachment point for many back muscles (Drake et al., 2009, Kishner, 2016). The laminae are thick, broad bony structures that connect the bases of the transverse processes and the pars interarticularis, as well as the spinous

process (Drake et al., 2009). The laminae are continuous with the corresponding pars interarticularis that are positioned bilaterally, postero-inferiorly to the pedicle and between the superior and inferior articular processes (Drake et al., 2009, Standring, 2015, Kishner, 2016).

The superior articular process has a concave articulating facet that faces postero-medially; and the inferior articular process has a convex articulating facet that is antero-laterally inclined (Bogduk, 2005, Drake et al., 2009). The pedicles are inclined medially and these pedicles act as connectors between the posterior and anterior elements of the lumbar vertebrae (Ebraheim et al., 2004, Bogduk, 2005). The superior surface is wider with a spinal canal that progresses to a triangular shape at the level of L5 (Moore and Dalley, 1999, Kishner, 2016). In addition, L1 is the smallest and L5 is the largest of the lumbar vertebrae, an arrangement that assists in weight bearing (Standring et al., 2008, Middleditch and Oliver, 2005b).

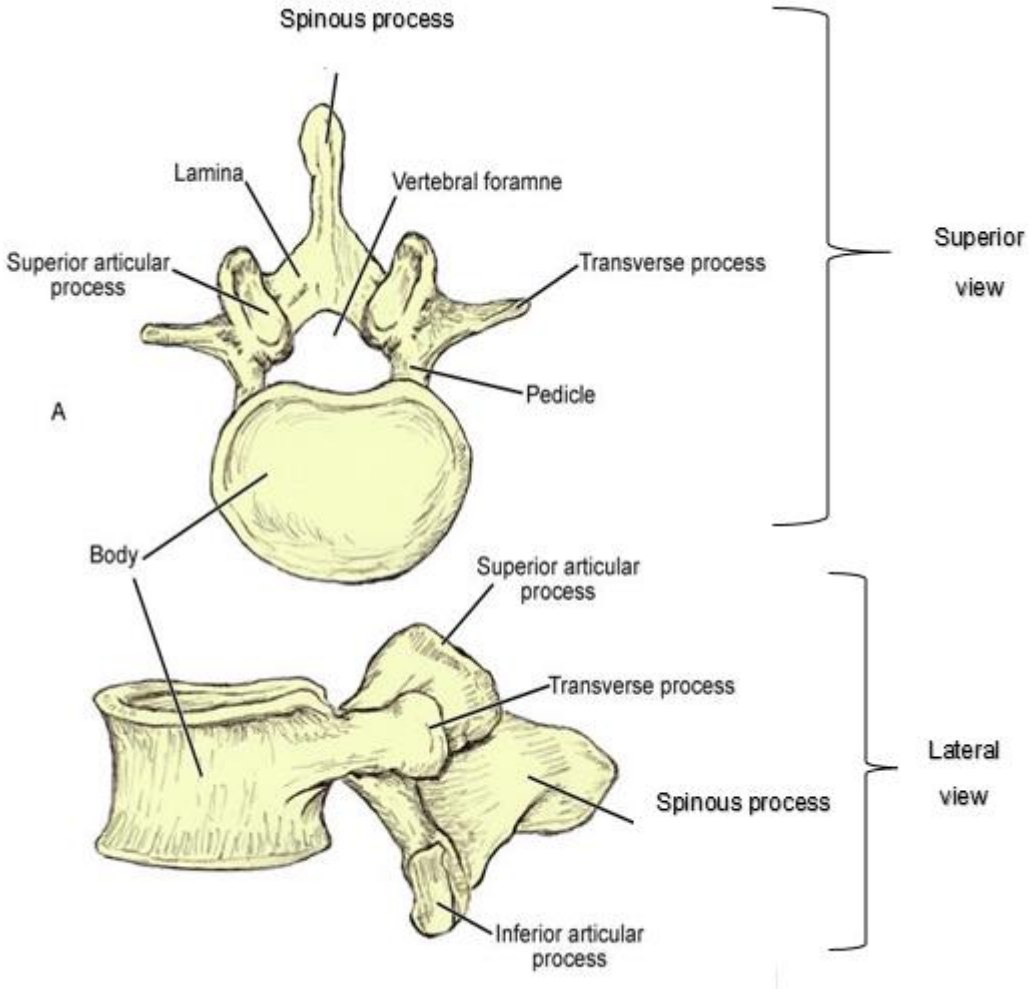

Figure 2.2. Anatomical structure of lumbar vertebrae (Kishner, 2016)

2.2.1.2 The sacrum

The sacrum is found between the ischial portions of the os coxae where it is wedged bilaterally (Drake et al., 2009). It is a triangular shaped bone (Figure 2.3) that forms the base of the spine (Drake et al., 2009, Cramer and Darby, 2013). The sacrum contains five vertebral bodies which are fused together and it typically has four sacral foramina on each side of a sacral crest that is centrally placed (Ebraheim et al., 2004, McGill, 2015, Cramer and Darby, 2017). The apex of the sacrum also contains a sacral foramen (Moore and Dalley, 1999, Cramer and Darby, 2013).The apex of the sacrum articulates with the coccyx inferiorly and its base articulates with the fifth lumbar vertebrae superiorly (Cramer and Darby, 2017).

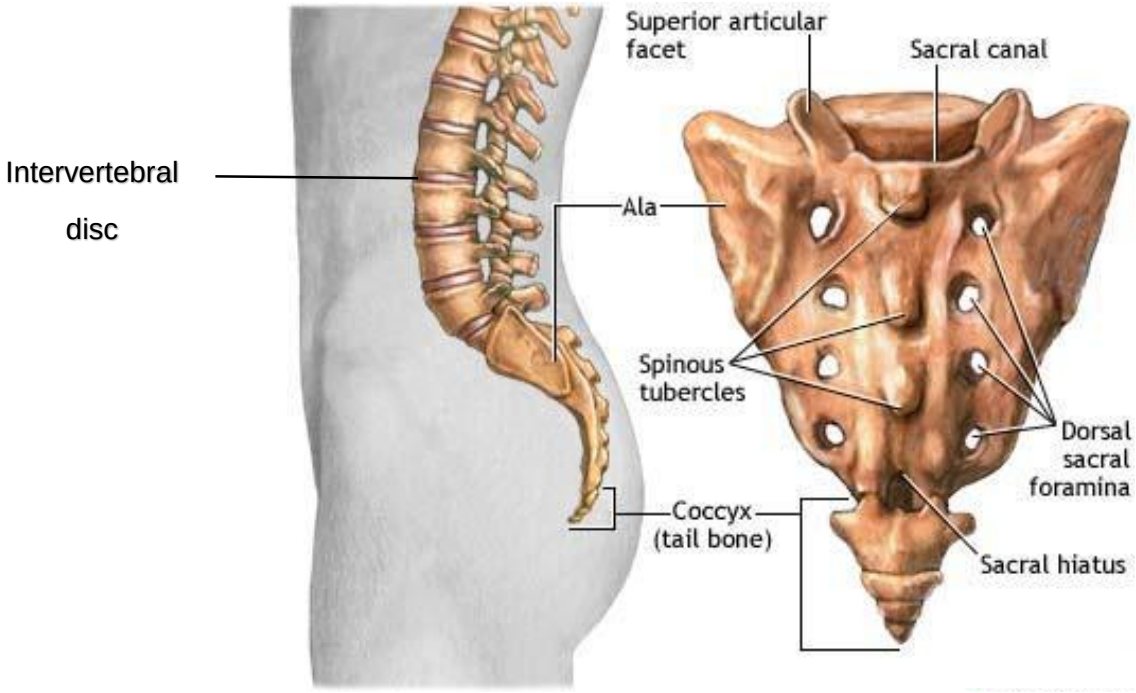

Figure 2.3. Anatomical structure of sacral vertebrae (Mennear, 2016)

2.2.1.3 The Os coxae

These are two pelvic bones (pelvis) located on either side of the sacrum, and are formed by the ilium, ischium and pubic bones (Figure 2.4) (Moore and Dalley, 1999, Standring et al., 2008). The pelvis functions to transfer weight of the body from the spine to the femoral bones on each side of the body (Standring et al., 2008) . The ilium initially transfers weight from the spine to the pelvis, via the sacroiliac joint and is also responsible for the attachment and stabilization of the pelvic ring (Moore and Dalley, 1999, Moore et al., 2013). The ischium functions to transfer and bear weight from the upper body to lower limbs when changing from the standing to sitting position and serves as the attachment area for lower limb muscles (Middleditch and Oliver, 2005a, Standring et al., 2008). The pubic bones provide an

attachment point for several lower limb muscles and contribute in pelvic stability as well as closing the pelvic ring (Middleditch and Oliver, 2005a, Moore et al., 2013). Moreover, the ilium, ischium and pubis connect to form an acetabulum which articulates with the femoral head to form a hip joint (Standring et al., 2008, Standring, 2015). The hip joint is essential for the transfer of weight from the spine over the ilium to the femur on both standing and sitting positions (Moore et al., 2013, Standring et al., 2008).

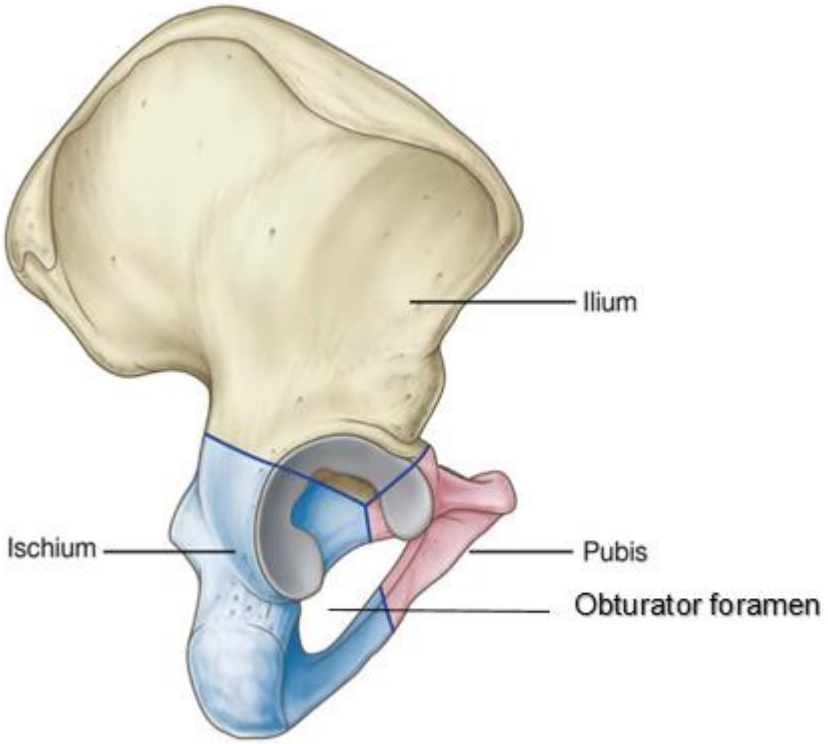

Figure 2.4 Anatomical structure of os coxae (Choudhary, 2016)

2.2.2 Articulations and ligaments

2.2.2.1 Lumbar vertebral joints

The lumbar vertebral column contains a three joint complex (also known as a functional unit), which allows for the movement in various directions (Heuer Frank et al., 2006).

The first of these joints is the intervertebral joint formed between two vertebrae. As seen in Figure 2.5, an intervertebral disc is formed between two layers of hyaline cartilage of two successive vertebral bodies, with which it articulates to form a symphyseal joint (Bogduk, 2005). The intervertebral disc is an avascular structure that contains a central nucleus pulposus and annulus fibrosis and is suitable for weight bearing and mobility (Bogduk, 2005, Heuer Frank et al., 2006). The nucleus pulposus contains approximately 70-90% mucoid substance, which permits it to be the shock absorber in the disc (Heuer Frank et al., 2006).

On the other hand, the orientation of the lamellae allows them to restrict motion (Bogduk, 2005, Ebraheim et al., 2004, Moore et al., 2013). Discs from the lower lumbar spine are wedged shaped and they resist backward bending to a lesser extent than discs from the upper lumbar spine, but all of them are well protected by the neural arch (Drake et al., 2009, Moore et al., 2013).

The second and third joints are synovial joints, which in the spine, are also referred to as a zygapophyseal or facet joints. Each facet joint is formed between the superior and inferior articular facets of two adjacent vertebrae. Synovial joints are composed of a synovial membrane, synovial capsule, synovial fluid and hyaline cartilage, which shields the articular surfaces (Gallucci et al., 2009, Standring et al., 2008, Cramer and Darby, 2013). This joint allows for simple gliding movements to occur (Cramer and Darby, 2013)**.**

In addition, the pubic rami from each os coxae are connected together by the pubic symphysis. The pelvic ring functions to transfer weight to the hip joints and assists in movement of the trunk and limbs, which is also facilitated by ligaments (Drake et al., 2009, Moore et al., 2013).

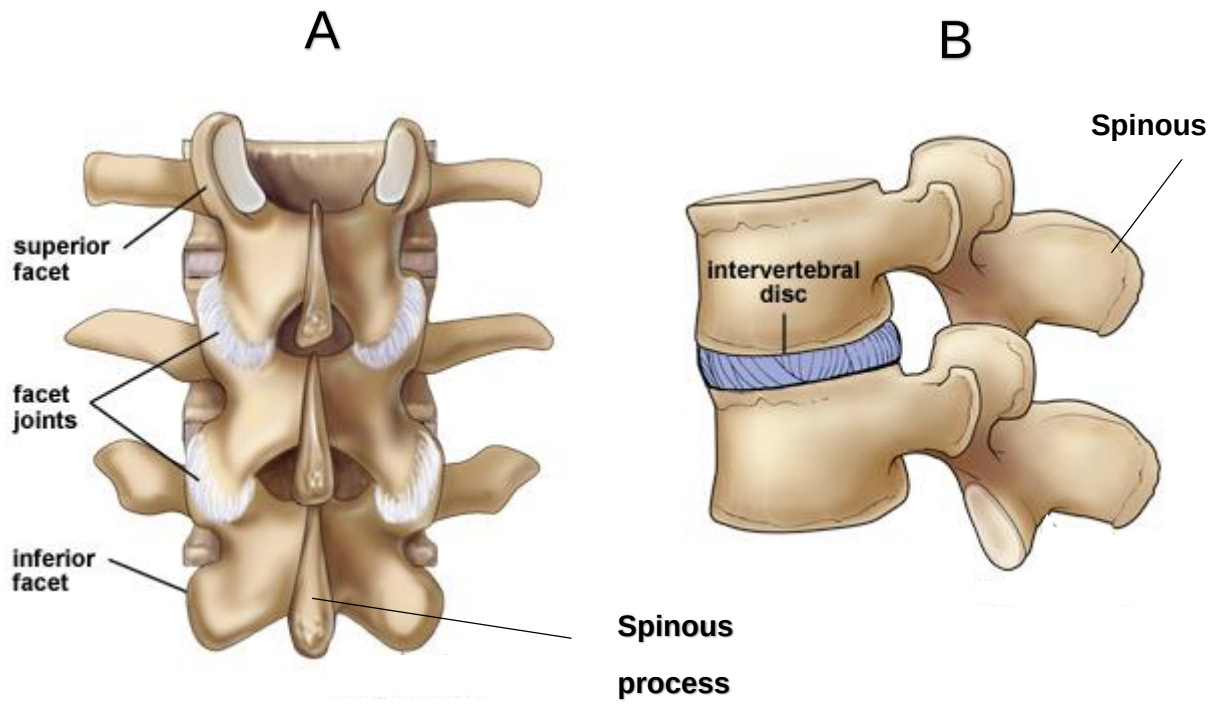

Figure 2.5. Anatomical structure of lumbar vertebral joints, showing (a) synovial joint / facet and (b) intervertebral disc (Hines, 2016)

2.2.2.2 Lumbar vertebral ligaments

Ligaments are made up of fibrous connective tissue, which are elastic and resistant. Their function is to stabilise a joint, by connecting two bones to each other (Ebraheim et al., 2004, Middleditch and Oliver, 2005b, Moore et al., 2013). A number of different ligaments are found in the vertebral column (Figure 2.6).

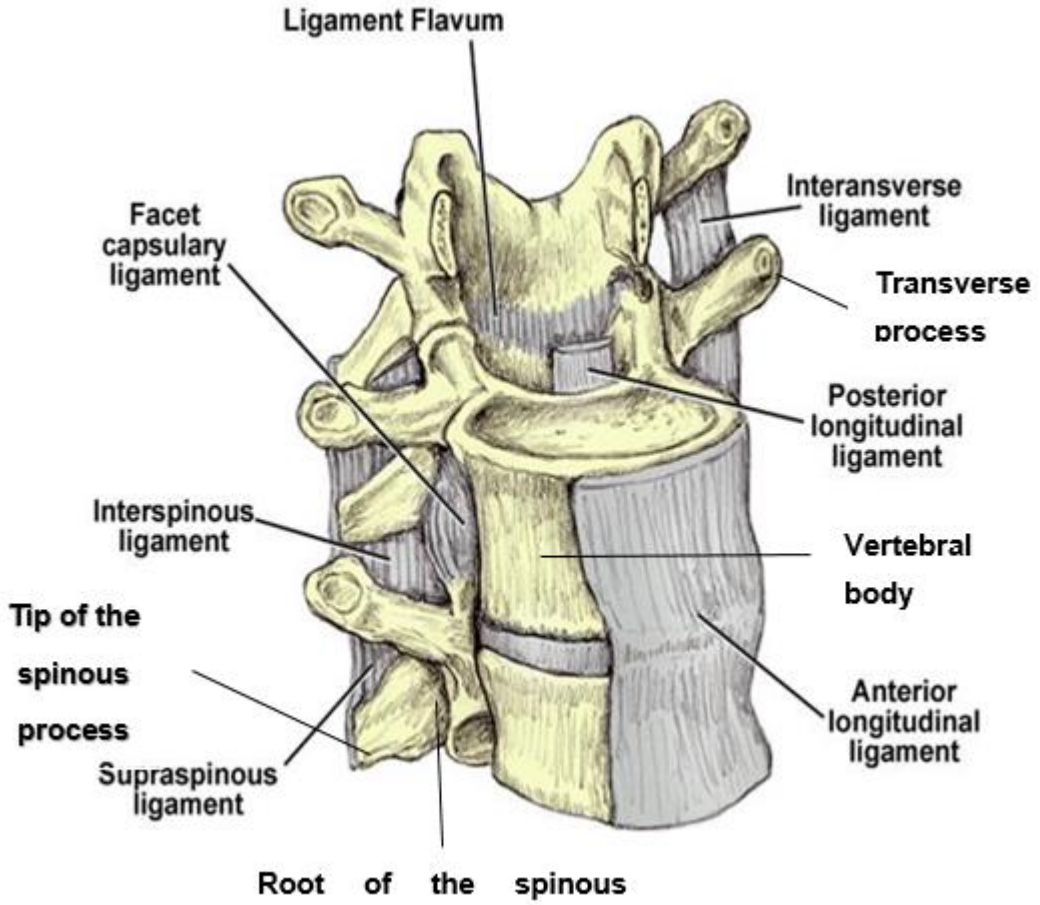

Figure 2.6. Anatomical structure of lumbar ligaments (Kishner, 2016)

The anterior lumbar ligament originates from the anterior aspect of the discs and widens as it descends the vertebral column, it functions to limit extension and maintains the stability of the joints (Ebraheim et al., 2004).

The tips of the spinous processes of vertebrae; L1-L3 are connected by the supraspinous ligament. The spinous processes are connected from the roots to apexes of adjacent processes by the interspinous ligament. Together, these ligaments form an interspinous/supraspinous ligament complex which resist spinal separation as well as flexion (Ebraheim et al., 2004, Heuer Frank et al., 2006). In addition, this ligament complex also limits the stretch of the zygapophyseal joint posteriorly (Ebraheim et al., 2004, Bogduk, 2005, Cramer and Darby, 2017).

The superior part of the ligamentum flavum attaches to the caudal portion of the lamina. Whereas, the inferior portion attaches to the cephalad portion of the lamina. The ligamentum flavum links the interlaminar interval, attaching to the interspinous ligament medially and the facet capsule laterally, and that forms the posterior wall of the vertebral canal. It inserts onto the leading edge of the inferior lamina via a broad attachment to the undersurface of the

superior lamina (Middleditch and Oliver, 2005b, Moore et al., 2013). The ligament functions to maintain disc tension, as well as assist in flexion and extension by stretching and contracting elastin fibers respectively (Moore and Dalley, 1999). In addition, the ligamentum flavum also stabilises the capsule anteriorly (Ebraheim et al., 2004, Heuer Frank et al., 2006).

The iliolumbar ligament together with the lateral lumbosacral ligament and the above ligaments stabilize the lumbosacral joints. The iliolumbar ligament originates from the tip of the L5 transverse process and connects to the posterior part of the inner lip of the iliac crest and combining inferiorly with the anterior sacroiliac ligament (Moore and Dalley, 1999). Inferiorly, the sacrotuberous and the sacrospinous ligaments bind the sacral bones together. These ligaments anchor themselves on the ischial tuberosity and the ischial spine respectively (Moore and Dalley, 1999, Standring et al., 2008).

2.2.3 Lumbar spine musculature

There are four functional muscle groups that make up the lumbar spine. These are extensor, forward flexor, lateral flexor and rotator muscles (Dolan and Adams, 2001, Moore et al., 2013).

2.2.3.1 Extensors

These are organized in three layers. The erector spinae or sacrospinalis is the largest group of intrinsic back muscles and are the primary extensors of the back. The erector spinae appears as a single muscle in the lower lumbar region, however, anteriorly, it divides into three vertical columns of muscles called the iliocostalis, longissimus and spinalis (Moore et al., 2013, Drake et al., 2009) (Figure 2.7). These three divisions are located posterolateral to the vertebral column and originate from a common thick tendon that is attached to the sacrum, the lumbar spinous processes, and the iliac crest (Moore and Dalley, 1999, Cramer and Darby, 2017). The spinalis muscle is the smallest and is located medially while the iliocostalis is located laterally. The longissimus which is the largest muscle, inserts on to the skull base, whereas the iliocostalis inserts onto the angles of the ribs and transverse processes of the lower cervical vertebrae (Moore et al., 2013, Drake et al., 2009).

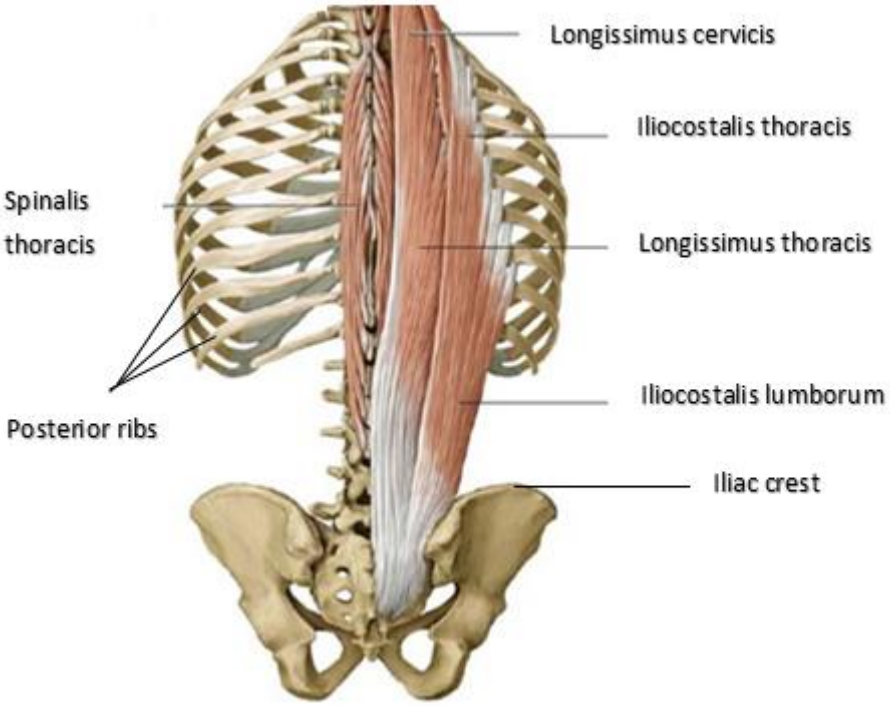

Figure 2.7 Anatomical structure of extensors of the back (Gilroy et al., 1992, Acland, 2017)

The transversospinal muscle originates on the mamillary processes in the lumbar spine and it is a three-layered muscle that lies deep to the erector spinae. Each fascicle faces superomedially towards the inferior and medial margin of the lamina and adjacent spinous process (Bogduk, 2005, Drake et al., 2009, Moore et al., 2013) . In addition, this muscle also attaches on the sacrum, where it originates from the laminar area just medial to the posterior sacral foramina, from the tendinous origins on the erector spinae, and the medial surface of the posterior superior iliac spine (Moore and Dalley, 1999, Middleditch and Oliver, 2005a). The superficial layer attaches from three - four levels superiorly, the intermediate layer attaches from two levels superiorly, and the deep layer attaches from one level above. The transversospinal muscle group (A) acts both as the lumbar spine rotator and extensor (Drake et al., 2009, Middleditch and Oliver, 2005a).

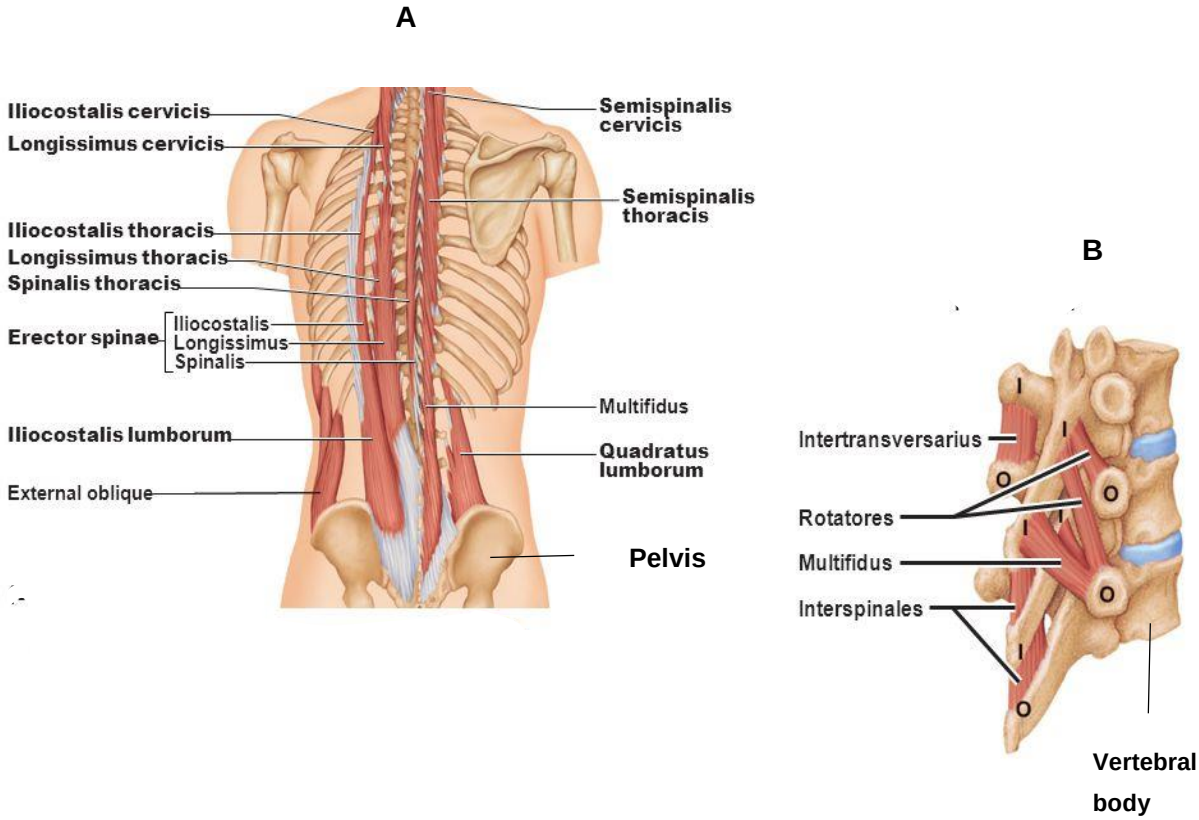

Figure 2.8 Anatomical structure of extensors of the back, showing (a) transversospinal muscle group and (b) deepest layer group (Marieb, 2017)

The deepest layer (B) of lumbar extensors is made up of a mass of small, segmental muscles that can be divided into two groups, which are innervated by the dorsal rami of spinal nerves. The first group is the levatores costarum which is not normally present in the lumbar spine (Middleditch and Oliver, 2005a, Moore and Dalley, 1999). The second group encompasses the interspinales which is made of short fascicles that are attached between the spinous processes of adjoining vertebrae and intertransversarii. The intertransversarii contain two-three slips of muscles, which pass between adjoining transverse processes. This group of muscles act as postural stabilizers and enhance the efficiency of larger muscle group action (Moore and Dalley, 1999, Bogduk, 2005).

2.2.3.2 Forward flexors

The trunk flexors enhance spine stability (Hodges 1999). The flexors of the lumbar spine are divided into intrinsic (femorospinal) (Figure 2.10) and extrinsic (iliothoracic) (Figure 2.9) muscle groups. The extrinsic group is made up of the abdominal wall muscles which consist of the rectus abdominis, transversus abdominis external and internal abdominal oblique (Moore and Dalley, 1999, Bogduk, 2005). The intrinsic group contains the psoas major and

iliacus muscles. The psoas major originates from numerous areas: the anterior surface and lower border of transverse processes of lumbar vertebrae L1-L5, from the vertebral bodies and discs of T12-L5. It inserts on to the lesser trochanter of the femur. The psoas major is innervated by direct fibers of the lumbar plexus (L1-L3) and it is a primary flexor of the trunk and hip (Ebraheim et al., 2004, Ploumis et al., 2011).

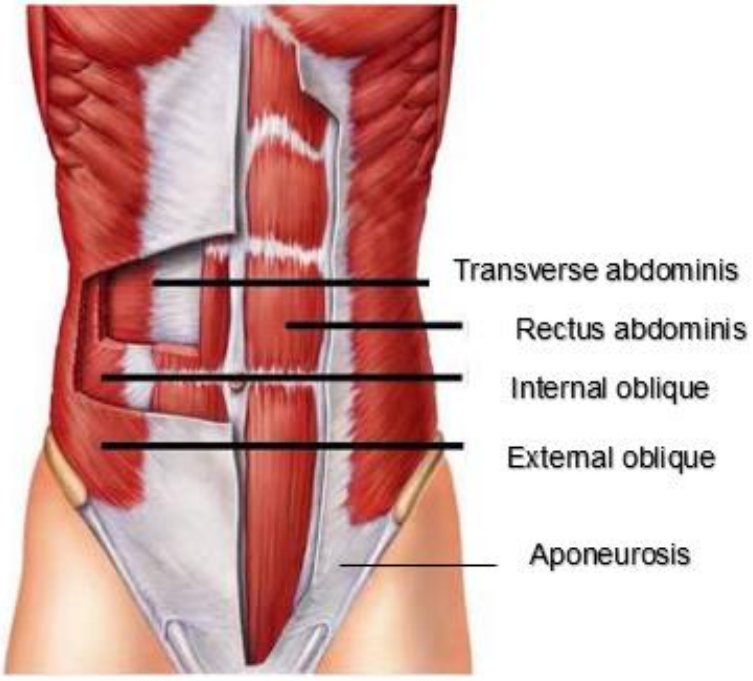

Figure 2.9. Anatomical structure of forward flexors of the lumbar spine of the back (Lopez, 2016)

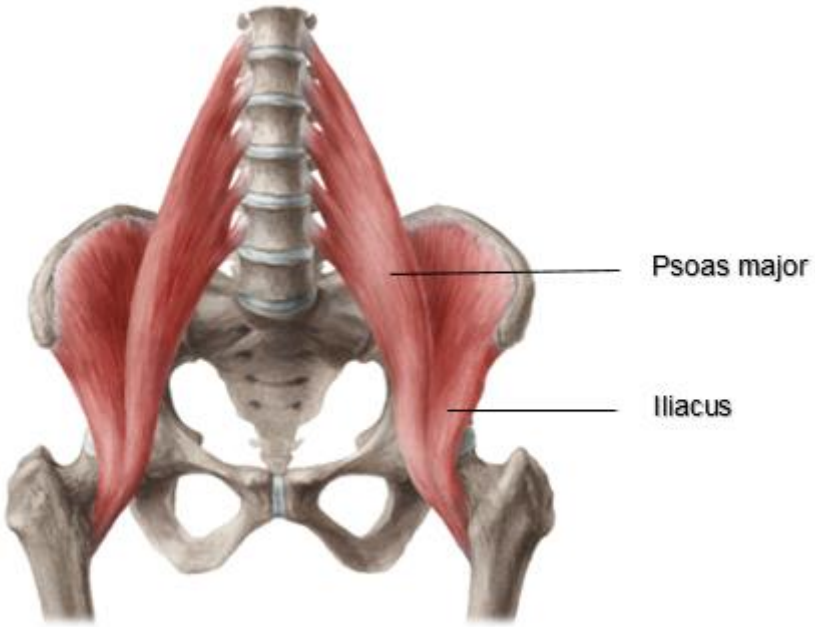

Figure 2.10. Anatomical structure of forward flexors of the lumbar spine of the back (Pascoe and Kapsas, 2016)

2.2.3.3 Lateral flexors

Lateral flexion refers to a combination of rotation and side bending which is achieved by a contraction of ipsilateral oblique and transversus abdominal muscles, as well as the quadratus lamborum muscle (Figure 2.11) (Moore et al., 2013, Bogduk, 2005). However, true lateral flexion and elevation of the ilium may result from unilateral contraction of the quadratus lumborum (Bogduk, 2005). Whereas, bilateral contraction of the same muscle may result in lumbar extension. The quadratus lumborum originates from the iliolumbar ligament to insert on the adjacent part of the iliac crest above the lower anterior surface of the 12th rib, and to the apexes of L1-L4 transverse processes (Ebraheim et al., 2004, Bogduk, 2005).

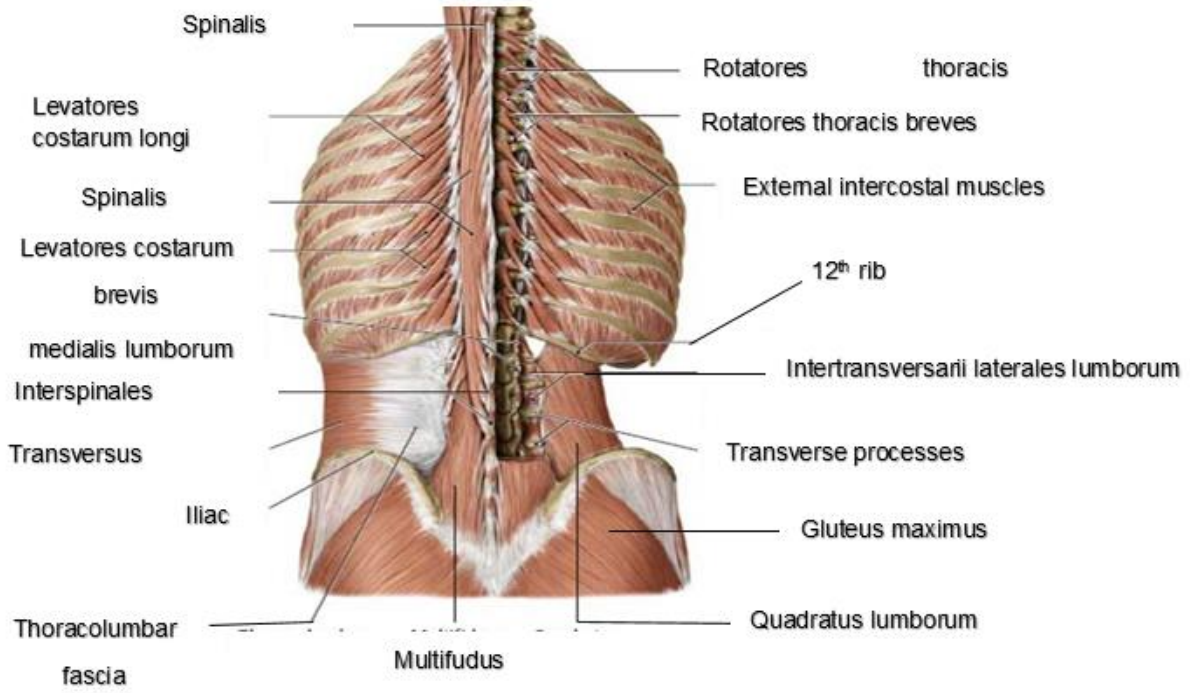

Figure 2.11 Anatomical structure of lateral flexors of the back (Acland, 2017)

2.2.3.4 Rotators

Rotation of the lumbar spine occurs when there is unilateral contraction of the muscles in an oblique direction (Moore and Dalley, 1999). Mostly the extensors and lateral flexors are arranged in an oblique course and when their primary component is neutralised by antagonist muscle groups, rotation occurs (Cornwall et al., 2006, Cramer and Darby, 2013).

The transversospinal muscle group comprising of the semispinalis, multifidus, and rotatores lumborum muscles lies deep to the erector spinae muscle and runs obliquely from the transverse to the spinous processes. When the transversospinal muscle group act together they induce extension of the vertebral column. Unilateral contraction of these muscles causes rotation of the trunk in the contralateral direction (Cornwall et al., 2006, Middleditch and Oliver, 2005a). The rotatores lumborum are small and asymmetrical muscles that connect the superoposterior part of the transverse process of the vertebra below to the inferolateral border of the lamina of the vertebra above (Ebraheim et al., 2004, Cramer and Darby, 2013).

2.2.4 Lumbar spine vasculature

2.2.4.1 Arterial Supply

A pair of arteries arises from the aorta in front of the vertebral bodies of L1-L4 and at L5 the lumbar arteries branch off from the median sacral artery. Each lumbar artery passes anterolaterally to its related vertebral body till it is lateral to the intervertebral foramina (IVF) where it divides into several branches (Kiernan and Rajakumar, 2013, Moore et al., 2013). The lateral branches penetrate through the quadratus lumborum and psoas muscle to supply the abdominal wall (Karunanayake and Pathmeswaran, 2013). The paravertebral muscle is supplied by the other branches that pass with the ventral and dorsal rami that innervate this muscle. The periosteal and equatorial branches supply the lateral and anterior parts of the vertebral bodies (Karunanayake and Pathmeswaran, 2013, Ebraheim et al., 2004). A posteriorly directed branch passes below the transverse process and supplies the back muscles. In addition, this branch forms a plexus around the laminae, facet joints and spinous processes which it also supplies (Karunanayake and Pathmeswaran, 2013). When the spinal artery branches enter the intervertebral foramen at each level they divide into smaller anterior and posterior branches, which then pass to the vertebral body as well as the spinal cord, vertebral arch and meninges, respectively. The larger branches of the spinal branches continue as radicular arteries, dispersed to the nerve roots and to the spinal cord (Karunanayake and Pathmeswaran, 2013, Ebraheim et al., 2004).

2.2.4.2 Venous Drainage

In the lumbar spine the venous drainage lies parallel to the arterial supply. There are veins that run inside and outside the vertebral canal forming venous plexi along the vertebral column, which drain the lumbar vertebrae (Moore and Dalley, 1999, Standring, 2015). These are known as the anterior internal and external vertebral venous plexus; and posterior internal vertebral venous plexus. The anterior internal vertebral plexus is located on the floor of the vertebral canal; the anterior external vertebral venous plexus is located on the anterolateral aspects of the lumbar spine. Whereas, the posterior internal vertebral venous plexus lines the roof of the vertebral canal (Standring, 2015, Cramer and Darby, 2017). The plexi may drain within the vertebral canal as far as the thoracic or sacral levels, depending on local pressure changes. However, they normally drain into the lumbar veins. The lumbar veins run along the course of the lumbar arteries around the vertebral bodies and drain into the inferior vena cava (Cramer and Darby, 2013).

2.2.5 Nerves of the lumbar spine

2.2.5.1 Innervation of the lumbar spine

The nerve roots are the segmental branches of the spinal cord which supply the motion segment (Cramer and Darby, 2017, Drake et al., 2009). After supplying the motion segment, these nerve roots depart the vertebral canal through the intervertebral foramina. Anteriorly, the motion segment is supplied by the anterior or ventral ramus, whereas posteriorly it is supplied by the posterior or dorsal ramus (Moore and Dalley, 1999, Cramer and Darby, 2013).

The lumbar zygapophyseal joints are supplied by the medial branch of the dorsal primary rami of the spinal nerves (Cramer and Darby, 2013). Each articular branch supplies two neighbouring joints, thus supplying each joint with two nerves (Moore and Dalley, 1999, Cramer and Darby, 2013). The connective tissue, muscles, skin and ligaments over a particular joint are supplied by the nerves to that joint. This implies that the neurological input and output of the joint will affect the surrounding structures and vice versa (Cramer and Darby, 2013, Ebraheim et al., 2004). Therefore, this is reinforced by the fact that the median and lateral branches of the dorsal primary ramus supply the vascular structures, covering musculature of the back, and associated ligaments (Moore and Dalley, 1999, Standring et al., 2008, Cramer and Darby, 2013).

This type of innervation result in the zygopophyseal joints having type I, II , III and IV sensory receptors, which perform different functions (Middleditch and Oliver, 2005b, Cramer and Darby, 2017). The type I sensory receptors, or globular corpuscles, found in the external layers of the fibrous capsule are mechanoreceptors that fire repeatedly even when the joint is not in motion. The type II receptors, also known as the conical corpuscles are found in the deeper layers of the fibrous capsule. These mechanoreceptors are less sensitive and fire only during movement (Cramer and Darby, 2017). Type III receptors are the larger corpuscles on the exterior surface of the joint ligaments, and are finely encapsulated mechanoreceptors. The type IV receptors are unmyelinated nerve fibers that intertwine throughout the capsule. They are slow conducting nociceptive mechanoreceptors (Cramer and Darby, 2013).

The internal structures within the motion segment are innervated by the recurrent meningeal nerve or sinuvertebral nerve which is a branch given off by the nerve root as it exits through the intervertebral foramina (Cramer and Darby, 2013, Moore et al., 2013). These neurological structures and their receptors are frequently thought to be the source of LBP, specifically when they are stimulated by noxious stimuli (Standring et al., 2008, Cramer and Darby, 2013).

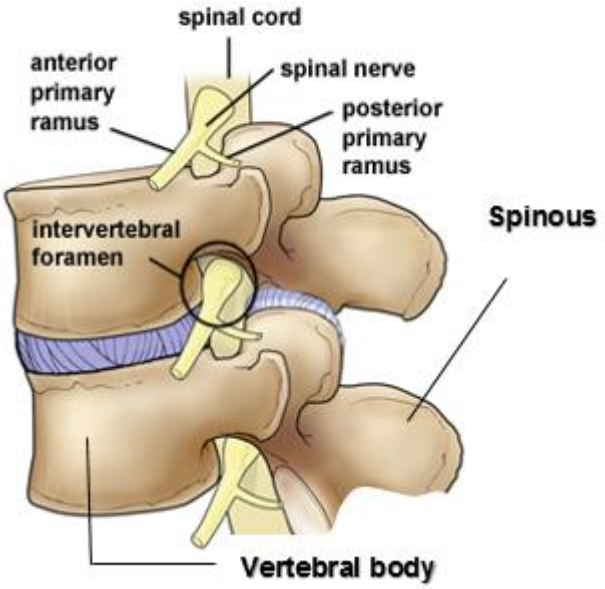

Figure 2.12. Anatomical structure of the anterior and posterior ramus (Hines, 2016)

2.2.5.2 The innervation of the sacroiliac joints

The articular branches which innervate the sacroiliac joints are derivatives of the superior and inferior gluteal nerves (bilaterally), sacral plexus and the dorsal rami of S1 and S2 (Standring et al., 2008). Posteriorly, the sacroiliac joint is mainly supplied by branches originating from the posterior primary rami of the L4-S2 spinal nerves (Standring et al., 2008, Cramer and Darby, 2017)Whereas, anteriorly the sacroiliac joint is supplied by the posterior branches from the L3-S2 nerve roots and the superior gluteal nerve L5-S2 (Standring, 2008). Therefore the sacroiliac joint has numerous and diverse innervation (Standring et al., 2008, Cramer and Darby, 2017). These nociceptive receptors are believed to be the source of LBP when stimulated by noxious stimuli (Hillermann et al., 2006).

The anatomy of the lumbar spine shows that there are many joints, muscles, arteries, nerves and veins that are located in this region. Damage or change to any of these structure may cause LBP (Mirtz and Greene, 2005, Dyer, 2012). The next section will discuss the epidemiology of and risk factors for LBP in the society.

2.3 Epidemiology of low back pain

Epidemiology refers to the investigation of the prevalence of a disease in a particular place, population and time. For the purpose of this study the investigation involved determining the prevalence, clinical characteristics and risk factors for LBP in a selected Umdoni Municipality Primary Health Care Clinic.

2.3.1 Prevalence

Low back pain (LBP) is a common problem which most people experience at some point in their life (Koes et al., 2006, Hoy et al., 2010, Costa-Black et al., 2010). The clinical definition for the low back pain is that which is localized between the 12th rib superiorly and inferior gluteal folds which may or may not be associated with leg pain (Krismer and Van Tulder, 2007).The lifetime prevalence is defined as the number of individuals who have experienced at least one episode of LBP in their lifetime in a specific population, and is reported (Table 2.1) to vary from 44,4% to 90% in different populations in Western countries and 36% to 70,9% in African countries (Table 2.2) (Walker, 2000, Koes et al., 2006, Louw et al., 2007, Sikiru and Shmaila, 2009, Junior and Mag, 2010). In South Africa the lifetime prevalence of LBP varies from 48% to 78.2% in different sub-groups of the population (Van der Meulen, 1997, Docrat, 1999, Dyer, 2012).

The point prevalence is defined as the proportion of people in a population who have a condition at a particular time. The point prevalence of LBP varies from 12% to 30% in Western countries and 20% to 32% in African countries (Galukande et al., 2005, Koes et al., 2006, Louw et al., 2007). In South Africa the point prevalence is reported to vary between 34% to 59% (Pereira, 2009, Dyer, 2012).

Table 2.1: The prevalence of low back pain in developed countries

Country	Lifetime prevalence	Population/Race	Author
Canada	84%	Saskatchewan	Cassidy et al., *(*1998)
Australia	65%	Australian adults	Walker et al., (2004)
United States	26.4-79.2%	American Indians Alaska Natives Asian Americans	Deyo et al., (2006)
Canada	58%	Nurses and welders	Vieira et al., (2006)
United States and internationally	5-65%	Global	Dagenias et al., (2008)
Australia	60-90%	Global (mostly intensive labour occupations)	Bell and Burnnet (2009)
Brazil	50-80%	General population	Junior and Mag (2010)

Table 2.2: The prevalence of low back pain in developing countries

Country	Lifetime prevalence	Population/Race	Author
South Africa	57.6%	Black African	Van der Meulen (1997)
South Africa	76%	Coloured	Docrat (1999)
	78.2%	Indians	
Mozambique	28%	Black African (Adolescents)	Prista et al., (2004)
Uganda	62.3%	Black African	Galukande et al., (2005)
South Africa	64%	Occupational LBP	Van Vuuren et al., (2005
South Africa and Nigeria	36-62%	Black African	Louw et al., (2007)
South Africa	74%	Occupational LBP	Pereira (2009)
Nigeria and Ethopia	70.87%	Black African	Sikiru and Shmaila (2009)
South Africa	48%	White	Dyer (2012)

There is a paucity of literature on the incidence of LBP. The reason for this may be that the research parameters used to establish incidence values are much more time consuming and

expensive than measurement of prevalence (Hoy et al., 2010). When an epidemiological study measures incidence, the participants are followed or observed for a certain period, usually many years in order to establish when the condition started. This may not be feasible to conduct for LBP since it may be very expensive (Taubes and Mann, 1995, Hoy et al., 2010).

LBP among Africans is rising and of concern, but little is known about the impact and risk factors for LBP in Africa due to limited studies conducted (Louw et al., 2007). Although, there seem to be less studies conducted in developing countries, the prevalence of LBP seems to vary when comparing developed and developing countries (Table 2.1 & 2.2).

When reviewing literature (Table 2.2) of LBP in Uganda, Nigeria and Ethiopia, which are African countries, the lifetime prevalence of LBP was found to be 62.3% and 70.87% respectively. These findings were comparable to the studies performed in developed countries because lifetime prevalence in Western countries such as Australia and Canada is usually 84% and 65% respectively (Cassidy et al., 1998, Walker et al., 2004) (Table 2.1). However, all of the studies that were conducted in Africa were in urban areas. As a large part of the African population reside and work in rural areas, it is important to ascertain the prevalence of disease in that population as well, since the risk factors for disease causation in that population would be different from that of the urbanised population (Louw et al., 2007).

A study conducted in Chatsworth, a suburb of Durban, South Africa compared the one year prevalence of LBP between the Coloured and Indian populations. The results revealed that LBP was experienced by the majority of individuals in both these populations (76.6% in Coloureds and 78.2% in Indians) (Docrat, 1999). In contrast, the prevalence of LBP was lower (57.6%) in the Black population (57.6%) of Chesterville Township, in South Africa (Table 2.2) (Van der Meulen, 1997). Furthermore, the lifetime and point prevalence of low back pain in the White population of the greater eThekwini metropolitan area was 48% and 34%, respectively (Brinique, 2012) (Table 2.2). These findings reveal that the prevalence of LBP is lower in the White population compared to the Coloured, Indian and African population of SA.

In South Africa, a township is classified as an urban area, but it differs from suburbs in terms of the lifestyle led by the people residing in these areas (Van der Meulen, 1997, Donaldson et al., 2013). Township dwellers, as with rural dwellers usually have financial difficulties as the majority are of a low socioeconomic status; and research reveals that people with such status are more likely to suffer from LBP syndromes (Adler and Ostrove, 1999, Leboeuf-Yde et al., 2002, Deyo et al., 2006, Van der Meulen, 1997). However, a study revealed that there are considerable ‘middle class’ township dwellers who earn enough money to relocate to the

suburbs, but choose to remain in townships due to culture and tradition. These individuals stated that they preferred the township lifestyle over suburb lifestyle because in a township there is *ubuntu* which is lacking in suburbs (Jürgens et al., 2013, Donaldson et al., 2013). The spirit of *ubuntu* is an African philosophy of life that plays a major role in the African culture and it means that a person is a person because of one's relationship or interactions with others. In African culture community unity is the cornerstone of life (Lutz, 2009, Jürgens et al., 2013, Donaldson et al., 2013). The mixture of people from middle – and low socio-economic status could affect the prevalence of LBP in the townships as these two categories of people will have different types of occupations.

2.4 Risk factors for low back pain

2.4.1 Socio-demographic factors

2.4.1.1 Gender

Women (70.3%) are more commonly affected by LBP than men (51.7%) (Andersson, 1999, Louw et al., 2007, Gilkey et al., 2010, Hoy et al., 2010). According to a study conducted in the United State of America (USA), spine injuries are the most commonly reported types of musculoskeletal impairment (51·7%) (Balague et al., 1999). In a study in a Nigerian hospital there was a significant association between gender and prevalence of LBP because the prevalence of LBP was 78.46% and 64.86% in females and males respectively. Although, the reason for a high prevalence in females is unknown it may be related to the structural, anatomical and physiological differences between females and males. In addition, strain and sprain occur more commonly in females than males (Sikiru and Hanifa, 2010). However, sciatica which affects two percent of the population with LBP occurs more commonly in men than in women (5.3% in men, 3.7% in women); and surgery for disc herniation is performed more frequently in men than in women. Sciatica is defined as pain that moves towards the area of the leg that is supplied by the sciatic nerve and generally radiates to the foot and toes, which may be or may not be accompanied by motor deficits (e.g numbness). Sciatica is mostly caused by disc herniation (Arden et al., 2005, Peul et al., 2007). Although, the current data reports these differences, it is possible that the differences in the prevalence of LBP between the genders is linked to their occupation (Manchikanti, 2000).

Even in young adolescents the prevalence of LBP in females is higher than in males. An early study in the 1980s reported a prevalence of 24.2% in girls aged 11 - 17 years while the prevalence of LBP in boys of the same age group was 15.2% % (Balague et al., 1999). However, in 1995 the prevalence of LBP in girls of the age group from the same population increased to 33.9% and in boys it rose to 27% (Balague et al., 1999). The difference could be

attributed to a decrease in physical activities and a concomitant increase in playing video games, watching television, using computers and mobile phones (Hakala et al., 2002, Hakala et al., 2006). These activities resemble each other, in that they all involve prolonged sitting with repeated movement of the upper extremities and research reveals that static posture may predispose an individual to LBP (Murphy et al., 2004, Hakala et al., 2006). In addition to phoning, mobile phones are also used for sending text messages as well as playing video games, and the latter activities are similar to the use of a computer (Hakala et al., 2006). According to current literature, sitting posture has been associated with LBP because in a seating position the hip joint is flexed at 60^0 and there is a sloping pelvis axis which then results in lumbar spine convexity or kyphosis (Murphy et al., 2004). In the same study about 7.8% of the sample reported permanent or recurrent LBP and girls reported more disability from LBP than boys (Balague et al., 1999). In addition, a similar proportion of LBP was reported in both boys (30.7%) and girls (30.0%) in the same time period in the UK (Olsen et al., 1992). It was unlikely that the LBP in girls was solely related to menstrual cycle because of the lack of gender differences shown in the UK study. It is possible that potential causes for LBP are thus identical for boys and girls (Olsen et al., 1992). However, another study reported that hysterectomy and prolonged or irregular menstruation are associated with chronic low back pain (Wijnhoven et al., 2006).

2.4.1.2 Age

An increase in age results in a higher prevalence of LBP (Leboeuf-Yde et al., 2009, Prista et al., 2004). In a study that was conducted in France about the prevalence of LBP among retired men aged between the ages of 55-74 years old, in relation to the physical occupational exposure they had during their working life. The prevalence differences became smaller with increasing age between those previously exposed to manual or physical labour (n=748) and those never exposed to it in the past (n=599). Therefore, this indicates that LBP that is related to age may sometimes be related to history of occupational exposure (Plouvier et al., 2011). LBP at an early stage places an individual in high risk to experience LBP later in life regardless of their gender and age (Fanucchi et al., 2009). For example, LBP in school children appears to get worse over time and could be a possible risk factor for LBP in adulthood (Harreby et al., 1999). Furthermore, Individuals who had back pain at the age of 14 were at a higher risk of having back pain 25 years later compared to those who did not have LBP. In children and adolescents, LBP has previously been considered an uncommon problem, which occurred due to some other condition of inflammatory or neoplastic origin (Balague et al., 1999). However, current research has revealed the association between frequent computer use and LBP in adolescents. Therefore, due to technology improvement, most school assignments and

homework require computer usage and this puts most scholars at risk for LBP (Hakala et al., 2006).

Moreover, research indicates that the prevalence of LBP increases with age. For instance a study conducted in France reported a 23% prevalence of LBP in children aged 6-10 years compared to 33% among those between the ages of 14-18 years (Balague et al., 1999). Similarly, an epidemiological study conducted among 1389 Danish school children, showed an increase in the prevalence of LBP with increasing age (Harreby et al., 1999).

It was reported that the first episode of LBP usually occurs between the ages of 20 and 40 years (Olsen et al., 1992). However, these data have relied on memory of adults sometimes years after the initial episode. Therefore, the exact onset of LBP may be slightly inaccurate (Olsen et al., 1992). Chronic cases of LBP impact on the health care and compensation systems of a country. It is likely that, prevention of back pain in youth may promote prevention of back pain in adulthood (Feldman et al., 2001).

There are not many studies that have been conducted on the prevalence of LBP in South African adolescents. However, in one study that was conducted in Northern Gauteng in South Africa, the lifetime prevalence of LBP in adolescents was 53% and this is slightly higher when compared to overseas countries (Fanucchi et al., 2009).

2.4.1.3 Race/Ethnicity

A study performed in the United States of America (USA) indicated that people of White and Black race had an increased risk for developing LBP compared to people of Asian origin (Waterman et al*.,* 2011). These results were comparable to the results of another study that was performed in the USA which reported that the prevalence of LBP was higher in American Indians and Alaska Natives when compared to Asian Americans (Deyo et al., 2006). Another study conducted in the USA (n=1000) found that the prevalence of LBP was higher in Caucasians (68.7%) than in Black people (38.7%). In addition, the study revealed that impairments due to back pain usually affect Caucasians more than Blacks (Andersson, 1999).

2.4.1.4 Sedentary lifestyle

Physical activity protects an individual from LBP (Haldeman 2005), hence a sedentary lifestyle is a risk factor for LBP (Macfarlane et al., 2006, Dagenais et al., 2008, Waterman et al., 2012). Physical activity helps to stabilise muscles and improves spine posture particularly during the growth spurt in adolescence. Therefore, introducing stabilising exercises and stretches during

adolescence can prevent future LBP (Fanucchi et al., 2009). Furthermore exercises, particularly those which focus on improving pelvic and spinal stability have been effective in preventing LBP in adults as well (Fanucchi et al., 2009).

Moreover, physical inactivity may reduce muscle strength, bone mineral content, flexibility and impair coordination; factors that contribute to LBP (Wedderkopp et al., 2009). A study conducted in Europe reported that physically active adolescents' group had stronger bones as well as a greater lean body mass than their inactive counterparts (Ischander et al., 2007). Furthermore, physical inactivity results in the suppression of lipoprotein lipase (LPL) activity in the skeletal muscle. LPL is an enzyme that is essential for lipid metabolism. It plays a major role in the breakdown of triglycerides, releasing fatty acids into tissue cells (Mead et al., 2002, Bey and Hamilton, 2003). Abnormalities in LPL function may result in conditions, such as atherosclerosis, which can also contribute to LBP (López-Miranda et al., 2006, Ferreira et al., 2006). Hence a sedentary lifestyle is associated with an increased risk of LBP (Wedderkopp et al., 2009).

2.4.1.5 Occupation

Poor posture such as kneeling or squatting, carrying heavy loads, body vibration, repetitive tasks, work dissatisfaction and a lack of supervisor support may predispose an individual to LBP (Macfarlane et al., 2006, Wai et al., 2010a, Wai et al., 2010c, Wai et al., 2010b, Roffey et al., 2010a). Other work related factors, such as prolonged sitting, standing or stooping may also result in LBP (Manchikanti, 2000). In addition, musculoskeletal injuries in a work place can be precipitated by physical exertion (Vieira et al., 2006, Vieira et al., 2008). Carrying heavy loads repeatedly causes spine loading which in turn causes mechanical damage to tissues (Riihimäki, 1991). Furthermore, vigorous repetitive loading can cause multiple micro-cracks in bones, and injury to intervertebral discs, which then results in LBP (Dolan and Adams, 2001). Therefore, atrophy in muscle, bone and cartilage may result in an an-ability of these structures to function under high loads such as direct impacts and falls (Dolan and Adams, 2001). Heavy physical work can cause radiating pain, particularly in females, who may develop high levels of disability and subsequent social isolation (Steenstra et al., 2005).

Other research indicates that health care workers experience LBP more frequently than do people in any other profession (Jensen et al*.,* 2012). This could be attributed to health professionals such as nurses being required to lift heavy objects, usually in a bent or twisted posture, and biomechanical investigations have established that such tasks cause high spinal stress (Smedley et al., 1995).

Since repeated manual labour and poor occupational postures are risk factors for LBP, people involved in farming activities are also at a high risk for developing LBP (Macfarlane et al., 2006, Louw et al., 2007, Roffey et al., 2010a). Working in awkward postures can result in static loading of the soft tissues, which then accumulate metabolite, with a resultant disc degeneration that may eventually cause disc herniation and hence LBP (Roffey et al., 2010b).

In a study conducted to investigate the prevalence of occupational LBP for intensive labour, the lifetime prevalence was found to be 60-90% in developed countries worldwide. These findings are also comparable to the studies performed in developing countries for either occupational or non-occupational prevalence of LBP (Bell and Burnett, 2009). Therefore, when looking at the available literature it is clear that so far physical labour or awkward postures have not yet been strongly confirmed to cause LBP (Roffey et al., 2010a). On the other hand, a study was conducted by Sikiru and Shmaila (Table 2.1) in Africa and it revealed the one year LBP prevalence to be 70.8% in Nigerian welders and Ethopian nurses. These findings are also comparable with other studies conducted in both developed and developing countries and may also prove that awkward postures and physical labour might be a predisposing factor for LBP (Roffey et al., 2010a).

Furthermore, a study (n=233) was performed to reveal the prevalence and risk factors for occupational low back pain in manual therapists, as well as to determine and compare the prevalence and risk factors for occupational low back pain between several types of manual therapists in South Africa. This study reported that the career prevalence was 74%, point prevalence was 41% and one year prevalence was 59% (Pereira, 2009). Whilst all the above studies were conducted in urban areas, to date there are no studies, on the prevalence of LBP, that have been conducted in the rural population of South Africa.

2.4.1.6 Obesity

Some studies have reported a direct relationship between increased body weight and LBP (Leboeuf-Yde et al., 2009). This is possibly due to obesity resulting in difficulties in performing daily life activities (Ibrahimi-Kaçuri et al., 2015). Poor lifestyle such as eating unhealthy food and inactivity may result in obesity which may cause the progression of an occurring back pain or acute back pain becoming chronic (Koes et al., 2006, Ibrahimi-Kaçuri et al., 2015). Obesity places increased biomechanical demands on the spine which causes friction that may result in wear and tear of the articulating surfaces in the spine, with the resultant LBP (Leboeuf-Yde et al., 2009).

2.4.1.7 Smoking

Smoking increases the future onset of LBP (Macfarlane et al., 2006, Waterman et al., 2012). A study investigating the effects of smoking on chronic pain revealed that there was a high prevalence of LBP in current smokers of both genders (Andersson et al., 1998). This can be exacerbated when respiratory symptoms such as coughing due to smoking are also present (Leboeuf-Yde et al., 2009, Latza et al., 2000) Smoking seems to contribute to the incidence and prevalence of LBP in both current and former smokers and this seems to be more common in adolescents, than in adults (Shiri et al., 2010).The relationship between smoking and LBP could be due to cigarette smoking causing intervertebral disc degeneration (Adams and Dolan, 1995).

2.4.1.8 Psychosocial state

There is higher prevalence of LBP in people with psychiatric conditions than in those without these conditions. There is a 54% prevalence of LBP in people with depressive disorders and a prevalence of 95% in those who suffer from anxiety (Andersson, 1998). Stress and negative mood, are also risk factors for LBP (Koes et al., 2006, Nicholas et al., 2011). The psychological status (e.g work dissatisfaction, stress, anxiety) of the patient may result in an onset or influence the progression of an occurring LBP, or interfere with treatment outcome for LBP which may result in acute LBP becoming chronic or disabilitating; and hence, more stress and depression for the patient (Feyer et al., 2000, Dunn et al., 2013). This is possibly due to the person avoiding activities that they think may cause pain (Pincus et al., 2013).

2.4.1.9 Socio-economic status

The socio-economic status is defined as either the individual's level of income or education and has been found to influence adult health (Adler and Ostrove, 1999). There seems to be an association between low socio-economic status and the incidence of LBP (Kristjansdottir, 1996, Leboeuf-Yde et al., 2002, Deyo et al., 2006). This may be a consequence of more physically demanding jobs and access to health care services in people of lower socio-economic status (Dionne et al., 2001, Dijken et al., 2008). A study performed in local schools of Odense, Denmark to investigate the impact of social class, including parent's educational level on the prevalence of back pain among children and adolescents. The results revealed that back pain was more common among the children of lowest parental educational homes as opposed to children of higher parental education homes (Leboeuf-Yde et al., 2002).

2.5 The effects of low back pain

2.5.1 Physical effects of low back pain on the body

LBP results in decreased mobility, lumbar instability and decreased muscle length (Fanucchi et al., 2009). In addition to physically affecting the individual, LBP may also affect the emotional status of the person. For instance it may lead to avoidance behaviours to prevent the pain which in turn may cause anxiety (Koes et al., 2006, Nicholas et al., 2011).

2.5.2 The economic burden of low back pain

Since LBP affects people of all ages, gender and socioeconomic status, it leads to adverse effects on public health and society (Louw et al., 2007, Majid and Truumees, 2008, Dagenais et al., 2008). The economy is affected largely by LBP due to indirect costs which arise mainly when the person suffering from LBP has to be off sick due to the pain and to a lesser extent by treatment costs (Majid and Truumees, 2008, Wai et al., 2010c). In addition, about 10% of patients who suffer from LBP in the United Kingdom (UK) visit the outpatient clinic throughout the year which results in a 14% direct cost for LBP in UK primary care clinics (Maniadakis and Gray, 2000). Furthermore, age seems to have an impact on the work loss, severity of LBP, medical costs as well as associated activity limitations (Fanucchi et al. 2009).

2.6 The management of low back pain

2.6.1 The diagnosis of low back pain

LBP is a very complex condition that is challenging to diagnose because it has many different causes. In 90% of cases LBP is associated with an underlying mechanical cause that has the potential of resolving on its own within two to eight weeks (Jenkins, 2002). LBP can be classified into four categories i.e low back pain that is associated with radiculopathy, nonspecific low back pain, LBP that is associated with another spinal cause, as well as LBP that is accompanied by a psychological component (Chou et al., 2007). Furthermore, when LBP has been categorized it is also important to evaluate whether it is acute, sub-acute or chronic. This subdivision is mainly based on the duration of the pain. A LBP episode is considered acute if it is experienced for less than six weeks, sub-acute if it experienced between six to twelve weeks and chronic if it experienced for more than twelve weeks (Wells et al., 2014, Koes et al., 2006). In order to diagnose LBP, a thorough case history and physical examination needs to be conducted. Completion of these will lead to proper classification of LBP under a proper category. In addition, the history taking should include assessing psychological risk factors which may help indicate any possibility of LBP becoming chronic with a resultant disability (Chou et al., 2007).

2.6.2 Treatment of low back pain

Treatment options depend on the category of LBP, for example, mechanical LBP has been known to respond very well to conservative care and LBP with associated radiculopathy can be treated with conservative care, however, it is essential to monitor the patient and re-evaluation is needed to ensure that the symptoms are subsiding and the chosen treatment is actually working (Jenkins, 2002). LBP with a serious underlying pathology requires further testing, before any treatment is commenced and any medical referral should be executed if need be. Any LBP that has an underlying psychological cause can be treated with combined chiropractic care and psychological assessment (Jenkins, 2002).

2.6.2.1 Drugs

The majority of patients often require first line treatment i.e drugs, and when drugs are used one should consider their costs, benefits and risks (Chou et al., 2007, Juniper et al., 2009). (Chou et al. 2007). Usually, physicians use nonsteroidal anti-inflammatory drugs (NSAIDs) as a first line drug treatment. However, acetaminophen which is a weaker analgesic than NSAIDs has been proven to work effectively in the treatment of acute and chronic LBP and should be considered as a first line option for the treatment of LBP because it affordable and safer (Chou et al., 2007). Opioid analgesics or tramadol are usually considered in patients who present with acute or chronic LBP that is accompanied by pain that is disabling or difficult to manage. However, due to serious risks such as drug addiction or abuse that may occur when opioid analgesics are used, the patient should be assessed and monitored carefully before and during therapy (Chou et al., 2007, Schnitzer et al., 2000). In some cases, physicians use skeletal muscle relaxants (e.g. tizanidine) for the treatment of musculoskeletal conditions or spasticity. In addition, in some cases certain tricyclic antidepressants are used for pain relief in cases of chronic LBP and they have been known to have no contra-indications (Chou et al., 2007).

2.6.2.2 Manual therapy

2.6.2.2.1 Chiropractic care

Some patients seek other types of treatment i.e. Chiropractic and physiotherapy for low back pain. Spinal manipulative therapy (SMT) is when high velocity, low amplitude manual thrusts are applied to the joints of the spine slightly pass the passive range of motion of that joint (Bronfort et al., 2008, Geisser et al., 2005). Whereas, spinal mobilization (MOB) is when a manual force is applied to the joints of the spine within the passive range of motion and it does not involve any thrust (Bronfort et al., 2008, Geisser et al., 2005). SMT provided by chiropractors is known to provide short-term relief of pain when compared to MOB. In addition, there is some evidence that SMT results in faster recovery than physiotherapy (Bronfort et al.,

2004). Apart from SMT or MOB, for chronic LBP chiropractors also perform exercise therapy, acupuncture, application of heat packs or massage therapy (Chou et al., 2007).

Research suggests that when it comes to LBP treatment, patients are more satisfied with chiropractic care compared to physical therapy and medical care (Hertzman-Miller et al., 2002, Geisser et al., 2005). In addition, previous studies revealed that chiropractors believe that it is essential to educate their patients about low back pain and its treatment, and that results in successful treatment for LBP (Hertzman-Miller et al., 2002, Geisser et al., 2005). This is believed to be the cause of the consumer satisfaction that tends to be really high with patients who are receiving chiropractic care (Geisser et al., 2005).

2.6.2.2.2 Physiotherapy care

Research suggests that physiotherapy treatment that combines exercise training, manual therapy and neurophysiology education is successful in treating chronic LBP (Moseley, 2002). Guidelines for physiotherapy care vary internationally, but all of them state that patients with LBP should always stay active and take some analgesic medication. In addition, exercise therapy for a duration of more than twelve weeks in cases of chronic LBP and some recommend SMT in cases of acute or sub-acute LBP (Frost et al., 2004).

2.6.2.3 Treatment for low back pain with psychological factors

In some cases LBP may have a psychological component that can affect the effectiveness of treatment being used (Wright, 2002). Therefore it is very important to identify psychological or psychosocial factors that play a part in an LBP episode (Jenkins, 2002). That is important because psychosocial factors (e.g depression, job dissatisfaction, passive coping strategies etc) and emotional distress play an important role in determining the prognosis as well as the course of LBP than severity and duration of pain or physical examination findings (Chou et al., 2007). This may prevent acute LBP in becoming chronic and help in choosing appropriate treatment (Pincus et al., 2013, Chou et al., 2007). However, there is limited evidence that outlines competent methods to asses these factors properly (Chou et al., 2007). Therefore, it is suggested that if LBP presents with an associated psychological component, it should be treated with conservative care combined with a psychological assessment (Jenkins, 2002).

However, psychological intervention trials have suggested that these factors only improve LBP outcomes in the short term (Pincus and McCracken, 2013). In old age the recovery and functional improvement from LBP may be influenced by social support, maybe even more than in younger individuals (Dunn et al., 2013). For example in a study that was performed among

primary care patients on LBP, having a caring or attentive partner who helps you with your duties and gets you to rest was associated with speedy recovery from LBP (van der Windt and Dunn, 2013). In another study the results were different; having a caring partner if you are experiencing LBP seemed to worsen the course of LBP and often resulted in a disability (van der Windt and Dunn, 2013). In addition, LBP may also cause stress on the family and disruption of family life, which in turn could compromise family support. There are many different ways in which socioeconomic factors may contribute to the course of a current LBP. For example, the socioeconomic status of parents may affect how an adolescent reacts to LBP (Dunn et al., 2013).

2.6.2.4 Self-care and herbal treatment

It is documented that giving advice regarding self-management to patients with non-specific acute or sub-acute LBP should include advising them to stay active and not to rest in bed (Chou et al., 2007). Research reveals that herbal substances such as willow bark, devil's claw and capsicum can be used in cases of acute LBP for pain relief (Chou et al., 2007).

2.7 Conclusion

Although a large amount of data on the epidemiology of LBP is available, this is mainly from developed countries. There is a paucity of data from South Africa, particularly from rural areas. The few studies that have been conducted in South Africa are from urban areas (Van der Meulen 1997; Docrat 1999; Dyer 2012). As the population characteristics and the type of work performed in rural areas will be different from that of urbanised populations, the epidemiology of LBP may be different in these regions. This study will thus fill this gap in the literature.

Chapter Three: Methodology

3.1 Introduction

In this chapter the materials and methods used to accomplish aims and objectives of this study are discussed.

3.2 Study design

This is a cross-sectional survey, based on a quantitative paradigm, which collected data by means of a questionnaire.

3.3 Study location

The Umdoni Municipality is located in KwaZulu-Natal (50 km south of Durban and 65 km north of Port Shepstone) and it covers an area of 236 square kilometres (Statistics South Africa, 2005, Zissette, 2015). The urban areas included in this municipality are the coastal towns of Scottburgh, Sezela, Ifafa, Bazely, Park Rynie, Elysium, Pennington and Mtwalume; and the inland towns of Umzinto and Umzinto North, which includes Shayamoya and Esperanza. A number of rural settlements, enclosed within farms and traditional authority land, form part of the municipality rural areas. The Umdoni Municipality consists of a total population of 78 875, of which 76.7% is Black African, 8.5% White and 14.8% are made up of other population groups, which include Indians and Coloureds (Lehohla, 2005, Statistics South Africa, 2005, Zissette, 2015). The Umzinto Municipal Clinic is located in the town of Umzinto. The clinic is accessible to almost all the residents of the greater Umdoni Municipality. Since the Umdoni municipality residents are predominantly of the Black race group, the majority of the patients in this clinic are Black Africans. Therefore, the questionnaire was available in both English as well as IsiZulu, so that all residents of the community could be targeted for the study.

For the purpose of this study, the questionnaire was translated from English to IsiZulu by the researcher whose first language is isiZulu. The isiZulu version was then back translated into English by a translator who is fluent in both languages. This ensured that the translation was correct and that there would be no misinterpretations or bias when answering the questionnaire in isiZulu (Scollon, 1995). Due to the limited degree of literacy within the Black community (Ndlovu, 2006), all participants were interviewed by the researcher, who then scribed the answers provided by the participants onto the questionnaire.

3.4 Study population

The survey was conducted by approaching medical outpatients of the Umzinto Clinic, which services the Umdoni Municipality.

3.5 Participant recruitment

Following ethical clearance from the Durban University of Technology Research Ethical Committee (IREC 120/16; Appendix A), permission to conduct the study was obtained from the Department of Health, KwaZulu Natal (Appendix B) and Umdoni Municipality Primary Care Clinic's Manager (Appendix C). Data was collected from 30 May 2017 to 17 August 2017. The researcher approached patients of the Umdoni Municipality Clinic while they were in the waiting room to inform them about the survey. This included an introduction to the study, which was conducted in the language of preference of each potential participant, either IsiZulu or English. This introduction was conducted with either a potential group or individual participants. In this way, the researcher ensured that everyone understood the purpose of the study as well as the nature of the procedure. No one was forced or coerced into participating, which was totally voluntary. Those agreeing to participate were given a letter of information (Appendix D/E) and informed consent form to sign (Appendix F/G) in their language of choice, either English or isiZulu. The following criteria were required for participation in the study:

Inclusion criteria:

- Any person, who is a resident of the Umdoni Municipality, over the age of 18 years and attending the Umzinto Clinic
- Either male or female
- Any race group
- Fluency in either English or isiZulu
- People who presented at the clinic on the days of data collection
- Those who were willing to sign the informed consent form (Appendix F/G)

Exclusion criteria:

- Those who did not consent to the study.
- Any person who was related to the researcher.
- Anyone who participated in the focus group or pilot study

3.6 Sample method

The convenience sequential sampling method was used to select the qualifying participants (as per inclusion/ exclusion criteria above) from the patients in the waiting room of the clinic. Convenience sequential sampling refers to choosing individuals, settings or groups that are conveniently available and willing to participate in the research (Collins et al., 2006). The participants who met the inclusion criteria and who were willing to be part of the study were given, in their language of choice (either English or isiZulu), a letter of information (Appendix D/E) and a consent form (Appendix F/G) to sign. To ensure confidentiality and privacy of the patients, the patients were asked to put the signed informed consent form (Appendix F/G) in a separate sealed box (marked A) from which the completed questionnaire (H/I) would later be placed (marked B).

3.7 Sample size

Using a total population of 78 875, a 95% confidence interval and a 5% margin of error, a minimum sample size of 384 was calculated, using the Raosoft sample size calculator. As we expected an approximate return rate of 95%, 400 questionnaires were printed and handed out.

3.8 Measurement tool

Permission was sought and subsequently obtained from Dr. A Docrat to adapt the questionnaire that was used in his study (Docrat, 1999). The original questionnaire was modified for suitability to the study population of the Umdoni Municipality. Therefore, a focus group and a pilot study was used to validate the revised questionnaire (Appendix J/K).

3.9 The structure of the questionnaire

3.9.1. Demographics

In this section of the questionnaire information such as age, gender, race, marital status, level of education, income, medical aid availability, health service access and occupational information was sought.

3.9.2. Factors related to low back pain

This part of the questionnaire was designed to gather information concerning the risk factors for low back pain. These included number of pregnancies, smoking history, coughing, performance of chores and exercise.

3.9.3. Clinical questions about low back pain

In this section of the questionnaire clinical data relating to low back pain was ascertained. Questions on the onset, duration, frequency, progression and history of low back pain were asked. Pain rating scales, disabilities due to the low back pain and management of the symptoms were also included.

3.10 Focus group discussion

The focus group discussion is essential to provide suggestions regarding the questions in order to limit misinterpretation by the participants. A focus group is a form of group interview in which the participants are encouraged to exchange ideas and thoughts in relation to the topic of the questionnaire (Kitzinger, 1995, Gibbs, 1997, Freeman, 2006). The focus group discussion was performed in order to ensure that the questions were appropriate for the population in which this study was conducted. In addition, the focus group study criticised the grammar, layout and order of questions in the questionnaire. The method of a focus group is very useful and can be utilized to explore people's knowledge and experience in order to scrutinize how and why people think that way (Kitzinger, 1995, Gibbs, 1997).

The focus group consisted of six participants who were the researcher (bilingual: IsiZulu and English), the supervisor, one health science student, two Faculty of Health Sciences lecturers and one laboratory technician. These participants were invited to be part of the focus group study via word of mouth. Before the focus group procedure began each member was expected to:

- Read a Letter of Information (Appendix L)
- Sign an Informed Consent Form (Appendix M)
- Sign a Confidentiality Statement (Appendix N)
- Read the copy of the original questionnaire (Appendix J)

Thereafter, each member was given a short period of time to familiarise themselves with the questionnaire (Appendix J) and write down any comments in the appropriate section. Following this, each question was discussed by the group. This was done by assessing each question for ambiguity, understanding and relevance to the study. This proceeding was audio taped to prevent omitting any relevant information.

The focus group discussion resulted in changing the wording of some questions, moving questions to get a better flow and addition of some questions, which the focus group felt would enhance the study. These changes are shown in Appendix O.

3.11 Pilot study

Following the focus group discussion, the post focus group questionnaire (Appendix H/I) was piloted with a group of five participants. The piloting was necessary to:

- Determine the time taken to complete the questionnaire and to eliminate any ambiguities in the questionnaire (Dyer, 2012).
- Provide the study with construct validity, which measures the accuracy of the answers to the questionnaire in relation to the reflection of the theoretical predictions of a certain construct (Black et al., 1999).

The pilot study was conducted in the Umdoni Municipality population in the Malangeni location and it consisted of five bilingual (English and IsiZulu speaking) participants. Only one change was requested. This was the inclusion of a yes / no option to question 31, which was previously open ended. Following this amendment, the questionnaire was ready for data collection.

3.12. Data collection

After the Department of Health of KwaZulu- Natal (Appendix B), Umdoni Municipality Primary Care Clinic's Manager (Appendix C) and Institution Research Ethics Committee (Appendix A) gave permission to perform the study, data collection commenced on the 30th May 2017 and continued until 17th August 2017. Patients in the waiting room of the Umzinto Clinic, who met the inclusion criteria, were recruited. These patients were approached by the researcher, who verbally explained the study to them. If they were interested in participating, they were given an information letter (Appendix D/E) to read, prior to signing a consent form (Appendix F/G) to participate in the study. The information letter was read aloud to those who were unable to read. The signed consent form was placed in a sealed box marked "A". The researcher then measured the weight and height of each participant using a digital scale and stadiometer. These measurements were used to subsequently calculate the body mass index of each participant as follows: BMI=weight /height^2. (Flegal et al., 2012). The participant was then asked to complete the questionnaire (Appendix H/I) in the form of an interview with the researcher. This was necessary as a large part of the population is illiterate. The researcher ensured that all the participants were asked questions that were in the questionnaire exactly as they were written and she did not prompt the participants for answers. In addition, each and every interview was conducted in a participant's primary language. The researcher then placed the completed questionnaire in a sealed box (marked B) in order to ensure confidentiality of all the participants. After data collection the information obtained was recorded on a spread sheet, prior to statistical analysis.

3.13 Data analysis

The sample characteristics of the study population were described by means of descriptive statistics. These included percentages and frequencies. Inferential statistics were analysed in a form of regression analysis. Pearson's chi square tests and Fisher's exact test were utilized in order to determine the association between low back pain and various factors (Freburger et al., 2009). Odds ratios were calculated to determine risk factors for LBP. The statistical program for the Social Sciences (SPSS) version 23 was utilized. A *p* value less than 0.05 was considered statistically significant.

Chapter Four: Results

This chapter outlines the results which include the prevalence of LBP, risk factors associated with LBP and the impact of this LBP on different aspects of these participants' lives in terms of occupation, daily life activities and social lives.

The response rate was 100%.

4.1 Demographics

4.1.1 Age, gender and race

The mean age of the participants was 38.4 ± 16.43 years. Table 4.1 indicates the demographic characteristics of the study population. There were significantly more females (69.3%, *n* = 277,) than males (30.8%, *n* = 123 *p* < 0.001). Significantly more participants were Black Africans (97.1%, *n* = 389, *p* < 0.001).

The mean BMI of the participants was 27.6 ± 5.63. Only one third (33%, *n* = 145) of the participants had a normal BMI (between 19 and 24). Over a third (38.8%, *n* = 155) were overweight while a quarter were obese (25%, *n* = 100) and 3.3% (*n* = 13) were underweight.

Table 4.1: Demographic characteristics of the study population

	Frequency (*n*)	**Percent (%)**
Gender		
Female	277	69.3%
Male	123	30.7%
Total	**400**	**100%**
Race		
Black African	389	97.1%
Indian	9	2.3%
White	1	0.3%
Other: Somalian	1	0.3%
Total	**400**	**100%**
Body Mass Index (BMI))		
Underweight (<18.5)	13	3.3%
Normal (18.5-24.9)	132	33%
Overweight (25-29.9)	155	38.8%
Obese (>30)	100	25%

NB: The BMI categories are according to the standard classification of BMI (Kabiru and Raynor, 2004, Flegal et al., 2007, Flegal et al., 2012).

4.1.2 Marital status

Over half of the participants (54.5%, *n* = 218) were single, followed by married (16.5%, *n* = 66) or cohabiting (15.4%, *n* = 62). There was a small percentage of participants who were widowed (10.5%, *n* = 42), separated (1.8%, *n* = 7) and divorced (1.3%, *n* = 5, *p* < 0.001) Figure 4.1 illustrates the marital status of the participants.

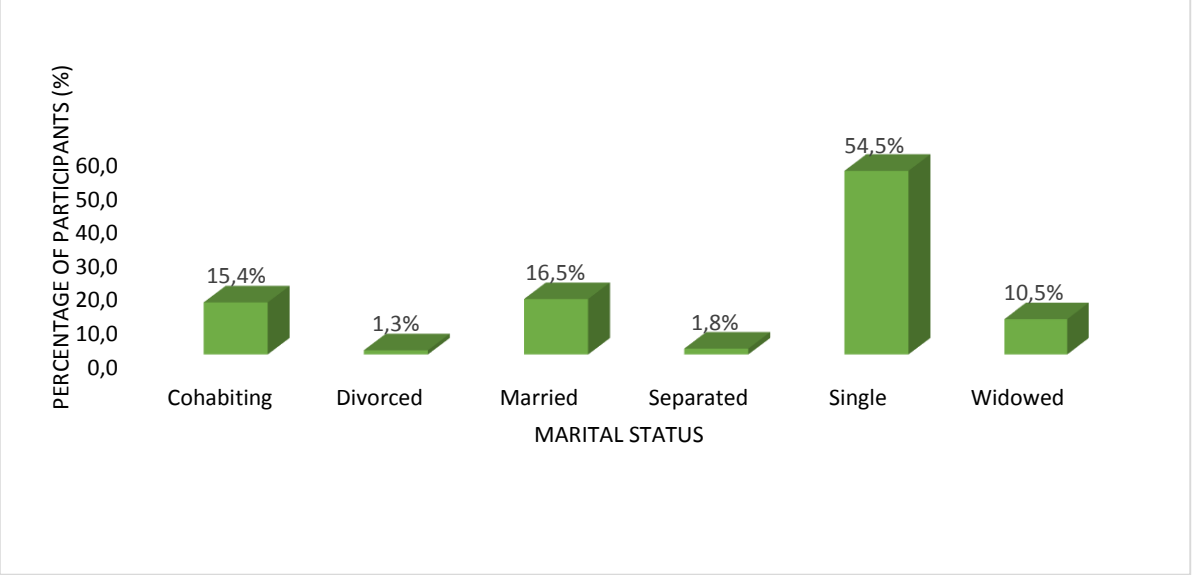

Figure 4.1 Marital status of the participants

4.1.3 Level of education

In this study population, 37.8% (*n* = 151) of the participants were either currently in secondary school or had minimal secondary school education. About 24.8% (*n* = 99) of the participants only ever went to primary school, 16.5% (*n* = 66) did not have any formal schooling and 13.8% (*n* = 55) matriculated. There were very few participants with further education such as college certificates (1.6%, *n* = 7) and diplomas (5.5%, *n* = 22, *p* < 0.001).The level of education is indicated in Figure 4.2.

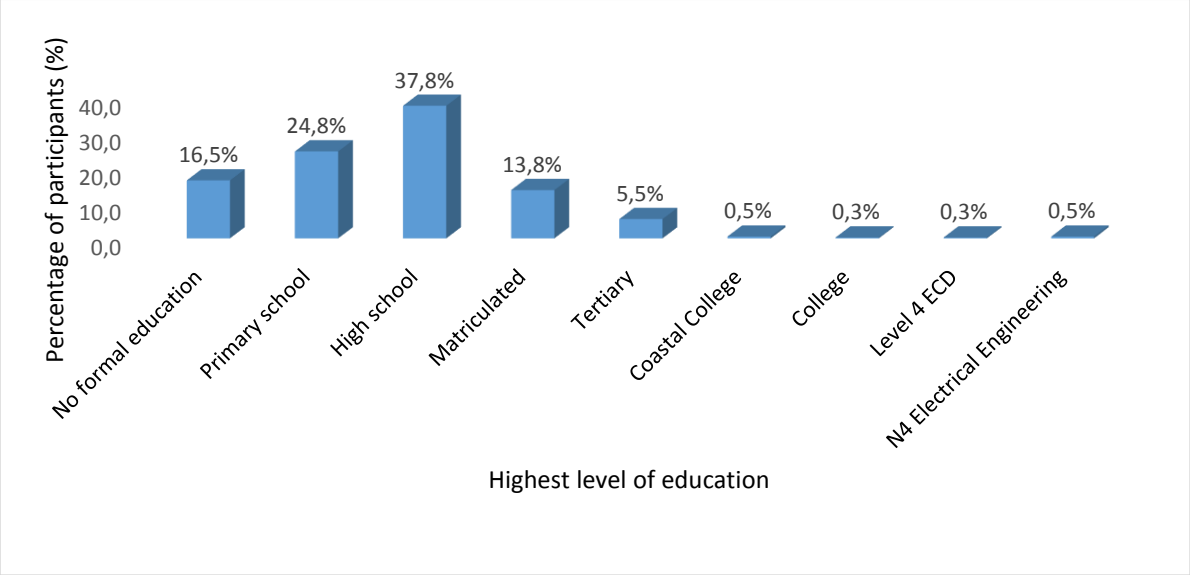

Figure 4.2 Highest level of education

4.1.4 Present occupational status

Figure 4.3 shows that half of this population were unemployed (50.3%, *n* = 201), 16.8% (*n* = 67) employed part-time, 10% (*n* = 40) were students at the time of the survey, 7.5% (*n* = 30) were housewives, 4.8% (*n* = 19) had retired from their jobs and 2.8% (*n* = 11) were self-employed ($p < 0.001$). Of the participants who were employed, the majority were unskilled workers (5%, *n* = 20) or domestic workers (3.3%, *n* = 13, $p < 0.001$). The different types of employment are shown in Table 4.2. Most of the participants reported that they were in their current employment for a period of one to five years (21.3%, *n* = 85, $p < 0.001$), Full details of current occupation duration is outlined in Figure 4.4.

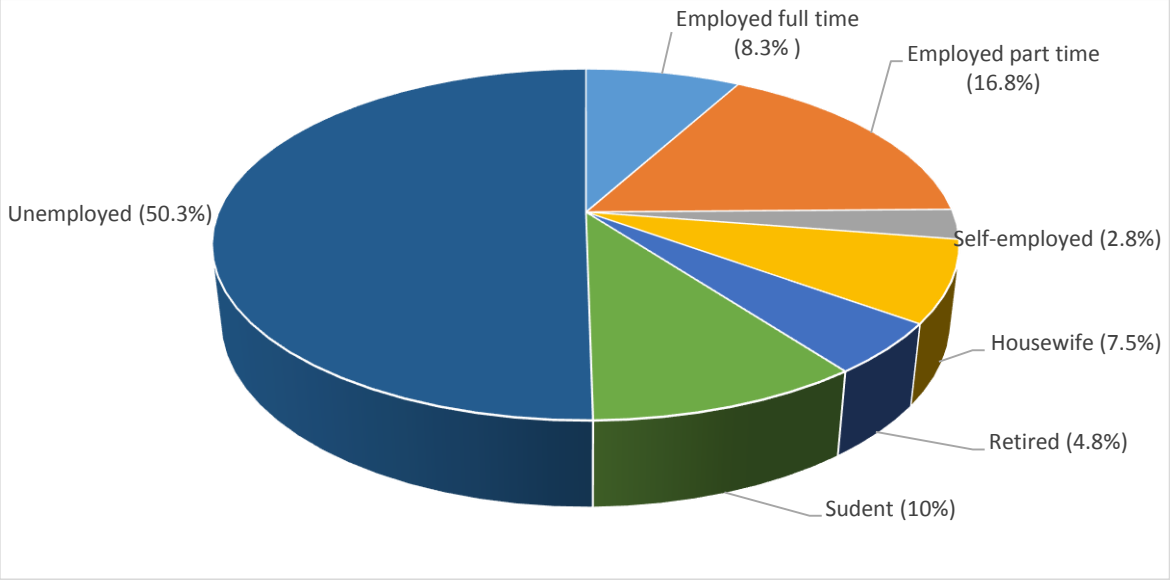

Figure 4.3 Present occupational status

Table 4.2: Type of occupation of the currently employed participants

Type of occupation	**Percentage of the participants (%)**	**Number of the participants (*n*)**
Unskilled worker	5%	20
Domestic worker	3.3%	13
Security guard	2.3%	9
Salesperson	2%	8
Driver	1.8%	7
Farmer	1.5%	6
Skilled worker	1.3%	5
Educator	0.5%	2
Artisan	0.3%	1

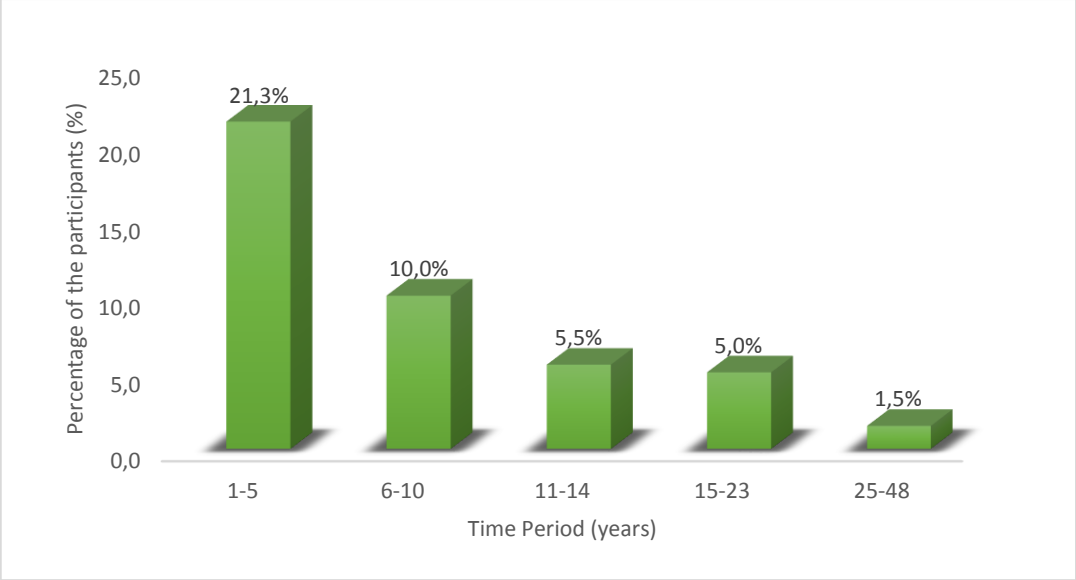

Figure 4.4 Duration of present occupation

4.1.5 Previous occupation of currently unemployed participants

Figure 4.5 shows that most of the participants, who were either retired or unemployed at the time of administering the questionnaire, were previously unskilled workers (14.5%, n = 58), domestic workers (13%, n = 52) or students (10.3%, n = 41, $p < 0.001$). The different types of previous occupation are shown in Figure 4.5.

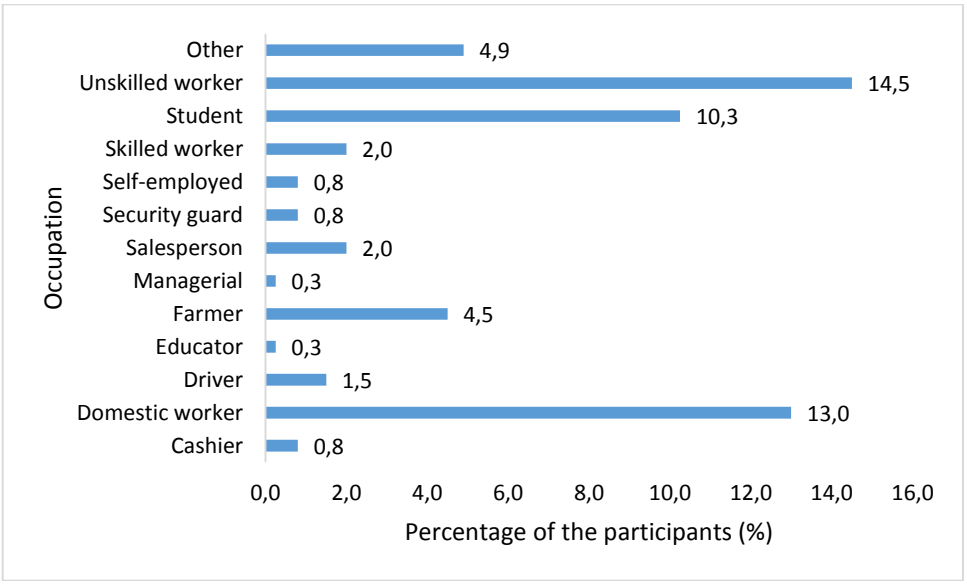

Figure 4.5 Type of previous occupation

Those participants who were unemployed at the time of the study, were mostly involved in their previous occupation for a period of one to five years (24%, n = 96, p < 0.001). Others were in the previous occupation for longer periods of time as shown in Figure 4.6.

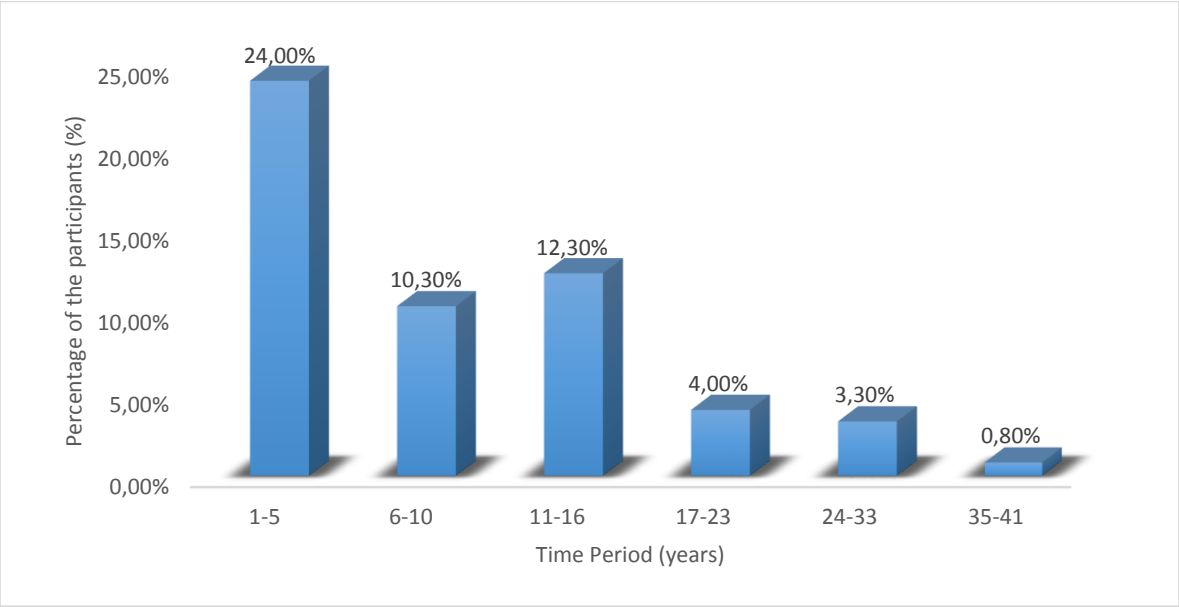

Figure 4.6 Duration of previous occupation

4.1.6 Total household annual income

Figure 4.7 indicates that the majority of participants had an annual total household income of R15 001 – R25 000 (49.8%, n = 199, p < 0.001). This equates to just over R1 000 per month. As evident from Figure 4.7 there were very few participants in the higher income brackets, with only 5.5% (n = 22) earnings in excess of R85 000 per annum.

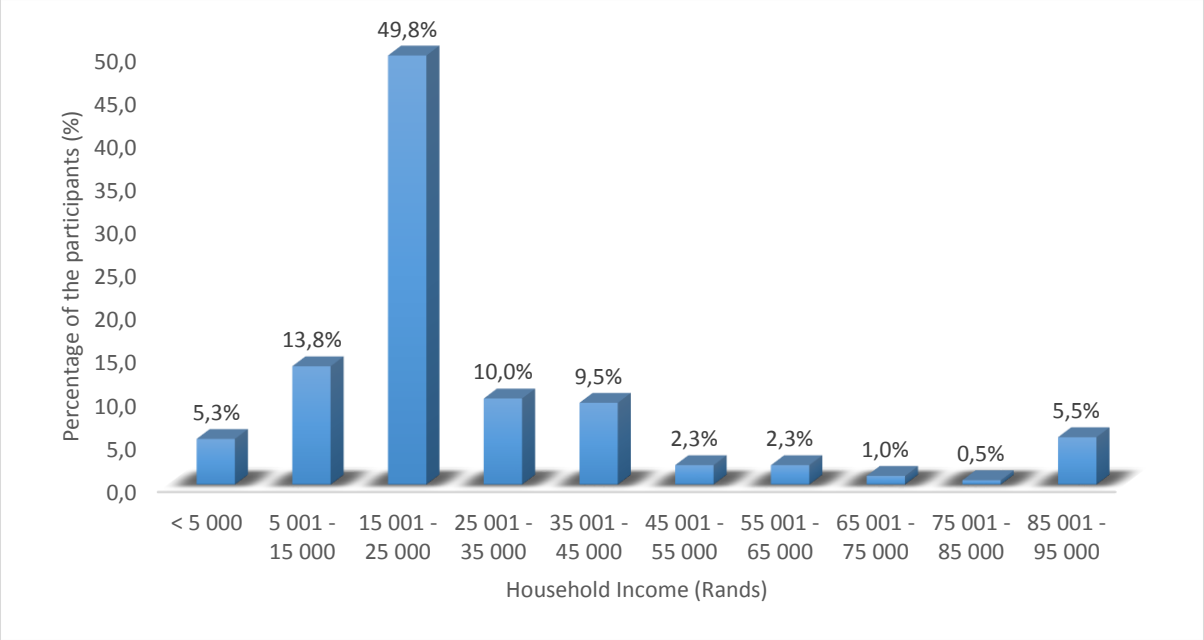

Figure 4.7 Total household annual income

4.1.7 Access to health care

The majority of participants (98%, n = 392, p < 0.001) did not have medical aid with only 2% (n = 8) having it (Figure 4.8). In addition, 72.8% (n = 291, p < 0.001) of participants stated that they felt that they did not have sufficient access to health care services nor did they receive appropriate health care. Only 27.3% (n = 109) of the participants reported enough access to health care services.

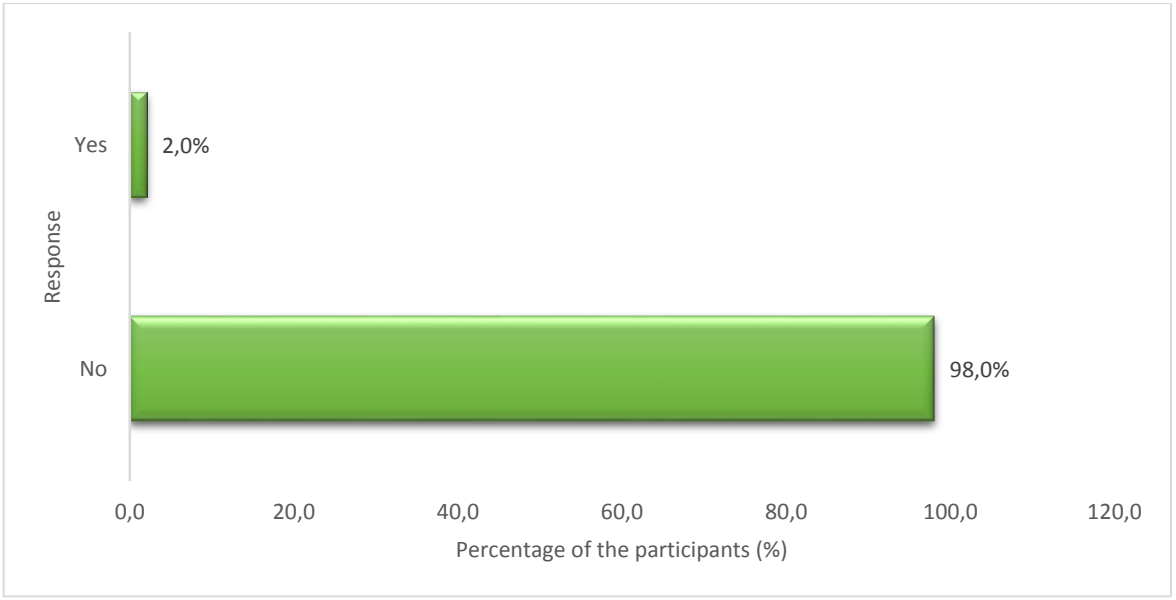

Figure 4.8 Participants with medical aid

4.2. The prevalence of low back pain

4.2.1. The lifetime prevalence of low back pain

The majority of the participants had experienced LBP in their lives (79.3%, n = 317, p < 0.001, Figure 4.9).

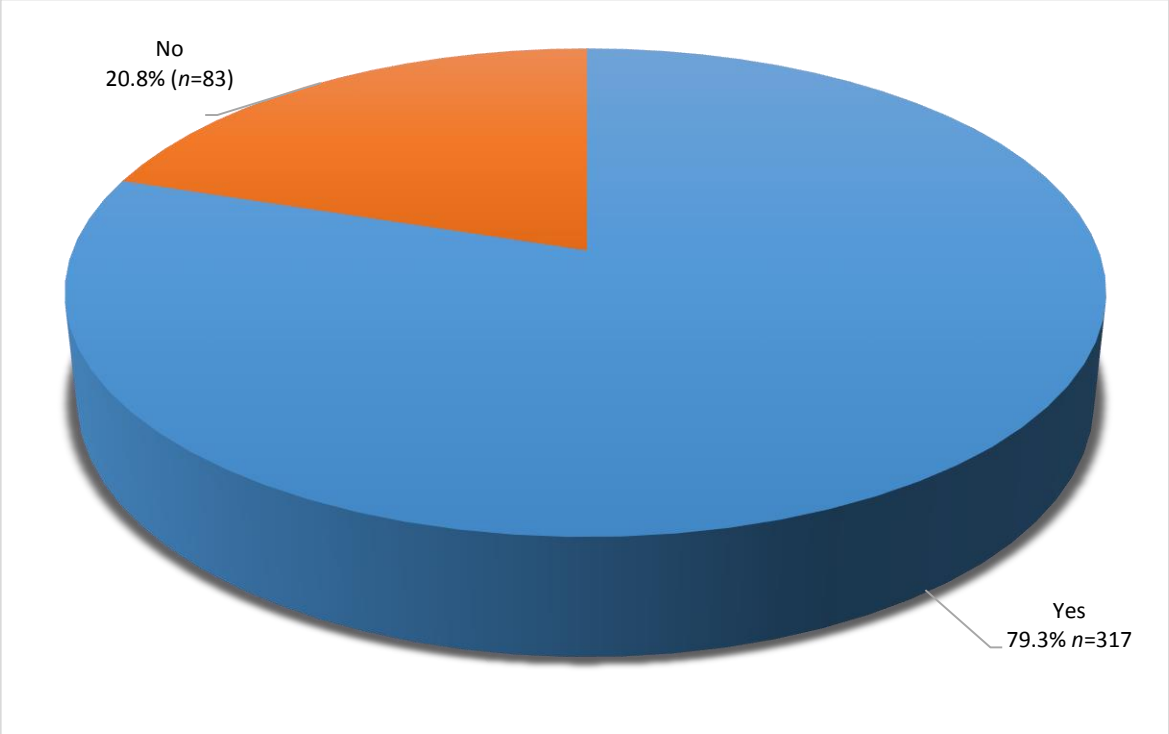

Figure 4.9 Lifetime prevalence of low back pain

4.2.2. The point prevalence of low back pain

Point prevalence refers to the current LBP that an individual is experiencing. Figure 4.10 shows that the point prevalence of LBP was 32.5% (n = 130, p < 0.001).

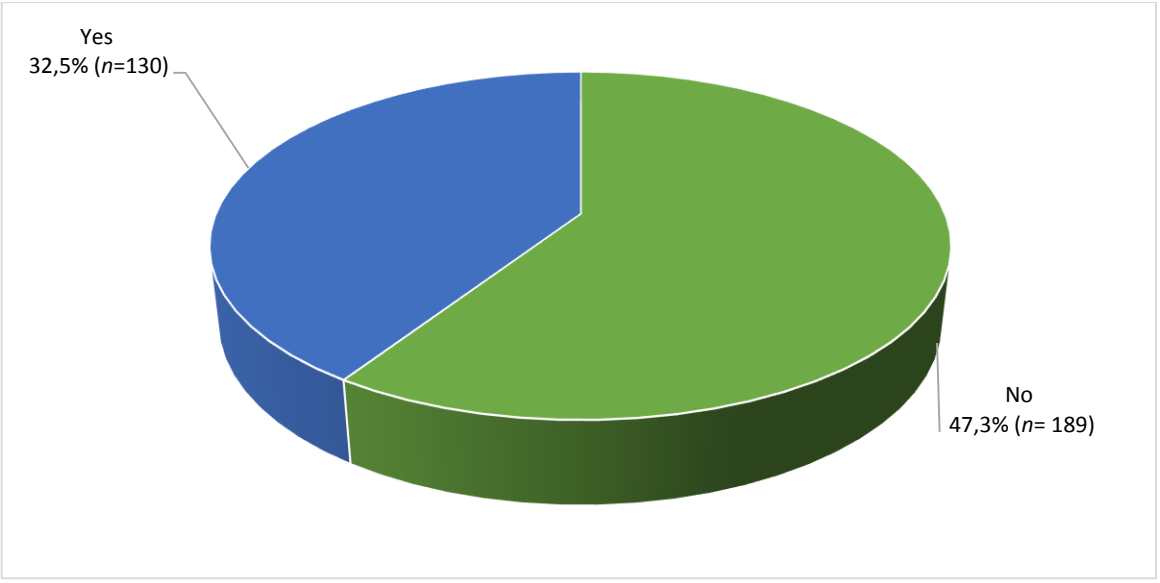

Figure 4.10 Point prevalence of low back pain

4.3 Clinical Features of low back pain

4.3.1 The onset of low back pain

Figure 4.11 shows the age of onset of LBP. Over a quarter of the participants first experienced LBP between 21 and 30 years of age (27%, *n* = 108), while 14.3% (*n* = 57) first experienced it between 31-40 years of age. Other ages for the onset of low back pain are shown in Figure 4.11. Chi-Square tests indicate that the age of onset is significantly different ($p < 0.001$).

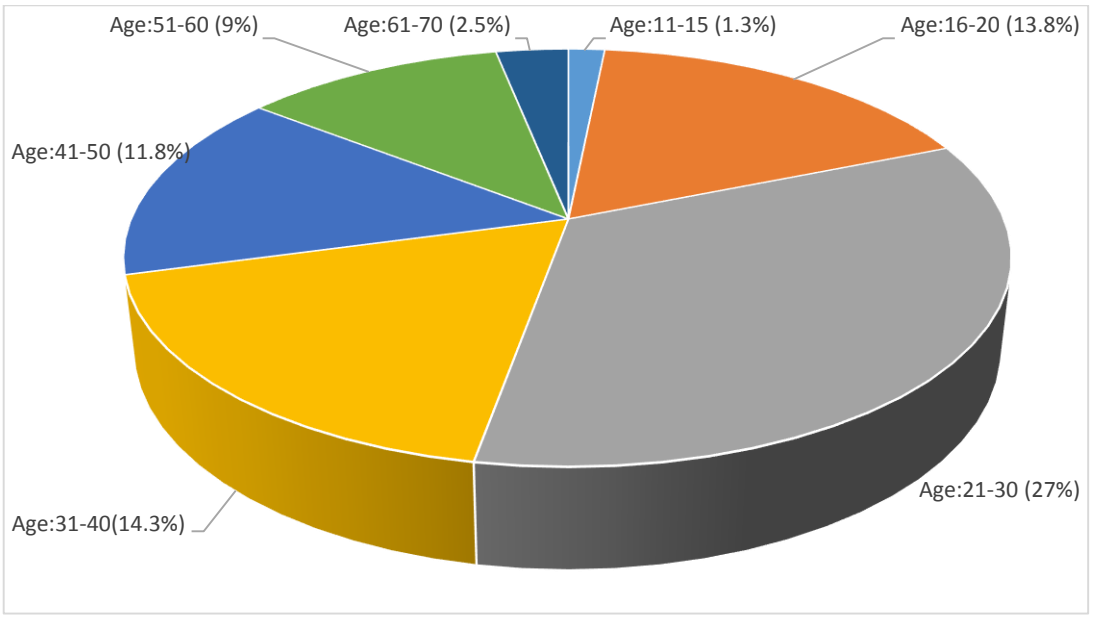

Figure 4.11 Onset of low back pain

Figure 4.12 shows that the majority of the participants' LBP started gradually without injury (79.1%, n = 102, p < 0.001). Further information about the onset of LBP is shown in Figure 4.12.

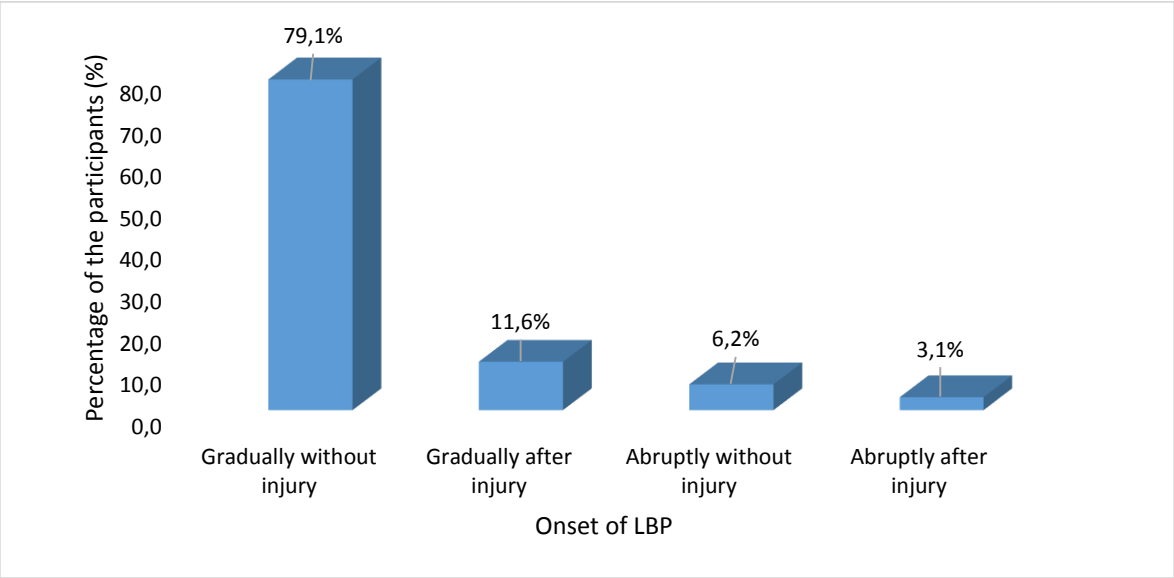

Figure 4.12 Onset of current low back pain

4.3.2 The duration of current low back pain

Many participants reported that they have been experiencing the current LBP for up to a month (39.2%, n = 50) while others reported that it has been ongoing for between one to two months (36.9%, n = 48, p < 0.001). As shown in Figure 4.13, some participants have been experiencing LPB for an even longer duration of time.

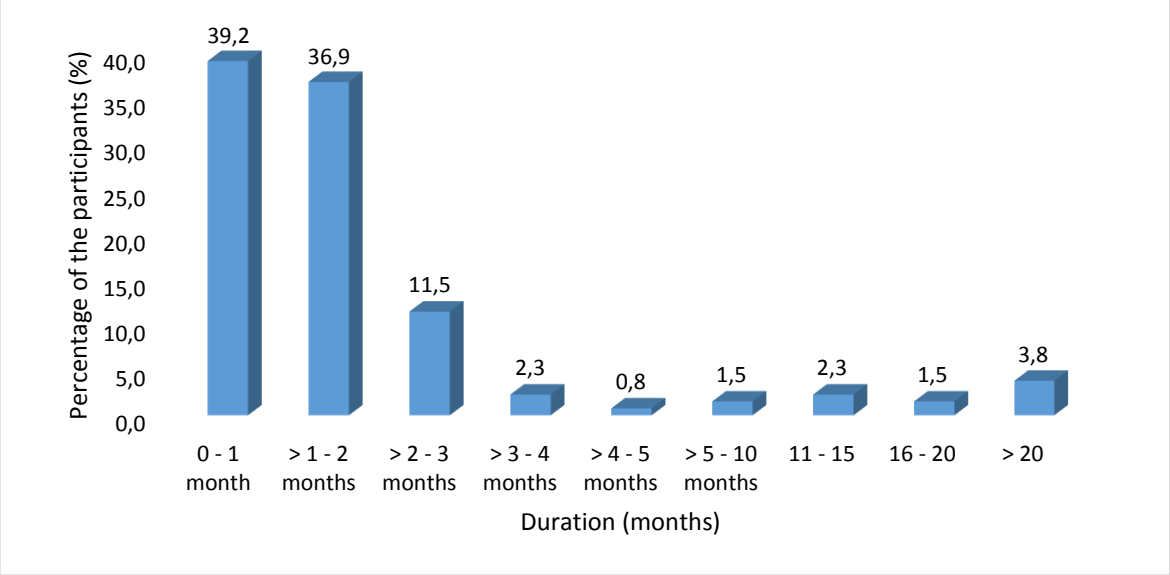

Figure 4.13 The duration of current low back

4.3.3 The severity of low back pain

Figure 4.14 shows that using a scale of zero to ten, most participants rated their pain at five (27.7%, *n* = 36) and six (16.9%, *n* = 22, *p* < 0.001). Further pain rating is shown in Figure 4.14.

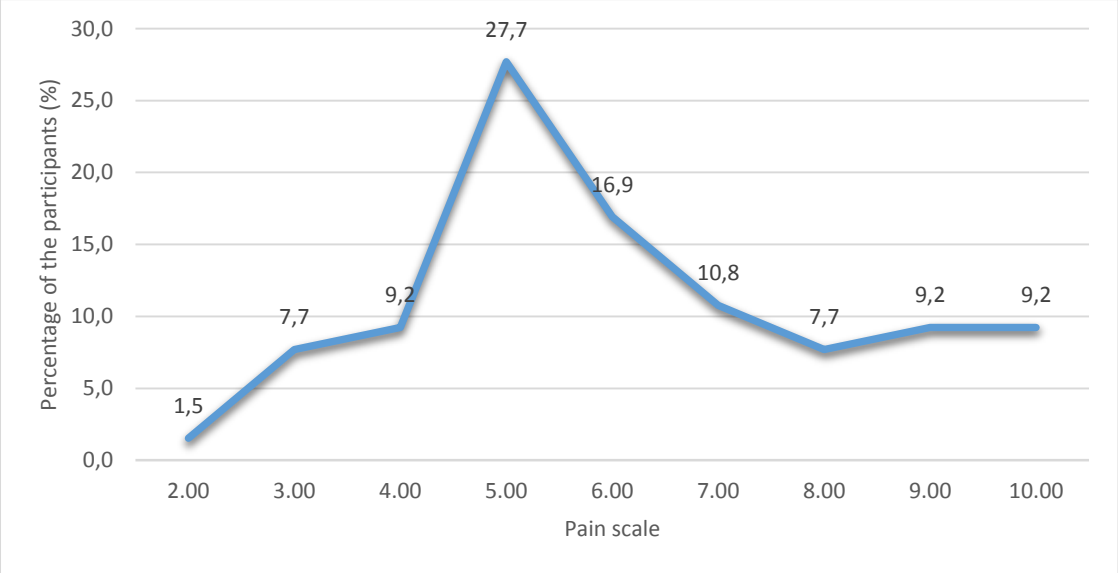

Figure 4.14 Pain rating scale for low back pain

Most participants reported that the LBP was most severe at night (63.1%%, *n* = 82), while some reported that it was in the morning (20%, *n* = 26) or afternoon (11.5%, *n* = 15). There

were few participants who reported that their pain was most intense in the evening (5.4%, n = 7, p < 0.001). This is shown in Table 4.3.

Table 4.3: The time of the day when the pain is at its worst

Time of the day	Frequency	Percent
Morning	26	20,0
Afternoon	15	11,5
Evening	7	5,4
Night	82	63,1
Total	**130**	

4.3.4 The frequency of low back pain

Most participants were experiencing LBP once a week (34.9%, n = 45), followed by those who were experiencing it everyday (20.9%, n = 27). Some indicated that they experienced LBP two to three times a week (20.2%, n = 26, p < 0.001). This is shown in Figure 4.15.

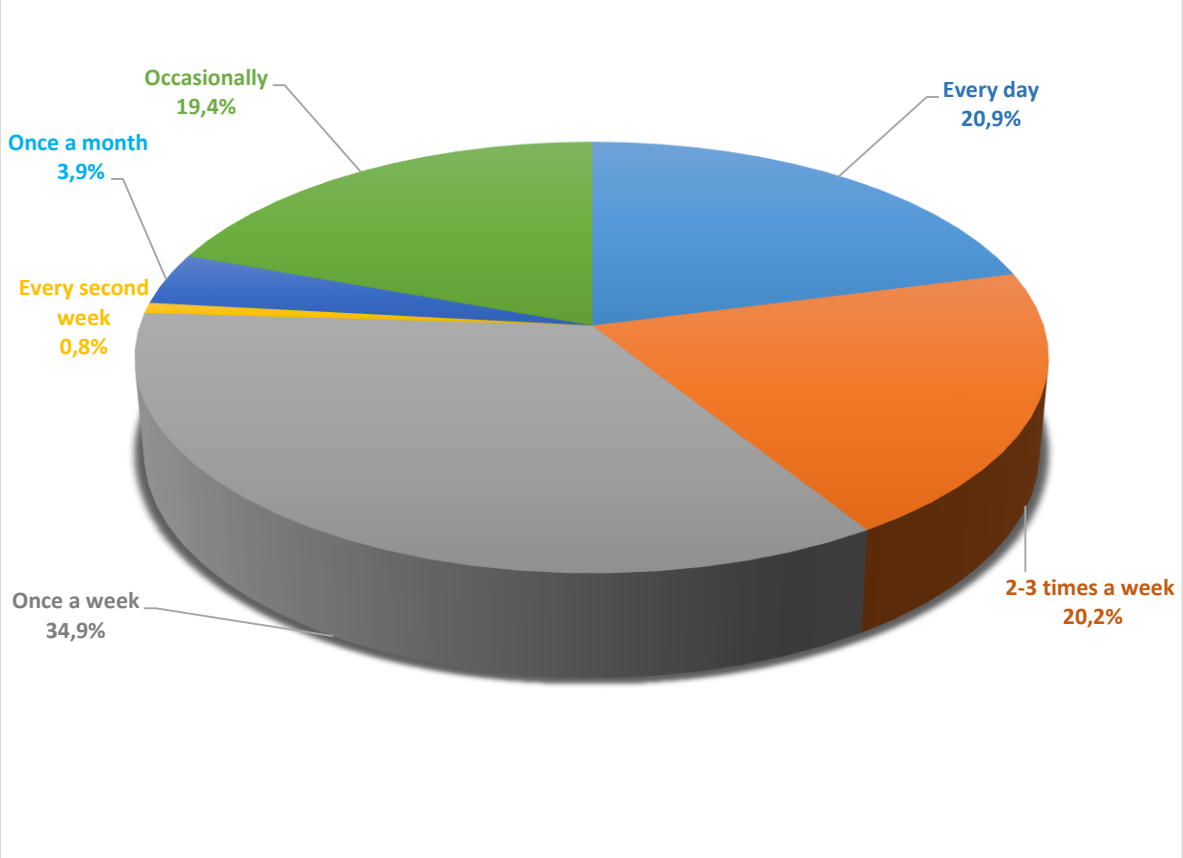

Figure 4.15 The frequency of low back pain

4.3.5 The progression of low back pain

Figure 4.16 outlines the course or progression of LBP in the Umdoni Municipality population. Most participants reported that their low back pain was getting worse with time (70.5%, n = 91) while some reported that the intensity did not change since the pain was first experienced (24%, n = 31). A minority felt that the pain was getting less (5.4%, n = 7, $p < 0.001$). This is shown in Figure 4.16.

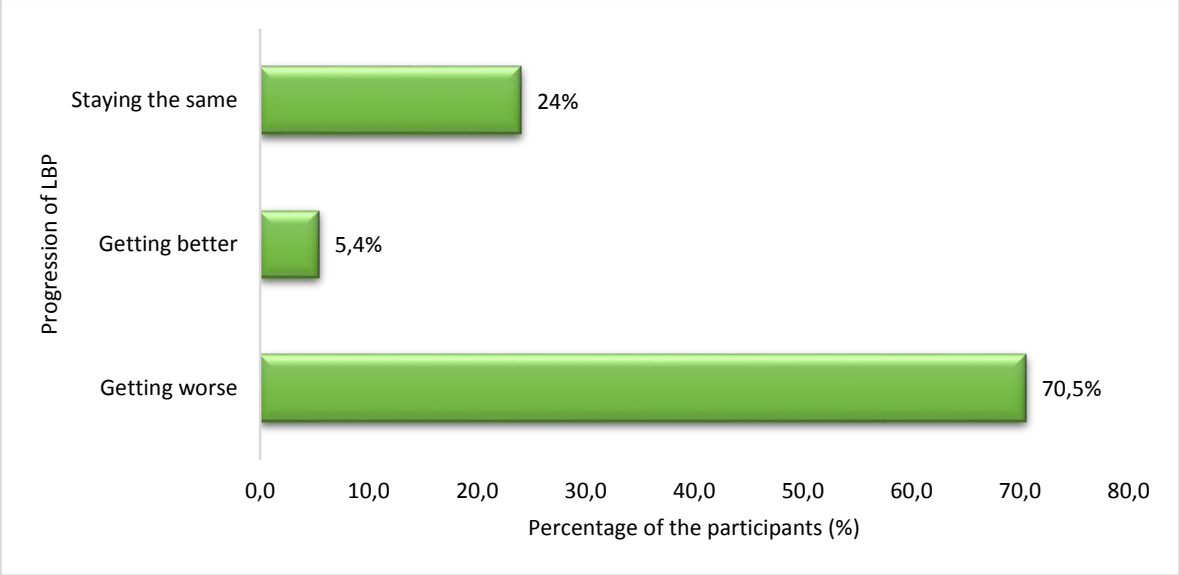

Figure 4.16 Progression of low back pain

4.3.6 The cause of low back pain

The participants who experienced LBP at any time in their lives expressed different reasons for the LBP. Some of the females stated that their LBP was related to current or previous pregnancy (3%, *n* = 12), natural birth (4.8%, *n* = 19), having an epidural when giving birth (0.5%, *n* = 2) or having had a C-section (2.5%, *n* = 10). Some participants (8.5%, *n* = 34) thought their LBP was related to pathological conditions such as HIV, TB or arthritis, others (1.5%, *n* = 6) thought that it was caused by old age. Some participants (3%, *n* = 12) stated that their LBP started after they had been inactive for a prolonged period of time. Conversely, 1.3% of the participants (*n* = 5) stated that their LBP was caused by excessive activity such as walking or training. Furthermore, some participants felt that their pain was caused by performing chores (12.3%, *n* = 49), heavy lifting (9.8%, *n* = 39) or other physically demanding jobs (in either their current or previous occupation). Some participants stated that their LBP started after they had a bad fall (7.5%, *n* = 30) or after they were injured in a motor vehicle accident, sport activity or physical violence from a family member or robbers. Unfortunately, 10.3% (*n* = 41) of the participants could not remember how their LBP started, while 14% (*n* = 56) of the participants stated that it started without any cause.

4.4 Risk factors for low back pain

4.4.1 Demographic factors

Bivariate analysis indicated that LBP increased with increasing age (p = 0.028). Similarly, LBP increased in people with higher BMI (P < 0.001). More females (83.4%, n = 231) suffered from LBP than did males (69.9%, n = 86, p = 0.002). The prevalence of LBP was not correlated with other demographic factors.

4.4.2 Factors related to childbirth

Table 4.4 provides information about childbirth and the number of children of the participants. Almost half (45.8%, n = 183, p < 0.001) of the participants had up to three children, although some had more, as shown in Table 4.4. Some of the participants had a Caesarean section (C-section) (19.3%, n = 77, p < 0.001). Over a quarter (26.3%, n = 105, p = 0.040) reported having an epidural when giving birth. However, some participants did not know what an epidural is or could not remember whether they had an epidural or not.

Table 4.4: Number of children and factors related to childbirth

Number of children	**Frequency (*n*)**	**Percent (%)**
0-3 children	183	45.8%
4-7 children	66	16.5%
8-14 children	24	6%
Total	**273**	**68.3%**
Number of C-section births		
1	38	9.5%
2	26	6.5%
3	8	2%
Total	**72**	**18%**
Number of participants who had an epidural when giving birth	**105**	**26.3%**

The risk of LBP increased in those who underwent a C-section (OR = 2,748, 95% CI: 1,108-6,819, p = 0.024). Similarly the risk of LBP increased in those women who had an epidural (OR = 3.115, 95% CI: 1,355 -7,157, p = 0.005). Bivariate analysis indicated that LBP increased with an increasing number of pregnancies (p < 0.001).

4.4.3 Occupational risk factors

Almost a quarter of the study population reported standing for prolonged periods of time (22%, n = 88). Other occupations required that they sat for prolonged periods of time (17.5%, *n* = 70). Prolonged standing (OR = 1.669, 95% CI: 0.875 - 3.184, *p* = 0.075) was not correlated with the lifetime prevalence of LBP. However prolonged sitting decreased the risk of LBP (OR = 0.495, 0.278 - 0.880, *p* = 0,015).

Almost a fifth of the participants lifted heavy objects for a prolonged period of time (19.5%, *n* = 78, *p* < 0.001). Lifting heavy objects was strongly associated with an increased lifetime prevalence of LBP (OR = 6.014, 95% CI: 2.131 - 16.976, P < 0.001).

4.4.4 Smoking History

Only 17% (*n* = 68, *p* < 0.001) of participants were smokers. Some of the participants used to smoke in the past (6.8%, *n* = 27, *p* < 0.001). Figure 4.17 shows that most of the smokers smoked between 6 and 10 cigarettes per day.

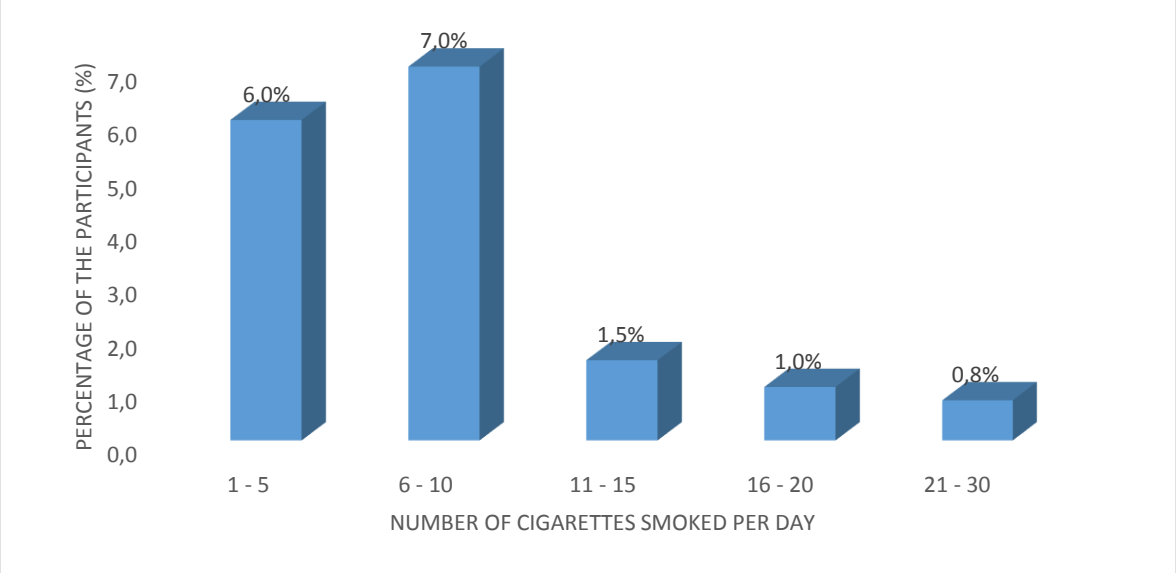

Figure 4.17 Number of cigarettes smoked per day

The majority of the smokers had been smoking for 16-20 years (4.3%, *n* = 17, *p* = 0.137), followed by 3.5% (*n* = 14) who smoked for six to ten years. Figure 4.18 shows a detailed presentation of duration of current smoking.

Although smoking increased the risk of LBP (OR = 2.189 95% CI: 1.002 - 4.781, p = 0.028), neither the number of cigarettes smoked (p = 0.905) nor the duration of smoking (p = 0.123) was related to the prevalence of LBP.

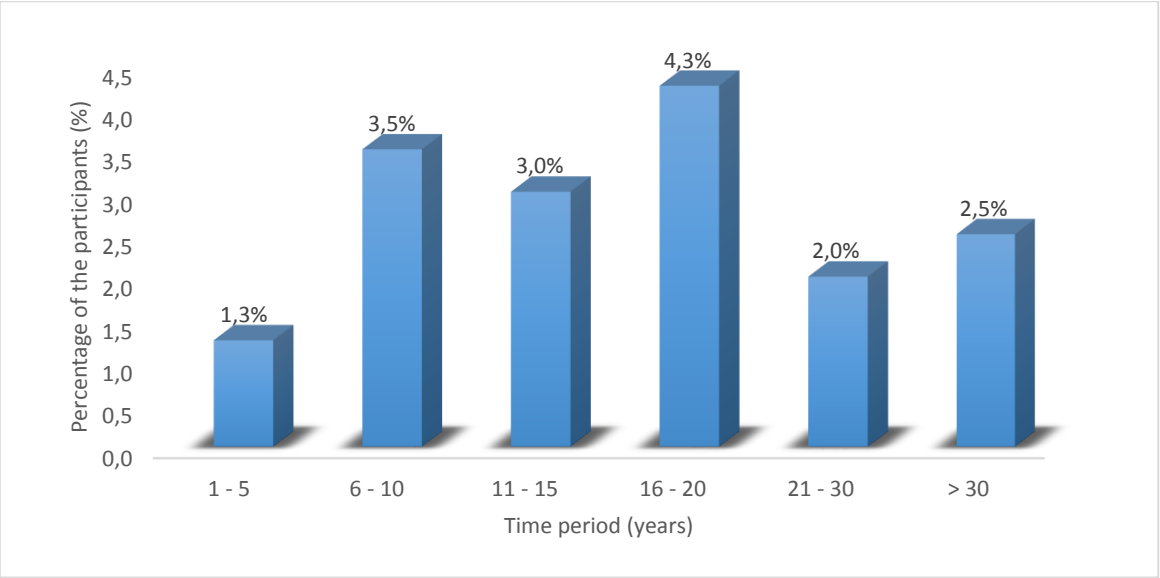

Figure 4.18 Duration of smoking

4.4.5 Smoking history of ex-smokers

Figure 4.19 shows that the majority of the ex-smokers used to smoke between one to five cigarettes in a day (4%, n = 16, p < 0.001). Figure 4.20 indicates that most of them quit smoking five years ago (3.8%, n = 15, p < 0.001). Information about the duration of past smoking is indicated in Figure 4.21.

Previous smoking history did not impact on the prevalence of LBP (p = 0.480).

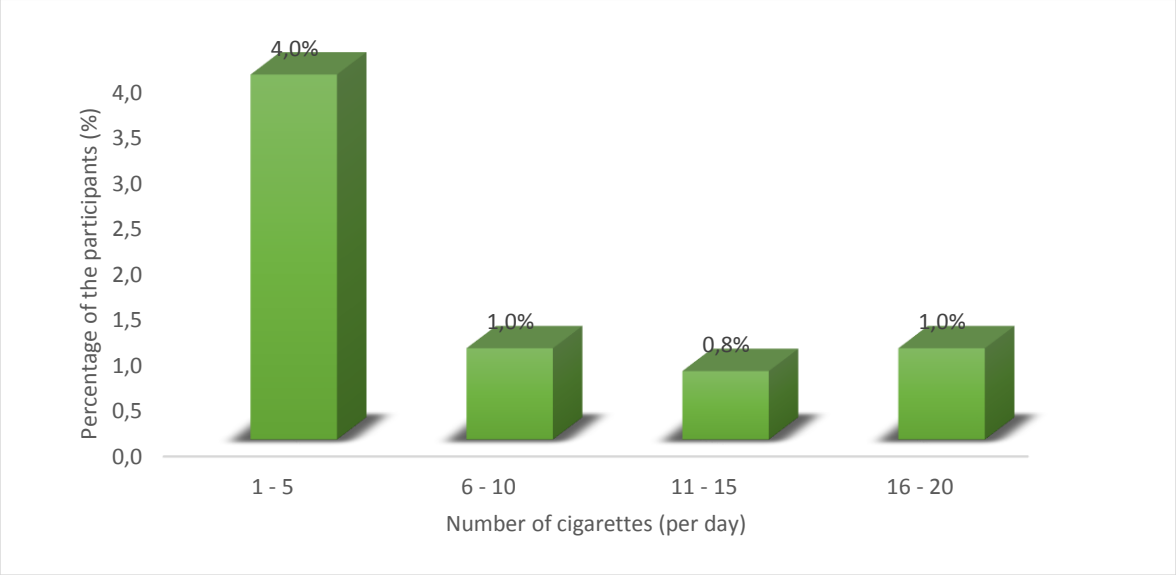

Figure 4.19 Number of cigarettes (per day) smoked previously by ex-smokers

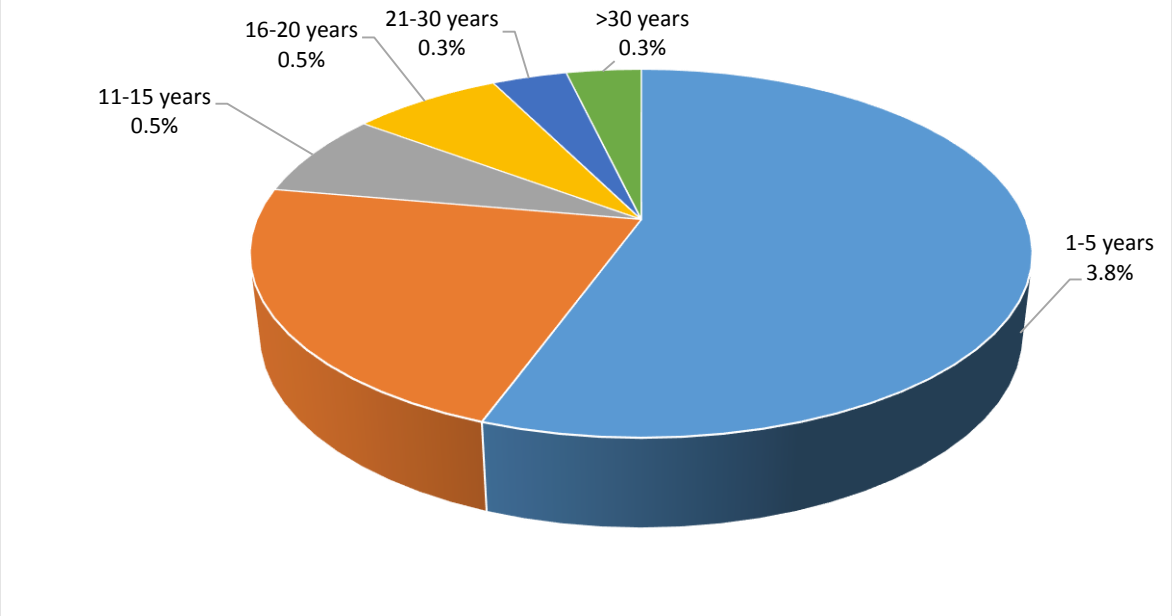

Figure 4.20 Period after quitting smoking

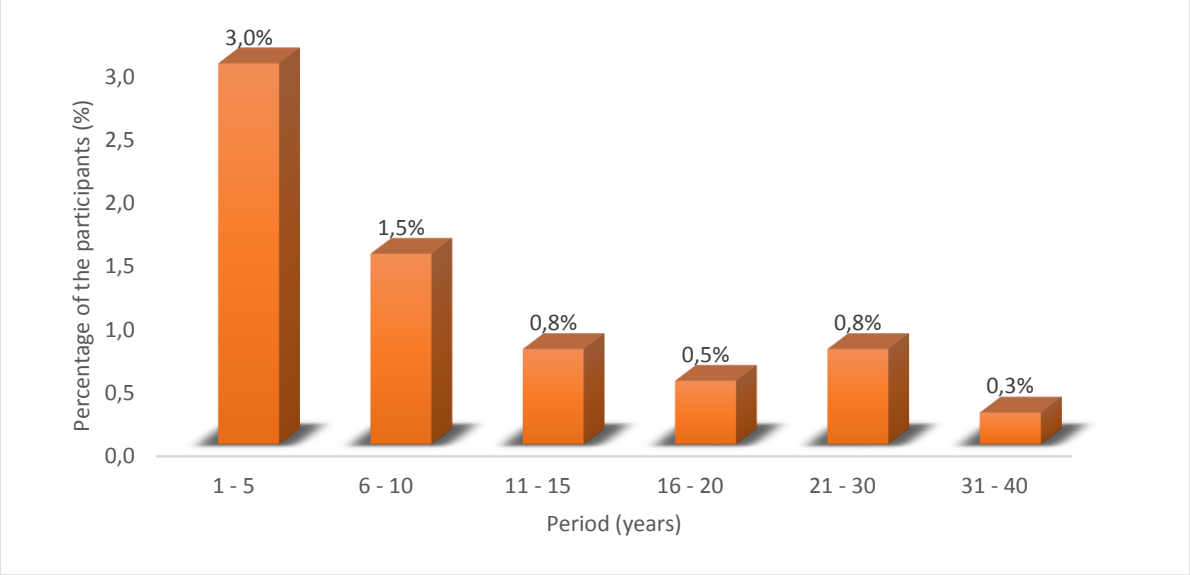

Figure 4.21 Duration of past smoking

4.4.6 Alcohol consumption

There was a significant difference in alcohol consumption among study participants with only 21.3% (n = 85, p < 0.001) consuming alcohol. Figure 4.22 shows that most of the participants drank two units of alcohol (5.5%, n = 22), 4.3% (n = 17) drank only one unit of alcohol and 3.8% (n = 15, p < 0.001) drank four units of alcohol in a week. Further information about alcohol consumption is presented in Figure 4.22.

There was no relationship between alcohol consumption and prevalence of LBP (p = 0.883).

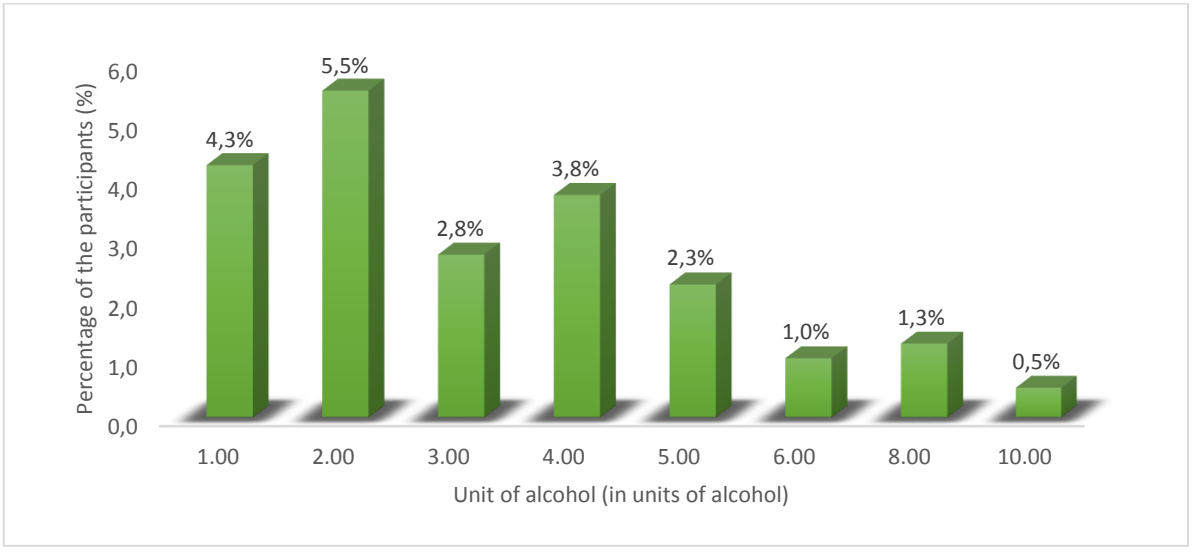

Figure 4.22 Amount of alcohol consumed per week (in units of alcohol)

NB: There were zero responses for 7 and 9 units of alcohol

4.4.7 Chores performed by the participants

The majority of the participants performed household chores (92.3%, $n = 396$, $p < 0.001$). The most frequently performed chores included cooking (85.8%, $n = 343$, $p < 0.001$), fetching firewood (78.8%, $n = 315$, $p < 0.001$) and fetching water (86.6%, $n = 347$, $p < 0.001$). Figure 4.23 presents detailed information about the chores that were performed.

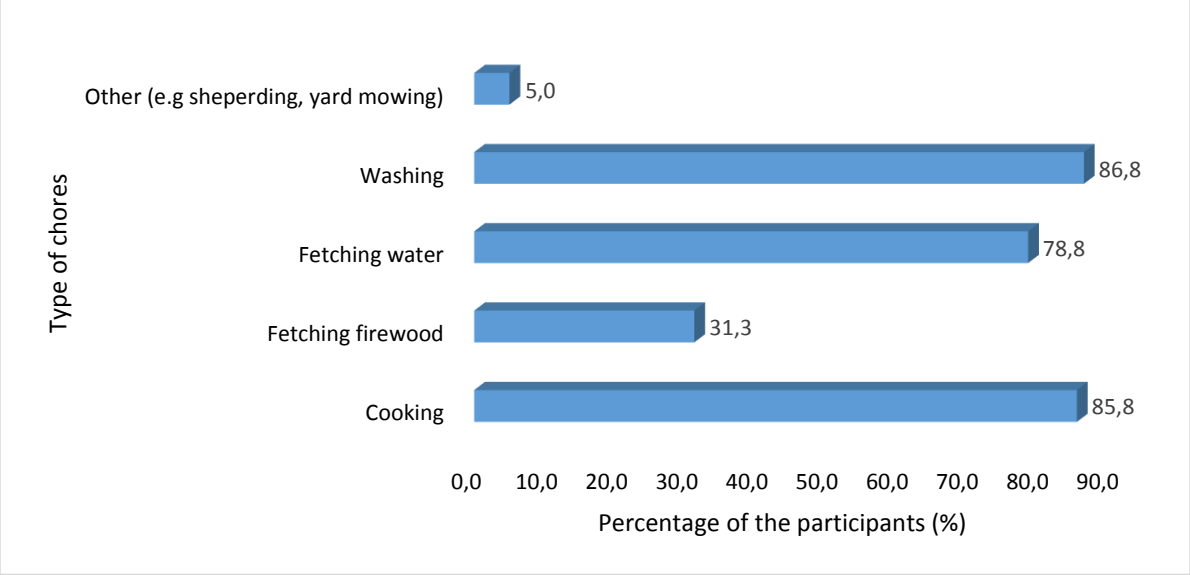

Figure 4.23 Type of chores performed at home by study participants

NB: Many participants performed more than one chore

More females (98%, $n = 272$) performed household chores than did males (78.8%, $n = 97$, $p < 0.001$). These chores included fetching firewood ($p < 0.001$), washing clothes ($p < 0.001$) and cooking ($p < 0.001$).

Although there was no relationship between performing household chores and the prevalence of lifetime LBP ($p = 0.842$), there was a relationship between performing these chores and the point prevalence of LBP ($p = 0.004$).

4.4.8 Water availability

Figure 4.24 shows that the majority of participants did not have piped water in their homes (93%, $n = 372$, $p < 0.001$). They therefore had to fetch water from either common taps (48.5%, $n = 194$) in their communities or the river (30.3%, $n = 121$, $p < 0.001$). More females (96%, $n = 266$) than males (65.9%, $n = 81$) fetched water ($p = 0.001$).

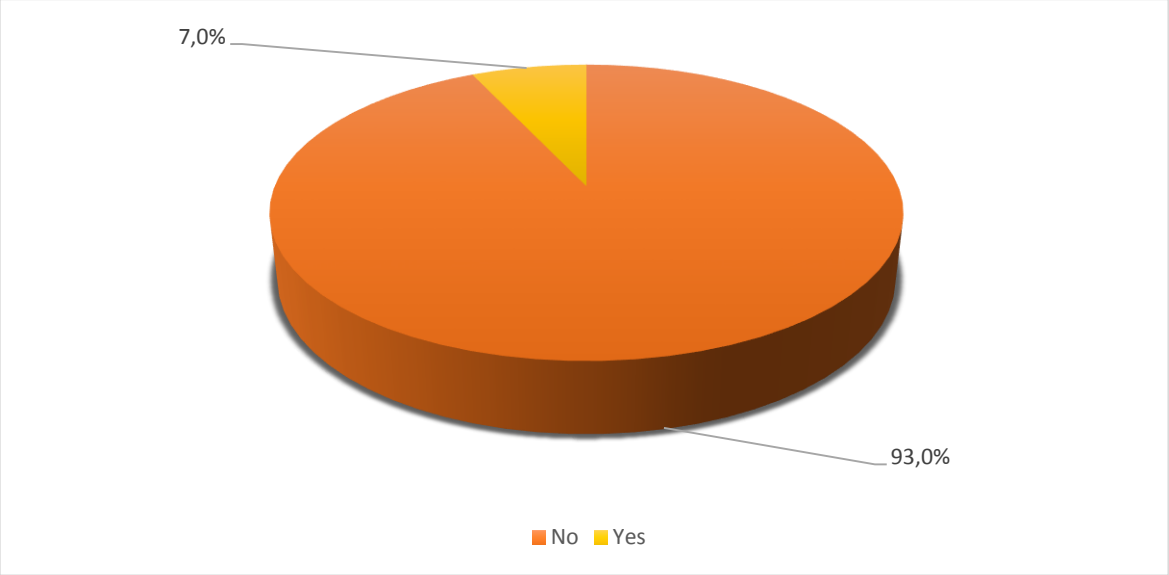

Figure 4.24 Source of water

The taps or rivers sometimes were not located within their areas and the participants had to travel various distances to collect their water ($p < 0.001$). These are indicated in Figure 4.25.

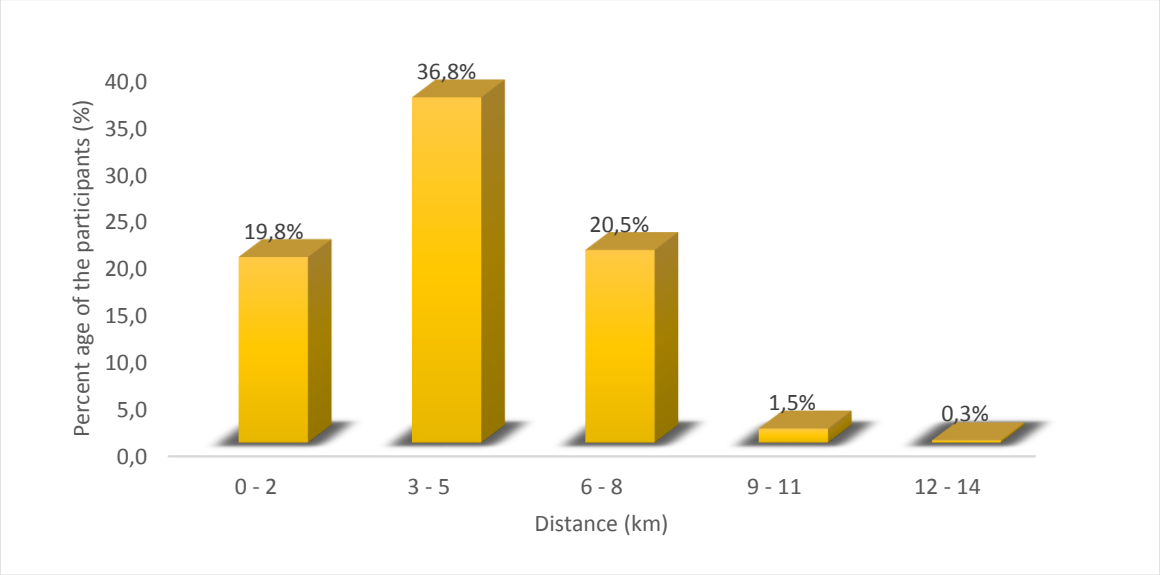

Figure 4.25 Distance travelled to water source

Most participants carried 16-20 litres (58.5%, *n* = 234) and 21-25 litres of water at a time (18.3%, *n* = 73, *p* < 0.001). Other figures are shown in Figure 4.26 below.

Most participants fetched water twice (43.3%, *n* = 173), some once (24.8%, *n* = 99) and some more than twice a day (10.8%, *n* = 43, *p* < 0.001).

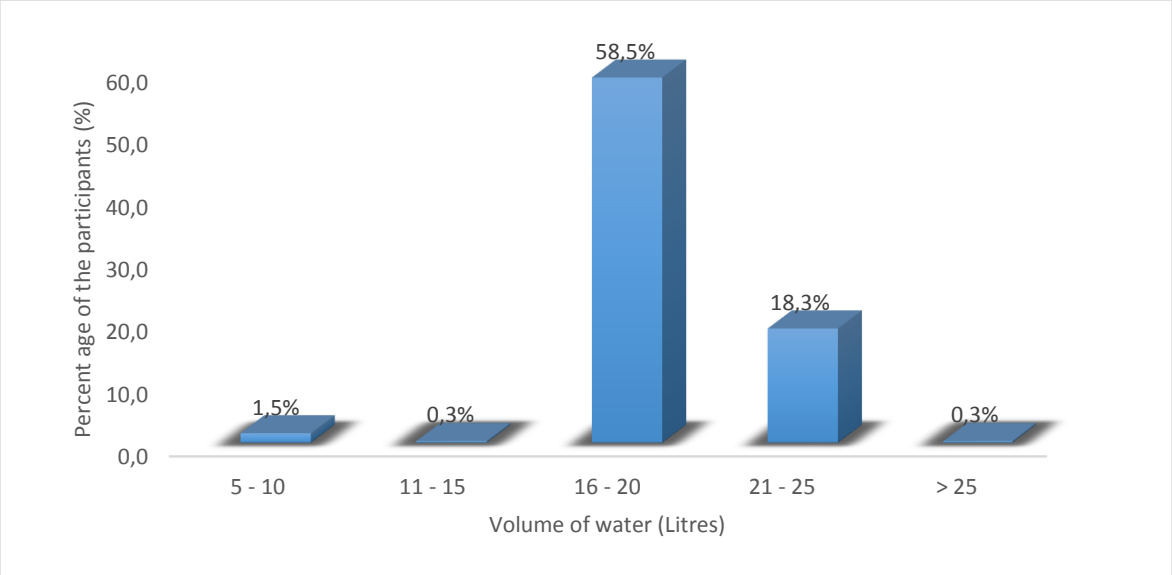

Figure 4.26 Volume of water carried

The weekly frequency of carrying water is shown in Figure 4.27.

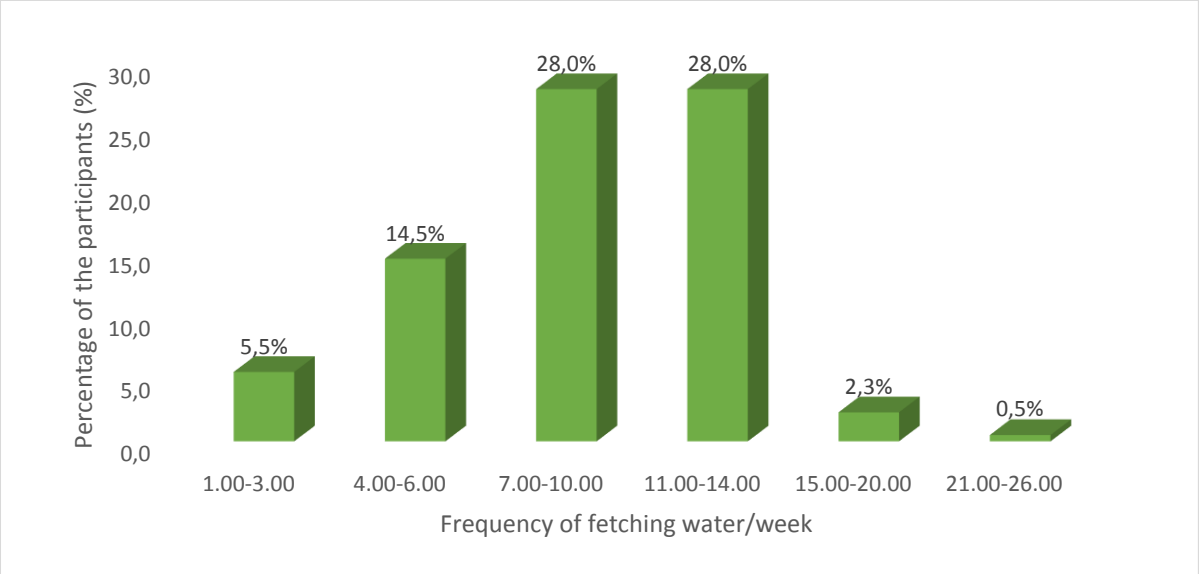

Figure 4.27 Frequency of fetching water in a week

Participants reported different ways in which they transported water home. These are shown in Figure 4.28. The majority of the participants carried water on the head while walking back home (53.8%, *n* = 215) as opposed to carrying the bucket by hand (10.8%, *n* = 43), by wheel-barrow (13.8%, *n* = 55) or by cart (0.5% *n* = 2), $p < 0.001$).

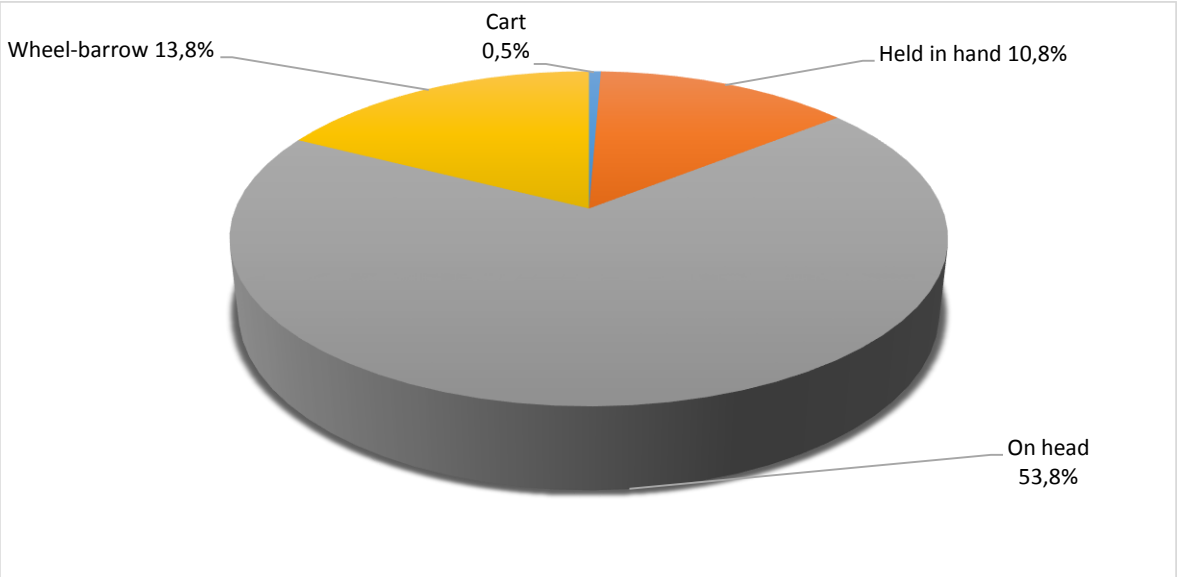

Figure 4.28 Transporting water back home

The risk of LBP increased in those who had to carry water (OR = 1.608, 95% CI: 1.242 -2.083, $p < 0.001$).

4.4.9 Physical Activity

In this study population, less than a quarter was involved in some form of physical activity (20.5%, *n* = 82) compared to those who were not (79.5%, *n* = 318, $p < 0.001$). The main form of physical activity was walking (10%, *n* = 40, $p < 0.001$). Figure 4.29 shows the other activities in which they participated.

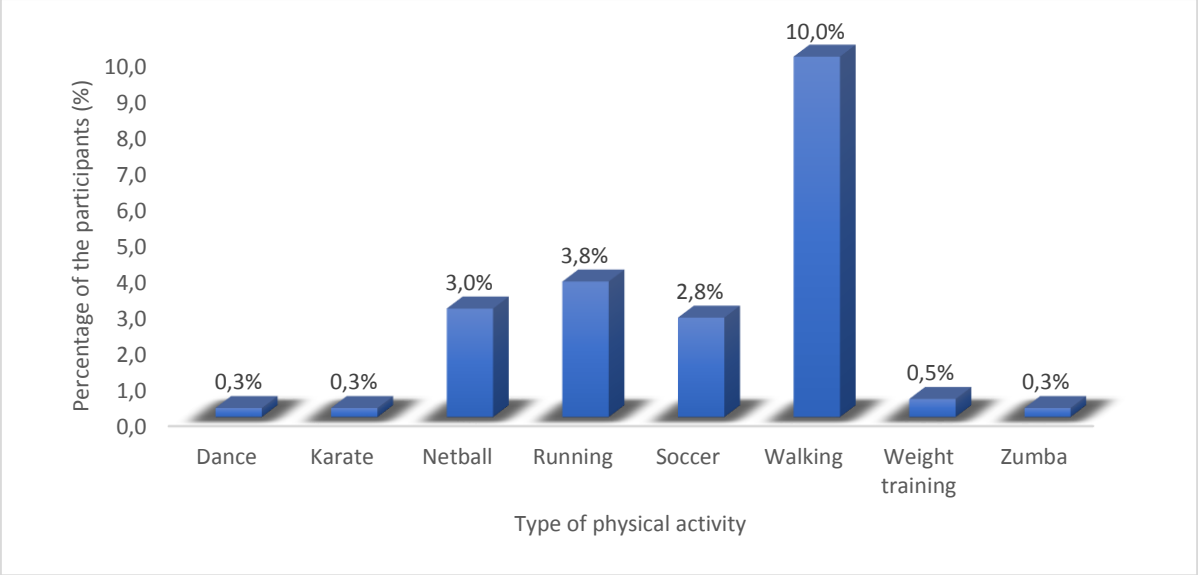

Figure 4.29 Type of physical activity

Different times were spent by the participants in each physical activity ($p < 0.001$). About 14.5% ($n = 58$) spent one to three hours, 5.8% ($n = 23$) spent less than an hour and 0.5% ($n = 2$) spent four to six hours of physical activity in a day.

Figure 4.30 shows that most participants had five to six (8.3%, $n = 33$) or three to four (6.3%, $n = 25$, $p < 0.001$) physical activity sessions in a week. There was no correlation between physical activity and the prevalence of LBP ($p = 0.084$). However Pearson's chi square test showed that those who walked experienced more LBP compared to those involved in other physical activities ($p = 0.024$).

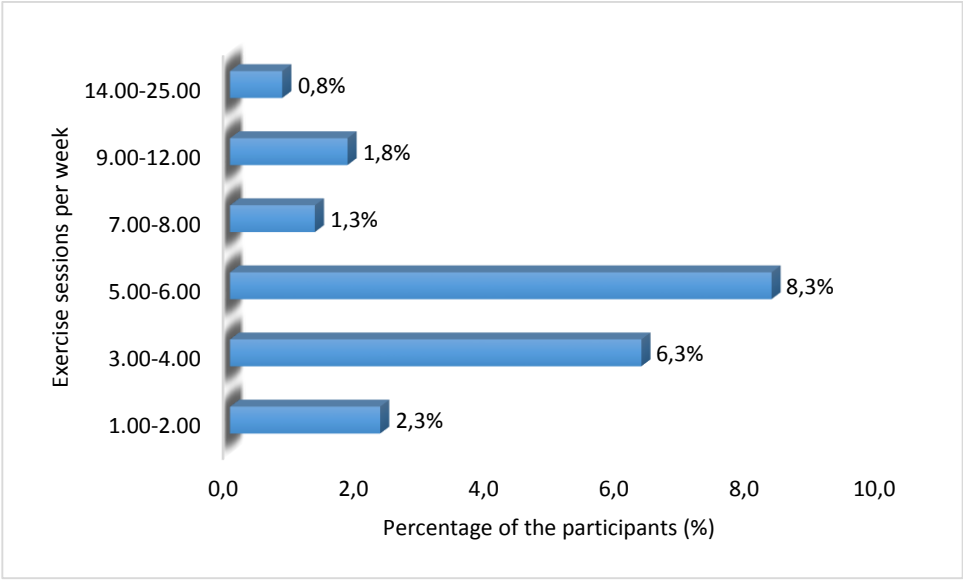

Figure 4.30 Number of exercise sessions per week

4.4.10 Previous exercise/sport

Figure 4.31 shows that netball was the sport that most participants were involved in previously (16.8%, *n* = 67), followed by soccer (13%, *n* = 52, *p* < 0.001). Other types of exercise are shown in Figure 4.31.

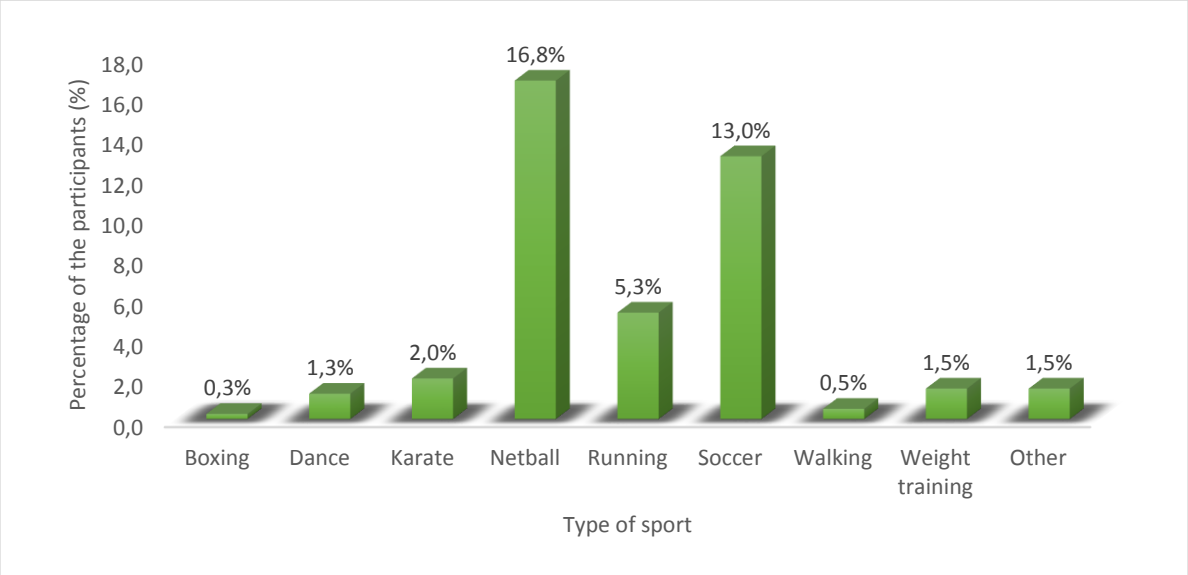

Figure 4.31 Type of previous sport/exercise

In the past, most participants were involved in a particular sport for more than two to three years (9.5%, *n* = 38, *p* < 0.001). Figure 4.32 outlines more information about the duration of previous physical activity.

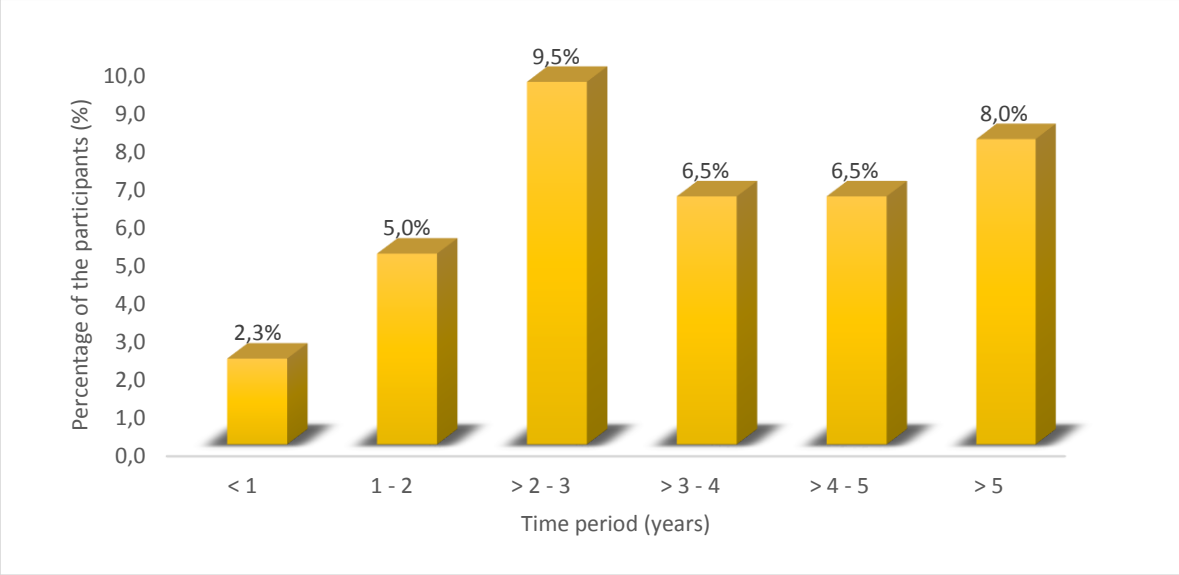

Figure 4.32 Duration of the previous sport

4.4.11 Underlying medical condition

Figure 4.33 outlines the medical conditions that were most commonly experienced by the participants. HIV was the most common medical condition affecting 35% (n = 140) of the participants, followed by tuberculosis (TB) affecting 16.5% (n = 66) of the participants, hypertension affecting 16% (n = 64) and arthritis affecting 14.8% (n = 59, $p < 0.001$) of the participants. All the conditions that affect the population of Umdoni Municipality, are shown in Figure 4.34.

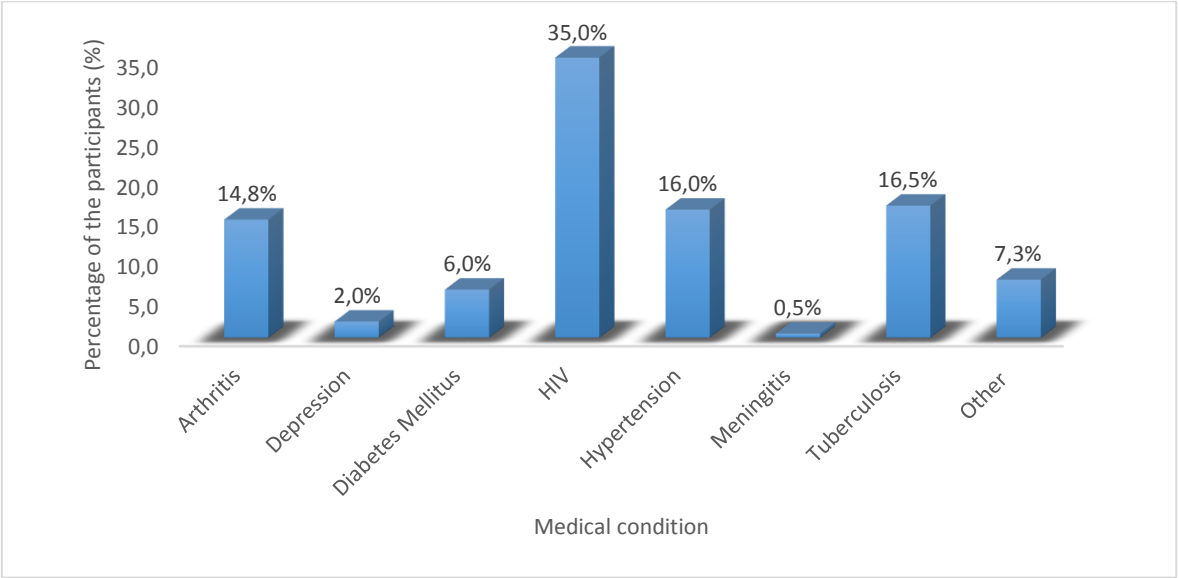

Figure 4.33 Underlying medical conditions

Arthritis increased the risk of LBP (OR = 5.722, 95% CI: 1.744 - 18.773, $p < 0.001$). Tuberculosis also increased the risk of LBP in this population (OR = 2.483, 95% CI: 1.089 - 5.661, $p = 0.024$). None of the other medical conditions affected the prevalence of LBP.

4.4.12 Coughing

Almost a quarter of the participants (24%, $n = 96$, $p < 0.001$) reported a current cough. Most of them reported that they had been coughing for up to six months (21%, $n = 84$, $p < 0.001$) while others were coughing for a longer period of time as shown in Figure 4.34. There was no relationship between coughing and the lifetime prevalence of LBP ($p = 0.258$).

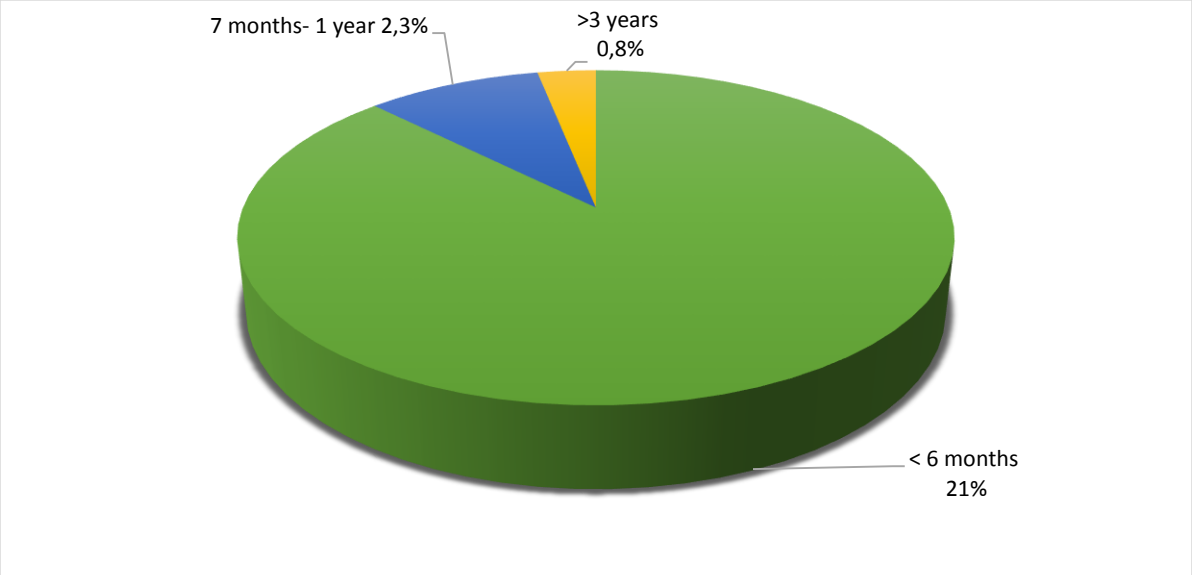

Figure 4.34 Duration of coughing

4.5 The impact of low back pain on daily living

The majority of the participants reported that their LBP was affecting daily activities such as bending, dressing, driving, lifting, sitting, sleeping, standing and walking. The main difficulty experienced was bending (30.5%, $n = 122$, $p < 0.001$). Other activities that were affected, are shown in Figure 4.35. Some participants (14.3%, $n = 57$, $p = 0.187$) had to stay in bed due to LBP.

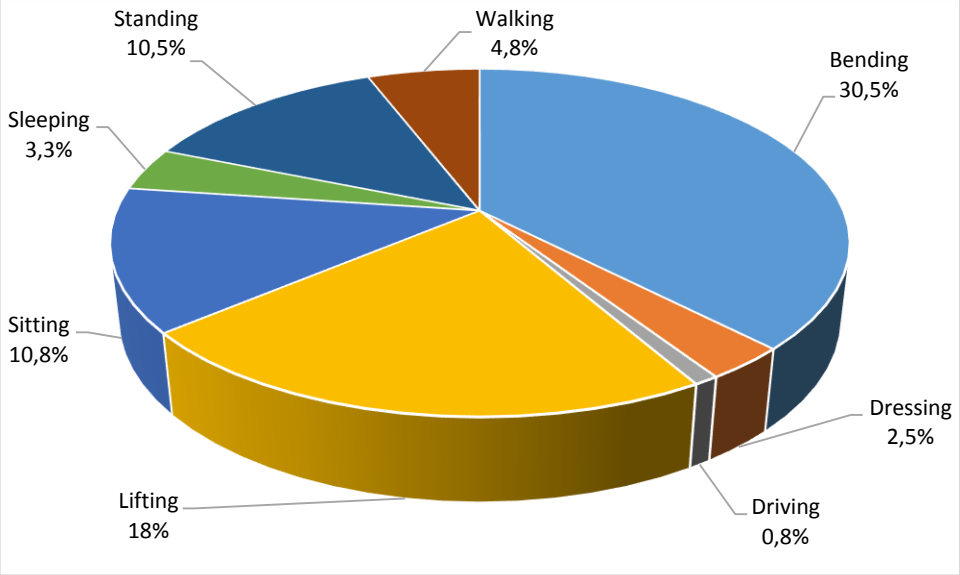

Figure 4.35 Impact of low back pain on daily activities

About a tenth of the participants reported that they had to stay away from work due to LBP as they were bedridden (10%, n = 40, p < 0.001). Of these participants the majority reported staying away from work for up to two days, due to LBP (75%, n = 30, p < 0.001). Full details on absenteeism, due to LBP, is presented in Figure 4.36.

Furthermore some participants had to change their jobs (0.8%, n = 3, p < 0.001) while others stated that they lost their jobs because of LBP (6.3%, n = 25, p < 0.001).

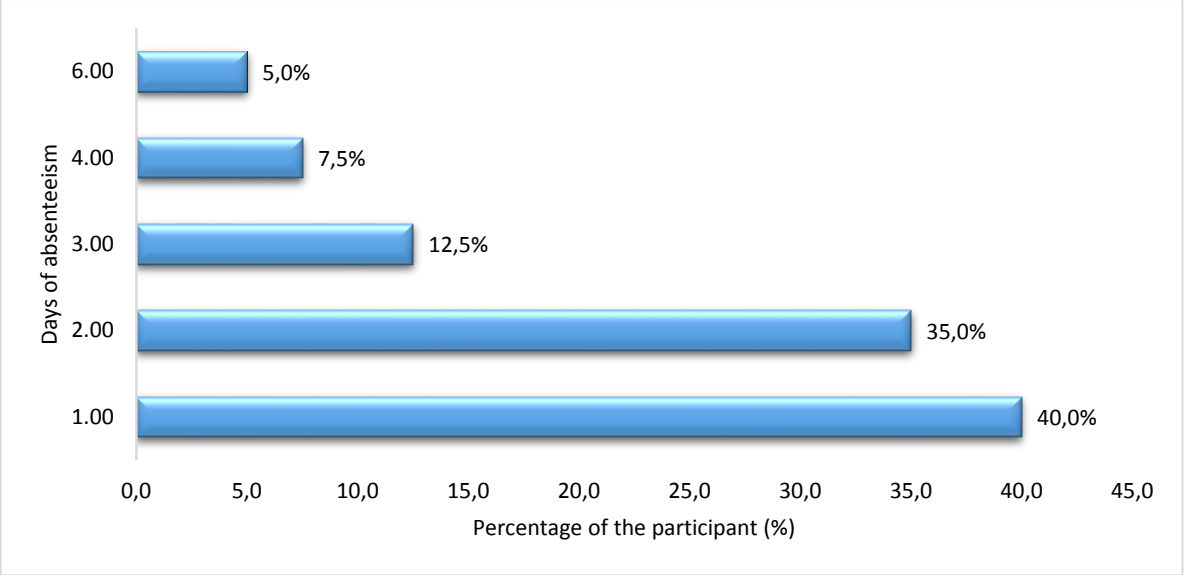

Figure 4.36 Days of absenteeism

NB: There were no responses for 5 days

4.6 Treatment for low back pain

Only 17.8% (n = 71) participants were being treated at the time of the survey, the majority were on treatment once a month (73.2%, n = 52, $p < 0.001$). Other treatment frequencies are shown in Figure 4.37 below.

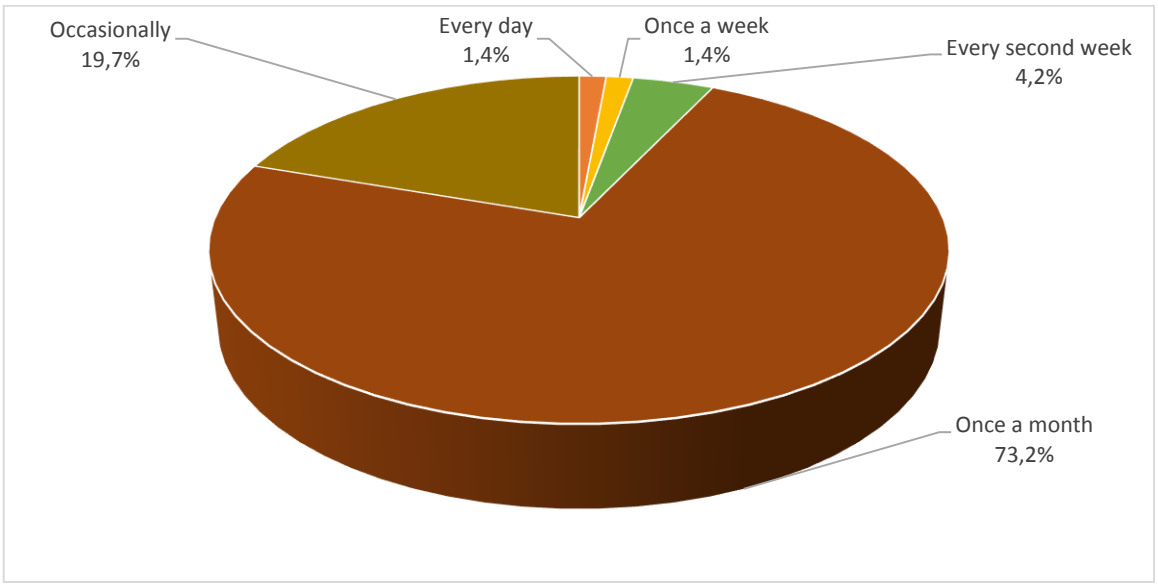

Figure 4.37 Frequency of current treatment

4.6.1 Current medication for low back pain

About 66.9% (*n* = 83) of the participants were on medication for low back pain, the majority were receiving their medication from the government clinic (14%, *n* = 56, *p* < 0.001). Other treatment facilities are shown in Figure 4.38 below.

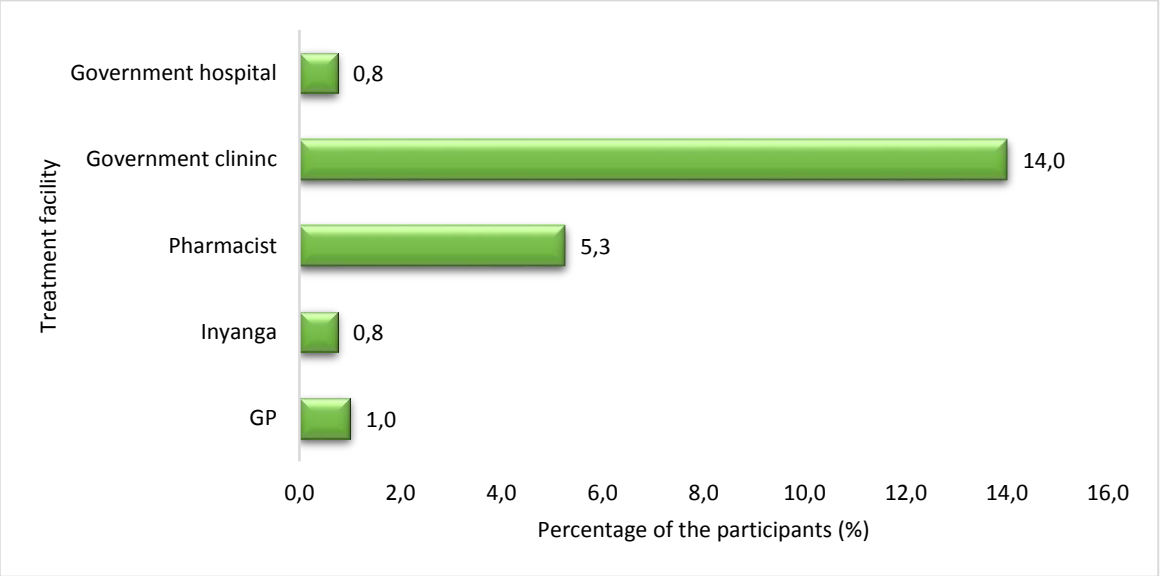

Figure 4.38 Current medication for low back pain

Out of all the participants who were currently on LBP medication, there was a significant proportion of them who felt that their low back pain medication was not working (15%, *n* = 60, *p* < 0.001).

4.6.2. The cost of low back pain medication

Most of the participants were getting their medication from the state clinic; therefore, they did not pay for it (14.8%, *n* = 59, *p* < 0.001). However, some participants were receiving their treatment from other places e.g. pharmacy or general practitioner and they had to pay for it. The amounts spent on treatment for LBP are shown in Figure 4.39.

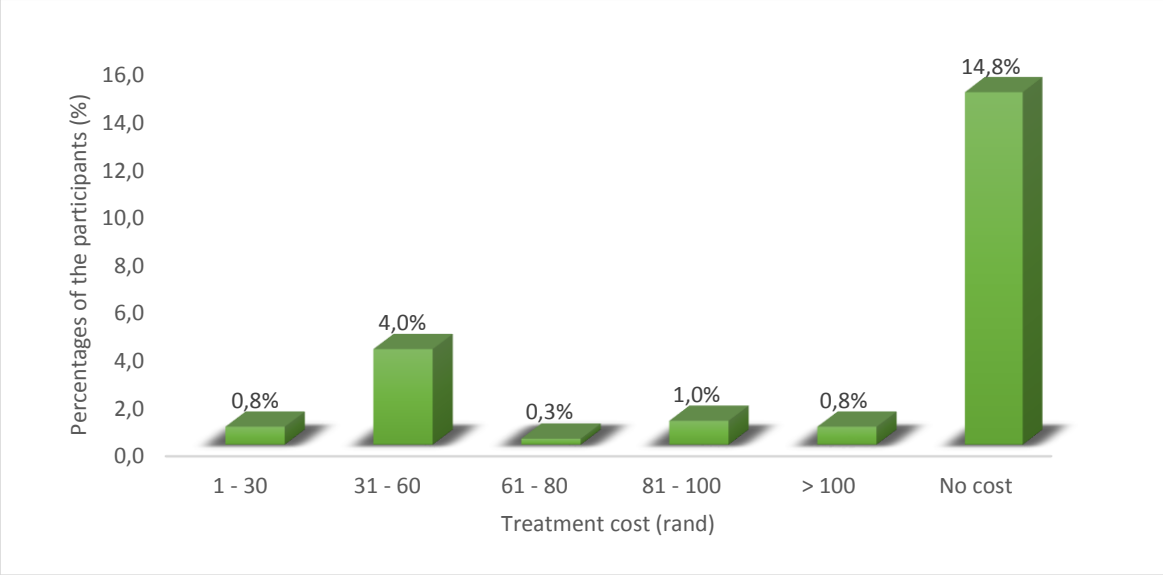

Figure 4.39 Cost of low back pain medication

Most of the participants received treatment for LBP from the government clinic (16%, *n* = 64, $p < 0.001$). Other places where treatment was sought is shown in Table 4.5 below.

Table 4.5: Type of past/present treatment

Facility where treatment was sought	Frequency	Percent
Government clinic	64	16%
Pharmacist	19	4.8%
Inyanga (Traditional healer)	9	2.3%
General practitioner (GP)	7	1.8%
State hospital	7	1.8%
Herbalist	6	1.5%
Spiritual healer (healing through prayer)	1	0.3%
Total	**113**	**28.5%**

Some participants performed some self-treatment (see Table 4.6 below).

Table 4.6: Self- treatment that was performed by the participants

Self-treatment that was done	Frequency	Percent
Rest/lying on the back or side	7	2%
Rub with ointment/Shembe vaseline	3	0.9%
Massage with warm water/oil	2	0.6%
Apply heat only	1	0.3%
Apply heat and use a syringe	1	0.3%
Apply heat and rubbing with oil	1	0.3%
Grandpa tablets from a local tuck-shop	1	0.3%
Exercise/stretching	3	0.8%
Total	**19**	**5.2%**

4.7 Knowledge about Chiropractic Treatment

The majority of the participants did not know what chiropractic treatment is (99%, $n = 396$, $p < 0.001$). There is also no chiropractic clinic in the area and therefore none of them sought chiropractic treatment for LBP.

Chapter Five: Discussion

5.1 Introduction

This chapter discusses the research findings of this study and compares these to other studies.

5.2 Demographic profile of participants

The mean age of the participants of the present study was 38 years, which is similar to studies that were performed in Iran (36.19 years) and the White population of South Africa (38.54 years) (Biglarian et al., 2012, Brinique, 2012). However, it was different from the studies that were performed in Thailand to investigate the prevalence of LBP among rice farmers whose mean age was much higher at 51.1 years (Taechasubamorn et al., 2011).

The present study had a majority of Black African participants, which is similar to a study performed in Chesterville, in Durban where the sample population consisted of Black Africans only (Van der Meulen, 1997). However, the latter study was in an urban population, in contrast to the current study which was conducted in a rural area. In addition, the current study is also similar to a study that was conducted in Lesotho where the sample population was of the Black race group but comprised of women only (Worku, 2000). International studies such as those in the United States of America (USA), either comprised of Whites only or of a mixture of Whites, Blacks, Hispanics and Asians (Freburger et al., 2009, Waterman et al., 2012, Deyo et al., 2006).

5.3 The prevalence of low back pain

In the present study the lifetime prevalence of LBP was 79.3%, which is higher than that of other countries such as Australia and Canada, where the lifetime prevalence was reported as 65% and 58%, respectively (Walker et al., 2004, Vieira et al., 2006). The findings are comparable to those of other studies conducted in South Africa on the Coloured (76%) and Indian (78.2%) populations (Docrat, 1999). However, the prevalence is higher than that of the Black Africans (57.6%) residing in Chesterville, Durban, which is an urban area (Van der Meulen, 1997). In addition, the present study reports a lifetime prevalence which is higher than that of the White population, who reside in urban suburbs within South Africa (48%) (Dyer, 2012). The lifestyle between rural and urban areas differs in terms of occupation, access to health care, level of education and income. Individuals who reside in rural areas are generally poor, illiterate and have limited access to health care services which may compromise their

health status (Worku, 2000, Galukande et al., 2005) since higher income allows better access to health care services, good nutrition and clean water, all of which promote better health (Galukande et al., 2005). However, Docrat (1999) reported that Indian participants with access to health care services were more likely to report severe LBP since these individuals sought medical help. The Umdoni Municipality population are underprivileged with a low socioeconomic status and have limited access to health care services. Consequently, many will not seek medical assistance, when it is required which will then exacerbate the underlying condition.

The point prevalence refers to current low back pain that is being experienced by an individual (Galukande et al., 2005) and in the present study it was 32.5%. These results are comparable to other studies that were performed in South Africa, where the point prevalence of LBP was 34% amongst Whites and 35.8% amongst steel company workers (van Vuuren et al., 2007, Dyer, 2012). However, the point prevalence in the present study is slightly higher than that reported from international countries such as Canada (29%) and Turkey (20.1%) (Cassidy et al., 1998, Gilgil et al., 2005). Hence, different lifestyles in developing and developed countries have possibly affected the prevalence of LBP. These differences in lifestyles will be discussed further under risk factors.

The point prevalence of the present study is lower than that of the population of Thailand (49.1%) (Taechasubamorn et al., 2011). The latter study was performed on rice farmers and this high point prevalence was linked to these farmers being exposed to excessive bending, twisting and carrying heavy loads such as fertilizer bags (Taechasubamorn et al., 2011). In addition, when compared to Uganda (20%) which is also a developing country that is located in Africa, the point prevalence of the current study appears to be slightly higher (Galukande et al., 2005). One would have expected the prevalence of LBP to be higher in the Ugandian study as it was performed in a hospital setting where the participants had underlying medical conditions such as brucellosis, tuberculosis (TB), prolapsed intervertebral discs, fractures and degenerative changes of the spine which could be an indication of arthritis (Galukande et al., 2005). However, their employment characteristics varied; they comprised of office workers (14.3%), market vendors (17.1%), farmers (51%) and nurses (3.3%) and this may have affected the prevalence (Galukande et al., 2005).

Furthermore, the current study reports a point prevalence which is lower than that of Togo (47.91%) and Lesotho (58.49%) populations (Mijiyawa et al., 2000, Worku, 2000). This higher prevalence of LBP reported by Mijiyawa et al., (2000) could be due to the sample being drawn from a hospital setting, where participants had underlying conditions such as disk herniation, lumbar spinal stenosis, discitis (due to pyogenic or TB infection), tumour and

spondyloarthropathy (due to HIV). In addition, the latter study was conducted in a rural setting and the sample population comprised of women who were illiterate, poor and involved in intensive farming (Worku, 2000). Research shows that the female gender, poverty and illiteracy are highly associated with low back pain (Worku, 2000, Deyo et al., 2006, Hoy et al., 2010).

The difference in LBP prevalence of the present study compared to others could be due to the difference in lifestyles among the participants, since most of the participants in this study resided in rural areas and this is further discussed under risk factors.

5.4 Risk factors

The present study indicates that the prevalence of LBP is higher with increasing age. This is comparable to a South African study that was performed by van der Meulen (1997) where LBP prevalence was high among the individuals who were between the ages of 50-69 years. With increasing age, the spinal discs undergo degenerative changes such as osteophytes which may result in LBP (Paajanen et al., 1997). However, the current study differs from a study that was performed amongst Thai farmers, which reported no correlation between increasing age and LBP. The latter study revealed that the subjects who were between the ages of 25-34 years were more likely to report LBP than older subjects (Taechasubamorn et al., 2011). This was seen as a sign of the younger or new farmers not using proper techniques when farming due to lack of skills as opposed to older farmers (Taechasubamorn et al., 2011). Some studies report that LBP prevalence increases with increasing age, up to the age 60-65 years and then it declines (Hoy et al., 2010, Hoy et al., 2012, Mody and Brooks, 2012) . However, others report that LBP prevalence increases with age and does not decline at all (Hoy et al., 2014).

In the current study the mean BMI was 27.6 ± 5.63, with 38.8% of the subjects overweight and a further 25% obese. Furthermore, the prevalence of low back pain increased with an increasing BMI. The results are comparable to those of a previous study (Shiri et al., 2010). Obesity affects the biomechanics of the spine, which results in reduced range of motion as obesity causes limited movement in the pelvic and thoracic regions of the spine, which leads to the pelvis tilting more anteriorly, increased lumbar lordosis and static posture (Shiri et al., 2010). In addition, obesity places increased biomechanical strain on the spine which may cause friction on the articulating surfaces, resulting in wear and tear of the joints; and hence, LBP (Leboeuf-Yde et al., 2009).

In the current study there was no relationship between LBP versus employment status, income and education levels. This is probably due to the majority of the participants being either unemployed or retired. The income of the entire study population was generally very low and education levels were also low, with very few having any tertiary education. Previous studies have indicated that a low level of education and low income are associated with LBP (Deyo et al., 2006, Hoy et al., 2010). A higher level of education and level of income may be essential for providing knowledge of factors that may prevent LBP (Bener et al., 2014).

In the current study the prevalence of LBP was higher amongst females than males. In addition, more women performed chores than men and these chores included fetching water and firewood, washing clothes and cooking. This is corroborated by Worku (2000), who showed that the prevalence of LBP was high amongst Lesotho mothers. This could be related to women in African rural communities being expected to do all the domestic work which includes fetching water, firewood and taking care of the home (Worku, 2000). These women are also involved in intensive farming of crops for food; as well as carrying a heavy bag of grain on their backs to and from the market (Worku, 2000). Research shows that in Africa domestic load-carrying duty is seen as a low status activity and is usually performed by women and their children (Porter et al., 2012). The present study is also comparable to the studies that were performed by Docrat (1999) and van der Meulen (1997) in Durban, where the prevalence of LBP was higher in females. The latter study stated that the women were involved in domestic work, such as cooking, housekeeping and washing clothes (Docrat, 1999).

Furthermore, this study indicates that LBP risk increases in those women who underwent a Cesarean birth (C-section), those who had an epidural and those with a higher number of pregnancies. These findings are similar to the results of a study that was conducted in Iranian pregnant women. The latter study also associated LBP with a history of past pregnancy (Mohseni-Bandpei et al., 2009). In addition, 43.1% of Swedish, women reported continuous or recurrent LBP six months after delivery (Mogren, 2006). However, number of pregnancies, birth weight, gestational age and maternal height had no impact on the prevalence of LBP (Mogren, 2006). The current study is also comparable to a South African study which reported that having more than three children or increasing number of pregnancies results in an increase in the severity of LBP (Docrat, 1999).

During pregnancy, the intervertebral discs expel fluid in response to axial loading of the spine, which then results in compression of the vertebral column and decreased height (Sabino and Grauer, 2008). Furthermore, the abdominal muscles stretch to accommodate the growing uterus. This stretch results in poor body posture, resulting in strain in the lower back as it has

to support the increased weight of the abdomen (Sabino and Grauer, 2008). Pregnancy and the birth process affect the lower back by causing intra-pelvic movement during birth which results in sacroiliac joint lesions. These lesions are caused by excess ligament laxity, that is caused by changes in hormonal secretion, which further results in pain (Vleeming et al., 2012). An epidural is required during a C-section birth and sometimes natural birth to relieve pain (Louizos et al., 2004). However, an epidural may result in deconditioning of the pelvic floor or abdominal muscles which may cause dysfunction of the core muscles and predisposes the individual to LBP (Pereira, 2009, Eriksen et al., 2011).

The current study findings show that the risk for LBP increases in people who lift heavy objects. The results of the current study are comparable to a study that was conducted in the Netherlands which revealed that the risk of LBP increased in those who repeatedly lifted heavy objects (Hoogendoorn et al., 2000). Similarly, Turkish hospital staff and Korean primary care clinic workers who lifted heavy objects had a high prevalence of LBP (Karahan et al., 2009, Bener et al., 2014). In the South African Indian and Coloured populations the prevalence of LBP was high among people who were lifting heavy objects at work (Docrat, 1999). Heavy lifting affects the biomechanics of the spine, because the discs are subjected to repeated stress, pressure and strain. This predisposes discs to discogenic pain, especially in those individuals with existing disc degenerative changes (Docrat, 1999). This is supported by findings of previous studies which report that heavy lifting, flexion and rotation of the trunk are all risk factors for LBP (Hoogendoorn et al., 2002, Dunn and Croft, 2004, Karahan et al., 2009)

This study also shows a positive association between carrying water and the risk of LBP. Furthermore, most of the participants who fetched water, carried the container on the head or held it in the hand, as opposed to using a wheelbarrow or cart to transport the water. In developing countries, residents are struggling to access safe water and this exposes them to poor health (Geere et al., 2010). The same applies to the Umdoni Municipality population, where the majority of the individuals had no piped water and they had to fetch water from a river or common tap that was located within the area. In addition, most of these individuals had to walk a distance of at least three kilometers to fetch the water. Moreover, many carried up to 25 liters of water at any one point in time, with almost half carrying this load twice a day and some more frequently. Water carrying can be harmful to one's health and can result in musculoskeletal dysfunctions, including joint and spinal pain (Geere et al., 2010). When the body is physically loaded within normal capacity, the tissues becomes strengthened; however, excessive loading, that is beyond adaptive capacity may result in fatigue failure or damage and early degeneration of the bones, joints and soft tissues (Geere et al., 2010). Furthermore, carrying heavy water on the head has very serious effects on girls, due to their physical

immaturity they can be exposed to spinal deformity which may cause problems in future pregnancy and child birth (Porter et al., 2013).

The current study showed there was no correlation between physical activity and the prevalence of LBP. However, Pearson's chi square test showed that the participants, who walked, experienced more LBP compared to those involved in other physical activities. Those who walked long distances were walking to fetch water; hence, the association with LBP. As explained above, carrying water on the head affects the biomechanics of the spine as well as posture due to the heavy weight of the water (Geere et al., 2010, Porter et al., 2013).

Physical activity is beneficial in preventing or managing low back pain. However, excessive activity could be a high risk for LBP (Heneweer et al., 2009). Some international studies have reported that when physical exercise is done excessively it becomes a risk for chronic LBP but moderate physical activity, is beneficial (Heneweer et al., 2009). However, a Korean study reported that among other risk factors, regular exercise was highly associated with low back pain (Bener et al., 2014). However, the reason for this is unknown.

Low back pain is usually associated with a disturbed gait, as individuals with LBP tend to walk more slowly than pain free individuals. This has been suggested as a compensation or fear avoidance behavior to limit or avoid pain (Lamoth et al., 2006). Compared to healthy individuals, LBP sufferers seem to present with a different range of motions of the hip joint and this has been related to the changes in functioning of the hip extensor muscles and lumbar spine (Vogt et al., 2003).

In the current study arthritis and tuberculosis (TB) increased the risk for low back pain. Osteoarthritis of the knee is the most common type of arthritis and it affects individuals between the ages of 63 to 94 years. Osteoarthritis affects the joints of the body, mainly knee joints and causes degenerative changes of the joint. These include cartilage erosion, friction and synovial inflammation (Fernandes et al., 2002). This results in inflammatory pain, joint swelling and synovitis (Sellam and Berenbaum, 2010). Osteoarthritis of the knee results in individuals having difficulty in standing comfortably, walking or climbing stairs (Deyle et al., 2000). This affects the biomechanics of the spine, resulting in abnormal posture and hence LBP.

In 1% of cases, TB presents with involvement of the spine. This is known as Pott's disease which is the most dangerous type of TB infection. In some of these cases vertebral TB was associated with pulmonary TB (Bukhary and Alrajhi, 2004) . These results are comparable to a study that was performed in Turkey, where 23 participants were reported to have bone or joint TB; and 43.5% of these had vertebral TB (Ilgazli et al., 2004). In addition, the current study is comparable to a study that was performed by Mijiyawa et al., (2000), where some

participants with LBP presented with an underlying discitis due to pyogenic or TB infection. Furthermore, TB was also found in some of the participants who presented with LBP in the study that was performed in Uganda (Galukande et al., 2005). Vertebral TB involves multiple vertebral bodies and discs, which result in reduced range of motion and local tenderness in the spine; hence, LBP. In addition, if the vertebral TB affects the thoracic spine, its late stage may cause severe deformity of the spine, known as gibbus (De Backer et al., 2005). Furthermore, in some cases LBP is associated with a medical condition e.g. stroke, hip fracture, knee osteoarthritis, chronic obstructive pulmonary disease and heart disease (Guccione et al., 1994).

5.5 The impact of low back pain

The present study reported that the subjects who had low back pain were having difficulty mainly with bending and lifting. This is comparable to a study that was performed amongst South African occupational therapists, who reported that their LBP was most likely exacerbated by lifting (Pereira, 2009). In addition, Thai farmers reported that they were also having difficulty with forward bending and lifting. This was seen as an indication of some disc protrusion in their lumber spine (Taechasubamorn et al., 2011).The link between bending or twisting and LBP is due to the intradiscal pressure increasing during these activities, predisposing discs to injury such as herniation or degeneration (Wai et al., 2010a). Some studies report that lifting is usually associated with bending and twisting of the spine and that is why individuals with LBP often have problems with bending and lifting. Furthermore, when there is increased load on the spine, most of the load is carried by the lumbar region with a resultant possible injury to the vertebrae (Wai et al., 2010b).

The current study revealed that in some cases LBP resulted in some subjects having to stay away from work as they were bedridden. This is comparable to a study that was performed by van der Meulen (1997), which reported that some subjects have been absent from work at least for a week. Low back pain is known to have a high economic burden due to lack of productivity as a result of work absenteeism (Wai et al., 2010b). Moreover, due to absenteeism, many reported that they lost their jobs, resulting in a further economic burden to people from a low income community. In addition, LBP has an effect on health care services as the individuals with LBP seek help in an attempt to find the aetiology and treatment for their LBP (Wai et al., 2010b).

Chapter Six: Conclusion and Recommendations

6.1 Conclusion

The study reports of high prevalence of low back pain (LBP) in the Umdoni Municipality population. The life-time prevalence and point prevalence was 79.3% and 32.5%, respectively. More females suffered from low back pain as opposed to males. The main risk factors were age, BMI, gender, increased number of pregnancies, heavy lifting, fetching water, prolonged walking, arthritis and tuberculosis.

LBP caused many people to become bed- ridden and some even lost their jobs due to absenteeism as a result of the back pain. The majority of the subjects who were suffering from LBP received their medication from the government clinic. Some participants did not seek any medical help for LBP, they either did some self-treatment e.g. rubbing with an ointment/oil/Shembe Vaseline, applying heat or stretching or just rested until the LBP subsided.

6.2 Limitations

Participants for the study were recruited from the municipality clinic. Although these participants were in the waiting area for many other conditions, the sampling site may have resulted in a slightly higher prevalence of LBP than in the actual community. The study was also limited to a survey by means of a questionnaire.

6.3 Recommendations

Future surveys should be conducted in the community by random selection. Future studies can also determine the point prevalence of low back pain through a physical examination instead of using a questionnaire. Nevertheless, the high prevalence of LBP within this community, indicates that the necessity of incorporating chiropractic treatment as an option at the Umzinto Clinic as manual treatments offered by chiropractors are effective in the treatment of LBP.

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Appendices

Appendix A

Institutional Research Ethics Committee
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4 May 2017

IREC Reference Number: **REC 110/16**

Ms K P Khumalo
Corlo Court Residence
18 Heswall Road
Musgrave
Durban
4001

Dear Ms Khumalo

The prevalence of and associated risk factors for low back pain in medical outpatients of a selected Umdoni Municipality Primary Health Care Clinic

The Institutional Research Ethics Committee acknowledges receipt of your final data collection tool for review.

We are pleased to inform you that the questionnaire has been approved. Kindly ensure that participants used for the pilot study are not part of the main study.

In addition, the IREC acknowledges receipt of your gatekeeper permission letter.

Please note that FULL APPROVAL is granted to your research proposal. You may proceed with data collection.

Yours Sincerely,

[redacted]

Professor J K Adam
Chairperson: IREC

DUT DURBAN UNIVERSITY OF TECHNOLOGY
2017 -05- 04
INSITUTUTIONAL RESEARCH ETHICS COMMITTEE
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Appendix B

health
Department:
Health
PROVINCE OF KWAZULU-NATAL

330 Langalibalele street,
Private Bag X9051 PMB, 3200
Tel: 033 395 2805/3189/3123 Fax: 033 394 3782
Email: hrkm@kznhealth.gov.za
www.kznhealth.gov.za

DIRECTORATE:
Health Research & Knowledge Management (HKRM)

Reference: HRKM010/17
KZ_2017RP29_3

10 April 2017

Dear Ms K Khumalo
(Durban University of Technology)

Subject: Approval of a Research Proposal

1. The research proposal titled **'The prevalence of and associated risk factors for low back pain in medical outpatients of a selected Umdoni Municipality Primary Health Care Clinic'** was reviewed by the KwaZulu-Natal Department of Health (KZN-DoH).

   The proposal is hereby **approved** for research to be undertaken at Umzinto Clinic.

2. You are requested to take note of the following:
   a. Make the necessary arrangement with the identified facility before commencing with your research project.
   b. Provide an interim progress report and final report (electronic and hard copies) when your research is complete.

3. Your final report must be posted to **HEALTH RESEARCH AND KNOWLEDGE MANAGEMENT, 10-102, PRIVATE BAG X9051, PIETERMARITZBURG, 3200** and e-mail an electronic copy to hrkm@kznhealth.gov.za

For any additional information please contact Ms G Khumalo on 033-395 3189.

Yours Sincerely

[redacted]
Dr E Lutge
Chairperson, Health Research Committee
Date: 11/04/17

Fighting Disease, Fighting Poverty, Giving Hope

Appendix C

health
Department:
Health
PROVINCE OF KWAZULU-NATAL

Physical Address: Wright Lane, Park Rynie, 4182
Physical Address: Private Bag X5501, Scottburgh, 4180
Tel: 039 976 61670 Fax: 039 9761690 Email: lindi.ndelu@kznhealth.gov.za
www.kznhealth.gov.za

DIRECTORATE:
UGU NORTH HEALTH AREA
OFFICE

Enquiries : Ms L Ndelu

29 May 2017

To: Ms K Khumalo

PERMISSION TO CONDUCT RESEARCH IN UGU DISTRICT

Dear Ms Khumalo

I have pleasure in informing you that permission has been granted to you by UGU North Health Area Office to conduct your research at Umzinto Fixed clinic, under GJ Crookes hospital in Kwazulu-Natal.

Please note the following :-

a) Please ensure that you adhere to all the policies, procedures, protocols and guidelines of the Department of Health.

b) Please ensure that this Office is informed before you commence with your research.

c) The Sub District / Facility will not provide any resources for this research.

d) You will be expected to provide feedback on your findings to the Sub District.

Thank you

[redacted]
PHC MANAGER

Fighting Disease, Fighting Poverty, Giving Hope

Appendix D

Letter of information

Dear Sir/ Madam

I would like to welcome you into my study.

Study title: The prevalence of and associated risk factors for low back pain in medical outpatients of a selected Umdoni Municipality Primary Health Care Clinic.

Principal investigator: Miss K Khumalo
Contact details: 078 127 5845

Supervisor: Dr F Haffejee
Contact details: 031 373 2395

Brief Introduction to the Study:
We are conducting a study to find out how many people in this area suffer from lower back pain. We would like to find out what is causing lower back pain in this community.

Outline of procedure:
If you agree to take part in the study, your height and weight will be measured. You will also be asked to complete a questionnaire. The researcher will help you to fill it out if you need assistance.

Benefits:
This study will help us to understand the risk factors for lower back pain. This information can be used in future to educate people about how to prevent lower back pain and would therefore improve your future health.

Risks:

None related to the study.

Reasons why the participant may be withdrawn from the study:

Should you feel uncomfortable to be part of the study at any point you have a right to withdraw.

Remuneration:

You will receive no payment for participating in the study.

Costs of the Study:

There are no costs to you in participating in the study.

Confidentiality:

Your name will not be given to anybody and all information that you provide will be confidential. The signed letter of consent will be collected separately from the questionnaire which will not ask you for your name or any personal information.

Research-related Injury:

You will not be injured in any way if you participate in the study.

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

Please contact the researcher, Ms Khumalo (0781275845), my supervisor, Dr Haffejee (083 291 8796) or the Institutional Research Ethics Administrator on 031 373 2900. Complaints can be reported to the Director: Research and Postgraduate Support, Prof S Moyo on 031 373 2577 or moyos@dut.ac.za

Appendix E

Incwadi Yolwazi

Ngiyakwamukela kulolu phenyo

Isihloko sophenyo: Ubudlange nezici eziyingozi ezihambisanayo zobuhlungu beqolo kwiziguli zomtholampilo kahulumeni okhethiweyo kuMasipala woMdoni.

Umphenyi: Miss K Khumalo
Imininingwane yokuxhumana: 078 127 5845
Umphathi: Dr Haffejee
Imininingwane yokuxhumana: 031 373 2395

Isingeniso socwaningo kafushane
Senza ucwaningo ukuze sithole ukuthi bangakanani abantu kule ndawo abaphathwa iqolo. Singathanda ukuthola imbangela yokuphathwa iqolo kulo mphakathi.

Uhlaka lwenqubo yocwaningo
Uma uvuma ukubamba iqhaza kulolu cwaningo, kuzokalwa ubude nesisindo sakho. Uzophinde ucelwe ukugcwalisa /ukuphendula inhlolomibuzo. Umphenyi uzokusiza ukuphendula inhlolomibuzo uma udinga usizo.

Inzuzo:
Lolu cwaningo luzosisiza ukuthi sikwazi ukuqonda izimpawu ezikubeka engcupheni yokuphathwa iqolo. Lolu lwazi lungasetsheziswa esikhathini esizayo ukufundisa abantu ukuthi bangakuvikela kanjani ukuphathwa iqolo ukuze impilo ibengcono kusasa.

Ubungozi:
Abukho ubungozi obuphathelene nalolu phenyo.

Izizathu ezingenza umbambiqhaza ahoxiswe kulolu phenyo:

Uma ungalisayinanga ifomu lesi sivumelwano esicatshangisiswe noma ungayiphendulanga inhlolombuzo uzohoxiswa ophenyweni, kanti futhi uma uzizwa ungasakhululekile ukubamba iqhaza kulolu phenyo unelungelo lokuhoxa.

Umkomelol/umholo:

Alikho iholo noma umkomelo ozowamukela ngokubamba iqhaza kulolu phenyo.

Inani elikhokhwa umbambiqhaza wophenyo:

Akukho nani ozolikhokha ngokuba umbambiqhaza kulolu phenyo.

Ubumfihlo:

Igama lakho ngeke linikezelwe /lishiwo komunye umuntu, kanti futhi yonke imininingwane nolwazi olunikezele luzogcinwa luyimfihlo. Ifomu lesivumelwano esicatshangisisiwe elisayiniwe nenhlolomibuzo kuzoqoqwa futhi kugcinwe ngokwehlukana. Le nhlolomibuzo angeke ikubuze igama noma emiphi eminye imininingwane eqondene nesiqu sakho.

Ukulimala okuphathelene nocwaningo:

Angeke walimala nanganoma iyiphi indlela uma ubamba iqhaza kulolu cwaningo.

Abantu ongaxhumana nabo uma unenkinga noma imibuzo:

Uyacelwa ukuthi uxhumane nomphenyi, Nksz Khumalo (0781275845), umphathi wami, Dkt Haffejee (083 291 8796) noma umlawuli wezimiso zokuhle kucwaningo wesikhungo (031 373 2900). Izinkonondo zingadluliselwa futhi kumphathi/umqondisi: Wezocwaningo nesisekelo semfundo ephakeme, Solwazi S Moyo (031 373 2577/ moyos@dut.ac.za).

Appendix F

Participant consent

Statement of Agreement to Participate in the Research Study:

- I hereby confirm that I have been informed by the researcher, Khanyisile Khumalo, about the nature, conduct, benefits and risks of this study - Research Ethics Clearance Number: REC 120/16.
- I have also received, read and understood the above written information (Participant Letter of Information) regarding the study.
- I am aware that the results of the study, including personal details regarding my sex, age, date of birth, initials and diagnosis will be anonymously processed into a study report.
- In view of the requirements of research, I agree that the data collected during this study can be processed in a computerised system by the researcher.
- I may, at any stage, without prejudice, withdraw my consent and participation in the study.
- I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the study.
- I understand that significant new findings developed during the course of this research which may relate to my participation will be made available to me.

Full Name of Participant	**Date**	**Signature**

I, Khanyisile Khumalo herewith confirm that the above participant has been fully informed about the nature, conduct and risks of the above study.

Khanyisile Khumalo		
Full Name of Researcher	**Date**	**Signature**

_____	_____	_____
Full Name of Witness	**Date**	**Signature**

Appendix G

Ifomu lesivumelwano esicatshangisisiwe

Isitatimende semvumelwano yokuba umbambiqhaza kulolu cwaningo:

- Mina ngiyaqinisekisa ukuthi umphenyi ungazisile ngenkambo, uhlobo, izinzuzo kanye nobungozi balolu cwaningo- Inombolo yophenyo: REC 120/16.

- Incwadi yolwazi olumayelana no cwaningo ngiyitholile, ngayifunda futhi ngayiqondisisa.

- Ngiyaqonda ukuthi imiphumela yocwaningo, okubala imininingwane yami yobulili, iminyaka, usuku lokuzalwa, ama-inishiyali nokuthi ngiphethwe yini kuzosetshenzwa ngokungaziwa ukuze kwenziwe umbiko wocwaningo.

- Ngokubona izidingo zocwaningo, mina ngiyavuma ukuthi imininingwane yalolu cwaningo isetshenzwe ohlelweni lwekhompiyutha.

- Ngingakwazi, kunoma yisiphi isgaba ukuthi ngihoxise imvume nokubamba iqhaza kulolu cwaningo ngale kwengcindezi.

- Ngibe nethuba elanele lokubuza imibuzo futhi ngiyafunga ukuthi ngikulungele ubamba iqhaza kulolu cwaningo.

- Ngiyaqonda ukuthi lokho okusha, okubalulekile futhi okuthintana nokubamba kwami iqhaza ngenkathi kwenziwa lolu cwaningo ngizovumeleka ukukwazi.

Igama (eliphelele) lombambiqhaza	**Usuku**	**Isiginisha**

Mina, Khanyisile Khumalo ngiyaqinisekisa ukuthi lo mbambiqhaza ongenhla uchazeliwe ngohlobo, inkambo nobungozi balolu cwaningo.

Khanyisile Khumalo	_____	_____
Igama (Eliphelele) lomphenyi	**Usuku**	**Isiginisha**
_____	_____	_____
Igama (eliphelele) likafakazi	**Usuku**	**Isiginisha**

Appendix H

Post- focus group questionnaire

The prevalence of and associated risk factors for low back pain in medical outpatients of a selected Umdoni Municipality Health Care Clinic

(Please answer the following questions)

Questionnaire Number _____ Date of interview _____

A. Demographics

1. Age (years) _____

2. Gender

□1 Female □2 Male

3. Height (centimetres) _____

4. Weight (kilograms) _____

5. Race

□1 Black African □2 Coloured □3 Indian □4 White

□5 Other (specify) _____

6. Marital status

□1 Cohabiting □2 Divorced □3 Married □4 Separated □5 Single □6 Widowed

7. Highest level of education

□1 No formal education □2 Primary school □3 High school □4 Matriculated
□5 Tertiary □6 Other (specify) _____

8. Present occupational status

□1 Employed (full time) □2 Employed (part-time) □3 Self-employed □4 Housewife
□5 Retired □6 Student □7 Unemployed

9. If unemployed or retired, what occupation were you in for the longest period previously?

□1 Artisan □2 Driver □3 Educator □4 Farmer □5 Housewife □6 Managerial
□7 Nurse □8 Salesperson □9 Self-employed □10 Skilled worker
□11 Student □12 Unskilled worker □13 Other (specify) _____

10. What was the duration of the above occupation? (years) _____

11. If employed, what type of work do you do?

□1 Artisan □2 Driver □3 Educator □4 Farmer □5 Housewife □6 Managerial
□7 Nurse □8 Salesperson □9 Self-employed □10 Skilled worker
□11 Student □12 Unskilled worker □13 Other (specify) _____

12. For how long have you been in this occupation? (years) _____

13. Total household annual income

□1 R1-5000 □2 R5001-15000 □3 R150001-25000 □4 R25001-35000
□5 R35001-45000 □6 R45001-55000 □7 R55001-65000
□8 R65001-75000 □9 R75001-85000 □10 R85001-95000
□11 N/A

14. Do you have medical aid?

□1 Yes □0 No

15. Do you feel that you have sufficient access to health services?

□1 Yes □0 No

B. Risk factors

16. Number of children _____

17. Number of pregnancies _____

18. Did you have a C-section?

□1 Yes □0 No

19. If yes, how many? _____

20. Did you have an epidural?

□1 Yes □0 No

21. Does your occupation involve any of the following for long periods of time? (You may tick more than one block)

□1 Lifting heavy objects □2 Cause your body to vibrate □3 Driving
□4 Lying on your back □5 Sitting □6 Standing

22. Do you feel that your job makes you at risk to get low back pain?

□1 Yes □0 No

23. Do you smoke? (if no go to **Q26**)

□1 Yes □0 No

24. If yes, how many cigarettes do you smoke every day?

□1 1-5 □2 6-10 □3 11-15 □4 16-20 □5 21-30 □6 31-40 □7 >40 □8 N/A

25. For how long have you been smoking? (years)

□1 1-5 □2 6-10 □3 11-15 □4 16-20 □5 21-30 □6 >30

26. If you are a former smoker then how many cigarettes did you smoke in the past?

□1 1-5 □2 6-10 □3 11-15 □4 16-20 □5 21-30 □6 31-40 □7 >40 □8 N/A

27. How long ago did you quit? (years)

□1 1-5 □2 6-10 □3 11-15 □4 16-20 □5 21-30 □6 >30

28. For how long did you smoke? (years)

□1 1-5 □2 6-10 □3 11-15 □4 16-20 □5 21-30 □6 31-40
□7 >40

29. Do you presently have a cough?

□1 Yes □0 No

30. For how long have you had it?

□1 0-6 mnths □2 7 mnths-1 yr □3 >1 yr-2 yrs □4 >2 yrs-3 yrs □5 >3 yrs

31. Do you drink alcohol?

□1 Yes □2 No

32. How much do you drink? (units) _____ (per week)

33. Do you perform any chores at home?

□1 Yes □0 No

34. If yes, which of the chores do you perform? (You may tick more than one block)

□1 Cooking □2 Fetching firewood □3 Fetching water □4 Washing
□5 Other (specify) _____

35. Do you have piped water?

□1 Yes □0 No

36. Do you fetch water from a tap or river?

□1 Tap □2 River

37. How far is the tap/ river from your house?

□1 0-2km □2 3-5km □3 6-8km □4 9-11km □5 12-14km □6 >15km

38. Approximately how many litres of water do you carry?

□1 <5 □2 5-10 □3 11-15 □4 16-20 □5 21-25 □6 >25

39. How often do you fetch water in one day?

□1 Once a day □2 Twice a day □3 >Twice a day

40. How many times a week do you have to fetch water? _____

41. How do you carry/ transport the water back home?

□1 Bakkie/ Van □2 Cart □3 Held in hand □4 On head □5 Wheel barrow
□6 Other (specify) _____

42. Do you currently perform any exercise?

□1 Yes □0 No

43. What type of exercise do you do most of the time?

□1 Boxing □2 Dance □3 Karate □4 Netball □5 Running □6 Skipping
□7 Soccer □8 Walking □9 Weight training □10 Other (specify) _____

44. What is the total amount of time spent per day doing exercise/ sport

□1 <1 □2 1-3 □3 4-6 □4 7-9 □5 >10

45. Number of exercise sessions per week/combined if more than one sport is played.

_____ (hours)

46. If you played sport in the past, what sport or form of exercise did you do then?

□1 Boxing □2 Dance □3 Karate □4 Netball □5 Running □6 Skipping
□7 Soccer □8 Walking □9 Weight training □10 Other (specify) _____

47. For how long were you involved in the above sport/s in the past? (years)

□1 0-1 □2 >1-2 □3 >2-3 □4 >3-4 □5 >4-5 □6 >5 □7 N/A

48. Have you been diagnosed with any of the following? (You may tick more than one block)

□1 Arthritis □2 Depression □3 Diabetes Mellitus □4 HIV □5 Hypertension
□6 Meningitis □7 Tuberculosis □8 Other (specify) _____

49. Have you ever experienced low back pain?

□1 Yes □0 No

50. Have you ever experienced any of the following? (you may tick more than one block)

□1 Accident □2 Fall □3 Injury to low back □4 Surgery □5 N/A

51. How did your low back pain start?

_____

_____

C. Clinical

(Only participants with back pain are to answer this section)

52. What was your age when you first experienced low back pain? (years)

□1 0-10 □2 11-15 □3 16-20 □4 21-30 □5 31-40 □6 41-50

□7 51-60 □8 61-70 □9 71-80 □10 81-90 □11 >90

53. Do you presently have low back pain?

□1 Yes □0 No

54. How long have you had the current low back pain?

□1 0-1 mnth □2 >1-2 mnths □3 >2-3 mnths □4 >3-4 mnths □5 >4-5 mnths

□6 >5-10 mnths □7 11-15 mnths □8 16-20 mnths □9 >20 mnths

55. On a scale of 1-10, how would you rate your pain?

0	1	2	3	4	5	6	7	8	9	10
No pain	Least pain								Worst pain	

56. At what time of the day is the pain at its worst?

□1 Morning □2 Afternoon □3 Evening □4 Night

57. At what time of the day is the pain at its least?

□1 Morning □2 Afternoon □3 Evening □4 Night

58. How often do you experience low back pain?

□1 Every day □2 2-3 times a week □3 Once a week □4 Every second week
□5 Once a month □6 Ocassionally

59. How did your low back pain begin?

□1 Gradually without injury □2 Gradually after injury □3 Abruptly without injury
□4 Abruptly after injury

60. Progression of low back pain?

□1 Getting worse □2 Getting better □3 Staying the same

61. Do you experience any difficulty in doing any of the following things as a result of your low back pain? (you may tick more than one block)

□1 Bending □2 Dressing □3 Driving □4 Lifting □5 Sitting □6 Sleeping
□7 Standing □8 Walking □9 Other (specify) _____

62. Describe the impact of your low back pain to your daily life.

□1 Mild □2 Moderate □3 Severe □4 None

63. Have you ever had to stay away from work as a result of low back pain?

□1 Yes □0 No

64. If yes, for how long?

□1 0-1 day □2 2-3 days □3 4-5 days □4 5-6 days □5 7-8 days
□6 9-10 days □7 >10 days

65. Have there been more periods of absence from work due to your low back pain?

□1 Yes □0 No

66. If yes, how many? _____ (days)

67. Have you ever been bed-ridden because of low back pain?

□1 Yes □0 No

68. If yes, for how long? _____ (days)

69. Have you ever had to change your job due to low back pain?

□1 Yes □0 No

70. Have you ever lost your job due to low back pain?

□1 Yes □0 No

71. Were you ever treated for low back pain?

□1 Yes □0 No

72. If yes, how often were you treated?

□1 Every day □2 2-3 times a week □3 Once a week □4 Every second week
□5 Once a month □6 Ocassionally

73. Are you presently being treated for low back pain?

□1 Yes □0 No

74. If yes, how often are you being treated?

□1 Every day □2 2-3 times a week □3 Once a week □4 Every second week
□5 Once a month □6 Ocassionally

75. Where are/were you treated for low back pain?

□1 General practitioner □2 Herbalist □3 Inyanga □4 Isangoma □5 Pharmacist
□6 Prophet □7 State clinic □8 State hospital
□9 Chiropractic □10 Other (specify) _____

76. For how long have you been receiving treatment for low back pain now?

□1 <1 month □2 1-6 months □3 7-12 months □4 >1 year

77. For how long have you been treated for low back pain in the past?

□1 <1 month □2 1-6 months □3 7-12 months □4 >1 year

78. Which treatment helped or is helping you to get the most relief?

□1 General practitioner □2 Herbalist □3 Inyanga □4 Isangoma □5 Pharmacist
□6 Prophet □7 State clinic □8 State hospital
□9 Chiropractic □10 Other (specify) _____

79. Are you presently on any medication for low back pain?

□1 Yes □0 No

80. Who prescribed the medication?

□1 General practitioner □2 Herbalist □3 Inyanga □4 Isangoma □5 Pharmacist
□6 Prophet □7 State clinic □8 State hospital
□9 Other (specify) _____

81. Is your low back pain medication helpful?

□1 Yes □0 No

82. How much do you pay for the medication every month?

□1 R1-30 □2 R31-60 □3 R61-80 □4 R81-100 □5 >100 □6 No cost

83. Excluding the medication how much does your treatment cost you per month?

□1 R1-30 □2 R31-60 □3 R61-80 □4 R81-100 □5 R101-200
□6 >200 □7 No cost

84. Do you know what Chiropractic is?

□1 Yes □0 No

Thank you for participating in this study……..

Appendix I

Inhlolomibuzo emuva kocwaningo lokuhlola (amakhasi ayi-8)

Ubudlange nezici eziyingozi ezihambisanayo zobuhlungu beqolo kwiziguli zomtholampilo kahulumeni okhethiweyo kuMasipala woMdoni.

(Uyacelwa ukuthi uphendule le mibuzo elandelayo)

Inhlolomibuzo Nombolo _____ Usuku Lwengxoxo (_____ /_____ /_____)

A. Demografiksi

1. Iminyaka yakho _____
2. Ubulili

   □1 Owesilisa □2 Owesifazane

3. Ubude bakho (amasentimitha) _____
4. Isisindo sakho (amakhilogramu) _____
5. Uhlanga

   □1 IKhaladi □2 Indiya □3 Omhlophe □4 Um-Afrika
   □5 Okunye (cacisa) _____

6. Isimo sokushada
   □1 Abahlukene □2 Ohlukanisile □3 Okipitile □4 Ongashadile □5 Oshadile
   □6 Umfelokazi

7. Izinga lezemfundo
   □1 Akukho imfundo yasesikoleni □2 Isikole sebanga eliphansi □3 Isikole sebanga eliphezulu
   □4 Umatikuletsheni □5 Imfundo ephakeme □6 Okunye (cacisa)_____

8. Isimo sakho samanje ngokomsebenzi

□1 Uqashwe ngokugcwele □2 Uqashwe okwesikhashana □3 Uyazisebenza
□4 Ungumama onakekela ikhaya □5 Sowathatha umhlalaphansi
□6 Ungumfundi □7 Angisebenzi

9. Uma kuwukuthi awusebenzi noma sowathatha umhlalaphansi, hlobo luni lo msebenzi owalenza isikhathi eside phambilini?

□1 Ingcweti □2 Umshayeli □3 Uthisha □4 Umlimi □5 Umama onakekela ikhaya
□6 Umphathi □7 Umhlengikazi □8 Umdayisi □9 Ukuzisebenza
□10 Umsebenzi onekhono □11 Umfundi □12 Umsebenzi ongenakhono
□13 Okunye (cacisa) _____

10. Uwusebenze iminya emingaphi lo msebenzi ongenhla? _____

11. Uma kuwukuthi uyasebenza, hlobo luni lo msebenzi owenzayo?

□1 Ingcweti □2 Umshayeli □3 Uthisha □4 Umlimi □1 Umama onakekela ikhaya
□6 Umphathi □7 Umhlengikazi □8 Umdayisi □9 Ukuzisebenza
□10 Umsebenzi onekhono □11 Umfundi □12 Umsebenzi ongenakhono
□13 Okunye (cacisa) _____

12. Ususebenze iminyaka emingaphi lo msebenzi? _____

13. Isamba somholo sonyaka somhlolwa ngayedwana.

□1 R1-R5000 □2 R5001-R15000 □3 R150001-R25000 □4 R25001-R35000
□5 R35001-R45000 □6 R45001-R55000 □7 R55001-R65000
□8 R65001-R75000 □9 R75001-R85000 □10 R85001-R95000

14. Ingabe unayo i-medical aid?

□1 Yebo □0 Cha

15. Ingabe uzizwa unenkululeko eyanele ukufinyelela kwabezempilo?

□1 Yebo □0 Cha

B. Izici Eziyingozi

16. Inani lezingane zakho _____

17. Inani lokukhulelwa kwakho _____

18. Uke wabeletha ngomthungo/ukuhlinzwa?

□1 Yebo □0 Cha

19. Uma uphendule yebo ngenhla, kukangaki ubeletha ngomthungo? _____

20. Ingabe wake wajovwa nge ephidural uma uzobeletha?

□1 Yebo □0 Cha

21. Ingabe umsebenzi wakho uyenza ukuthi wenze lokhu okulandelayo isikhathi eside? (Ungakhetha okungaphezu kokubili)

□1 Ukuphakamisa okusindayo □2 Ukuma □3 Ukuhlala □4 Ukushayela
□5 Wenza umzimba wakho udlikizele □6 Ukulala ngomhlane

22. Ingabe unomuzwa wokuthi umsebenzi wakho ukubeka engozini yokuthi uphathwe iqolo?
□1 Yebo □0 Cha

23. Ingabe uyabhema (Uma uphendule cha, dlulela kumbuzo wama-26)?
□1 Yebo □0 Cha

24. Ubhema ogwayi abangaki ngosuku?

□1 1-5 □2 6-10 □3 11-15 □4 16-20 □5 21-30 □6 31-40 □7 >40 □8 Akufaneleki

25. Usubheme iminyaka emingaki?

□1 1-5 □2 6-10 □3 11-15 □4 16-20 □5 21-30 □6 >30

26. Uma kuwukuthi awusabhemi kodwa ububhema phambilini, ingabe ububhema ogwayi abangaki phambilini?

□1 1-5 □2 6-10 □3 11-15 □4 16-20 □5 21-30 □6 31-40 □7 >40
□8 Akufaneleki

27. Sekuyiminyaka emingaki wayeka ukubhema?

□1 1-5 □2 6-10 □3 11-15 □4 16-20 □5 21-30 □6 >30

28. Ubheme iminyaka emingaki ngaphambi kokuba uyeke?

□1 1-5 □2 6-10 □3 11-15 □4 16-20 □5 21-30 □6 31-40
□7 >40

29. Ingabe kuyimanje uyakhwehlela?

□1 Yebo □0 Cha

30. Sesisingakanani isikhathi ukhwehlela?

□1 0-6 izinyanga □2 7 izinyanga-1 unyaka □3 >1-2 iminyaka □4 >2-3 iminyaka
□5 >3 iminyaka □6Akufanelekile

31. Ingabe uyabuphuza utshwala?

□1 Yebo □0 Cha

32. Ingabe uphuza kangakanani _____(nge sonto)

33. Ingabe ukhona umsebenzi wasendlini owenzayo ekhaya?

□1 Yebo □0 Cha

34. Uma uphendule yebo ngenhla, iwona muphi umsebenzi wasendlini owenzayo? (ungakhetha okungaphezu kokukodwa)

□1 Ukuyokha amanzi □2 Ukuyotheza izinkuni □3 Ukupheka □4 Ukuwasha izingubo
□5 Okunye (cacisa) _____

35. Unawo umanzi ahambayo endlini?

□1 Yebo □0 Cha

36. Amanzi uwakha empompini noma emfuleni?

□1 Empompini □2 Emfuleni

37. Kuyibanga elingakanani ukusuka emfuleni/empompini uya kwakho noma ekhaya?

□1 0-2km □2 3-5km □3 6-8km □4 9-11km □5 12-14km □6 >15km

38. Ingabe uphatha amanzi alinganiselwa kumalitha amangaki?

□1 <5 □2 5-10 □3 11-15 □4 16-20 □5 21-25 □6 >25

39. Ingabe uwakha kangaki amanzi ngosuku?

□1 Kanye ngosuku □2 Kabili ngosuku □3 Ngaphezu kokubili ngosuku

40. Ingabe uwakha kangaki amanzi ngesonto? _____

41. Ingabe uwathutha/ uwathwala ngani amanzi uma uwayisa ekhaya?
□1 Ngebhala □2 Ngekhanda □3 Ngezandla □4 Ngenqola □5 Ngemoto/iveni
□6 Okunye (cacisa) _____

42. Ingabe njengamanje uyazivocavoca?

□1 Yebo □0 Cha

43. Iyiphi indlela ojwayele ukuzivocavoca ngayo?

□1 Ibhola lomjikiswano □2 Ibhola lomnqakiswano □3 Ingqathu □4 Isibhakela
□5 UKaradi □6 Ukudansa □7 Ukugijima □8 Ukuhamba
□9 Ukuqukula izinsimbi □10 Okunye (cacisa) _____

44. Lithini inani lamahora olichithayo ngosuku ekuzivocavoceni noma kwezemidlalo?

□1 <1 □2 1-3 □3 4-6 □4 7-9 □5 >10

45. Inani lokuzivocavoca ngesonto/ okuhlanganisiwe uma uzivocavoca ngezindlela eziningi ezahlukene _____

46. Uma uke wazibandakanya kwezemidlalo esikhathini esiphambilini. Hlobo luni lwezemidlalo/ ukuzivocavoca obowubambe iqhaza kulo?

□1 Ibhola lomjikiswano □2 Ibhola lomnqakiswano □3 Ingqathu □4 Isibhakela
□5 UKaradi □6 Ukudansa □7 Ukugijima □8 Ukuhamba
□9 Ukuqukula izinsimbi □10 Okunye (cacisa) _____

47. Mingaki iminyaka oyichithile phambilini kulolu hlobo lwemidlalo olungenhla?

□1 0-1 □2 >1-2 □3 >2-3 □4 >3-4 □5 >4-5 □6 >5 □7 Akufaneleki

48. Uke watholakala nanoma yikuphi kwalokhu okulandelayo (ungakhetha okungaphezu kokukodwa)? Isifo:?

□1 Sesandulela ngculazi □2 Semenenjayithisi □3 Sikashukela □4 Sofuba
□5 Sokuphakama komfutho wegazi □6 Sokuzizwa uphansi
□7 Sokuqaqamba kwamalunga □8 Okunye (cacisa) _____

49. Ingabe wake waphathwa yiqolo?

□1 Yebo □0 Cha

50. Uke waba nalokhu okulandelao? (Ungakhetha okungaphezu kokukodwa)

□1 Ukuba sengozini yemoto □2 Ukuhlinzwa □3 Ukulimala isingezansi/ isinqe
□4 Ukuwa □5 Akufaneleki

51. Ingabe baqala kanjani ubuhlungu bakho beqolo?

_____

_____

C. Okuphathelene nesigulo

(Lesi sigaba siphendulwa ophethwe iqolo kuphela)

52. Ingabe ubuneminyaka emingaki ngamhla uqala ukuphathwa iqolo?

□1 0-10 □2 11-15 □3 16-20 □4 21-30 □5 31-40 □6 41-50 □7 51-60
□8 61-70 □9 71-80 □10 81-90 □11 >90

53. Ingabe iqolo likuphethe kulo mzuzu?

□1 Yebo □0 Cha

54. Selikuphathe isikhathi eside kangakanani iqolo?

□1 0-1 inyanga □2 >1-2 izinyanga □3 >2-3 izinyanga □4 >3-4 izinyanga
□5 >4-5 izinyanga □6 >5-10 izinyanga □7 11-15 izinyanga □8 16-20 izinyanga
□9 >20 izinyanga

55. Esikalweni esisuka ku-1 siye kwi-10, ungabulinganisela kuphi ubuhlungu beqolo lakho?

0	1	2	3	4	5	6	7	8	9	10
Akunabuhlungu	Kubuhlungwana								Kubuhlungu kakhulu	

56. Yingasiphi isikhathi sosuku lapho izinhlungu zinzima kakhulu khona?

□1 Ekuseni □2 Ntambama □3 Kusihlwa □4 Ebusuku

57. Yingasiphi isikhathi sosuku lapho izinhlungu zingcono khona?

□1 Ekuseni □2 Ntambama □3 Kusihlwa □4 Ebusuku

58. Kukaningi kangakanani lapho uzwa khona ubuhlungu beqolo?

□1 Nsukuzonke □2 Izinsuku ezi-2 kuya kwe-3 ngesonto □3 Kanye ngesonto
□4 Kanye emasontweni amabili □5 Kanye ngenyanga □6 Nje

59. Baqala kanjani ubuhlungu beqolo lakho?

□1 Kancane kancane ngaphandle kokulimala □2 Kancane kancane emuva kokulimala
□3 Isigubhukane ngaphandle kokulimala □4 Isigubhukane emuva kokulimala

60. Ingabe izinga lobuhlungu beqolo lakho liyashintsha?
□1 Liyenyukela □2 Libancono □3 Alishintshi

61. Ingabe uhlangabezana nobunzima ekwenzeni okunye kwalokhu okulandelayo ngenxa yobuhlungu beqolo lakho? (Ungakhetha Okungaphezu kokukodwa)

□1 Ukugoba □2 Ukugqoka □3 Ukuhamba □4 Ukuhlala □5 Ukulala
□6 Ukuma □7 Ukuphatha □8Ukushayela □9 Okunye (cacisa) _____

62. Chaza umthelela wobuhlungu beqolo lakho empilweni yakho yansukuzonke

□1 Buthambile □2 Abudlulele □3Bedlulele □4 Abunamthelela

63. Ingabe uke waphutha emsebenzini ngenxa yobuhlungu beqolo lakho?

□1 Yebo □0 Cha

64. Uma uphendule yebo ngenhla, isikhathi esingakanani owasiphutha?

□1 0-1 iviki □2 >1-2 amaviki □3 >2-3 amaviki □4 >3-4 amaviki □5 >4 amaviki

65. Ingabe sekuke kwaba khona izikhathi eziningana lapho ungaphumelelanga khona ukuya emsebenzini?

□1 Yebo □0 Cha

66. Uma uphendule yebo ngenhla, kukangaki? _____ (izinsuku)

67. Ingabe uke walala phansi ngenxa yobuhlungu beqolo?

□1 Yebo □0 Cha

68. Uma uphendule yebo ngenhla, isikhathi esingakanani? _____ (izinsuku)

69. Kwake kwadingeka ukuba uze ushintshe umsebenzi wakho ngenxa yobuhlungu beqolo?

□1 Yebo □0 Cha

70. Wake wazithola usulahlekelwe wumsebenzi wakho ngenxa yokuphathwa iqolo?

□1 Yebo □0 Cha

71. Wake walashelwa ukuphathwa iqolo?

□1 Yebo □0 Cha

72. Uma uphendule yebo, ingabe wawulashwa kangaki?

□1 Nsukuzonke □2 Izinsuku ezi-2 kuya kwe-3 ngesonto □3 Kanye ngesonto
□4 Kanye emasontweni amabili □5 Kanye ngenyanga □6 Nje

73. Ingabe uyelashelwa ubuhlungu beqolo njengamanje?

□1 Yebo □0 Cha

74. Uma uphendule yebo, ingabe ulashwa kangaki?

□1 Nsukuzonke □2 Izinsuku ezi-2 kuya kwe-3 ngesonto □3 Kanye ngesonto
□4 Kanye emasontweni amabili □5 Kanye ngenyanga □6 Nje

75. Ingabe ulashwa/ welashwa kuphi/ ubani?

□1 Udokotela □2 Isazi makhambi □3 Inyanga □4 Isangoma □5 Usokhemisi
□6 Umthandazi □7 Umtholampilo kahulumeni □8 Isibhedlela sikahulumeni
□9Udokotela wamakhambi/iKhayiropraktha □10 Okunye (cacisa)
_____

76. Sekuyisikhathi esingakanani uthola imithi yobuhlungu beqolo?

□1 <1 inyanga □2 1-6 izinyanga □3 7-12 izinyanga □4 >1 unyaka

77. Ingabe sekube yisikhathi esingakanani welashelwa ubuhlungu beqolo?

□1 <1 inyanga □2 1-6 izinyanga □3 7-12 izinyanga □4 >1 unyaka

78. Yikuphi ukwelashwa okukusiza/ okwakusiza kakhulu ukudambisa izinhlungu?

□1 Udokotela □2 Isazi makhambi □3 Inyanga □4 Isangoma □5 Usokhemisi
□6 Umthandazi □7 Umtholampilo kahulumeni □8 Isibhedlela sikahulumeni
□9Udokotela wamakhambi/iKhayiropraktha □10 Okunye (cacisa)
_____

79. Ingabe ikhona imithi oyisebenzisayo njengamanje ukulapha ubuhlungu beqolo?

□1 Yebo □0 Cha

80. Ubani okukhethile/okunikeze le mithi?

□1 Udokotela □2 Isibhedlela sikahulumeni □3 Ikhemisi □4 Isangoma
□5 Inyanga □6 Umthandazi □7 Isazi samakhambi
□8 Okunye (cacisa) _____

81. Ingabe imithi yokwelapha ubuhlungu beqolo oyisebenzisayo iyakusiza na?

□1 Yebo □0 Cha

82. Imalini oyikhokhela le mithi nyanga zonke?

□1 R1-30 □2 R31-60 □3 R61-80 □4 R81-100 □5 >100 □6 Iwumahhala

83. Ngaphandle kokuhlanganisa nemithi kuba yimalini ukwelashwa kwakho ngenyanga?

□1 R1-30 □2 R31-60 □3 R61-80 □4 R81-100 □5 R101-200
□6 >200 □7 Iwumahhala

84. Ingabe uyazi ukuthi iyini iKhayiroprakthikhi?

□1 Yebo □0 Cha

Siyabonga ngokubamba iqhaza kulolu cwaningo……

Appendix J

Pre-focus group questionnaire (6 pages)

The prevalence of and associated risk factors for low back pain in medical outpatients of a selected Umdoni Municipality Primary Health Care Clinic

BACKGROUND INFORMATION

IDENTIFYING INFORMATION

Questionnaire Number _____

Date of interview (_____ /_____ /_____)

A. Demographics

(Tick the appropriate box)

1. How old are you? (years). _____
2. Gender

☐$_1$ Male ☐$_2$ Female

3. Height (centimetres) _____
4. Weight (kilograms) _____
5. Race

☐$_1$ African ☐$_2$ Coloured ☐$_3$ Indian ☐$_4$ White

6. Marital Status

☐$_1$ Married ☐$_2$ Single ☐$_3$ Divorced ☐$_4$ Separated ☐$_5$ Widowed

☐$_6$ Cohabiting

7. Number of children

☐ Number of children

8. Number of pregnancies

☐$_1$ 0 ☐$_2$ 1 ☐$_3$ 2 ☐$_4$ 3 ☐$_5$ 4 ☐$_6$ 5 ☐$_7$ 6

☐$_8$ 7 ☐$_9$ 8 ☐$_{10}$ 9 ☐$_{11}$ 10 ☐$_{12}$ >10 ☐$_{13}$ N/A

9. Highest level of education

☐$_1$ Primary school ☐$_2$ High school ☐$_3$ Matriculated

☐$_4$ No formal education ☐$_5$ Tertiary ☐$_6$ Other

10. Present occupational status

☐$_1$ Self-employed ☐$_2$ Retired ☐$_3$ Employed (full time) ☐$_4$ Student

☐$_5$ Unemployed ☐$_6$ Housewife ☐$_7$ Employed (part-time) ☐$_8$ Other

11. If unemployed or retired, what occupation were you in for the longest period previously?

☐$_1$ Artisan ☐$_2$ Driver ☐$_3$ Educator ☐$_4$ Farmer ☐$_5$ Housewife

☐$_6$ Managerial ☐$_7$ Nurse ☐$_8$ Salesman/woman ☐$_9$ Self-employed

☐$_{10}$ Skilled worker ☐$_{11}$ Student ☐$_{12}$ Unskilled worker ☐$_{13}$ N/A

12. What was the duration of the above occupation? (years) _____

13. If employed, what type of work do you do?

☐$_1$ Artisan ☐$_2$ Driver ☐$_3$ Educator ☐$_4$ Farmer ☐$_5$ Housewife

☐$_6$ Managerial ☐$_7$ Nurse ☐$_8$ Salesman/woman ☐$_9$ Self-employed

☐$_{10}$ Skilled worker ☐$_{11}$ Student ☐$_{12}$ Unskilled worker ☐$_{13}$ N/A

14. For how long have you been in this occupation? _____

15. Does your occupation involve any of the following? (You may tick more than one block)

☐$_1$ Lifting heavy objects ☐$_1$ Standing for long periods

☐$_1$ Sitting for long periods ☐$_1$ Driving for long periods

☐$_1$ Causes your body to vibrate ☐$_1$ Lying on your back for long periods

16. Do you feel that your job makes you vulnerable in any way to get low back pain?

☐$_1$ Yes ☐$_2$ No

17. Total annual income of interviewee alone.

☐$_1$ R1-R5000 ☐$_2$ R5001-R15000 ☐$_3$ R150001-R25000 ☐$_4$ R25001-R35000

☐$_5$ R35001-R45000 ☐$_6$ R45001-R55000 ☐$_7$ R55001-R65000

☐$_8$ R65001-R75000 ☐$_9$ R75001-R85000 ☐$_{10}$ R85001-R95000

B. Risk factors

18. Do you smoke?

☐$_1$ Yes ☐$_2$ No

19. How many cigarettes do you smoke every day?

☐$_1$ 1-5 ☐$_2$ 6-10 ☐$_3$ 11-15 ☐$_4$ 16-20

☐$_5$ 21-30 ☐$_6$ 31-40 ☐$_7$ >40 ☐$_8$ N/A

20. For how long have you been smoking (years)?

☐$_1$ 1-5 ☐$_2$ 6-10 ☐$_3$ 11-15 ☐$_4$ 16-20 ☐$_5$ 21-30 ☐$_6$ >30

21. If you presently do not smoke but was a former smoker then how many cigarettes did you smoke in the past?

☐$_1$ 1-5 ☐$_2$ 6-10 ☐$_3$ 11-15 ☐$_4$ 16-20

☐$_5$ 21-30 ☐$_6$ 31-40 ☐$_7$ >40 ☐$_8$ N/A

22. How long ago did you quit (years)?

☐$_1$ 1-5 ☐$_2$ 6-10 ☐$_3$ 11-15 ☐$_4$ 16-20 ☐$_5$ 21-30 ☐$_6$ >30

23. For how long did you smoke before you quit (years)?

☐$_1$ 1-5 ☐$_2$ 6-10 ☐$_3$ 11-15 ☐$_4$ 16-20

☐$_5$ 21-30 ☐$_6$ 31-40 ☐$_7$ >40 ☐$_8$ N/A

24. Do you presently have a cough?

☐$_1$ Yes ☐$_2$ No

25. For how long have you had it?

☐$_1$ 0-6 mnths ☐$_2$ 7mnths-1yr ☐$_3$ >1yr-2yrs

☐$_4$ >2yrs-3yrs ☐$_5$ >3yrs ☐$_6$ N/A

26. Do you drink alcohol?

☐$_1$ Yes ☐$_2$ No

27. If yes please specify your consumption _____ (per week)

28. Do you perform any chores in house?

☐1 Yes ☐2 No

29. Which of the chores you perform the most? (You may tick more than one box)

☐1 Fetching water ☐2 Fetching firewood ☐3 Cooking ☐4 Washing
☐5 Other

30. Do you have piped water?

☐1 Yes ☐2 No

31. Do you fetch water from a tap/ river?

☐1 Yes ☐2 No

32. Approximately how many litres of water do you carry?

☐1 <5 ☐2 5-10 ☐3 11-15 ☐4 16-20 ☐5 21-25 ☐6 >25
☐7 N/A

33. How often do you fetch the water in one day?

☐1 Once a day ☐2 Twice a day ☐3 >Twice a day ☐4 N/A

34. How many times a week do you have to fetch water?

☐1 1 X a week ☐2 2 X a week ☐3 3 X a week ☐4 4 X a week
☐5 5 X a week ☐6 6 X a week ☐7 7 X a week

35. Do you do any exercise?

☐$_1$ Yes ☐$_2$ No

36. What type of exercise do you do most of the time?

☐$_1$ Karate ☐$_1$ Netball ☐$_1$ Other ☐$_1$ Running
☐$_1$ Soccer ☐$_1$ Walking ☐$_1$ Weight training

37. Number of exercise sessions per week/combined if more than one sport is played.

☐$_1$ 1 ☐$_2$ 2 ☐$_3$ 3 ☐$_4$ 4 ☐$_5$ 5 ☐$_6$ 6 ☐$_7$ 7 ☐$_8$ >7
☐$_9$ N/A

38. What is the total amount of time spent per day doing exercise/ sport (hours)?

☐ <1 ☐ 1-3 ☐ 4-6 ☐ 7-9 ☐ >10 ☐ N/A

39. If you played sport in the past, what sport/s or form of exercise did you do then?

☐ Running ☐ Soccer ☐ Weight training ☐ Netball
☐ Walking ☐ Karate ☐ Other

40. For how long were you involved in the above sport/s in the past (years)?

☐$_1$ 0-1 ☐$_2$ >1-2 ☐$_3$ >2-3 ☐$_4$ >3-4 ☐$_5$ >4-5 ☐$_6$ >5 ☐$_7$ N/A

41. Have you been diagnosed with any of the following? (You may tick more than one)

☐$_1$ Arthritis ☐$_2$ Depression ☐$_3$ Diabetes Mellitus ☐$_4$ HIV
☐$_5$ Hypertension ☐$_6$ Tuberculosis ☐$_7$ Other ☐$_8$ N/A

42. Do you have medical aid?

☐1 Yes ☐2 No

43. Do you feel that you have sufficient access to health services?

☐1 Yes ☐2 No

44. Have you ever experienced low back pain?

☐1 Yes ☐2 No

C. Clinical

(Only participants with back pain are to answer this section)

45. What was your age when you first experienced low back pain (years)?

☐1 0-10 ☐2 11-15 ☐3 16-20 ☐4 21-30 ☐5 31-40 ☐6 41-50

☐7 51-60 ☐8 61-70 ☐9 71-80 ☐10 81-90 ☐11 >90

46. Do you presently have low back pain?

☐1 Yes ☐2 No

47. How long have you had the current low back pain?

☐ 0-1 month ☐ >1-2 months ☐ >2-3 months ☐ >3-4 months
☐ >4-5 months ☐ >5-10 months ☐ 11-15 months ☐ 16-20 months
☐ >20 months

48. How severe is the pain?

☐1 Mild ☐2 Moderate ☐3 Severe

49. At what time of the day is the pain at its worst?

☐$_1$ Morning ☐$_2$ Afternoon ☐$_3$ Evening ☐$_4$ Night

50. At what time of the day is the pain at its least?

☐$_1$ Morning ☐$_2$ Afternoon ☐$_3$ Evening ☐$_4$ Night

51. How often do you experience low back pain?

☐$_1$ Seldom ☐$_2$ Frequently ☐$_3$ Constantly ☐$_4$ Intermittently

52. How did your low back pain begin?

☐$_1$ Gradually without injury ☐$_2$ Gradually after injury ☐$_3$ Abruptly without injury
☐$_4$ Abruptly after injury

53. Progression of low back pain?

☐$_1$ Getting worse ☐$_2$ Getting better ☐$_3$ Staying the same

54. Do you experience any difficulty in doing any of the following things as a result of you low back pain? (You may tick more than one)

☐$_1$ Dressing ☐$_1$ Bending ☐$_1$ Walking ☐$_1$ Lifting ☐$_1$ Sitting
☐$_1$ Driving ☐$_1$ Standing ☐$_1$ Sleeping

55. How would you rate your overall disability as a result of your low back pain?

☐$_1$ Mild ☐$_2$ Moderate ☐$_3$ Severe

56. Have you ever had to stay away from work as a result of low back pain?

☐$_1$ Yes ☐$_2$ No

57. For how long?

☐1 0-1 week ☐2 >1-2 weeks ☐3 >2-3 weeks ☐4 >3-4 weeks
☐5 >4 weeks

58. Have you ever been bed ridden because of low back pain?

☐1 Yes ☐2 No

59. For how long?

☐1 0-1 week ☐2 >1-2 weeks ☐3 >2-3 weeks ☐4 >3-4 weeks
☐5 >4 weeks

60. Have you ever had to change your job due to low back pain?

☐1 Yes ☐2 No

61. Have you ever lost your job due to low back pain?

☐1 Yes ☐2 No

62. Were you ever treated for low back pain?

☐1 Yes ☐2 No

63. Are you presently being treated for low back pain?

☐1 Yes ☐2 No

64. Where are/were you treated for low back pain?

☐1 General practitioner ☐1 Herbalist ☐1 Inyanga ☐1 Isangoma

☐ 1 Pharmacist ☐ 1 Prophet ☐ 1 State clinic
☐ 1 State Hospital ☐ 1 Other

65. For how long have you been receiving treatment for low back pain now?

☐ 1 <1 mnth ☐ 2 1-6 mnth ☐ 3 7-12 mnths ☐ 4 >1 year

66. For how long have you been treated for low back pain in the past?

☐ 1 <1 mnth ☐ 2 1-6 mnth ☐ 3 7-12 mnths ☐ 4 >1 year

67. Which treatment helped or is helping you to get the most amount of relief?

☐ 1 General practitioner ☐ 1 Herbalist ☐ 1 Inyanga ☐ 1 Isangoma
☐ 1 Pharmacist ☐ 1 Prophet ☐ 1 State clinic
☐ 1 State Hospital ☐ 1 Other

68. Are you presently on any medication for low back pain?

☐ 1 Yes ☐ 2 No

69. Who prescribed the medicine?

☐ 1 General practitioner ☐ 1 Herbalist ☐ 1 Inyanga ☐ 1 Isangoma
☐ 1 Pharmacist ☐ 1 Prophet ☐ 1 State clinic
☐ 1 State Hospital ☐ 1 Other

70. Does the medication you receive for low back pain help?

☐ 1 Yes ☐ 2 No

71. How much do you pay for the medication every month?

☐$_1$ R1-R30 ☐$_2$ R31-R60 ☐$_3$ R61-R80 ☐$_4$ R81-R100 ☐$_5$ >R100

72. Excluding the medication how much does your treatment cost you per month?

☐$_1$ R1-R30 ☐$_2$ R31-R60 ☐$_3$ R61-R80 ☐$_4$ R81-R100 ☐$_5$ R101-R200

☐$_6$ >R200

Appendix K

Inhlolomibuzo ekhodiwe (amakhasi ayi-6)

Ubudlange nezici eziyingozi ezihambisanayo zobuhlungu beqolo kwiziguli zomtholampilo kahulumeni okhethiweyo kuMasipala woMdoni.

ISENDLALELA MNININGWANE

IZIMPAWU ZOLWAZI

(Faka uphawu ebhokisini elifanele)

Inhlolomibuzo Nombolo _____

Usuku Lwengxoxo (_____ /_____ /_____)

A. Demografiksi

1. Uneminyaka emingaki? _____

2. Ubulili

☐$_1$ Owesilisa ☐$_2$ Owesifazane

3. Ubude bakho (amasentimitha) _____

4. Isisindo sakho (amakhilogramu) _____

5. Uhlanga

☐$_1$ IKhaladi ☐$_2$ Indiya ☐$_3$ Omhlophe ☐$_4$ OmhlopheUm-Afrika

6. Isimo sokushada

☐$_1$ Abahlukene ☐$_2$ Ohlukanisile ☐$_3$ Okipitile ☐$_4$ Ongashadile
☐$_5$ Oshadile ☐$_6$ Umfelokazi

7. Unezingane ezingaki?

☐

8. Usikhululelwe kangaphi?

☐$_1$ 1 ☐$_2$ 2 ☐$_3$ 3 ☐$_4$ 4 ☐$_5$ 5 ☐$_6$ 6 ☐$_7$ 7
☐$_8$ 8 ☐$_9$ 9 ☐$_{10}$ 10 ☐$_{11}$ >10 ☐$_{12}$ Akufaneleki

9. Izinga lezemfundo

☐$_1$ Akukho imfundo yasesikoleni ☐$_2$ Imfundo ephakeme ☐$_3$ Isikole sebanga eliphansi
☐$_4$ Isikole sebanga eliphezulu ☐$_5$ Okunye ☐$_6$ Umatikuletsheni

10. Isimo somsebenzi

☐$_1$ Ngiyazisebenza ☐$_2$ Sengathatha umhlalaphansi ☐$_3$ Ngiqashiwe ngokugcwele
☐$_4$ Angisebenzi ☐$_5$ Ngingumama wekhaya ☐$_6$ Ngiqashiwe okwesikhashana
☐$_7$ Ngingumfundi ☐$_8$ Okunye

11. Uma kuwukuthi awusebenzi noma sowathatha umhlalaphansi, hlobo luni lo msebenzi owalenza isikhathi eside phambilini?

☐$_1$ Umshayeli ☐$_2$ Ukuzisebenza ☐$_3$ Ingcweti ☐$_4$ Umlimi
☐$_5$ Umsebenzi ongenakhono ☐$_6$ Umama wekhaya ☐$_7$ Umdayisi
☐$_8$ Umphathi ☐$_9$ Umhlengikazi ☐$_{10}$ Umsebenzi onekhono
☐$_{11}$ Umfundi ☐$_{12}$ Uthisha ☐$_{13}$ Akufaneleki

12. Uwusebenze iminya emingaphi lo msebenzi ongenhla? _____

13. Uma kuwukuthi uyasebenza, hlobo luni lo msebenzi owenzayo?

☐$_1$ Umshayeli ☐$_2$ Ukuzisebenza ☐$_3$ Ingcweti ☐$_4$ Umlimi
☐$_5$ Umsebenzi ongenakhono ☐$_6$ Umama wekhaya ☐$_7$ Umdayisi

☐$_8$ Umphathi ☐$_9$ Umhlengikazi ☐$_{10}$ Umsebenzi onekhono

☐$_{11}$ Umfundi ☐$_{12}$ Uthisha ☐$_{13}$ Akufaneleki

14. Ususebenze iminyaka emingaphi lo msebenzi? _____

15. Ingabe umsebenzi wakho uyenza ukuthi wenze lokhu okulandelayo?

☐$_1$ Ukuphakamisa okusindayo ☐$_1$ Ukuma isikhathi eside ☐$_1$ Ukuhlala isikhathi eside ☐$_1$ Ukushayela isikhathi eside ☐$_1$ Wenza umzimba wakho udlikizele

☐$_1$ Ukulala ngomhlane isikhathi eside

16. Ingabe unomuzwa wokuthi umsebenzi wakho ukubeka engozini yokuthi uphathwe iqolo?

☐$_1$ Yebo ☐$_2$ Cha

17. Isamba somholo sonyaka somhlolwa ngayedwana.

☐$_1$ R1-R5000 ☐$_2$ R5001-R15000 ☐$_3$ R150001-R25000 ☐$_4$ R25001-R35000

☐$_5$ R35001-R45000 ☐$_6$ R45001-R55000 ☐$_7$ R55001-R65000

☐$_8$ R65001-R75000 ☐$_9$ R75001-R85000 ☐$_{10}$ R85001-R95000

B. Izici Eziyingozi

18. Ingabe uyabhema?

☐$_1$ Yebo ☐$_2$ Cha

19. Ubhema kangakaki ngosuku?

☐$_1$ 1-5 ☐$_2$ 6-10 ☐$_3$ 11-15 ☐$_4$ 16-20

☐$_5$ 21-30 ☐$_6$ 31-40 ☐$_7$ >40 ☐$_8$ Akufaneleki

20. Usubheme iminyaka emingaki?

☐$_1$ 1-5 ☐$_2$ 6-10 ☐$_3$ 11-15 ☐$_4$ 16-20 ☐$_5$ 21-30 ☐$_6$ >30

21. Uma ububhema phambilini kepha manje awusabhemi, Ingabe ububhema kangaki phambilini?

☐$_1$ 1-5 ☐$_2$ 6-10 ☐$_3$ 11-15 ☐$_4$ 16-20

☐$_5$ 21-30 ☐$_6$ 31-40 ☐$_7$ >40 ☐$_8$ Akufaneleki

22. Sekuyiminyaka emingaki wayeka ukubhema?

☐$_1$ 1-5 ☐$_2$ 6-10 ☐$_3$ 11-15 ☐$_4$ 16-20 ☐$_5$ 21-30 ☐$_6$ >30

23. Ubheme iminyaka emingaki ngaphambi kokuba uyeke?

☐$_1$ 1-5 ☐$_2$ 6-10 ☐$_3$ 11-15 ☐$_4$ 16-20

☐$_5$ 21-30 ☐$_6$ 31-40 ☐$_7$ >40 ☐$_8$ Akufaneleki

24. Ingabe kumanje uyakhwehlela?

☐$_1$ Yebo ☐$_2$ Cha

25. Sesisingakanani isikhathi ukhwehlela?

☐$_1$ 0-6 izinyanga ☐$_2$ 7 izinyanga-1 unyaka ☐$_3$ >1-2 iminyaka
☐$_4$ >2-3 iminyaka ☐$_5$ >3 iminyaka ☐$_6$ Akufanelekile

26. Ingabe uyabuphuza utshwala?

☐$_1$ Yebo ☐$_2$ Cha

27. Uma uphendule “Yebo” ngenhla uyacelwa ukuba ucacise inani lokusetshenziswa kotshwala _____ (nge sonto)

28. Ingabe ukhona umsebenzi wasendlini owenzayo?

☐$_1$ Yebo ☐$_2$ Cha

29. Iwona muphi umsebenzi wasendlini owenza kakhulu?

☐$_1$ Ukuyokha amanzi ☐$_2$ Ukuyotheza ☐$_3$ Ukupheka ☐$_4$ Ukuwasha izingubo ☐$_5$ Okunye

30. Unawo umanzi ahambayo endlini?

☐$_1$ Yebo ☐$_2$ Cha

31. Amanzi uwakha emfuleni/ empompini?

☐$_1$ Yebo ☐$_2$ Cha

32. Uma ungalinganisa uphatha amanzi amangakanani ngokwamalitha

☐$_1$ <5 ☐$_2$ 5-10 ☐$_3$ 11-15 ☐$_4$ 16-20 ☐$_5$ 21-25 ☐$_6$ >25

☐$_7$ Akufaneleki

33. Ingabe uwakha kangaphi ngesonto amanzi?

☐$_1$ Kanye ngesonto ☐$_2$ Kabili ngesonto ☐$_3$ Kathathu ngesonto ☐$_4$ Kane ngesonto ☐$_5$ Kahlanu ngesonto ☐$_6$ Kasithupha ngesonto ☐$_7$ Kasikhombisa ngesonto

34. Ingabe uyazivocavoca?

☐$_1$ Yebo ☐$_2$ Cha

35. Iyiphi indlela ojwayele ukuzivocavoca ngayo?

☐$_1$ Ukugijima ☐$_1$ Ibhola lomjikiswano ☐$_1$ Ukuqukula izinsimbi

☐$_1$ Ibhola lomnqakiswano ☐$_1$ Ukuhamba ☐$_1$ UKaradi ☐$_1$ Okunye

36. Number of exercise sessions per week/combined if more than one sport is played. Inani lokuzivocavoca ngesonto/ Okuhlanganisiwe uma uzivocavoca ngezindlela eziningi ezahlukene.

☐$_1$ 1 ☐$_2$ 2 ☐$_3$ 3 ☐$_4$ 4 ☐$_5$ 5 ☐$_6$ 6 ☐$_7$ 7

☐$_8$ >7 ☐$_9$ Akufanelekile

37. Lithini inanai lamahora olichithayo ekuzivocavoceni ngakunye?

☐$_1$ <1 ☐$_2$ 1-3 ☐$_3$ 4-6 ☐$_4$ 7-9 ☐$_5$ >10 ☐$_6$ Akufaneleki

38. Uke wazibandakanya kwezemidlalo esikhathini esiphambilini? Hlobo luni lwezemidlalo/ ukuzivocavoca obowubambe iqhaza kulo?

☐$_1$ Ukugijima ☐$_2$ Ibhola lomjikiswano ☐$_3$ Ukuqukula izinsimbi

☐$_4$ Ibhola lomnqakiswano ☐$_5$ Ukuhamba ☐$_6$ UKaradi ☐$_7$ Okunye

39. For how long were you involved in the above sport/s in the past (years)?Mingaki iminyaka oyichithile phambilini kulolu hlobo lwemidlalo olungenhla?

☐$_1$ 0-1 ☐$_2$ >1-2 ☐$_3$ >2-3 ☐$_4$ >3-4 ☐$_5$ >4-5 ☐$_6$ >5

☐$_7$ Akufaneleki

40. Uke watholakala nanoma yikuphi kwalokhu okulandelayo? Isifo:

☐$_1$ Sikashukela ☐$_2$ Sokuphakama komfutho wegazi ☐$_3$ Sokuqaqamba kwamalunga

☐$_4$ Sofuba ☐$_5$ Sokuzizwa uphansi ☐$_6$ Okunye ☐$_7$ Akufaneleki

41. Ingabe unayo i-medical aid?

☐$_1$ Yebo ☐$_2$ Cha

42. Ingabe uzizwa unenkululeko eyanele ukufinyelela kwabezempilo?

☐$_1$ Yebo ☐$_2$ Cha

43. Ingabe uke waphathwa yiqolo?

☐$_1$ Yebo ☐$_2$ Cha

C. Okuphathelene nesigulo

(Lesi sigaba siphendulwa ophethwe iqolo kuphela)

44. Ingabe ubuneminyaka emingaki ngamhla uqala ukuphathwa iqolo?

☐$_1$ 0-10 ☐$_2$ 11-15 ☐$_3$ 16-20 ☐$_4$ 21-30 ☐$_5$ 31-40 ☐$_6$ 41-50

☐$_7$ 51-60 ☐$_8$ 61-70 ☐$_9$ 71-80 ☐$_{10}$ 81-90 ☐$_{11}$ >90

45. Ingabe iqolo likuphethe kulo mzuzu?

☐$_1$ Yebo ☐$_2$ Cha

46. Selikuphathe iminyaka emingaki iqolo?

☐$_1$ 0-1 ☐$_2$ >1-2 ☐$_3$ >2-3 ☐$_4$ >3-4 ☐$_5$ >4-5 ☐$_6$ >5-10

☐$_7$ 11-15 ☐$_8$ 16-20 ☐$_9$ >20

47. Ingabe bunzima kangakanani ubuhlungu beqolo?

☐$_1$ Buthambile ☐$_2$ Abedlulele ☐$_3$ Bedlulele

48. Yingasiphi isikhathi sosuku lapho izinhlungu zinzima kakhulu khona?

☐$_1$ Ekuseni ☐$_2$ Ntambama ☐$_3$ Kusihlwa ☐$_4$ Ebusuku

49. Yingasiphi isikhathi sosuku lapho izinhlungu zingcono khona?

☐$_1$ Ekuseni ☐$_2$ Ntambama ☐$_3$ Kusihlwa ☐$_4$ Ebusuku

50. Kukaningi kangakanani lapho uzwa khona ubuhlungu beqolo?

☐$_1$ Kukancane ☐$_2$ Kukaningi ☐$_3$ Njalo ☐$_4$ Ngezikhathi

51. Baqala kanjani ubuhlungu beqolo lakho?

☐$_1$ Kancane kancane ngaphandle kokulimala ☐$_2$ Kancane kancane emuva kokulimala

☐$_3$ Isigubhukane ngaphandle kokulimala ☐$_4$ Isigubhukane emuva kokulimala

52. Ingabe izinga lobuhlungu beqolo lakho liyashintsha?

☐$_1$ Liyenyukela ☐$_2$ Libancono ☐$_3$ Alishintshi

53. Ingabe ubuhlungu beqolo lakho kwenza uhlangabezane nobunzima ekwenzeni okunye kwalokhu okulandelayo?

☐$_1$ Ukugqoka ☐$_2$ Ukugoba ☐$_3$ Ukuhamba ☐$_4$ Ukuphatha ☐$_5$ Ukuhlala

☐$_6$ Ukushayela ☐$_7$ Ukuma ☐$_8$ Ukulala

54. Ungalibeka kusiphi isigaba izinga lokukhubazeka kwakho jikelele ngenxa yobuhlungu beqolo?

☐$_1$ Luthambile ☐$_2$ Aledlulele ☐$_3$ Ledlulele

55. Ingabe uke waphutha emsebenzini ngenxa yobuhlungu beqolo lakho?

☐$_1$ Yebo ☐$_2$ Cha

56. Isikhathi esingakanani owasiphutha?

☐$_1$ 0-1 iviki ☐$_2$ >1-2 amaviki ☐$_3$ >2-3 amaviki ☐$_4$ >3-4 amaviki

☐$_5$ >4 amaviki

57. Ingabe uke walala phansi ngenxa yobuhlungu beqolo?

☐$_1$ Yebo ☐$_2$ Cha

58. Isikhathi esingakanani?

☐$_1$ 0-1 iviki ☐$_2$ >1-2 amaviki ☐$_3$ >2-3 amaviki ☐$_4$ >3-4 amaviki

☐$_5$ >4 amaviki

59. Kwake kwadingeka ukuba uze ushintshe umsebenzi wakho ngenxa yobuhlungu beqolo?

☐$_1$ Yebo ☐$_2$ Cha

60. Wake wazithola usulahlekelwe wumsebenzi wakho ngenxa yokuphathwa iqolo?

☐$_1$ Yebo ☐$_2$ Cha

61. Wake walashelwa ukuphathwa iqolo?

☐$_1$ Yebo ☐$_2$ Cha

62. Ingabe uyelashelwa ubuhlungu beqolo njengamanje?

☐$_1$ Yebo ☐$_2$ Cha

63. Ingabe ulashwa/ welashwa kuphi/ ubani?

☐$_1$ Udokotela ☐$_1$ Isibhedlela sikahulumeni ☐$_1$ Ikhemisi ☐$_1$ Isangoma

☐$_1$ Inyanga ☐$_1$ Umthandazi ☐$_1$ Isazi samakhambi ☐$_1$ Okunye

64. Sekuyisikhathi esingakanani welashelwa ubuhlungu beqolo?

☐$_1$ <1 inyanga ☐$_2$ 1-6 izinyanga ☐$_3$ 7-12 izinyanga

☐$_4$ >1 unyaka

65. For how long have you been treated for low back pain in the past? Ingabe sekube yisikhathi esingakanani welashelwa ubuhlungu beqolo?

☐ <1 inyanga ☐ 1-6 izinyanga ☐ 7-12 izinyanga

☐ >1 unyaka

66. Yikuphi ukwelashwa okukusiza/ okwakusiza kakhulu ukudambisa izinhlungu?

☐$_1$ Udokotela ☐$_1$ Isibhedlela sikahulumeni ☐$_1$ Ikhemisi ☐$_1$ Isangoma

☐$_1$ Umtholampilo kahulumeni ☐$_1$ Inyanga ☐$_1$ Umthandazi

☐$_1$ Isazi samakhambi ☐$_1$ Okunye

67. Ingabe ikhona imithi oyisebenzisayo njengamanje ukulapha ubuhlungu beqolo?

☐$_1$ Yebo ☐$_2$ Cha ☐$_3$ Akufaneleki

68. Ubani okukhethele imithi?

☐$_1$ Udokotela ☐$_1$ Isibhedlela sikahulumeni ☐$_1$ Ikhemisi ☐$_1$ Isangoma

☐$_1$ Umtholampilo kahulumeni ☐$_1$ Inyanga ☐$_1$ Umthandazi

☐$_1$ Isazi samakhambi ☐$_1$ Okunye

69. Ingabe imithi yokwelapha izinhlungu zeqolo oyitholayo iyakusiza na?

☐$_1$ Yebo ☐$_2$ Cha

70. Imalini oyikhokhela le mithi nyanga zonke?

☐$_1$ R1-R30 ☐$_2$ R31-R60 ☐$_3$ R61-R80 ☐$_4$ R81-R100 ☐$_5$ >R100

☐$_6$ Akufaneleki

71. Ngaphandle kokuhlanganisa nemithi kuba yimalini ukwelashwa kwakho ngenyanga?

☐1 R1-R30 ☐2 R31-R60 ☐3 R61-R80 ☐4 R81-R100 ☐5 R101-R200 ☐6 >R200 ☐7 Akufaneleki

Appendix L

Letter of information (Focus group)

Dear Sir/ Madam

I would like to welcome you into my study.

Study title: The prevalence of and associated risk factors for low back pain in medical outpatients of a selected Umdoni Municipality Primary Health Care Clinic.

Principal investigator: Miss K Khumalo
Contact details: 078 127 5845

Supervisor: Dr F Haffejee
Contact details: 031 373 2395

Brief Introduction to the Study:

There are various studies done on low back pain (LBP). However, there are not so many studies conducted in developing countries about LBP which makes it impossible to get a better understanding of LBP risk factors in developing countries and to know if they differ.

Study Aim:
The aim of the study is to determine the prevalence and associated risk factors for LBP in medical outpatients of the Umdoni Municipality Primary Health Care Clinic.

Study design:
This is a quantitative survey in which a questionnaire will be used to collect data

Study procedure:

You are part of the focus group and will be required to:

- Read the Information letter (Appendix L) which explains the study properly, sign the letter of Informed consent (Appendix I) and the confidentiality statement (Appendix J) which will then be placed in a sealed box (marked A).
- Read through the questionnaire and participate in a discussion to determine the validity of the questionnaire (Appendix E/F).
- The researcher will then place the completed questionnaire in a sealed box (marked B) so as to ensure your confidentiality.

Benefits:

Once the data has been obtained and analysed it will be useful in building up knowledge about LBP in this municipality. In addition that may assist in understanding the risk factors predisposing these individuals to LBP. Furthermore that information may be useful in establishing new and effective treatment and management of LBP in South Africa. Moreover, that may assist in achieving better health by limiting or preventing LBP.

Risks:

None related to the study.

Reasons why the participant may be withdrawn from the study:

If you did not sign the consent form or did not complete the questionnaire you will be withdrawn from the study and should you feel uncomfortable to be part of the study at any point you have a right to withdraw.

Remuneration:

You will receive no payment for participating in the study.

Costs of the Study:

There are no costs to you in participating in the study.

Confidentiality:

All information that is obtained on your information sheet and questionnaire will be treated as strictly confidential. Your name will not appear on any documents that may be published as a result of this research. The usage of the data collected in this study will be used solely as outlined above, and will not be released to any other clinic, university or organization. This focus group discussion will be tape-recorded, this will be kept confidential and none of this data will be published.

Results of the study:

Upon completion of the study, the results will be analyzed and recorded. The following will occur:

- This study will be published in a thesis format at Durban University of Technology.
- A possible peer review reviewed manuscript of this study shall be published.

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

Researcher: Miss K. Khumalo, BTech 0781275845

Supervisor: Dr F Haffejee, PhD 031 373 2395

Thank you for participating in this research.

Appendix M

INFORMED CONSENT FORM – FOCUS GROUP

DATE:

TITLE OF RESEARCH PROJECT: The prevalence of and associated risk factors for low back pain in medical outpatients of a selected Umdoni Municipality Primary Health Care Clinic

NAME OF SUERVISOR: Dr F Haffejee, 031 373 2395

NAME OF RESEARCHER: Khanyisile Khumalo, 078 127 5845

Please circle the appropriate answer:

1. Have you read the research information sheet? Yes No
2. Have you had an opportunity to ask questions regarding this study? Yes No
3. Have you received satisfactory answers to you questions? Yes No
4. Have you had an opportunity to discuss this study? Yes No
5. Have you received enough information about this study? Yes No
6. Do you understand the implications of your involvement in this study? Yes No
7. Do you understand that you are free to:
    - Withdraw from the study at any time? Yes No
    - Withdraw from this study at any time, without any reasons given? Yes No
    - Withdraw from this study at any time without affecting your future health care or relationship with the Chiropractic day clinic at the Durban University of Technology? Yes No
8. Do you agree to voluntarily participate in this study? Yes No
9. Who have you spoken to regarding this study?

_____

If you have answered NO to any of the above, please obtain the necessary information from the researcher and/or supervisor before signing. Thank you. Please print in block letters:

Focus Group Member: _____ Signature: _____

Witness Name: _____ Signature: _____

Researcher's Name: Miss K Khumalo Signature: _____

Supervisor's Name: Dr F Haffejee Signature: _____

Appendix N

CONFIDENTIALITY STATEMENT – FOCUS GROUP

IMPORTANT NOTICE:

THIS FORM IS TO BE READ AND FILLED IN BY EVERY MEMBER PARTICIPATING IN THE FOCUS GROUP, BEFORE THE FOCUS GROUP MEETING CONVENES.

DECLARATION

- All information contained in the research documents and any information discussed the focus group meeting will be kept private and confidential. This is especially binding to any information that may identify any of the participants in the research process.
- The returned questionnaires will be coded and kept anonymous in the research process.
- None of the information shall be communicated to any other individual or organization outside of this specific focus group as to the decisions of this focus group.
- The information from this focus group will be made public in terms of a journal publication, which will in no way identify any participants of this research. Once this form has been read and agreed to, please fill in the appropriate information below and sign to acknowledge agreement.

Focus Group Member: _____ **Signature:** _____

Witness Name: _____ **Signature:** _____

Researcher's Name: Miss Khanyisile Khumalo **Signature:** _____

Supervisor's Name: Dr F Haffejee **Signature:** _____

Appendix O

Focus group changes

- Question one was changed to “Age”, instead of “How old are you”.
- Question 7, 8, 15 and 16 were moved from section A to section B. These questions are now question16, 17, 21 & 22 in section B.
- Question eighteen about C-section was added followed by question nineteen that asks about how many C-sections the participant has had in their life.
- Question 20 about epidural was added.
- Make question 44 to be question 45 and vice versa.
- Meningitis was added as part of the options in question 48.
- Move question 42 & 43 to section A and these questions are now question 14 and 15.
- Question 50 was added.
- Question about how their LBP started was added as question 51.
- Question 55 was formulated to a scale of 0 to 10.
- The options for answers in question 58 were formulated to time frames.
- Question 62 was changed to “Describe the impact of your LBP to your daily life. In addition, none was added as part of the options for answers.
- In question 64 the options were changed from weeks to days.
- Question 65 was added asking if there have been more periods of absence from work due to LBP, followed by question 66 about how many periods.
- Question 72 and 74 about how often are/were they treated was added.
- In question 78 Chiropractic was added as part of the options in answers.
- Question 81 was changed to ask if their LBP medication was helpful.
- In question 82 “no cost” was added as part of the options.
- Question 84 was added to ask if they know what Chiropractic is.