A prospective pilot investigation of the Zulu translation of the Roland-Morris Questionnaire with respect to its concurrent validity when compared to its English counterpart.

A dissertation completed in partial compliance with the requirements for a Master's Degree in Technology in the Department of Chiropractic at the Durban Institute of Technology.

BY

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Dedication

“ I can do everything through him who gives me strength.” (Philippians 4:13)

This work is dedicated, first and foremost, to my Lord and Saviour, Jesus Christ. His strength has enabled me to complete the task.

Secondly, to my family, especially my mother- Heather Miller. Her unconditional love and support though out my studies have been a pillar of strength to me.

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Abstract

Background: Lower back pain is a common problem, globally, as well as in South Africa. Zulu is the first language of a very large proportion of the South African population, and as such, addressing the needs of this population group with respect to lower back pain is a priority. Many reliable pain indexes exist in English to record the degree of disability with regard to Lower back pain. These are invaluable tools in aiding the health practitioner to assess the progress of treatment and the severity of the patient's disability. One of the most creditable and frequently used indexes is the Roland – Morris Low Back Pain Disability Questionnaire. However, no such scale exists in Zulu

Objective: The purpose of this investigation was, firstly, to interpret the data from the statistical tests for discordance in order to assess whether the face validated Zulu translation of the questionnaire (ZRM1.1) is sensitive and specific enough for use as a tool in data collection, when compared to the English version (ERM). Secondly, to make recommendations for further improvement in terms of the ZRM1.1.

Methods: Firstly, the Roland – Morris questionnaire was translated into Zulu (ZRM). This version was then assessed by means of a focus (or discussion) group, to assess its face validity. Changes were made to the original translations according to the recommendations of this group, resulting in the ZRM 1.1. This

version was then assessed as to its concurrent validity with the original English version (ERM). Fifty volunteers, who were literate in both English and Zulu and who suffered with Lower back pain, filled in both the ZRM1.1 and the ERM. The questions were rearranged in the ZRM1.1 to prevent participants simply transferring their answers from the ERM onto the ZRM1.1. These results were then analysed using statistical tests for discordance. The null hypothesis was rejected at $\alpha = 0.05$ level of significance.

Results: The Pearson Correlation Co-efficient showed that 7 of the 24 questions were not strongly associated and thus needed further adaptation to ensure correlation.

Conclusion: The ZRM1.1 does not have concurrent validity with the ERM for a number of questions. It is therefore not an accurate measurement index of LBP in the Zulu speaking population, and further adaptation needs to be performed to ensure concurrent validity.

Table of Contents

List of Appendices

List of Tables and Charts

Definition of Terms

1. Prevalence: the measure of the number of people in a given population who have a symptom or disease at a particular point in time (point prevalence) or over a specified period (e.g. 1 year prevalence) (Skinner, 1995, p183).

2. Incidence: defined as the rate at which healthy individuals develop a new symptom or disease over a specified period of time (usually a lifetime) (Skinner, 1995, p183).

3. Face validity: This is the simplest type of validity. It is determined by agreement between researchers and those with a vested interest in the questionnaire, that 'on the face of it' the tool seems valid. (Mouton, 1996: 110).

4. Content validity: This is when the content of the questionnaire is considered effective, and well rounded enough to be able to assess a particular concept. (Mouton, 1996: 110).

5. Construct validity: This measures how accurately answers to questions in a scale reflect theoretical predictions of a particular construct (in this case lower back pain). (Mouton, 1996: 127, 128).

6. Criterion/Concurrent validity: This is measured when a particular tool produces similar results when compared with another tool already known to be trustworthy. (Mouton, 1996: 127).

List of Abbreviations

LBP: Lower back pain

RMQ: Rowland-Morris Pain and Disability Questionnaire

ERM: English version of the Rowland- Morris questionnaire

ZRM: Zulu version of the Rowland – Morris questionnaire

CHAPTER ONE

THE INTRODUCTION TO:

A prospective pilot investigation of the Zulu translation of the Roland-Morris Questionnaire with respect to its concurrent validity when compared to its English counterpart.

1.1 Introduction:

Zulu is spoken as a first language by 8,5 million people in South Africa, making it the most frequently spoken language in the country (www.linx.co.za, 2002). In 2002, Catherine Campbell and Yodwa Mzaidume conducted a study on the impact of HIV and AIDS in the mining community. They found that " among marginalised groups in poor countries, providing information about health risks changes the behaviour of, at most, one in four people - generally those who are more affluent and better educated". Health interventions, such as condom distribution, did not prove successful because of community contexts that frowned on this practice. (Campbell and Mzaidume, 2002: 229-32).

These findings highlight the need of health interventions to be relevant to the specific social and cultural context they are addressing.

As Low back pain is common amongst the indigenous Southern African population (van der Meulen, 1997 and Worku, 2000), an accurate assessment of low back pain in the Zulu population is of great relevance. As yet, however, there is no validated measurement tool, in Zulu, with which to achieve this.

The Roland Morris pain Questionnaire (ERM) is regarded as one of the 5 low back pain indexes that are thought of as 'gold standards'. It is referred to as the best single study of assessing short-term outcomes of primary care patients with

low back pain (Yeomans, 2000: 70-71). It was found to have content validity, construct validity and good reliability (Davidson and Keating, 2000). A Zulu translation of this questionnaire was therefore done by Ms. Xaba of the Technikon Natal language department, resulting in the ZRM1.0.

Translations however pose inherent problems. Even if words are translated accurately, the meaning of a phrase or combination of words may be unclear, as meaning is not only determined by words or phrases, but also in their interpretation by others (Scollen and Scollen, 1995: 6). This is because when words are taken out of context they will lose their meaning (Baynham, 1995: 37). Thus meaning will differ between cultures, even if the same words are used. Consequently, with translation some validity will be lost as the questions themselves may not be understood and error will be introduced in the results of the questionnaire.

When establishing validity, one is determining the degree to which a particular tool reflects reality. This process is vital in order to ensure that future research utilising the particular tool is accurate. (Bernard, 2000: 51).

The components of validity are: face validity, content validity, construct validity, and criterion validity. The definitions of these concepts and how they are addressed in the questionnaires follows (definitions taken from Bernard (2000: 207,210) unless otherwise stated):

1. *Face validity*, the simplest type of validity, is determined by agreement between researchers and those with a vested interest in the questionnaire, that 'on the face of it' the tool seems valid. This was achieved prior to the study by subjecting a Zulu translation of the ERM (i.e. the ZRM1.0) to a focus group. This focus group comprised of individuals that were;
    a. bilingual,
    b. from a variety of backgrounds,
    c. and that would have a vested interest in the results that the questionnaire would ultimately capture.

    The translation was discussed in terms of it accurately reflecting the meaning of the ERM. Suggestions for change were analysed, and these changes made to the translation, yielding the version used in this study (i.e. ZRM1.1)

2. An instrument has *content validity* when the content of the questionnaire is considered effective, and well rounded enough to be able to assess a particular concept.

3. *Construct validity* measures how accurately answers to questions in a scale reflect theoretical predictions of a particular construct (in this case lower back pain).

4. *Criterion validity* is measured when a particular tool produces similar results when compared with another tool already known to be trustworthy. This is also called *concurrent* validity by Mouton (1996: 127). Predictive validity falls under this category as well. If a tool can predict a future situation accurately it has predictive validity (Mouton, 1996: 127).

Construct validity and content validity of the ZRM1.1 remained intact as they have been established in the ERM, and the focus group ensured that the meaning is apparent in the ZRM1.1.

Criterion/concurrent validity of the ZRM1.1 was yet to be determined.

Therefore the purpose of this investigation was to determine whether the ZRM has concurrent validity with the tested English version.

1.2. Objectives:

1.2.1. To interpret the data from the statistical tests for discordance to assess whether the questionnaire (ZRM1.1) is sensitive and specific enough for use as a tool in data collection, when compared to the ERM.

1.2.2. To make recommendations for further improvement in terms of the ZRM1.1.

CHAPTER

TWO

REVIEW OF THE RELATED LITERATURE.

2.1 Introduction:

The goal of this chapter is to create an understanding of the basic anatomy of the lumbar area, the nature of LBP and the impact it has on the community, specifically in the South African context. Furthermore, questionnaires and their validation process as research tools are discussed.

2.2 Basic Anatomy of the lumbar region.

The various structures in this area can all be involved in LBP, therefore a basic understanding of what these structures are is necessary in order to fully understand the condition under study.

The structures involved are:

- Bony anatomy
- Joints
- Muscles
- Ligaments
- Vascular compartment
- Nerve Supply.

2.2.1 Bony anatomy

The lumbar area is composed of 5 vertebrae, which increase in size from L1-L5. Each vertebra can be considered in 3 sections:

- The weight-bearing body,
- The neural arches that house the spinal chord and nerve roots, and
- The bony elements, which provide attachments for the lumbar musculature.

(Giles et al: 1997:134 and Moore, 1992: 329)

The vertebral body is composed of an outer dense bony ring (cortex) and an inner 'spongy' medulla of bone. The medulla is composed of vertical and horizontal 'struts' of bone, leaving hollow channels in between for blood to permeate. (Borenstein et al, 1995: 3)

The dense outer cortex is protective in function. However, the internal trabeculae of the spongiosa are specifically arranged in order to dissipate the vertical forces placed on it, evenly though out the whole vertebra. There are horizontal and vertical trabeculae in the vertebra, but also trabeculae that extend into the posterior elements of the neural arch. These trabeculae not only dissipate forces placed on the vertebral body to all parts of the vertebra, but also counter-act specific forces places on the posterior elements by structures attaching to them. (Bogduk and Twomey, 1997: 6-9)

The posterior elements of the vertebra comprise the superior and inferior articular facets, laminae, and spinous process. The transverse processes are not usually considered to be part of the posterior elements, because they have a different embryological origin. (Bogduk and Twomey, 1997: 7). The pedicles join the vertebral body to these elements. The main function of the posterior elements of the vertebrae are to provide bony attachment for the ligaments and muscles surrounding the spine.

The neural arch consists of the pedicles and laminae on either side. The spinal chord is housed and protected by this arch. (Borenstein et al., 1995: 3)

2.2.2 Joints

Three joints are formed at the junction of any 2 adjacent lumbar vertebrae. They are (1) between the vertebral bodies, and (2 and 3) between the superior articular facets of the vertebra below with the inferior articular facets of the one above, on either side. (Bogduk and Twomey, 1997: 9).

These articulations are thought of as a ‘3 joint complex’, as damage to one part of the complex affects the working of the other two (Kirkaldy- Willis et al., 1992: 55).

The joint formed between the two consecutive vertebral bodies is termed a secondary cartilaginous joint. This type of joint is created to provide strength and shock absorption. (Moore, 1992: 17). They are united via an intervertebral disc. This disc is composed of a fibrous outer section (annulus fibrosis) and a more viscous inner section (nucleus pulposis) (Giles et al, 1997: 134).

The remaining 2 joints comprise the adjacent neural arches, which connect via bi-lateral zygapophyseal joints. These are synovial type joints, lined with a synovial membrane and lubricated with synovial fluid. These types of joint allow for maximum movement. (Moore, 1992: 17).

2.2.3 Musculature

The muscles acting on the lumbar spine can be divided into 4 basic groups according to their actions on this region, i.e. The extensors, flexors, lateral flexors and rotators. (Kirkaldy – Willis, 1992: 21).

2.2.3.1. Extensors

These muscles are arranged in 3 groups, from superficial to deep.

The most superficial of the extensors is the erector spinae (or sacrospinalis) muscle. It originates from the anterior surface of the iliac crest, the medial and lateral sacral crests, and the spinous processes of the sacral and lumbar spine. It divides into three parts as it ascends, namely, illiocostalis, longissimus, and spinalis. (Kirkaldy – Willis, 1992: 21).

The intermediate layer is the multifidus group. These muscles originate from the laminar area of the sacrum and the posterior superior iliac spine. In the lumbar spine it originates from the mamillary processes. The multifidus muscle itself divides into 3 layers, being, superficial, intermediate and deep. They insert onto the medial margin of the laminae and spinous processes. From their origin the superficial layer attaches to the lumbar vertebra 3 to 4 levels above it, the intermediate attaches 3 levels above its origin and the deep layer attaches one level above. The multifidi are involved both in extension and rotation.(Kirkaldy – Willis, 1992: 21).

A number of small muscles make up the deep layer of extensors. They attach consecutive levels of lumbar vertebrae and comprise the interspinalis, intertransverari and the rotatores lumborum. (Kirkaldy – Willis, 1992: 22).

Elaborated as:

- The interspinalis muscles attach consecutive spinous processes of the lumbar vertebrae.

- The intertransversari attach either from (i) the transverse processes of one level to the transverse process of the vertebra above, or (ii) from the mamilliary processes of one vertebra to the transverse process of another, or (iii) from the accessory processes of one level to the mamilliary process of the next.
- The rotatores lumborum attach from the transverse process of one vertebra to the lamina of the one above it.

2.2.3.2. Flexors

The muscles involved in this action can be divided into intrinsic and extrinsic groups.

- *Extrinsic group:*

These are the abdominal muscles (rectus abdominus, internal oblique and external oblique), and the intertransversari muscles.(Kirkaldy – Willis, 1992: 22). Very broadly, the abdominal muscles originate from the rib cage (ribs 5-12) and the iliac crest and insert into the linea alba or pubic bone. (Moore, 1992: 136).

- *Intrinsic group:*

The psoas major and iliacus muscles make up this group.(Kirkaldy – Willis, 1992: 22) The psoas major muscle originates on the antero-lateral parts of the lumbar vertebrae and inserts onto the lesser trochanter of the femur(Bogduk and Twomey, 1997: 101). The iliacus originates mainly from the anterior part of the

iliac crest and inserts, along with the psoas major muscle, onto the lesser trochanter of the femur. (Moore, 1992: 387).

2.2.3.3. Lateral Flexors

Lateral flexion of the lumbar spine is usually a combination movement of both lateral flexion and rotation. It is most often accomplished by ipsilateral contraction of the abdominal oblique, intertransversari and quadratus lumborum muscles. (Kirkaldy – Willis, 1992: 22).

The quadratus lumborum muscle originates from the infero-medial portion of the 12^{th} rib and the tips of the lumber transverse processes. It inserts onto the iliolumbar ligament and the anterior iliac crest. (Moore,1992: 230).

2.2.3.4. Rotators

Rotation is accomplished by simultaneous contraction of lumbar muscles with an oblique orientation. They are located on the ipsilateral side to the movement. Most of the extensors and lateral flexors are involved in rotation, but need partial neutralisation by their antagonist muscles to achieve rotation. (Kirkaldy – Willis, 1992: 22).

2.2.4. Ligaments

The major ligaments of the lumbar spine are (Borenstein et al., 1995: 8):

- Anterior longitudinal ligament
- Posterior longitudinal ligament
- Ligamentum flavum
- Interspinous ligament
- Supraspinous ligament
- Sacral ligaments
- Capsular ligaments (Kirkaldy - Willis, 1992: 12).

2.2.4.1 Anterior longitudinal ligament. (ALL)

This ligament originates on the anterior portion of the base of the occiput and inserts onto the anterior sacrum. The fibres of the ALL attach to the anterior portion of each vertebral body. (Kirkaldy - Willis, 1992: 11-12).

2.2.4.2 Posterior Longitudinal Ligament (PLL)

The PLL runs along the posterior aspect of the vertebrae. In the lumbar spine it is quite narrow, elongating laterally to attach to the annulus fibrosis of the intervertebral discs at each level. This ligament extends from the tectorial membrane of the occiput, to the coccyx. (Kirkaldy - Willis, 1992: 11-12).

2.2.4.3 Capsular Ligaments

These ligaments span the facet (zygapophyseal) joints. They are thick and tense in nature and are directed at 90 degrees to the axis of each joint.
(Kirkaldy- Willis, 1992: 12).

2.2.4.4. Ligamentum Flavum

This ligament connects the laminae of consecutive vertebrae, anteriorly. It has extensions that form part of the anterior capsule of the facet joint, and part of the foraminal roof. (Kirkaldy- Willis, 1992: 12).

2.2.4.5 Sacral Ligaments

Several large ligaments help to stabilise the sacrum on the pelvis. The ligaments spanning the ilium and sacrum are the anterior sacroiliac, posterior sacroiliac and interosseous sacroiliac. The ischium and sacrum are united via the sacrotuberous and sacrospinous ligaments. (Borenstein et al., 1995: 9).

2.2.4.6 Interspinous Ligament

The above ligament attaches from one spinous process to the next. In the lumbar spine it is well developed, being thick and broad. (Kirkaldy- Willis, 1992: 12 – 13).

2.2.4.7 Supraspinous Ligament

This ligament runs along the tips of each spinous process, finally inserting into the median sacral crest (Kirkaldy- Willis, 1992: 12 – 13).

2.2.5 Vascular compartment.

2.2.5.1 Arterial supply.

The arterial supply of the lumbar spine is derived, primarily, from the abdominal aorta. At each level (from L1-L4) 2 branches arise from the postero-lateral aspect of the abdominal aorta. The L5 level is supplied by branches from the median sacral artery. (Bogduk and Twomey, 1997: 145). These are called the segmental

arteries and run posteriorly around the vertebral body, giving off small branches which penetrate the body of the vertebra. (Kirkaldy – Willis, 1992: 14).

As the segmental artery reaches the intervertebral foramen, it divides into 3 branches.

i. Anterior branch: supplies the spinal nerve as it exits the foramen, and the muscles of the trunk.
ii. Spinal branch: enters the foramen, and divides into 3 further branches:
    - the anterior
    - posterior and
    - radicular branches.
iii. Posterior branch: gives off branches to the facet joints, posterior aspect of the lamina and, finally, the spinal muscles.

(Kirkaldy – Willis, 1992: 15 - 16).

The divisions of the spinal branch are the anterior, posterior and radicular spinal branches. The Anterior spinal branch bifurcates into ascending and descending branches which course along the posterior surface of the vertebral bodies, anastomosing with the levels above and below. (Kirkaldy – Willis, 1992: 16).

The posterior spinal branch forms a network on the anterior aspect of the laminae and ligamentum flavum (Bogduk and Twomey, 1997: 146). The radicular branch enters the spinal nerve and divides into branches that supply the dorsal and ventral roots of the nerve (Bogduk and Twomey, 1997: 151).

2.2.5.2 Venous drainage

The external and internal vertebral venous plexes collect venous blood from the lumbar spine.

The external vertebral venous plexus drains into the lumbar segmental veins and then into the inferior vena cava if lower down (L3 – L5) or the azygous system and the superior vena cava, if higher up (L1 – L3).

The internal vertebral venous plexus is divided into 2 parts namely: the anterior internal vertebral venous plexus and the posterior internal vertebral venous plexus.
(Giles, 1997:142).

2.2.6 Nerve supply.

The spinal nerve is composed of the anterior and posterior roots of the spinal cord. The posterior root carries sensory fibres while the anterior root is primarily

motor in nature. Once the spinal nerve exits the intervertebral canal it divides into the anterior and posterior primary rami. These rami give off branches, which supply the disc and joints of each lumbar segment.
(Giles, 1997: 219-220).

2.3 Lower back pain (LBP):

2.3.1 Definition:

Broadly, LBP is defined as pain between the costal margins and the inferior gluteal folds. Most often it is accompanied by painful limitation of movement, which is usually influenced by physical activities and posture. There may also be associated referred pain. (Kovacs et al, 2002: 538).

2.3.2 Classification:

There is some variance in the literature as to differentiating the types of lower back pain. In terms of this study, 3 well known classifications will be described.

2.3.2.1. Waddell's Classification

According to Waddell (1998:9) there are 3 basic types:

1. Simple
2. Nerve root pain
3. Possible serious spinal pathology.

2.3.2.1.1. Simple.

This is 'mechanical' pain, i.e. of musculoskeletal origin, and varies depending on the type of physical activity the patient does. The pain usually spreads to one or both buttocks and thighs and there is no neurological involvement. LBP in this category may be intense, but the pain is not a diagnostic indicator.

2.3.2.1.2. Nerve root pain.

A prolapsed disc, spinal stenosis and / or surgical scarring can cause this type of LBP. The pain is usually in unilateral, and dermatomal in nature. Anything more widespread suggests more involved neurological pathology. Usually the nerve

dysfunction / irritation (i.e. numbness, pins and needles, tingling) is of more concern to the patient than their LBP.

2.3.2.1.3. Serious Spinal Pathology.

Here, spinal diseases such as tumors infection and inflammation become apparent. This category forms 1% of all LBP, with simple LBP applying to the vast majority of patients.

2.3.2.2. Macnab's Classification.

Mcnabb (1990) further categorizes LBP into spinal causes, or pathology originating elsewhere and in this respect he has identified the following categories:

2.3.2.2.1. Spondylogenic Pain

Spondylogenic pain is caused by pathologies in the spinal column and its surrounding structures. It is worsened by particular activities (depending on the specific structures involved) and relieved by rest. Examples of some of the structures that could be involved are the vertebrae, zygapophyseal or sacroiliac joints, but mainly lesions in the soft-tissue component (i.e. disc, muscles, ligaments) are the major culprits. This is the most common cause of LBP.

2.3.2.2.2. Neurogenic Pain

The most common cause of neurogenic pain, usually causing referral pain down one or both legs, is compression, irritation or tension of one or more lumbar nerve roots. Less common causes are central nervous system pathology such as thalamic or spinal dural tumours, or arachnoid irritation. Nerve root cysts and tumours such as neurilemoma, neurofibroma, and ependymoma, are the most likely to cause diagnostic confusion in this category.

2.3.2.2.3. Viscerogenic Pain

Kidneys, pelvic organs, pathology of the lesser sac, and retroperitoneal tumours can cause back pain of visceral origin. However, in such cases, LBP is usually not the only symptom, and most importantly, activity does not aggravate the pain nor does rest relieve it.

2.3.2.2.4 Vascular Pain

Peripheral vascular disease (PVD) or abdominal aortic aneurysms present with symptoms, which resemble sciatica. Abdominal aneurysms often give a deep boring pain while the pain of PVD presents on walking and dissipates with

standing still (claudication). However, other activities that put strain on the lumbar area, e.g. bending and lifting, do not produce this pain.

2.3.2.2.5. Psychogenic Pain.

LBP of purely psychological origin is not often seen in clinical practice. However, even when there are psychological elements to the patient's LBP, there may still be an underlying physical cause, which needs investigation. (McNabb,1990: 22-25).

2.3.2.3 Kirkaldy – Willis Classification.

Kirkaldy-Willis further categorized LBP of mechanical origin into 3 stages:

2.3.2.3.1. Dysfunction

Rotational or compressive strain usually caused by minor trauma. This causes synovitis of the zygapophyseal joints and possibly small annular tears within the disc. Protective spasm of the surrounding muscles results, causing ischaemia and further pain. This hypertonic state and accumulation of inflammatory metabolites can later lead to fibrotic changes within the joint.

Clinical lesions associated with this state are:

- Posterior facet syndrome
- Sacroiliac syndrome
- Maigne's syndrome
- Myofascial Pain syndrome
- Disc herniation

2.3.2.3.2. Instability

The unstable phase presents similarly to the dysfuntional phase, but may be chronic or insidious. The continuing stress of the dysfunction phase leads to:

- Progressive degenerative change in the zygapophyseal joint cartilage
- Stretching of the capsule
- Capsular laxity.

Within the disc there can be:

- Coalescence of tears
- Internal derangement of the disc with loss of nuclear substance
- Circumferential bulging of the annulus

Healing in this stage is less complete, leading to a compromise of stability and thus abnormal movement of the 3 joint complex.

Clinical lesions:

- Facet and disc degeneration
- Lateral stenosis
- Central stenosis
- Disc herniation

2.3.2.3.3 Stabilization.

In the older patient there will be a chronic history of LBP, while in the younger patient leg pain will be more pronounced than the LBP. Due to the long-term nature of this phase, there is significant fibrosis of the joints and locking of the facets. Within the disc, there is loss of nuclear material and with resultant loss of disc space. Osteophytic changes are common around the periphery of the disc. Occasionally there is vertebral ankylosis.

Clinical lesions:

- Lateral stenosis
- Central stenosis
- Multilevel stenosis
- Disc herniation.

(Kirkaldy-Willis:1992:105-121).

2.4 Epidemiology.

A number of studies in various countries have been done in order to assess the impact of LBP on the economy. Studies performed in the US, Denmark, Belgium and Russia and others suggest that LBP is an extremely common condition (Worku, 2000: 148). Therefore the conclusion that can be drawn is that LBP is an international problem that is a burden both socially and economically. (Worku, 2000: 148). The findings of Cassidy and Wedge (1988: 3-14) concur with these results, and state that between 60 and 80 % of the general population will experience LBP at some stage in their lives, and between 20 and 30% have LBP at any given time.

Presently, there are only 2 epidemiological studies on LBP in South Africa. Van der Meulen (1997) conducted the first epidemiological survey in an indigenous African population in the Southern African region. His results revealed a LBP prevalence of 53.1%, and a lifetime incidence of 57.6%. In another recent epidemiological survey in southern Africa, performed by Docrat (1999), the aim was to study the differences in the incidence and prevalence between an Indian and an indigenous African population in South Africa. His findings among the Indian population were: lifetime incidence: 78.2% and prevalence: 45%. The

statistics in the indigenous African population were: lifetime incidence: 76.6% and prevalence: 32%. These studies seem to indicate a similarity in the prevalence of LBP in the indigenous South African population when compared to other local ethnic groups as well as global trends.

Further to this Worku (2000) studied the factors that affect LBP in mothers in Lesotho. Out of a sample of 4001 mothers, 405 (10.12%) had severe LBP, 513 (12.82%) had moderate LBP, and 1422 (35.54%) had mild LBP.

These findings suggest that LBP is as much a problem in the African context as in the international context, with not much variation between the indigenous African population groups.

2.5 Questionnaires And Validity.

Morris and Roland developed the Roland-Morris Disability Questionnaire (RMQ) in 1983. It was developed from Bergen et al's (1981) Sickness Impact Profile (SIP), which consisted of 136 questions. Morris and Roland extracted 24 of these questions, based on those most relevant in patients with lower back pain, and thus created the Rowland-Morris Disability Questionnaire. It is now commonly used and considered, along with 5 other LBP questionnaires, to be a 'gold standard'. (Yeomans, 2000: 70-71).

The RMQ is a simple and easily understood questionnaire which can be filled in by the patient, and as such is a widely used and validated instrument (Kovacs et al, 2002: 539). Its measurement properties are equal to or better than other LBP measures, when compared to, for example, the Quebec back pain disability index and others. (Stratford et al, 2000: 2095).

In order to achieve effective cross cultural adaptation of a questionnaire and thus maintain content validity, not only must the translation be linguistically correct, but cultural adaptation needs to occur so that concepts are accurately transferred from one culture to the other.

Guillemin et al (2000: 3187) developed a scale according to which it can be decided whether cross- cultural adaptation needs to be performed on a questionnaire in terms of where the questionnaire is going to be used, compared to the country of origin. The scale lists 5 different scenarios and measures them against what changes this will bring about in terms of culture, language and country of use, and what adaptation would be required. The 5 different scenarios are:

a. *Use in the same population, no change in culture, language, or country from source.* Here the score is zero, as no adaptation is needed.
b. *Use in established immigrants in source country.* In this situation only cultural adaptation needs to be performed.
c. *Use in other country, same language*. Once again, only cultural adaptation is needed.
d. *Use in new immigrants, not English speaking, but in same source country.* Here both translation and cultural adaptation should be performed.
e. *Use in another country and another language*. Once again, both translation and cultural adaptation need to be performed.

Zulu speaking South Africa would fit into the last context, where both the language and culture are different to that of the source country of the questionnaire.

Therefore, in conclusion, it can seen that the Zulu speaking community make up a large percentage of the South African population, and are likely to suffer from LBP at some stage in their lives. In order to address the health care needs of this community in an effective manner, in terms of LBP, it is necessary to develop a linguistically and culturally sensitive Zulu LBP questionnaire and compare its outcomes with that of the ERM in order to determine its concurrent validity. This was the aim of my research and the methodology thereof is discussed in the following chapter.

CHAPTER THREE

MATERIALS AND METHODS

3.1 Introduction

This chapter deals with the location and collection of data and the research methodology utilized. The process of statistical analysis is also discussed.

3.2 Background to the study:

3.2.1 The focus group.

Before comparing the two questionnaires as to their concurrent validity, the quality of the Zulu translation needed to be assessed at face value, i.e. face validity needed to be established. In order to accomplish this, a focus group was set up.

The group consisted of seven bilingual participants, some from the healthcare professions, some lay persons, the researcher, and a scribe. These participants were enlisted via word of mouth and advertising, with 10 respondents coming forward and expressing interest in the focus group. Through a process of self - selection the focus group at its outset had 7 participants (3 of the respondents did not arrive for the focus group).

Before commencing the focus group each participant was required to read an information letter (Appendix F), and sign a confidentiality statement (Appendix F) and informed consent form (Appendix F). In the focus group each participant was given a copy of both the ERM and ZRM1.0 (Appendix F). Comment was requested on how accurately (or inaccurately) each of the Zulu questions reflected the basic meaning of the English questions.

The questions were discussed in sequential order (from 1-24). If inconsistencies were found or changes proposed, a unanimous vote was required to institute change. At the end of the discussion chance was given for any comment on the questionnaire, or on translation in general. However, the participants made no further comment and a general consensus of agreement was reached.

A video of the proceedings was made and is available as evidence of the individuals involved and the content of the discussion. A copy of the transcript is available in appendix G.

3.2.2 The main study.

The aim of the main study was to assess this version of the ZRM, in order to determine its concurrent validity.

3.3 Advertising:

A non-probability purposive sampling technique was used to attract participants. The study was limited to bilingual participants. Advertisements (Appendix C) were placed at the Durban Institute of Technology Chiropractic Day Clinic, Durban Institute of Technology Campus and Wentworth Hospital. Word of mouth was also used.

3.4 Participant inclusion criteria:

1. The participant had to be able to read and understand Zulu (1st language) and English.

2. Those wanting to participate in the questionnaire validation had to be 18 years or older for ease of consent.

3. The participant's lower back pain had to fall within the treatment capabilities of primary contact practitioners (i.e. the participant would have been able to receive care from a General Practitioner, Physiotherapist, Chiropractor etc.)

3.5 Patient exclusion criteria:

1. Participants were excluded if they are under the age of 18 years.

2. Participants were excluded should they require secondary, tertiary or quaternary care for their lower back pain. This by implication indicates that all participants with visible pathology or lower back pain of excruciating nature where excluded as they were assumed to necessitate specialist intervention and referred for such.

3.6 Patient confidentiality:

Each patient's name was replaced by a file number, so as to make the association of their patient details to their names inaccessible to the researcher once the data had been captured.

3.7 Questionnaire collection.

3.7.1 Sampling:

Convenience sampling through self-selection was used when the questionnaires were data captured.

3.7.2 Inclusion and exclusion of questionnaires:

On data capture, the selection process of the questionnaires was based on the amount of data omitted from the questionnaires. Any information omitted made the questionnaire invalid. This procedure was utilized to increase the stability and consistency of the information gathered from the questionnaire and minimize the human reactivity (Mouton, 1996: 141), which could have biased the results.

3.7.3 Sample size:

In this study the first 50 valid questionnaires were used. The ZRM1.1 and ERM were used to gather information from the bilingual low back pain sufferers. Before participating in the study, subjects were asked to read and sign both an information letter (Appendix A) and informed consent form (Appendix B). The participants were asked to answer both questionnaires. The need for time lapse between completion of the questions was obviated as a result of the scrambling of the questions in the ZRM1.1 and therefore participants where less likely to rely on memory or compare/transfer answers from one questionnaire to the next.

When assessing the data, the questions on the ZRM1.1 were re-numbered as they were originally (i.e. in order to allow for statistical correlation with the ERM).

3.8 Data analysis:

The data collected was then taken for data capturing purposes.
The data generated is represented by means of graphs, bar graphs and tables for visual communication.

Further analysis of the data was completed using tests for discordance such as the Chi-Square goodness of fit test and the Mantel-Haenszel test (i.e. odds ratio).

If a significant correlation was found between the two questionnaires, concurrency could be claimed.

The level of significance is set at 5% or $\alpha = 0.05$.

3.9 Limitations of the study:

The study assumes that the data on the information sheet is accurate and represents the exact happenings at the time of data input into the questionnaire.

CHAPTER FOUR

RESULTS

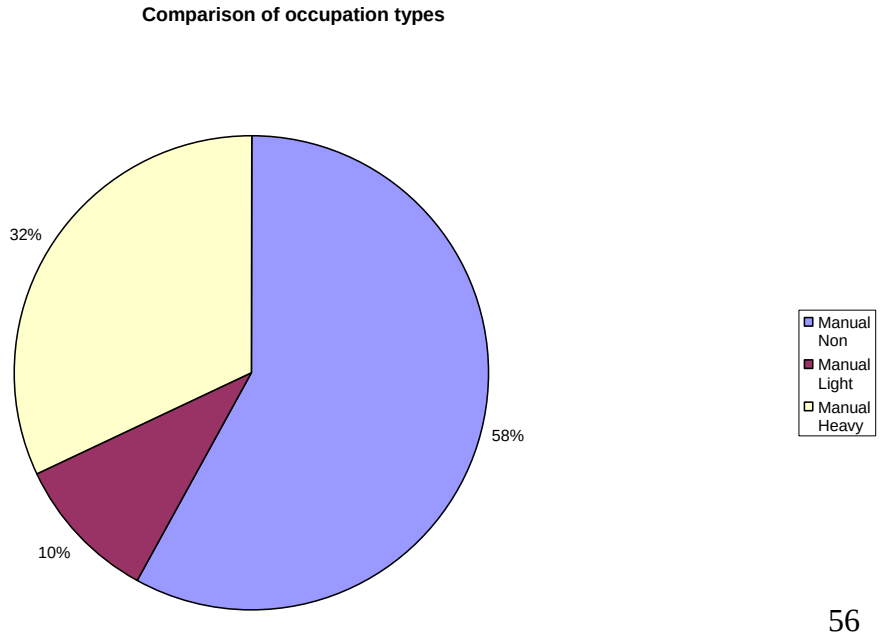
4.1 DEMOGRAPHIC DATA:

4.1.1 Table of demographic data.

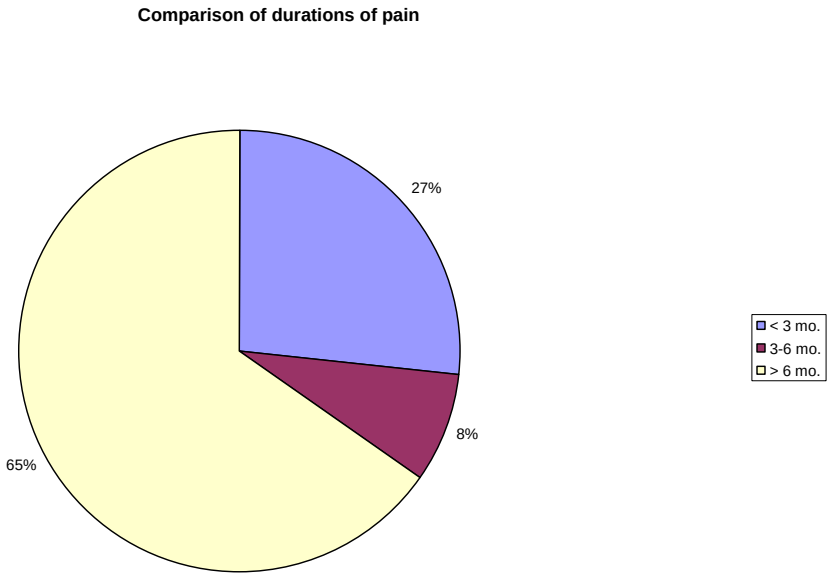
	Occupation	Occupation Type			Duration			Leg	Age	Male	Female
					of Pain			Pain			
		Non	*Light*	*Heavy*							
		Manual	*Manual*	*Manual*	*< 3 mo.*	*3-6 mo.*	*> 6 mo.*				
1	Student	1					1		19		1
2	Student	1					1		25	1	
3	Handy Man			1			1		43	1	
4	Labourer			1			1		52	1	
5	Plumber			1			1		36	1	
6	General			1			1		41	1	
	Assistant										
7	Painter		1				1		46	1	
8	Student	1					1	1	23		1
9	Student	1					1		19	1	
10	Student	1			1				23		1
11	Student	1			1			1	24	1	
12	Student	1					1	1	20		1
13	Student	1						1	21		1
14	Student	1				1		1	22	1	
15	Student	1			1			1	20		1
16	Student	1			1				23		1
17	Student	1			1				18		1
18	Student	1			1				20		1
19	Student	1			1				19		1
20	Student	1				1			21		1
21	Student	1					1	1	18		1
22	Production controller		1				1	1	44	1	
23	Processing	1				1		1	27	1	
24	Cleaner			1			1	1	32		1
25	Driver	1			1				43	1	
26	Distribution clerk	1					1		47	1	
27	House keeper			1			1		45		1
28	House keeper			1			1		34		1
29	Professional nurse			1	1				27		1
30	Admin. Clerk	1			1				39		1
31	House keeper			1			1		22		1
32	Domestic worker			1			1		45		1
33	Student	1					1	1	22		1
34	Shop attendant	1					1		24		1

35	Cost Accountant	1			1			1	31	1	
36	Production controller		1		1		1	1	52	1	
37	Student	1					1		21		1
38	Sales lady		1						55		1
39	Domestic worker			1			1		45		1
40	House keeper			1			1		31		1
41	Unemployed	1					1	1	35	1	
42	Domestic worker			1			1		41		1
43	Liaison officer	1					1		33	1	
44	Receptionist	1				1		1	35		1
45	Sales lady		1				1	1	42		1
46	Receptionist	1			1			1	25		1
47	Labourer			1			1	1	61	1	
48	Handy Man			1			1		39	1	
49	Draftsman	1					1		34	1	
50	Nurse			1			1	1	34		1
	Total	**29**	**5**	**16**	**13**	**4**	**32**	**19**		**20**	**30**
	Percentage of 50	**58%**	**10%**	**32%**	**26%**	**8%**	**64%**	**38%**		**40%**	**60%**
	Mean Age								**32**		

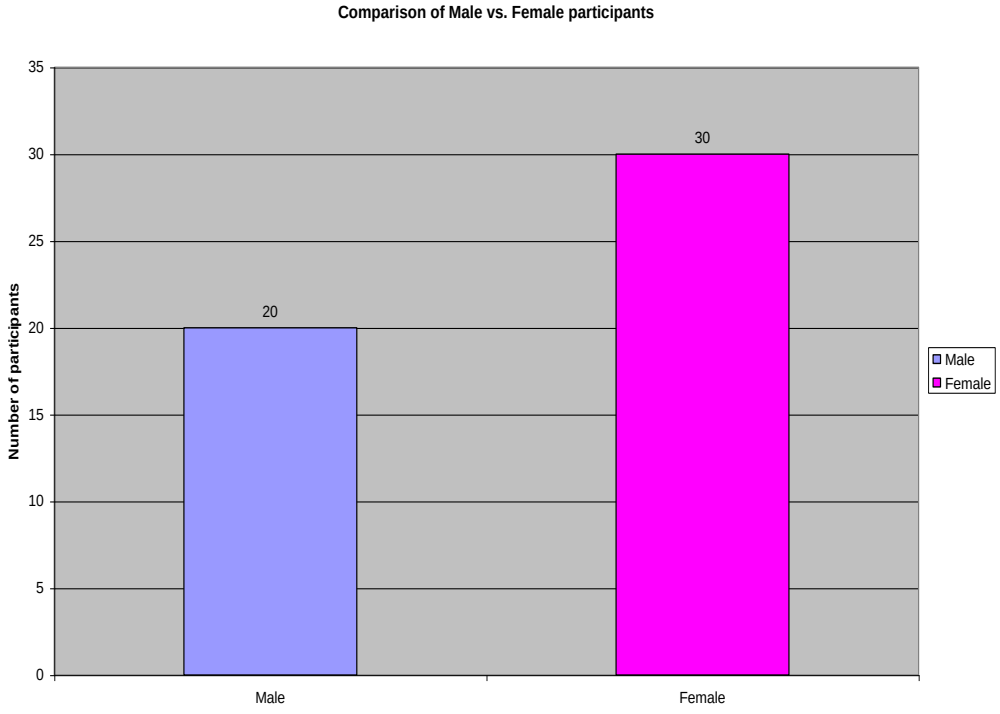
4.1.2 Graphic representation of occupation types



4.1.3 Graphic representation of duration of pain



4.1.4 Graphic representation of male vs. female participants.



4.1.5 Table of age distribution

Age Range	Number of Participants
[18-20]	8
[21-25]	13
[26-30]	2
[31-35]	9
[36-40]	3
[41-45]	9
[46-50]	2
[51-55]	3
[56-60]	0
[61-65]	1
TOTAL	**50**

4.2 Data Analysis

The results of the responses to the questionnaires of each participant are available in Appendix H. The analysis of this data follows.

4.2.1 Tabulation of the number of mismatches for each participant

Participant number	Number of mismatches	Participant number	Number of mismatches
1	0	16	6
2	3	17	13
3	6	18	5
4	1	19	3
5	11	20	15
6	2	21	9
7	11	22	7
8	11	23	6
9	3	24	7
10	1	25	2
11	0	26	2
12	13	27	2
13	6	28	9
14	7	29	14
15	5	30	0

Participant number	Number of Mismatches	Participant number	Number of Mismatches
31	4	41	8
32	2	42	7
33	2	43	5
34	1	44	1
35	0	45	3
36	3	46	4
37	8	47	4
38	4	48	6
39	2	49	0
40	4	50	2

4.2.2 The Frequency procedure

Data from the English and Zulu questionnaires were assessed according to the number of mismatches revealed. The structure of the Roland-Morris Questionnaire allows for a person to indicate, with tick or cross, along side a particular statement, should it apply to them. By default it means that there is only one response per question or statement. Thus when both the English and Zulu questions were answered or unanswered for a particular question, it was considered a match. If only the English or Zulu for a particular question was answered, (i.e. positive response for only 1 questionnaire) it was considered a mismatch. The complete set of results is recorded in Appendix H.

4.2.2.1 Table of the Frequency and Percentage of mismatches per questionnaire

Frequency	Number of mismatches	Percentage
5	0	10
4	1	8
8	2	16
5	3	10
5	4	10
3	5	6
5	6	10
4	7	8
2	8	4
2	9	4
3	11	6
2	13	4
1	14	2
1	15	2

4.2.3 The basic statistical measures.

Mean: 5.00000

Standard deviation: 3.97441

4.2.4 Extreme Observations.

----Lowest----

	Number
Number of Mismatches	Questionnaire number
0	49
0	35
0	30
0	11
0	1

----Highest---

Number of Mismatches	Questionnaire number
11	8
13	12
13	17
14	29
15	20

The randomisation of mismatches indicate that no one particular grouping (e.g. participant number 1-5, or 11-20) had trouble answering the questionnaire. Thus

the results indicate that the problem lies with the linguistic or cultural accuracy of the questionnaire.

4.2.5 Tests for discordance

4.2.5.1 The Frequency Procedure Tables.

These tables depict the results of calculating the results of the English (E) version of one particular question against the results from the correlating Zulu (Z) version. For example, for question 1, the table heading would read: “E1 by Z1”, meaning the English version of question 1 against the Zulu version of the same question.

The results of the English question are tabulated vertically, while the Zulu results are tabulated horizontally. A positive, or yes, response is indicated by a ‘1’ and if the question is not answered (i.e. a negative/no response) it is indicated by a ‘0’.

Table of E1 by Z1

Frequency	**0**	**1**	**Total**
0	43	1	44
1	2	4	6
Total	45	5	50

Table of E2 by Z2

Frequency	**0**	**1**	**Total**

0	5	5	10
1	12	28	40
Total	17	33	50

Table of E3 by Z3

Frequency	0	1	Total
0	22	3	25
1	6	19	25
Total	28	22	50

Table of E4 by Z4

Frequency	0	1	Total
0	20	11	31
1	2	17	19
Total	22	28	50

Table of E5 by Z5

Frequency	0	1	Total
0	32	10	42
1	6	2	8
Total	38	12	50

Table of E6 by Z6

Frequency	0	1	Total
0	18	6	24
1	14	12	26
Total	32	18	50

Table of E7 by Z7

Frequency	0	1	Total
0	34	3	37

1	3	10	13
Total	37	13	50

Table of E8 by Z8

Frequency	0	1	Total
0	39	1	40
1	2	8	10
Total	41	9	50

Table of E9 by Z9

Frequency	0	1	Total
0	29	3	32
1	8	10	18
Total	37	13	50

Table of E10 by Z10

Frequency	0	1	Total
0	22	8	30
1	3	17	20
Total	25	25	50

Table of E11 by Z11

Frequency	0	1	Total
0	18	5	23
1	11	16	27
Total	29	21	50

Table of E12 by Z12

Frequency	0	1	Total
0	27	9	36

1	1	13	14
Total	28	22	50

Table of E13 by Z13

Frequency	0	1	Total
0	24	7	31
1	2	17	19
Total	26	24	50

Table of E14 by Z14

Frequency	0	1	Total
0	23	4	27
1	5	18	23
Total	28	22	50

Table of E15 by Z15

Frequency	0	1	Total
0	34	10	44
1	3	3	6
Total	37	13	50

Table of E16 by Z16

Frequency	0	1	Total
0	23	5	28
1	4	18	22
Total	27	23	50

Table of E17 by Z17

Frequency	0	1	Total
0	29	6	35
1	1	14	15
Total	30	20	50

Table of E18 by Z18

Frequency	0	1	Total
0	23	3	26
1	8	16	24
Total	31	19	50

Table of E19 by Z19

Frequency	0	1	Total
0	46	2	48
1	0	2	2
Total	46	4	50

Table of E20 by Z20

Frequency	0	1	Total
0	27	8	35
1	3	12	15
Total	30	20	50

Table of E21 by Z21

Frequency	0	1	Total
0	16	5	21
1	6	23	29
Total	22	28	50

Table of E22 by Z22

Frequency	0	1	Total
0	31	4	35
1	5	10	15
Total	36	14	50

Table of E23 by Z23

Frequency	0	1	Total
0	20	3	23
1	8	19	27
Total	28	22	50

Table of E24 by Z24

Frequency	0	1	Total
0	32	8	40
1	5	5	10
Total	37	13	50

4.2.5.2 Statistics generated from Frequency Tables.

Question Number	Pearson Correlation Co-efficient. N=50 (Probability > | r | under H(o): Rho = 0)		Odds ratio
	r-value	*p-value*	
1	0.69752	< 0.0001	86.0000
2	0.16888	0.2410	2.3333
3	0.64466	< 0.0001	23.2222
4	0.52793	< 0.0001	15.4545
5	0.01022	0.9439	1.0667
6	0.22018	0.1244	2.5714
7	0.68815	< 0.0001	37.7778
8	0.80690	< 0.0001	156.0000
9	0.50536	0.0002	12.0833
10	0.57155	< 0.0001	15.5833
11	0.37888	0.0067	5.2364
12	0.61379	< 0.0001	39.0000
13	0.64990	< 0.0001	29.1429
14	0.63703	< 0.0001	20.7000
15	0.20205	0.1594	3.4000
16	0.63703	< 0.0001	20.7000
17	0.71270	< 0.0001	67.6667
18	0.56743	< 0.0001	15.3333
19	0.69222	< 0.0001	93.0000
20	0.53452	< 0.0001	13.5000
21	0.55185	< 0.0001	12.2667
22	0.56377	< 0.0001	15.5000
23	0.57559	< 0.0001	15.8333
24	0.27358	0.0546	4.0000

CHAPTER FIVE

DISCUSSION

5.1 Introduction

In this chapter the results of the data captured are discussed and compared, where applicable, to the current literature.

5.2 The First and Second Objectives

The first objective was to interpret the data from the statistical tests for discordance in order assess whether the questionnaire (ZRM1.1) is sensitive and specific enough for use as a tool in data collection. The first objective will be addressed in this chapter.

The second objective was to make recommendations for further improvement to the ZRM1.1 according to this information. The second objective will be discussed in the following chapter (6).

5.3 The Demographic data

5.3.1 Occupation type.

In this study, occupations were classified as either non-manual, light manual or heavy manual. Non- manual occupations included jobs such as clerical, administrative, or those that were desk – bound. Light manual occupations would include those such as sales assistant, or production controller where individuals would be on their feet for large proportions of the day, and required to do a few manual tasks. Heavy manual occupations included those such as domestic worker, nurse or labourer, where the requirements were largely physical in nature.

The percentage of non - manual occupation types were the greatest (58%). The next largest occupation group was the heavy - manual group (32%), with the light manual proportion being the smallest (10%). These figures (as per the non-manual and heavy manual) correlate with the findings of Borenstein et al (1995: 25) where heavy work, lifting, bending and twisting, and prolonged static working postures seemed to predispose workers to LBP.

Possible hypotheses for the large proportion of the participants being in the non-manual classification are thought to be related to the following factors:

- A greater percentage of the participants in this grouping would have to be bilingual in order to be appointed for the jobs in which they reported employment.
- Further to this, due to the selection process of this research being mainly through word of mouth, the clusters of the participants into the above groups could have been distorted as people tend to recommend or associate within their respective work / social status ethos.

5.3.2. Age.

The ages of participants in this study ranged from 18-61years of age. The largest age category was that of 21-25 years, with 13 participants falling into this group. These results conflict with those of Waddell (1998: 76), Borenstein et al (1995: 24) and Van der Meulen (1997: 56) where the highest preponderance of LBP were in those aged either between 50 – 59, 45 – 64, and 50-69 years respectively.

A reason for this discrepancy may be that:

- The cultural group in this study is different from that of Waddell and Borenstein's sample group.
- There are not enough statistics available about the indigenous South African population to establish a norm. Thus the demographic data of this study cannot accurately be judged, and deemed deviant.

5.3.3 Duration of pain.

Duration of pain was classified into 3 groups, namely, less that 3 months (acute), 3-6 months (sub-acute), or more than 6 months (chronic). The highest occurrence fell within the chronic category (65%). This figure correlates with the figure generated by the study Van der Meulen (1997: 59), where 89% of subjects experienced LBP for longer than 6 months. However, the statistics, according to Waddell (1999: 73), show that the largest percentage of LBP is acute (38% in males, 28% in females), which conflicts with the findings recorded above.

Hypotheses as to why the statistics generated in South Africa could be different follow:

- Patients may be naive as regards the scope of health care available for the treatment of LBP.
- These facilities for treatment may not be easily accessible for many of the participants.

These two factors may be reasons why the South African statistics indicate more chronicity of LBP.

5.3.4 Male to Female preponderance.

In this study there was a preponderance of female LBP sufferers (60% female: 40% male). According to Waddell (1998: 73) male to female occurrences of LBP are similar. Van der Meulen's study (1997) revealed similar statistics of 41.7%male sufferers to 58.3% female sufferers.

A possible factor that could have influenced the demographics Of LBP could be related to traditional norms, where the female, irrespective of her social or work related role, is still responsible for the 'house wife' role. This would mean that she still does a large proportion of physical manual labour. This is contrast to the males where, if they do not do a physically intensive job, but one that is more clerical, the amount of time spent doing physical labour decreases substantially

Note: Epidemiological results from this study may not accurately reflect those of the general population. This is because the sample size consisted of participants from particular sub-groups of society, e.g. Students, nurses, or manual labourers. This is not indicative of the Zulu population, as a whole.

5.4 Results from Data Analysis by Participant number.

Cross tabulation of results revealed that 10% (5 people) of participants had no mismatches in their questionnaires. One person (2%) had 15 mismatches. These results reflect a broad range of understanding of the questionnaire, from excellent (no mismatches) to poor (15 mismatches).

5.5 Statistical test results.

5.5.1 The Pearson correlation coefficient for the strength of association between 2 variables.

In a random sample size of N, where 2 variables are being assessed, the correlation coefficient can be used to determine whether the variables are closely associated or not. Each variable is associated with one of the rows, or one of the columns, resulting in a table such as this:

Table of E6 by Z6 for all participants (N=50)

		Zulu version		
	Frequency	**0 (No)**	**1(Yes)**	**Total**
English version	**0 (No)**	18	6	24
	1(Yes)	14	12	26
	Total	32	18	50

This table represents the data gleaned from the English version of question 6 (E6) set against that gleaned from the Zulu version of the same question (Z6). The question could either have been answered in the affirmative, indicated by a tick next to the question on the questionnaire. This is indicated in the table by a '1'. The alternative is that it was answered in the negative, i.e. left blank on the questionnaire, and indicated by a '0' on the table. If the answer is the same in both English and Zulu, there would be a high degree of association (i. e. either both answered or both unanswered).

For this question, the table illustrates that there were 18 people who answered 'no' to both the English and Zulu question and 12 people who answered 'yes' to both the questionnaires. There were also 6 who answered 'no' for the English and 'yes' for the Zulu, and 14 who answered 'yes' to the English and 'no' to the Zulu. The 'yes-yes' and 'no-no' cells in the table would be the highly associated cells, and the 'yes-no' or 'no-yes' cells would be the weakly associated cells.

Factors that have a strong association are said to be inter-dependant, while those that do not have a strong association are independent. The null hypothesis is the test that establishes the degree of inter-dependence between 2 factors. In this test, 2 situations can occur, namely:

H(0): Factors 1 and 2 are independent, or not strongly associated.

H(1): Factors 1 and 2 are interdependent, or strongly associated.

The level of significance in this study is set at 0.05. This means that if the p-value associated with the Pearson's correlation coefficient is < 0.05, there is a high degree of association between the factors. If the p-value is > 0.05, there is very weak association, and further cultural adaptation of the corresponding Zulu question is indicated.

Questions 1, 3, 4, 7, 8, 10, 12-14, and 16-23 show a p-value of < 0.0001. This indicates very high association between the English version and Zulu version. No further adaptation is required. However, the remainder of the questions do not show strong association, and will need further adaptation. The most significant of these is question 5, with a p-value of 0.9439.

5.5.2 The Odds Ratio.

This test is a further way of confirming the degree of association shown by the Pearson's correlation coefficient. A hypothetical example of one of these tables calculating this ratio follows:

		Zulu	
		0	**1**
English	**1**	a	c
	0	d	b

If we say that:

- the 'no-no' cell = a
- the 'yes-yes' cell = d
- the 'no-yes' cell = b
- the 'yes-no' cell = c,

then the formula for the Odds Ratio would be (ab) ÷ (cd).

A high value of the odds ratio is an indication of strong correlation between 'yes-yes' and 'no-no' responses.

The highest Odds Ratio is found in question 8, being 156. The lowest ratio is found in question 5, being 1.0667. These results confirm those of the Pearson correlation co-efficient.

The results of this study suggest that the ZRM1.1 is not an accurate measurement tool for assessing LBP in the Zulu speaking population, as a number of questions showed a weak correlation with the English version. In its entirety the ZRM1.1 is not accurate, but the highly concurrent questions could form the basis of the development of a new Zulu questionnaire.

CHAPTER SIX

CONCLUSION

Conclusions:

In conclusion, the findings of this study support the suggestion of Guillemin et al (2000) that, where the culture and country of origin of a particular questionnaire differ to that of where the questionnaire will be used, not only translation, but also cultural adaptation of the questionnaire is indicated.

A case in point is a comment made by one of the participants. They pointed out that for question 21: " I avoid heavy jobs around the house because of my back", there would be confusion for Zulu men because traditionally they do not do 'jobs around the house', but rather jobs outside of the house.

Recommendations:

Due to the distorted demographic data, it is suggested that future research apply a stratification model in terms of age, level of literacy, occupation and other relevant categories as pertinent to the future study, in order to ensure that the demographic data gathered is more representative of the general Zulu speaking population.

The administration of the questionnaires were within relatively quick succession, as a result of the questions of the two questionnaires being unidentical, allowing

for decreased participant question recognition. This method could however be further improved by the use of a combination of scrambling of the questions from one questionnaire to the next, as well as increased time differential in order to decrease reactive memory response.

A limitation in this study is the fact that, in order to assess the questionnaire, participants had to be literate in both English and Zulu. However, the situation this research, primarily, seeks to address, is that of Zulu speaking persons who would not be able to answer the English version easily. A recommendation for future research is to assess the understanding of the Zulu translation of this group alone.

The second objective of the study was to make recommendations for further improvement to the ZRM1.1 according to the results gathered.

Recommendations for improvement are that Questions 2,5,6,9,11,15 and 24 be further culturally adapted. A focus group should be set up to discuss how the English meaning could more accurately reflected in Zulu. The group should consist of a wide range of literacy levels, in order to ensure accurate understanding of the English question, and relevant traditional input.

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APPENDIX A

APPENDIX B.

APPENDIX C.

APPENDIX D.

APPENDIX E.

APPENDIX F.

APPENDIX G

Transcript of the Focus Group.

H: First of all guys, I seriously appreciate this. I know it is taking a lot of time of your busy schedules. I think you've read the information sheet on the first page that explains to you this questionnaire is a questionnaire that chiropractors use to assess patients with lower back pain, to see how bad it is and then once they've started treating, if there's any improvement. Ok. So the purpose of this research is step 1 in a 2 step process that I'm doing a research on and um this step is to, to see on the face of it, just, does this questionnaire look good. Does it….on the face of it, do the Zulu questions reflect the meaning of the English questions. So that's why I've just got a group of people from diverse backgrounds, some from…from health professions, mainly just um people who could be patients in the future. So I would just like your opinion on the Zulu version of the questionnaire. See if it matches the meaning of the English.

We are going to go through..um the, um questionnaire question by question. So when I say we are going to Ok we will only deal with comments and question 1 and changes to question 1. We won't be referring to " Oh yes, that makes me think of question 10" . We are going to do it question by question.

And as you see, we are going to be recorded, um, just so that I can make proper notes in the future so that we can have a record of who was here…and on that ..on that note, there are 2 forms I need you to fill in. One is a informed consent form and the other is a confidentiality statement. They are just legal documents in

terms of stating who was here and just binding you to confidentiality and reassure you ..um..that what is said in this room won't ..um..go any further. Well, it will go further in terms of research, but it won't…Nothing here will be held against you. If you have any problems with the research you are totally free to leave. So I just ask you, there are two pieces of paper, both need your signatures, um.. the one just needs your name and your signature, the other needs your full name, your occupation, your signature and your contact details. Ok if you could read that for me and sign that I would appreciate it.

Ok. Just while that's going around you can familiarise yourself with the questionnaire and once all the papers have been signed, we'll start the discussion. Ok. Wonderful.

Can I get anyone else anything more to eat or drink. Are you Ok? Wouldn't you like anything more to drink?

C: No. I'd just like you to rest a little bit.

H: Ok. Oh Ch. are you Ok to be the scribe? I suppose you've all met Ch. supervisor and good friend and she'll be helping us here. She's done a focus group before, she knows the things that can happen and she'll be helping me take notes for this session.

Ok. Wonderful.

Have you all been introduced to each other? No, not really hey?

Question 1. In the English it reads (H reads number 1 in English). Does the Zulu reflect…Can you read the Zulu the way its…any comments on the question. Any ambiguity, anything that doesn't make sense?

J: I think its clear.

P: No, not to me. If in English translation…But if I say " I stay at home most of the time because of my back" then, what about your back?

H: I see, you mean you don't quite understand what the English version means

P: No. I know what it means. The translation is correct.

H: Is the meaning….ok. What would you have preferred it said there?

P: ..of my back pain.

H: oh , ok , alright. So could your tell me the sentence in full, where the changes would be made in question 1.

P: (Reads the correct version in Zulu).

H: I should've mentioned before, if there are any changes on a particular question, just for formality's sake, we are all going to vote on it, and if there's a majority vote that change will be made. Any other changes to question 1?

J: We should change it in English as well.

H: Oh. I'm afraid we can't do that!

J: Really!

C: Well, in English it makes a lot of sense. Because that's normally how you would say it.

H: Ja. In the English culture that's how you would say it….you would stay at home because of your back pain. You wouldn't just stay at home because of your back. In the Zulu culture, obviously, its not taken for granted…..Well….?

P: No. It's nothing to do with the culture. The language is just fine. It's just that it is not precise, even in English.

H: Ok. I'll make a note of that.

J: If we can go back to the thing before the question itself where it says "if your back hurts you may find it difficult to do some of those things you normally do". The Zulu things…ukuzenza. Its not uzenza.

H: Ok. Can you spell that for me? Just have a look. Are we all agreed on that? Alright. Any more comments on question 1? No? Great. Moving on to question 2. I'll read the English.

(reads question 2.)

H: Um, C, can you read number 2 for me, in Zulu?

(C reads question 2. In Zulu)

C: I don't think we really have to be so explicit….if it makes sense….

H: So you're happy with that one?

(All agree)

H: Any other comments? It makes perfect sense?

J: Yes.

H: Great. No changes to question 2 as such?

(All agree)

H: Question 3.

(Heidi reads question 3 in English)

H: J, can you read question 3 for us?

J: Ok.

(J reads question 3 in Zulu)

P: I'm looking at it from the point of view of writing exam, it must be spot on. Otherwise its fine.

H: Ok. So what I'm getting at, the ordinary man on the street, he would be able to pick this up and be able to understand it?

J: Ja.

Tho: Ja, because like if the person comes and say "I've got back pain, in Zulu's of…

H: Any changes to number 3? No? Its ok?

(Agreement)

H: Number 4.

(H reads number 4 in English)

H: A, please read number 4.

(A reads number 4 in Zulu)

H: Any comments?

C: Um..

H: Yes C.

C: The way I would say it is (Zulu). Because, well, to me it sound better.

J: You are right.

P: You are 100% correct.

C: It sounds more….Because, in Zulu, if you translate it directly into English it probably won't mean the same that the English is saying. But it makes more sense to say it as " because of my back I am no longer doing the work I usually do around the house.

P: I'm sorry. I don't think that we must try to be grammatically correct. Because if we are trying to be grammatically correct, we will go deep into this thing.

C: No, I am not being grammatically correct. I am just saying… I'm just trying to make it sound…. But that's also fine.

H: So as it stands, would it make sense?

C: Ja, I would say so.

H: So we all agree that we will leave number 4 as it stands, understanding that it might not be the best sounding on the ear, but that the man on the street will understand it?

(Agreement)

H: Ok. Number 5. Thu, can you please read that for me?

Thu: Alright.

(Thu reads the question in Zulu)

Thu: Its fine.

H: Does it make sense?

(Agreement)

H: Alright. Ok. Moving on. Number 6. P, please read that….in Zulu.

(P reads the question in Zulu)

H: Um…J?

J: ….to rest more often…..

C: We don't have a word to say 'more often', that's the thing.

H: Ok! This is what I like to hear. This is why I'm doing my research.

J: No. This is, like, "I'm always…..lying down"

H: and if you have to just, out of this context, how would you say…How would you structure it?

C: I would say…I'm not saying change…but I would say (Zulu).

J: If you say (Zulu), its, like, I'm always. Its not often.

H: And Thu? How do you feel about that, do you agree?

Thu: To me, I think it boils down to these 2 terms 'translate' and 'interpret'. I think translate is different to interpret.

H: Yes.

Thu: The way I understand you, you just want to know, does this make sense? Does the message come through? Which is translating. Whereas interpreting is more accurate, more precise, word for word. You know, as I read through the whole lot, it was just fine and now we're taking it sentence by sentence, but to me its just fine.

H: Ok. Alright. So to your mind, the changes are not really going to change, in the mind of the reader, any of the meaning. It might be more accurate, but..um…it won't change the meaning.

Thu: The concept, you know, still comes through.

H: Will every person, if they read question 6. In Zulu, would they be confused? Would they think: " what is this person trying to say…I always lie down on my back?". Or would…..

Thu: Because there are figures of speech also. You know, they are

hyperbole and so on. It will be alright. People will know its not that I am forever sleeping, its just a figure of speech. They know the meaning, the exaggeration behind that, you know what I'm saying.

H: Alright.

Thu: Because I think the basic principle is that " my back is so sore, I'm always like…."

J: It sounds like you're bed ridden. Its not like you're lying down to rest.

C: It sounds a little more serious

H: I would have to agree, because then if we are going to ask a Zulu person…..

Ch: Um…

H: Oh! I'm not really supposed to give my opinion, am I?

Ch: Not really, No.

P: Maybe I must say this. When you see patients, especially the people with back ache, those are elderly people. And usually elderly people, some of them, usually, they can't express themselves. I don't care how good they are in Zulu. She will mention something that you have never heard. So this is fine!

(Laughter)

P: They couldn't even tell you what's wrong, the language gets lost.

C: They use phrases, you know? Idioms.

P: So this….this is simple!

Thu: For instance, patients will come in, for instance, and say (Zulu). Its not literal.

J: It's a lie!

Thu: Its not literal “I haven’t slept the whole night”. Its not literal.

P: From that sense so this

Thu: Ja, so this is Ok.

H: Ok. J, how do you feel about that?

J: Ah…to me, I’m still not Ok with this because I ask patients, most of the time, this same question.

H: And you have a problem?

J: I think it would sound much better if you say (Zulu),’because of the pain’. To me it sounds still like you are always sleeping.

Thu: To make the change to this one, we will also have to accommodate C’s contribution in the previous question. Because, to me, the principle is the same, you know, because she was technically correct.

Tho: I’m thinking, J, that we can leave it because there is this ‘upumula…to rest’. The person will understand that I don’t lie down all the time, but I lie down because I want to rest. So we might as well…

J: It supports

Tho: It supports what it says. So we might as well leave it.

J: No…Ok.

Thu: And there she said “ No, I’m Ok” !

J: Ja, you would understand it more because of that word uphumula. It makes sense.

H: I think J is coming from a physiotherapy-treating patients point of view, so she does need to get technical with her patients. So…ja. So we are going to take a vote. Is everyone happy leaving it as it is because of the ukupumula?

(Agreement)

H: Alright. Great…..you're sure?

Thu: Otherwise, if we don't, we won't ukuphumula ourselves!

(Laughter)

H: Ok. Number 7.

(Heidi reads number 7 in English)

H: Um..

(Tho reads number 7 in Zulu)

A: Eh, A ah.

H: I want to hear Amanda, sorry , just to interject. I want to hear A's contribution.

(A reads number 7)

A: It is not clear.

J: Would you prefer it if they say (Zulu) or what. To me it makes sense.

C: Is it the easy chair?

A: It is the easy chair thing.

C: There is no way of translating easy chair. But it makes sense in this…

H: Ok…

P: And also, to me, it is descriptive to say " because I'm having a problem" even if it is easy chair, someone can easily stand up. "But me, I need to hold onto something". It is more descriptive. I like it; it's like the talk of a child, you know?

C: I thought that was very good.

Thu: Ja, to me, its fine.

H: So, you are happy with that? Are you sure? No more comments on number 7?

Number 8.

(H reads number 8 in English)

H: J?

(J reads number 8 in Zulu)

C: Ukuza sounds much better.

J: Its just, we come from the North. In the South its different.

H: It's ok? You're sure?

(Ja)

H: Closing number 8, moving on to number 9.

(H reads number 9 in English)

(C reads number 9 in Zulu)

C: it sounds good.

H: Ok? Number 10.

(H reads number 10 in English)

H: Jean please.

(Jean reads number 10 in Zulu)

H: It's ok?

J: It's ok.

H: No comments? Yay! No, I don't mean that. I love your comments.

C: It's ok, you can tell us when we start boring you!

H: No!

(H reads number 11 in English)

H: A, please read it.

J: It's alright.

C: I thought that was pretty good!

H: No problems with that question? A, you're happy? Just to reassure you, at the end of the session, once we've finished all the questions, I will have, just, a time where you can share your comments on the questionnaire. Then we can talk about things like, its not maybe grammatically correct, or that people from different parts of the country might interpret it differently, or just understand that this is 'baby' Zulu and that if it had to be subject to an examination, then perhaps there would be faults. But for the ordinary man on the street, its ok. Ok? So there will be time where you can chat a bit more about the questionnaire. Ok?

C: Mmm (agrees)

H: Ok. Moving on to number 12.

(Heidi reads number 12 in English)

H: Umm..Thu please.

Thu: Ok.

(Thu reads number 12 in Zulu)

Thu: It's ok. Fine. Just straight.

H: Number 13.

(H reads number 13 in English)

(P reads number 13 in Zulu)

P: It's fine as well.

H: C, not so sure?

C: I usually say it in plural, and to me it would be (Zulu), but this….is fine.

H: So it's a personal thing then?

Jean: I would say isikhati.

H: But as it stands? Fine?

Jean: And even there where it says 'levama', so its fine.

H: We've just done number 13, is that right? Ok? Going on to number 14.

(H reads number 14 in English)

H: Um, Tho?

(Tho reads number 14 in Zulu)

H: Ok?

Tho: Fine.

H: You guys not getting tired, 'eh?

All: No!

Thu: We need an 'h' there; 'enbhegeni'.

J: B.H.E, the spelling. Ja.

H: Ok, just mention…E..M…B…H. Do they have different meanings, the words?

No? Oh, ok. Number 15.

(Heidi reads number 15 in English)

H: Um, J please read it.

(J reads number 15 in Zulu)

(Laughter)

J: My Zulu endings!

(Laughter)

J: Ok. I'll repeat that.

(Repeats number 15 in Zulu)

P: (Corrects Jabu in Zulu)

J: Oh, ja! (laughs)

H: Oh shame! My goodness! Ok. Comments on that question?

C: I thought that was good.

J: Ok. Pretty good.

H: Fine? You're all happy? Number 16.

(H reads the English number 16)

(C reads the Zulu version)

C: Very straight forward.

H: Ok? Moving on to number 17.

(H reads the English version)

H: Um, Jean please?

(Jean reads the Zulu version)

C: Aaah. That's wrong.

H: Oh.

J: Instead of 'E' its supposed to be 'B'. Just..of 'kw'.., just put 'B'.

Thu: I think in Port Shepstone this would be fine!

(Laughter)

C: Nasty!

H: Does it have different meanings?

J: It's for another….

C: It's for another class.

H: Ok. Ok, so, Thu, are you all happy with that?

Thu: Very much.

H: So you all agree on the (Zulu) instead of the (Zulu)?

C: That's good!

H: I went to C for a few Zulu lessons, but I didn't get very far, I'm afraid! Number 18.

(H reads the English version)

H: A, please read that.

J: That's good. You see the 'B' 'E'?

H: Yes. Ok. So even the translator got a bit confused there!

Thu: This one, to me, was the most outstanding of them all. It was very nice because it was 'buhlungu'. You know?

(Laughter)

C: That touched his heart! The special one, was the highlight of….

J: how would you feel if you say (Zulu). It's long…

C: Well, you're right. Um…It makes more sense like that.

J: I'm just…

Thu: But understand this person is in pain. So this is very expressive! It's coming from the bottom of his tender heart.

C: Don't change anything! You'll have a fan with Thu!

Thu: Can you read the English again?

H: Ok.

(H reads the question in English)

Thu: What was J saying?

J: I was saying (Zulu).

Thu: Ja. Short and to the point.

J: Mmm. Instead of (speaks in Zulu).

H: What was the comment?

C: This one is saying " there is a shortened amount of time that I sleep well, because of the pain".

H: And what is J saying?

C: Exactly like in English.

H: Oh. So this is a more long winded way of saying it? But still, the meaning is the same.

(Agreement)

H: Ok? We're all happy?

Thu: It's the heart of the person who was translating this one.

(Laughter)

C: Um, everyone! Rest the case.

J: Lets move on.

H: Ok?

C: That was fine.

H: Number 19.

(H reads number 19 in English)

Thu: (Reads the question in Zulu)

H: Fine? Yippee! Ok. 20. (Reads the English version)

H: P…?

(P reads number 20 in Zulu)

C: That is so exaggerated!

Jean: Uhlubulonge doesn't…

C: And Gakulu also makes the exaggeration a huge thing, but then again, Zulu is an exaggeration on its own.

J: Its ok.

H: You say the exaggeration is a bit too much there?

P: Its part of the speech.

J: It makes sense.

Tho: Its fine.

A: To me, the gakulu makes it fine to say it like that. Usugulonge….not really the whole day, so its just most of the time to me.

C: Let the nurse tell us.

H: J, what's your comment?

J: Aah, no…

H: No. No, you do have a comment.

J: Mmmm. I do, I do. I'm just trying to think of a way, how to put it. It doesn't sound right.

Thu: Mmmm. Its not right.

H: Alright, so lets restructure the sentence. Lets…. We're doing number 20 over in the Zulu version. Um, lets come up with a better translation.

Jean: I would say….because most of the day…..

(Discussion in Zulu)

Thu: (Speaks in Zulu)

(Agreement)

J: Its from the bottom of your heart!

(Laughter)

J: Ok, lets….Ok, if we say…

Thu: (Speaks in Zulu)

J: (Speaks in Zulu)

All: (Discussion in Zulu)

C: Means the same thing to me.

(Discussion in Zulu)

Thu: That's also fine.

H: Thu has a version, and J has a version.

P: He displays the comma!

H: I am going to have to be quite tedious, I need someone to write it on my questionnaire.

C: Oh, I don't mind. I have a beautiful handwriting.

Thu: But its not fair, she stole my idea.

J: I didn't ! I was just shortening it.

H: It's on tape! Everybody knows that Thu came up with the idea. Go Thu!

C: Just check how good my handwriting is!

C: What! Don't be jealous.

Tho: Bad handwriting.

Tho: It is a secretary's hand writing!

J: You skipped one thing.

Jean: You should have written it down.

C: Excuse me, no hard feelings.

H: Oh, my goodness.

C: What was that again?

H: Ok, just write what she's got.

C: Ok, over there it will be..

J: You know what? Start a new thing over there.

C: Hey man. Now I'm being abused.

J: Write number 20.

H: You've also god a nice handwriting.

J: Thank you.

C: Or so you think! Its just a scribble.

Tho: I like 21.

Jean: So do I.

J: She will be disappointed. You are not allowed to talk about another question while we are still doing…

H: Ok, just for completion, can Jabu please read the new Zulu version of 20.

J: Okey dokey. (J reads the revised question in Zulu).

H: Ok. We all agree that is the good version?

Thu: Eh, I was very worried. I thought, someone was taking (Zulu).

But its fine.

H: Ok, good. Number 21.

Tho: In English, please.

H: "In English, please". (H reads the question in English)

P: (Reads the question in Zulu)

J: Beautiful.

Jean: Beautiful.

H: Wonderful.

Thu: He's just being lazy.

H: Ok. Number 21 perfect? Number 22? (Reads the question in English)

Tho: (Reads the question in Zulu)

H: Alright. What do you guys think of it? Is it ok?

All: Its fine.

H: Yay! 23! (Reads the question in English). Um…J?

J: (Reads number 23 in Zulu).

H: Jean, are you alright with that?

Jean: No, its fine.

H: Its fine? Ok. And the grand finale…number 24. (Reads the question in English)

J: (Reads the question in Zulu)

Jean: Its fine.

H: Is it fine? But does it not clash with the meaning of number 6?

J: Mmmm. I was just thinking that, because of number 6.

H: We are just comparing now, number 24 and number 6.

J: Because we said number 6 has 'ukuphumula' which is not…um…. It has to do with sleeping.

C: Its resting.

J: It has to do with resting, and this one is sitting.

P: Me, I was going to say the same thing.

H: Ok, so are you happy that there is enough difference between number 6 and number 24?

P: No. In number 24 I was going to say (Zulu). I wasn't ……

Jean: Because it looks like you are sitting.

C: Ja, but that's the most literal thing. The meaning here is….I mean in my Zulu, its absolutely fine.

J: So H, if you say " I stay in bed most of the time because of my back" do you mean you're sleeping or you're sitting? Because here it says sitting on the bed. In Zulu it says I'm sitting on the bed most of the…..

C: No but, but if someone says to you 'ngihlala……(Zulu)' to me it means, what else do you do in a bed, you lie.

P: No. A non- Zulu speaker would understand, but a Zulu speaker……..Obviously the bed comes into the picture. You don't have to say (Zulu).

Thu: (Zulu). Zulu translation, taken from this, it seems to imply that this guy, he has got a back ache, and he would rather sit on his bed that lie down.

H: Ok. Well that, I think, is wrong because…what's the difference between…

(H looks at Ch)

Ch: You can carry on.

H: You must please shout if I'm interfering. Because we need to draw a distinction between someone who can get up and sit on a chair, and someone who can't even get out of bed. I think the meaning in English " I'm staying in bed" is more lying down. Its not sitting.

Tho: We need to change it to lie then.

J: So, what's the new sentence?

H: Ok. Can you read the new version?

J: (Reads the revised Zulu version)

H: Is that alright with everyone? Wonderful.

P: I think the picture of the bed is in my head!

H: Shame, you'll get there soon.

P: I'm saying, already I can see the bed (Zulu). You don't have to mention the word.

H: Ok. I just want to go back to number 1. Just because we started with a precept in question 1 which, I think we, maybe, changed. Just….., we suggested we put 'elibuhlungu' in. Do you still think question 1, as it stands, without 'elibuhlungu' is fine, or do we need to add 'elibuhlungu' for a more correct meaning?

C: I don't think we should.

P: I think, if you start from, like Jabu said, “when your back hurts”, if you start from there, then obviously you know it hurts. So you don’t have to add it, the elibuhlungu.

Jean: Because for most of them, they’ve got (Zulu). Ja, below they didn’t include elibuhlungu.

Thu: It’s the first sentence so ‘elibuhlungu’ is relevant, because it sets the trend. You know what I mean? It sets the tone for the rest of them. However, if you read the first part, you don’t need to put ‘elibuhlungu’ because it is already covered.

H: So do we agree that we go back to the original for number 1, that we don’t change it? Ok? So we leave ‘elibuhlungu’ out.

Tho: If you are going to be asking a person, and you start by reading the top part, then the person is going to understand the first sentence. But if you’re just going to come and ask the first question, then its ‘elibuhlungu’.

H: Oh, I see.

Thu: That’s why I suggest we add it, you know, because it sets the trend.

H: But they will read the little introduction to the form.

P: Ok.

H: Because, I will give them the form as it stands.

Tho: Provided they can read!

H: I think, if the questionnaire is being read to them, then the person reading it will read the whole sentence. Um, ok. I am going to take a vote. Does anyone say we should add ‘elibuhlungu’ to number 1?

A: Since you put it that way, that they will know in the first place…

H: If we take it that they will read the whole questionnaire. If it's not, um, if they can't, someone will read the whole questionnaire to them.

J: The people that you are going to give this questionnaire to, are they….the people who are already suffering with back ache, you see.

Jean: So are we going to add it?

H: No, we are not going to add it. That was the discussion. Alright, is there any comments, um, or just anything that you would like to say about this experience? About the questionnaire?

H: No? Anything else that anyone else wants to comment, just for future reference? Pardon?

Ch: The headings.

H: The headings in terms of …? Everything from…

P: The low back pain and disability questionnaire.

H: Yes.

C: I thought it was fine.

Thu: Question number 19, in the Zulu version, I think there should be a comma there. (Zulu) comma (Zulu).

H: Ok. Alright. Just, number 19 everybody. After which word? Sorry? Lami? Ok. Do we all agree that there's a comma after 'lami'?

(Ja)

H: So, no other comments. On the questionnaire? On translation? On understanding this?

(No)

H: Ok. I will say for the record, and if you agree or disagree with me you can say, that this questionnaire, the meaning of the Zulu as we've discussed it, is so that a regular man on the street with back pain can get the meaning. But, given that perhaps this is not technically accurate Zulu. In terms of, it had to go to a grammatical examination, then there might be some problems. But we are saying, at the end of this meeting, that this questionnaire, to the best of our ability, the English meaning is reflected accurately in the Zulu meaning of the translation.

(Agreement)

H: Is that right?

(Agreement)

H: Although there might be some slight technical differences, whether you come from Northern….Zulu or Southern Zulu. Is that right?

All: Yes

H: Or just, um, slight grammatical tightness, or whatever, but the meaning is there. It's not ambiguous. You're not….there's no confusion in the questionnaire?

Thu: In fact, anyone who could question the grammatical correctness would be insulting our intelligence.

(Laughter)

J: That is so true!

P: In speech, you know, we are never grammatically correct, English, Afrikaans or Zulu.

H: No, true.

P: In speech, relax.

H: Good. Ch, any other comments you'd like to make?

Ch: No.

H: I'd like to thank you very much for your time. It has been wonderful getting to know you….

END OF SESSION.

APPENDIX H

(DATA FROM QUESTIONNAIRES)

This appendix contains the data gathered from each of the 50 questionnaires. The number of the question is listed horizontally, eg. E1(English question 1) and then its corresponding Zulu question (eg. Z1). The numbers of the participants are listed vertically, from 1-50. The data for each of the 50 participants is listed in batches of 4 pairs of questions, i.e. question 1-4, 5-8, 9-12, etc. The data is annotated in terms of 1's and 0's. If a particular question was ticked on the answer sheet, then a 1 was indicated. If they did not tick it, i.e. the question did not apply to their LBP, a 0 was indicated.

	E1	Z1	E2	Z2	E3	Z3	E4	Z4
1	0	0	1	1	0	0	0	0
2	1	1	1	1	0	0	1	1
3	0	0	0	1	1	1	1	0
4	0	0	0	0	0	0	0	1
5	0	0	0	1	1	0	0	0
6	0	0	0	0	0	0	0	0
7	0	0	1	1	0	0	0	0
8	0	0	1	1	1	0	0	1
9	0	0	1	1	0	0	0	0
10	0	0	1	0	1	1	0	0
11	1	1	1	1	1	1	1	1
12	0	0	1	0	0	1	1	1
13	0	0	1	1	1	0	0	1
14	0	0	1	0	0	0	0	0
15	1	0	1	1	1	1	0	1
16	0	0	1	0	0	0	0	1
17	1	0	0	1	1	0	0	0
18	0	0	1	1	0	0	0	0
19	0	0	1	1	0	0	0	0
20	0	0	1	0	0	0	0	1
21	0	0	1	0	0	1	1	1
22	0	0	1	0	1	1	1	1
23	0	0	1	1	1	1	1	1
24	0	0	1	1	1	1	0	0
25	0	0	0	1	1	1	0	0
26	0	0	1	1	0	0	0	0
27	0	0	1	0	0	0	1	1
28	0	0	1	1	1	0	1	1
29	0	0	1	1	1	1	1	0
30	0	0	1	1	0	0	0	0
31	0	0	0	0	0	0	0	0
32	0	0	1	1	1	1	1	1
33	0	0	1	1	1	1	1	1
34	0	0	1	1	1	1	1	1
35	0	0	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0
37	0	0	1	0	0	0	0	1
38	0	0	1	1	1	1	1	1
39	0	1	1	1	1	1	1	1
40	0	0	1	1	1	1	0	0

	E1	Z1	E2	Z2	E3	Z3	E4	Z4
41	0	0	1	0	0	0	0	1
42	0	0	1	1	1	1	0	1
43	0	0	1	1	1	1	0	1
44	0	0	1	0	0	0	0	0
45	0	0	1	1	1	0	1	1
46	0	0	1	0	0	1	1	1
47	1	1	0	1	1	1	1	1
48	0	0	1	1	0	0	0	1
49	0	0	1	1	0	0	0	0
50	1	1	1	1	1	1	1	1

	E5	Z5	E6	Z6	E7	Z7	E8	Z8
1	0	0	1	1	0	0	0	0
2	0	0	1	1	0	0	1	1
3	0	0	1	0	0	0	0	0
4	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0
7	0	1	1	0	0	0	0	0
8	0	0	1	0	0	0	0	0
9	0	0	1	0	0	0	0	0
10	0	0	1	1	1	1	0	0
11	1	1	1	1	1	1	1	1
12	0	0	0	1	1	0	0	0
13	0	0	1	0	0	0	0	0
14	1	0	0	0	0	0	0	0
15	0	0	1	1	0	0	0	0
16	0	0	1	0	0	0	0	0
17	0	1	0	1	0	0	0	0
18	0	1	1	0	0	0	0	0
19	0	0	0	0	0	0	0	0
20	0	0	0	1	1	0	0	0
21	0	0	1	1	0	0	0	0
22	1	0	1	0	0	1	0	0
23	0	1	1	0	0	0	1	1
24	0	1	1	0	0	0	1	0
25	0	0	0	0	1	1	1	1
26	0	1	0	0	0	0	0	0
27	0	0	0	0	0	0	0	1
28	0	0	0	0	0	0	1	0
29	0	1	1	1	0	1	0	0
30	0	0	1	1	0	0	0	0
31	0	0	0	0	0	0	0	0
32	1	0	0	1	1	1	0	0
33	1	0	0	1	1	1	0	0
34	0	0	1	0	0	0	0	0
35	0	0	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0
37	0	0	1	0	0	0	0	0
38	0	0	0	1	1	1	1	1
39	1	0	1	1	1	1	1	1
40	1	0	1	0	0	1	0	0
41	0	0	0	0	0	0	0	0
42	0	1	0	0	1	0	0	0

	E5	Z5	E6	Z6	E7	Z7	E8	Z8
43	0	1	1	0	1	1	0	0
44	0	0	0	0	0	0	0	0
45	1	1	1	1	0	0	1	1
46	0	0	0	0	0	0	0	0
47	0	1	1	1	1	1	1	1
48	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0
50	0	0	1	1	1	1	0	0

	E9	Z9	E10	Z10	E11	Z11	E12	Z12
1	0	0	1	1	0	0	0	0
2	0	0	1	1	1	1	0	0
3	0	0	1	0	0	0	0	0
4	0	0	0	0	0	0	0	0
5	1	0	1	1	0	0	0	0
6	0	0	0	0	0	0	0	0
7	0	0	0	1	0	1	1	0
8	0	0	1	0	0	1	0	1
9	0	0	1	1	0	0	0	0
10	0	0	0	0	1	1	1	1
11	1	1	1	1	1	1	1	1
12	1	0	0	1	0	0	0	0
13	0	0	1	1	0	0	0	1
14	1	0	0	0	1	0	0	0
15	1	1	1	1	1	1	0	1
16	0	0	0	0	1	0	0	0
17	0	0	0	1	1	1	0	1
18	0	0	0	1	1	0	0	0
19	0	0	0	0	0	0	0	0
20	1	0	0	0	1	0	0	0
21	0	1	1	1	1	0	0	0
22	1	0	0	0	1	0	1	1
23	1	0	0	0	1	1	0	0
24	0	0	0	1	1	0	0	1
25	1	1	0	0	0	1	1	1
26	0	0	0	0	0	0	0	0
27	0	0	0	0	1	1	0	0
28	0	1	0	1	0	0	1	1
29	0	1	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0
31	0	0	0	1	1	0	0	1
32	0	0	1	1	1	1	0	0
33	0	0	0	0	1	1	1	1
34	1	1	1	1	1	1	1	1
35	0	0	0	0	0	0	0	0
36	1	1	0	0	1	1	0	0
37	0	0	0	0	1	0	0	1
38	1	1	1	1	0	1	1	1
39	1	1	1	1	1	1	1	1
40	1	0	1	1	1	1	0	0
41	0	0	0	1	1	0	0	0

	E9	Z9	E10	Z10	E11	Z11	E12	Z12
42	1	1	1	0	1	0	1	1
43	1	1	1	1	0	1	1	1
44	0	0	0	0	0	0	0	0
45	0	0	1	1	1	1	0	0
46	0	0	0	0	0	0	0	1
47	1	1	1	1	1	1	1	1
48	1	0	0	0	0	0	0	1
49	0	0	0	0	0	0	0	0
50	0	0	1	1	1	1	1	1

	E13	Z13	E14	Z14	E15	Z15	E16	Z16
1	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	1	0
3	0	0	0	0	0	1	0	0
4	0	0	0	0	0	0	0	0
5	0	0	0	1	0	0	0	1
6	1	0	0	0	0	0	0	0
7	0	1	0	1	0	1	0	0
8	1	1	0	0	0	1	0	0
9	1	1	0	0	0	0	0	0
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11	1	1	1	1	1	1	1	1
12	1	0	0	0	1	0	0	1
13	0	0	1	1	0	1	0	0
14	0	0	1	1	0	0	1	0
15	1	1	1	1	0	0	1	1
16	0	0	0	0	0	1	0	0
17	1	1	0	1	1	0	0	0
18	0	0	1	1	0	0	0	0
19	0	0	1	0	1	1	0	0
20	0	1	1	0	1	0	0	1
21	0	0	1	0	0	1	1	1
22	1	1	0	0	0	0	1	1
23	0	1	0	0	0	0	1	1
24	0	1	1	1	0	0	1	1
25	1	1	0	0	0	0	1	1
26	0	0	0	0	0	0	0	0
27	0	0	1	1	0	0	1	1
28	0	1	1	1	0	1	1	1
29	0	1	1	0	0	1	1	0
30	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0
32	1	1	1	1	0	0	1	1
33	1	1	0	0	0	0	1	1
34	1	1	1	1	0	0	1	1
35	0	0	0	0	0	0	0	0
36	0	0	0	1	0	0	1	1
37	0	0	0	0	0	1	0	0
38	1	1	1	1	0	0	1	1
39	1	1	1	1	1	1	1	1
40	1	1	1	1	0	0	0	0
41	0	1	0	0	0	0	1	0
42	0	0	1	0	0	0	0	0

	E13	Z13	E14	Z14	E15	Z15	E16	Z16
43	1	1	1	1	0	0	1	1
44	0	0	0	0	0	0	0	0
45	1	1	0	0	0	1	1	1
46	0	0	0	0	0	0	0	0
47	1	1	1	1	0	0	0	1
48	0	0	1	1	0	0	0	1
49	1	1	0	0	0	0	0	0
50	0	0	1	1	0	0	1	1

	E17	Z17	E18	Z18	E19	Z19	E20	Z20
1	0	0	0	0	0	0	0	0
2	1	1	0	0	0	0	0	0
3	0	0	0	1	0	0	0	0
4	0	0	0	0	0	0	0	0
5	0	0	1	0	0	0	0	1
6	0	1	0	0	0	0	0	0
7	0	0	0	0	0	0	1	0
8	0	0	0	1	0	0	1	0
9	0	0	0	0	0	0	1	1
10	0	0	1	1	0	0	1	1
11	1	1	1	1	1	1	1	1
12	0	1	1	0	0	0	1	0
13	0	0	1	1	0	0	0	0
14	0	0	0	0	0	0	0	0
15	0	1	1	1	0	0	1	1
16	0	0	0	0	0	0	0	1
17	0	0	1	0	0	0	0	1
18	0	0	1	0	0	0	0	0
19	0	0	1	1	0	0	0	0
20	0	1	0	0	0	0	1	1
21	0	0	1	1	0	0	1	1
22	1	1	0	0	0	0	0	1
23	1	1	0	0	0	0	0	0
24	1	1	0	0	0	0	0	0
25	1	1	0	0	0	0	0	0
26	0	0	1	1	0	0	0	0
27	0	0	0	0	0	0	0	0
28	0	0	1	1	0	0	0	0
29	1	0	1	0	0	0	0	0
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31	1	1	0	0	0	0	0	0
32	1	1	0	0	0	0	1	1
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34	0	0	0	0	0	0	1	1
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36	0	0	1	0	0	0	0	0
37	0	0	0	0	0	0	0	1
38	1	1	1	1	0	1	0	1
39	1	1	1	1	1	1	1	1
40	1	1	1	1	0	0	0	0
41	0	1	1	0	0	0	0	0
42	0	0	1	1	0	0	0	1

	E17	Z17	E18	Z18	E19	Z19	E20	Z20
43	0	0	1	1	0	0	0	1
44	0	0	0	0	0	0	0	0
45	0	1	1	1	0	0	1	1
46	0	0	0	0	0	0	0	0
47	1	1	1	1	0	1	1	1
48	0	0	0	1	0	0	0	0
49	1	1	0	0	0	0	0	0
50	1	1	1	0	0	0	1	1

	E21	Z21	E22	Z22	E23	Z23	E24	Z24
1	0	0	0	0	0	0	0	0
2	1	1	0	1	0	0	0	1
3	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0
5	0	1	0	1	1	0	1	0
6	0	0	0	0	0	0	0	0
7	0	0	1	0	0	1	0	0
8	1	0	0	0	0	1	0	0
9	0	1	0	0	0	0	0	1
10	0	0	0	0	0	0	0	0
11	1	1	1	1	1	1	1	1
12	0	1	0	0	1	1	0	0
13	1	1	0	0	1	0	1	1
14	1	1	0	0	1	0	1	0
15	1	1	1	1	1	1	1	0
16	0	0	0	0	0	0	0	0
17	1	1	1	0	1	1	1	0
18	0	0	0	0	0	0	0	0
19	0	0	0	1	0	0	0	1
20	0	1	1	0	1	0	0	1
21	1	0	1	0	1	1	0	1
22	1	1	0	0	1	1	0	0
23	1	1	1	1	1	0	0	1
24	0	0	0	0	1	1	0	0
25	1	1	0	0	1	1	0	0
26	1	0	0	0	0	0	0	0
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28	1	1	0	1	1	0	0	1
29	0	1	1	0	1	0	0	1
30	0	0	0	0	0	0	0	0
31	0	0	0	0	1	0	0	0
32	1	1	0	0	1	1	0	0
33	1	1	1	1	1	1	0	0
34	1	1	0	0	1	1	0	0
35	1	1	0	0	0	0	0	0
36	1	0	0	0	1	1	0	0
37	1	0	0	0	0	0	0	0
38	1	1	1	1	1	1	0	0
39	1	1	1	1	1	1	1	1
40	1	1	0	0	1	1	0	0
41	0	0	0	0	0	0	0	0
42	0	0	1	1	0	0	0	0

	E21	Z21	E22	Z22	E23	Z23	E24	Z24
43	1	1	0	0	1	1	0	0
44	0	0	0	0	0	0	0	0
45	1	1	1	1	1	1	1	1
46	1	0	0	0	0	0	0	0
47	1	1	1	1	1	1	1	1
48	0	0	0	0	0	1	0	0
49	1	1	0	0	0	0	0	0
50	1	1	1	1	1	1	1	0