

**PREVALENCE AND FACTORS ASSOCIATED WITH LOW BACK PAIN
AMONGST WOMEN ATTENDING ANTENATAL CLINIC IN
KAMULI DISTRICT HOSPITAL**

By

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DECLARATION

I Zavuga Robert, declare that this study is entirely a result of my effort. It has never been presented anywhere-be it for academic or non-academic purposes. All materials obtained from other resources have been acknowledged.

Signature: 

Date: 16/02/2021

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Approved for Submission

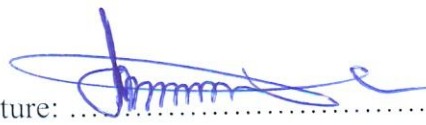
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DEDICATION

I dedicate this book to my grandmother Ms. Tamali Nabatanzi aka “Teacher number one of 1926” without whose efforts to support me in this world and relentless sacrifice, this book wouldn’t have been possible to produce.

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First of all, I would like to thank the Almighty God for helping me reach this far in life. I would like to acknowledge the input and guidance of my supervisors Prof. David Guwatudde and Dr. Richard Mugambe for their valuable time and technical guidance they offered me throughout the process of writing this dissertation.

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OPERATIONAL DEFINITIONS

Low Back pain: This was the individual's self-reported pain in the lower back area located between the twelfth rib and the fold of the buttocks and was persistent for longer than one week.

Persistent Pain: This was self-reported pain that was present most of the time or with many recurrent episodes.

Pregnancy related Low Back Pain: This was self-reported Low Back Pain which was experienced by women after getting pregnant.

Daily Functional Activities: These were routine activities which an individual was involved in on a daily basis.

Quality of Life: This was a person's individual perception and sense of well-being without encountering any difficulty in performing their daily routine activities.

ABBREVIATIONS AND ACRONYMS

ANC	Antenatal Care
aPR	Adjusted Prevalence Ratio
BMI	Body Mass Index
DHO	District Health Officer
HC	Health Centre
HMIS	Health Management Information System
HW	Health Worker
KI	Key Informant
LBP	Low Back Pain
ODI	Oswestry Disability Index
UTI	Urinary Tract Infection
WHO	World Health Organization

ABSTRACT

Introduction: Low Back Pain (LBP) is a common musculoskeletal problem faced by women during pregnancy and greatly affects their quality of life, productivity in their daily routine activities and activity limitation. Despite the consistence in complaints of LBP in pregnancy health workers dismiss it as a trivial issue and sometimes refer to it as normal occurrence of pregnancy and sufferers go without treatment. This study sought to determine the prevalence and associated factors of LBP amongst women attending antenatal clinic in Kamuli District Hospital.

Methodology: A cross-sectional study was conducted targeting women attending ANC at Kamuli District Hospital. A total of 341 respondents were systematically selected and interviewed using a standardized structured questionnaire. The outcome variable was the occurrence of LBP. Using STATA 15.0 for data analysis, a modified Poisson regression model was used to determine factors independently associated with LBP amongst pregnant women. A 95% confidence interval and p value of < 0.05 was used to test significance.

Results: The prevalence of LBP amongst respondents was (30.8%; 95% CI 26.13-35.88%) affecting women mainly in third trimester. Respondents who had 3 – 4 ANC visits were more likely to report LBP than those who had 1 – 2 ANC visits (aPR 1.50 (1.06-2.12)). Respondents with no history of pelvic/back accidents were less likely to have LBP as compared to those with history of pelvic/back trauma (aPR 0.40 (0.19-0.84)). Respondents who engaged in daily work routines for more than 2 hours (aPR 0.67 (0.47-0.96)) and 1 – 2 hours (aPR 0.50 (0.29-0.87)) were less likely to have LBP compared to those who engaged in work for less than 1 hour. Respondents who had work breaks of more than 30 minutes were less likely to have LBP (aPR 0.53 (0.31-0.91)). LBP affected the daily functional activities of respondents with 67.6% reporting minimal disability 31.4% moderate disability. Majority of the respondents 79.49% received analgesics for management of LBP while 16.67% received counselling/patient education and only 3.85% received physiotherapy.

Conclusion: LBP is a common problem amongst women attending ANC in Kamuli District Hospital and it affects their daily functional activities. It's associated with duration of activity and duration of work breaks during pregnancy. There is need for Kamuli district Hospital to focus on occupational factors affecting LBP and encourage uptake of physiotherapy services.

CHAPTER ONE

INTRODUCTION AND BACKGROUND

1.1 Introduction

Low Back Pain (LBP) is one of the most common musculoskeletal complaints among pregnant women. It is estimated that globally about 50% of women will report LBP at some point in their life. However studies done on prevalence of LBP during pregnancy show considerably large variations, that is, 4% to 76% (Gutke et al., 2008, Kristiansson et al., 1996) and 25% to 90% (Gutke et al., 2018). This wide variation may be due to the different criteria employed for the studies which included, patients self-report of pain, clinicians report, history or clinical examination, sample size, design of study and location of pain. The Cochrane review on the other hand reported that over two-thirds of women experience LBP during pregnancy (Pennick and Young, 2007) and in one third of them, it persists even after child birth affecting their quality of life and daily functional abilities.

LBP decreases physical and psychosocial health during pregnancy (Ibanez et al., 2017) with about 80% of the women claiming that it affects their daily routine, and some (10%) affecting them to the extent of not being able to work. The major complication of LBP in pregnancy is the risk of re-occurrence in the subsequent pregnancies thus causing chronic maternal morbidity, postnatal depression and low quality of life (Uemura et al., 2018). Sixteen percent of women with pregnancy-related LBP reported persistent pain 6 years after childbirth (Norén et al., 2002).

The etiology of LBP during pregnancy is rather multifactorial in nature and mostly nonspecific. LBP is thus a collective term for pain localized in the pelvic and lumbar regions. The numerous terms for pregnancy related LBP (Wu et al., 2004) indicates the uncertainty of its etiology and to date, it is considered a syndrome. However, its hypothesized to result from either mechanical or hormonal changes which occur during pregnancy (Katonis et al., 2011). Additionally, the risk factors associated with LBP during pregnancy include pelvic trauma, young age, gestation stage, maternal weight, social economic status, Urinary Tract Infections, stress, anxiety, chronic LBP and history of LBP in the previous pregnancy (Katonis et al., 2011, Norén et al., 2002).

There are numerous practices employed in the management of pregnancy related LBP. However, the various health risks associated with use of medicines have limited the treatment options to conservative management (Carvalho et al., 2017) such as physiotherapy, stabilization belts, nerve stimulation, acupuncture, massage, relaxation and yoga among others. Unfortunately, most public health systems especially in the low-income countries are not equipped to support such approaches for pregnant women. There seems to be a focus on treating the cause of the pain, rather than relieving the pain itself, hence the inadequacy in pain management (Javier et al., 2016). Pharmacological therapy including acetaminophens, non-steroidal anti-inflammatory drugs (NSAIDs), muscle relaxants and opioids are recommended as second line in management of LBP management in low income countries (Qaseem et al., 2017). However, opioid use is controlled in order to prevent its dependency among patients.

Although some studies about LBP in pregnancy have been done, its burden and associated factors especially in low-income countries like Uganda remains largely unknown. It is therefore envisaged that its prevalence and determinants in Uganda would differ greatly from the other studies done given the difference in the study contexts, patients' experiences, health systems and occupational predisposition. However, an African study done in a teaching hospital in Ethiopia amongst women attending ANC services estimated the prevalence to be 33.2% (Abebe et al., 2014).

Furthermore, due to the benign nature of this condition, little emphasis has been placed on it by HWs including public health specialists. Unfortunately, many pregnant women are forced to silently endure this pain as it's regarded as trivial and not worth medical attention since it's a normal occurrence of pregnancy (Mota et al., 2015). As a result, many women seek self-care by use of pain killers and other postural coping mechanisms which could even be detrimental to the unborn babies. There is therefore need to describe and understand the prevalence of LBP in Uganda so as to inform the decision on the choice of treatment and preventive measures.

1.2 Background

Despite the growing recognition in importance of LBP in pregnancy there are not so many Ugandan studies done in this regard. However, the available evidence of LBP in Uganda was found from studies that were done in the general population. Literature reviewed revealed high prevalence of LBP in the general population and it was estimated to be 62.3% (Galukande et al., 2006). Another study done on health workers found a point prevalence of up to 84%, with 31% of the respondents having taken leave as a result of LBP (Abdulmujeeb Babatunde and Olaniyan, 2017). Although this data about LBP from the general population is available, it cannot be extrapolated to give a true representation of its prevalence in pregnancy.

The importance of addressing LBP as an issue in maternal morbidity during antenatal visits in Uganda is very critical as it can affect maternal outcomes and will improve on the quality of life. Kamuli district is one of the districts in Busoga region which has poor maternal and child health indicators such as low ANC visit attendances, high unmet need for family planning among others (UBOS, 2016). It is postulated that maternal morbidity including LBP could be among the contributing factors of poor maternal outcomes in this district although not well studied. However, there is no evidence of proper documentation of LBP in pregnancy during ANC visits in Kamuli district and especially in Kamuli District Hospital as it's reported in the "others" category.

Therefore, this study sought to determine the prevalence of LBP and its associated factors among women attending ANC clinics in order to generate evidence on the actual magnitude of the problem and its associated factors so that specific treatment and management guidelines are developed in relation to Kamuli district setting.

CHAPTER TWO

LITERATURE REVIEW

2.1 Definition of Low Back Pain in Pregnancy

Low Back Pain (LBP) is defined as pain and discomfort that involves muscles, nerves and bones in the lumbar spine region caused by back disorders, disc disorders or injuries to the back. It typically presents as pain between the twelfth rib and gluteal fold although it could sometimes present as either pelvic girdle pain or as lumbar pain.

Burton et al. (2006) defines LBP as pain and discomfort localized below the costal margins and above the inferior gluteal folds with or without radiated pain to the lower limbs. He further classified back pain according to the duration as acute low back pain (<6 weeks), sub-acute (between 6 and 12 weeks), and chronic (>12 weeks). LBP in pregnancy is characterized with dull pain and restricted movement of the spine and is aggravated by the bending forward movement (Khan and basharat, 2016). For the purpose of this study, LBP was defined as pain experienced by pregnant women between the twelfth rib and gluteal fold that has lasted for more than one week at the time of the study.

In order to effectively manage LBP and decide on the choice of treatment and preventive measures, health workers must know its cause. LBP classification helps explain the cause of pain, gives a prognosis, assists in the choice of therapy, and predicts the outcome of a specific therapy. One of the accepted classifications LBP is based on the duration of pain. Acute LBP is when the duration is less than 6 weeks, sub-acute LBP is when the pain duration is 6-12 weeks, and persistent LBP is classified when pain duration is more than 12 weeks (van Tulder et al., 2006). However, this classification may not be relevant for classification of LBP in pregnancy. Dunn et al. (2006), on the other hand, suggested another way to classify LBP according to the severity of the pain experienced. This was found more effective in classifying LBP in pregnant women and was the basis for identifying pregnant women with LBP in this study.

2.2 Causes of Low Back Pain in pregnancy

The multifactorial nature of LBP's etiology has contributed to it being poorly understood. There are many theories of what could cause LBP in pregnancy, suggesting

a lack of consensus on its actual causes. However, the known causes of LBP are categorized as either mechanical or hormonal factors (Katonis et al., 2011).

2.2.1 Mechanical Factors

These are the most suggested mechanisms suspected to result into LBP during pregnancy. They include; weight gain during pregnancy-during this time, the abdominal sagittal diameter increases and the body's center of gravity shifts anteriorly thus increasing the stress on the lower back (Sabino and Grauer, 2008). This anterior shift is associated with symphysis pubis dysfunction, which is a group of symptoms that cause discomfort in the pelvic region. According to Sandler (1996), the body reacts to this anterior shift by implementing postural changes which result to lordosis and increased stress on the lower back.

The response of the intervertebral discs in axial loading is another consequence of mechanical alterations during pregnancy. It leads to decreased height and compaction of the spine, resulting in major compression of a woman's spine during activity. There is also evidence of biochemical processes that cause the stretching of the abdominal muscles of the pregnant woman in order to accommodate the enlarging uterus thus causing back muscle fatigue and extra load on the spine. The expanding uterus is suspected to also put increased pressure on the vena cava causing venous congestion in the pelvis and the lumbar spine (Sabino and Grauer, 2008). Lastly, according to a study by (Bewyer et al., 2009), weakness of the gluteus medius muscle is strongly related to the presence of LBP during pregnancy.

2.2.2 Hormonal Factors

There is evidence which suggests that LBP may be due to hormonal changes which occur during pregnancy. A study by Wijnhoven et al. (2006) found that hormonal changes are generally associated with chronic musculoskeletal disorders including back pain. Hormonal fluctuations which occur during menstruation and the excess production of relaxin by the ovary and the placenta during pregnancy are responsible for chronic LBP. Relaxin increases by tenth fold during pregnancy and causes ligamentous laxity and discomfort in the sacro-iliac joint, pain of the entire back, instability of the pelvis and malalignment of the spine. However, there are few studies backing this relationship

between relaxin serum levels and severity of symptoms of LBP during pregnancy, hence the existence of contention on this theory of LBP occurrence.

2.3 Prevalence of Low Back Pain

According to literature reviewed, LBP is quite common. Many prevalence studies confirm that LBP is a major problem during pregnancy and place the prevalence rates within a wide range of 4% to 76% (Gutke et al., 2008, Kristiansson et al., 1996) and 25% to 90% (Gutke et al., 2018). In Africa, a study was done in Ethiopia amongst pregnant women attending ANC services in a teaching hospital which estimated the prevalence to be 33.2% (Abebe et al., 2014).

There is contention on when LBP actually occurs. Wang et al. (2004) notes that majority of women are affected in their first pregnancy, and most likely in the second trimester of pregnancy beginning between the 20th and the 28th week of gestation, with a possibility of an earlier onset (Carvalho et al., 2017). According to Ramachandra et al. (2015), 33.7% of women experience LBP in their third trimester and 42% in their second trimester.

It is estimated that at least half of pregnant women will suffer from LBP, of which one third will be severe and highly disabling. It has been found to decrease physical and psychosocial health during pregnancy (Ibanez et al., 2017), with about 80% of women with LBP claiming that it affects their daily routine activities, and some (10%) affecting them to the extent of not being able to work. A study in Norway reported an average duration of 6.5 weeks of sick leave as a result of moderate lumbar pain (Malmqvist et al., 2012). LBP is one of the leading reasons for obtaining sick leave among pregnant women.

Instances of LBP extending beyond pregnancy have also been found, with history of LBP during pregnancy being an important precursor to postpartum LBP. Van De Pol et al. (2007) reported 38% of women still had symptoms at 3 months postpartum and 13.8% at 12 months in the Netherlands. An assessment of the severity of LBP during pregnancy found women with a history of LBP before pregnancy, to more likely suffer from more severe back pain and for a longer duration after childbirth. Therefore, understanding the common musculoskeletal dysfunctions during various trimesters of

pregnancy is paramount and will help to develop a comprehensive program for prevention and cure.

2.4 Factors associated with LBP in pregnancy

There is a wealth of information about the risk factors of LBP during pregnancy. The risk factors of LBP are often classified into three categories: individual factors, health related factors and occupational and environmental factors. All these factors have been found in the literature to be associated with LBP amongst pregnant women.

2.4.1 Social demographic and individual factors

The known social demographic and individual risk factors of LBP during pregnancy include maternal age (Vermani et al., 2010). Others include; increase in weight (Body Mass Index) during pregnancy which results in sacroiliac joint instability, age-where younger women are at an increased risk of LBP (Mogren and Pohjanen, 2005). Education level is also closely associated with LBP in pregnancy with women having higher formal education being more likely to report that they are suffering from it as compared with those with low education level (Wang et al., 2004). There is also significant association between marital status and LBP in pregnancy with majority of the married women suffering LBP as they do most of the domestic work in addition to getting involved in income generating activities (Ahdhi et al., 2016). Poverty and social economic status are also associated with LBP in pregnancy with women from low income and wealth status being more susceptible to LBP (Shijagurumayum Acharya et al., 2019).

2.4.2 Health related Factors

Multi-gravidity, multi-parity, previous history of LBP and previous history of trauma to the pelvis or back are predictors of LBP in pregnancy (Vermani et al., 2010). The co-existence of other medical conditions like type 1 diabetes, osteoporosis, UTIs and degenerative scoliosis is closely associated with LBP in pregnancy (Green et al., 2018). However, there is lack of clarity in literature differentiating between which conditions are comorbid verses the ones that are risk factors. Gestation age is also known to be correlated to LBP in pregnancy with majority of the cases occurring in the second and third trimesters (Carvalho et al., 2017, Ramachandra et al., 2015). Mode of delivery of the previous pregnancy is also associated with LBP with women who have delivered by

caesarian delivery using epidural anesthesia having a higher risk of developing LBP than those that deliver by vaginal delivery (Chia et al., 2016). In addition, there is evidence which suggests that there is a positive association between previous histories of LBP with the current LBP (Sencan et al., 2018).

2.4.3 Occupational and Environmental Factors

Literature suggests that the occurrence of LBP is influenced by the level of physical activity at the workplace, workload, physical and geographical environment. Occupation and the nature of work an individual does are associated with LBP (Cheng et al., 2009). The nature of daily activities a pregnant woman does like repetitive manual lifting of loads of more than 10kg especially in the third trimester, continuous forward bending and tilting of the trunk predispose the individual to LBP (Waters et al., 2013). Furthermore, the high duration of exposure to these repetitive daily activities presents a risk of developing LBP (van Vuuren et al., 2006). Additionally the review of the relation between pregnant women and their physical geographical environments has identified various predisposing factors to LBP like provision rest breaks at work, staying in a non-restrictive work space and nature of tools used in execution of job tasks (Cheng et al., 2009, June and Cho, 2011).

2.5 Effects of LBP on the functioning of pregnant women

The prognosis of LBP is relatively good. Albert et al. (2001) reported a recovery rate of 67% amongst women suffering from LBP. A study by Mogren and Pohjanen (2005) reported that 43% of the pregnant women had persistent pain (7% recurrent pain and 36% constant pain) six months after childbirth. Norén et al. (2002) found that 20% of women with lumbopelvic pain during pregnancy report persistent complaints.

Postpartum LBP on the other hand also has a good prognosis, especially during the first months after childbirth (Sabino and Grauer, 2008, Vleeming et al., 2008). The good prognosis however, is dependent on a couple of factors, including; high postpartum weight gain, weight retention and depressive symptoms. Women exhibiting these factors are at increased risk for postpartum LBP. Furthermore, a combination of health education with physiotherapy in the management of LBP seems to have potential positive effect; however, there is some contention towards this (Bastiaenen et al., 2006).

The limited focus on LBP in health systems in many low-income countries has resulted into many pregnant women to continue suffering from LBP with no hope of treatment. This is feared to have consequences involving physical, psychological and social impacts among women and their unborn children (Pennick and Young, 2007). Besides influencing negatively the quality of sleep, physical condition, performance at work, social life, household activities and leisure LBP also causes economic losses due to frequent absenteeism from work.

2.6 Management practices of LBP among pregnant women

Pregnancy-related LBP is generally regarded as part of the pregnancy experience and thus mostly overlooked by healthcare professions (Gorginzadeh et al., 2016) thus remaining untreated in many women. Societal attitudes, ethnicity, and cultural beliefs are believed to be influencing how pregnancy related LBP is perceived and thus the poor medical attention given to it. Despite the inadequate focus on LBP, there is still a wealth of practices used in the management of pregnancy related LBP (Carvalho et al., 2017). Unfortunately, affected women have poor health seeking behavior, with only a half of them seeking medical help and 70% actually receiving some sort of treatment (Mogren and Pohjanen, 2005). According to Skaggs et al. (2007) 85% of LBP patients do not receive treatment and among those who do, only 1% get relief from the proposed therapy.

Early identification and treatment are essential in ensuring effectiveness of management interventions for LBP. However, treatment is dependent on the differentiation between LBP and other musculoskeletal dysfunctions experienced during pregnancy like pelvic girdle pain, since their treatments differ. Non-invasive/conservative treatment is preferred to avoid medication in pregnancy and surgery is usually not an option. Physiotherapists use several treatments for pregnancy-related LBP, including passive treatments such as mobilization, and active treatments like exercises.

Conservative management of LBP is therefore the treatment of choice, and it includes remedies such as physiotherapy, stabilization belts, nerve stimulation, acupuncture, massage, relaxation and yoga among others. Options like weight loss strategies are also used to help prevent the risk and the severity of LBP. Evidence suggests that the combination of exercise therapy or other LBP management interventions with patient

education yields a positive outcome on pain, disability, and/or sick leave (van Benten et al., 2014).

However, a systematic review of physiotherapy modalities by Gutke et al. (2015) found a positive effect of acupuncture and pelvic belts, but weak for an effect of specific exercises including pelvic tilt exercise, osteopathic manual therapy, craniosacral therapy, electrotherapy and yoga. This suggests that not all available management options are effective in treating LBP and caution should be made when choosing or prescribing them. This caution extends to the use of opioids in the management of LBP during pregnancy, as they have known health risks including addiction and dependence associated with them. Sehmbi et al. (2017), found that antenatal educational programs, exercises and steroid injections into the epidural space or sacroiliac joints help with pain management.

CHAPTER THREE

STATEMENT OF THE PROBLEM, JUSTIFICATION AND CONCEPTUAL FRAMEWORK

3.1 Statement of the Problem

Low Back Pain is one of the commonest complaints among women during pregnancy. It is also the commonest musculoskeletal skeletal complaint amongst pregnant women (Kesikburun et al., 2018) and is known to affect their physical and psychosocial health (Ibanez et al., 2017).

There is paucity of information regarding pregnancy related LBP in Uganda and as such its actual prevalence and associated factors is not known. However, studies done in other countries have reported a wide range of prevalence of LBP in pregnancy, ranging from 4% to 76% (Gutke et al., 2008, Kristiansson et al., 1996) and 25% to 90% (Gutke et al., 2018). An African study done in Ethiopia estimated the prevalence to be 33.2% (Abebe et al., 2014). Anecdotal observations in Kamuli district suggest that LBP is one of the leading complaints among women seeking ANC services, however, its actual magnitude and associated factors remain unknown. According to the Medical Superintendent of Kamuli District Hospital, the estimated prevalence could be about 30%. The Medical Superintendent emphasises that this could be an underestimate due to unavailability of data about LBP in pregnancy since it is not recorded in ANC registers.

Although it is difficult to predict who will suffer from LBP during pregnancy, women in the second and third trimester are more likely to suffer LBP (Khan and basharat, 2016). In addition, LBP is associated with having a history of LBP and multigravida (Manyozo et al., 2019, van Benten et al., 2014)

LBP causes significant morbidity in pregnant and postpartum mothers with a large number of them suffering from persistent pain lasting years even after child birth (Rost et al., 2006). Studies indicate that among the postnatal women where LBP is left untreated, it persists even after delivery and is likely to cause depression, sleep disorders, fatigue and general inability of doing daily functional activities especially those that involve carrying or lifting (Gutke et al., 2018).

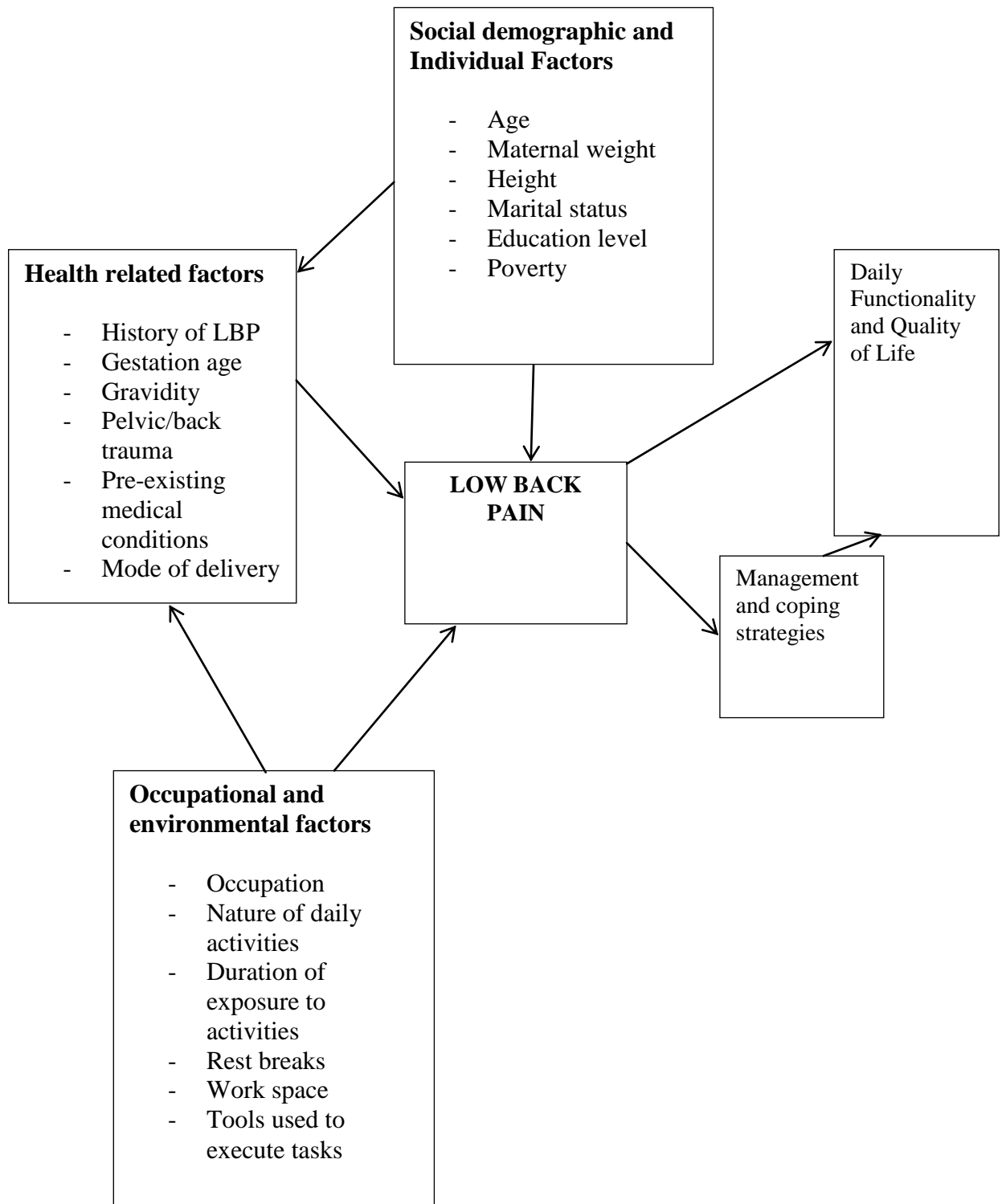
Unfortunately LBP as a complaint during pregnancy has always been ignored by many HWs as it considered a normal occurrence of pregnancy (Chou et al., 2018) and as such there is no evidence of any public health intervention or policy guideline that has been developed in Kamuli district to address it. However, on a case-by-case basis HWs have recommended analgesic administration, physiotherapy and physical exercise prescription for its treatment. The public health impact of these isolated individual clinical interventions is also unknown.

The absence of information on LBP among pregnant women in Uganda probably may have led to the unavailability of obstetric guidelines for the diagnosis and management of LBP during pregnancy. The Uganda Clinical Guidelines 2016; the booklet which most Ugandan HWs refer to for diagnosis and management of medical conditions is not only silent on LBP in pregnancy but does not also recognize that pregnancy is a risk factor of LBP. The unavailability of treatment guidelines for pregnancy related LBP may be attributable to the belief by HWs that the condition is not a serious health risk to the mother or fetus. Therefore, LBP in pregnancy is a condition that deserved further exploration to promote further understanding of its prevalence and factors associated with it in Kamuli District Hospital in order to generate evidence that would inform treatment guideline formulation and interventions.

3.2 Justification

LBP remained to be prevalent among mothers attending ANC in Kamuli District Hospital. Despite its prevalence, there was no evidence of proper documentation of the cases or any policy specifically geared towards addressing it. The WHO recommendations on ANC for a positive pregnancy experience highlight the need for more research in the area of common physiological symptoms of pregnancy (their prevalence and associated factors) including LBP in order to determine whether treatment of these symptoms can reduce health inequality, improve ANC coverage and the ultimate woman's pregnancy experience (WHO, 2016). Undertaking this study helped better understand the factors associated with LBP in pregnancy in order to define the mother's expectations. This came up with recommendations that made pregnancy a tolerable experience at individual level. In addition, this study generated information and came up with recommendations which provided for improved focus on management of LBP in pregnancy, creation of treatment guidelines and preventative measures by HWs in Kamuli District Hospital and Kamuli District Local Government.

3.3 Conceptual Framework



CHAPTER FOUR

STUDY OBJECTIVES

4.1 General Objective

To determine the prevalence and associated factors, of Low Back Pain amongst women attending the antenatal clinic Kamuli District Hospital so as to assess its effects on the daily functional activities and identify the different management and coping strategies employed.

4.2 Specific Objectives

1. To determine the prevalence of LBP among women attending ANC in Kamuli District Hospital.
2. To identify the factors associated with LBP among women attending ANC in Kamuli District Hospital.
3. To determine the effects of LBP on the daily functional activities among women suffering with LBP attending ANC in Kamuli District Hospital.
4. To identify the different management and coping strategies employed by women suffering from LBP attending ANC in Kamuli District Hospital.

CHAPTER FIVE

METHODOLOGY

5.1 Study area

The study was conducted in Kamuli District Hospital which is located in Kamuli district found in Busoga Sub region in Eastern Uganda. The district is bordered in the east by Iganga district, in the north by Kaliro, Buyende and Luuka districts, in the west by Kayunga district and south by Jinja district. It has a population of 486,319 of which 236,389 are males 249,930 are females as from 2014 census (UBOS, 2016). The district has a total of 58 health facilities which are distributed as follows; 2 hospitals (1 Government, i.e., Kamuli District Hospital, 1 Private i.e., Kamuli Mission Hospital), 2 Health Centre IVs (all government, i.e., Namwendwa and Nankandulo HCIV), 18 Health Centre IIIs (13 Government and 5 Private) and 36 HC IIs (22 Government and 14 Private). Particularly Kamuli District Hospital is a government owned hospital located in Kamuli town with a bed capacity of 100 beds. It's the district's referral hospital and hence level 5 health facility; where lower-level health centers like HCIIIs, HCIII and HCIVs refer to and thus provides preventive, promotive, curative, maternity, out-patient health services, in-patient health services, surgery, blood transfusion, laboratory and medical imaging services.

According to the HMIS records reviewed for the year 2018/2019 on average Kamuli District Hospital receives about 30 pregnant mothers per day who come in for ANC services in comparison with 15 pregnant mothers per day in HCIVs and 8 pregnant mothers per day in HCIIIs. Kamuli District Hospital's ANC clinic is an Out-Patient clinic which operates every day except on weekends and public holidays. The hospital is equipped with functional clinical and laboratory services. It is the major referral hospital in the rural eastern part of Busoga region and receives patients from the neighboring districts of Kaliro, Buyende and Luuka districts which don't have district hospitals. The reference to the study area is found on Appendix VI.

5.2 Study Population

The study population consisted of women attending Kamuli District Hospital antenatal clinic during the data collection period of one month.

5.2.1 Inclusion Criteria

Individuals who met the following criteria were included in the study;

- I. All women attending ANC at Kamuli District Hospital
- II. All those that signed the consent form

5.2.2 Exclusion Criteria

Individuals who met the inclusion criteria but also had any of the following issues were not included in the study;

- I. Had physical disabilities involving lower limbs
- II. Had mental disabilities
- III. Those who were in labor

5.3 Study Design

The study adopted a cross-sectional research design using both quantitative and qualitative methods.

5.4 Sample Size Determination

Quantitative study

The formula below by (Kish, 1965) was used to determine the sample size of pregnant women affected by LBP attending the antenatal clinic;

$$n = \frac{Z^2 PQ}{\delta^2}$$

Where;

n = was the required sample size

Z = was the standard normal deviate at 95% confidence level (1.96)

P = was the estimated prevalence of LBP amongst pregnant women; 33.2% (Abebe et al., 2014)

Q = 1-P

δ= was the precision or maximum acceptable error willing to be accommodated (5%)

Similar African studies which were done in Ethiopia and Malawi (Abebe et al., 2014, Manyozo et al., 2019), had response rates of 100%; hence it was therefore postulated that this study would have a 100% response rate.

Hence;

$$n = \frac{1.96^2 \times 0.332 \times (1-0.332)}{0.05^2} = 340.78$$

Therefore, the study enrolled **341 respondents**

5.5 Sampling Procedure

5.5.1 Quantitative data collection

Participants were recruited in the Antenatal Clinic. Systematic Sampling was used to get the required sample size of the participants and they were enrolled on a daily basis (five working days of the week). Given that the intended data collection period was one month (20 working days) and the total number of respondents required was 341, it comes therefore that 341 divided by 20 gave an approximate number of 17 respondents that were to be interviewed per day. Furthermore, the average daily ANC attendance was 30 women which when divided by 17 gives gave an approximate number of 2, which was the sampling interval Therefore every 2nd woman on any given ANC day was recruited into the study. The first participant was randomly selected and thereafter every 2nd woman was recruited.

This selection process continued until the required number of study participants was obtained and there were no replacements done since all the respondents approached accepted to be enrolled in the study. The interviews were done after the women had completed their usual antenatal assessment and given treatment for that particular visit. Those participants who were identified to have LBP were referred for treatment if they had not been given treatment in the initial antenatal assessment.

5.5.2 Qualitative data collection

Key Informants where purposively selected based on their clinical knowledge and experience on LBP and maternal health. With guidance of the Medical Superintendent, 4 Key Informants were identified basing on the fact that they were considered to have significant knowledge and understanding of maternal health issues including LBP in pregnancy by virtue of their daily engagements. These included the Assistant DHO in charge of Maternal and Child health in Kamuli District, the head of the obstetrics and gynecology department in Kamuli District Hospital, the Senior Nursing Officer in charge

of the maternity ward and the Midwife in charge of the ANC clinic in Kamuli District Hospital. In case of non-availability in the period of data collection an appointment was made at an appropriate time.

Qualitative data was collected to augment and help deepen understanding of the key issues that arose from quantitative data. Specifically, qualitative data was collected to deepen understanding on objectives 2 and 4 by exploring the KI's views on what they think could be associated with LBP in pregnancy, their lived experiences on LBP management and their thoughts about coping strategies employed by pregnant women suffering from LBP.

5.6 Study Variables

5.6.1 Dependent Variable

The dependent variable was the self-reported LBP amongst women attending ANC services. LBP was defined as persistent pain or discomfort experienced between the twelfth rib and the fold of the buttocks for a period of more than one week. Therefore, the presence of LBP was assessed through a single question (on self-reported LBP) followed by a locating the site of the pain using the pain and body chart. Only respondents who reported having LBP and correctly pointed to the location of the pain as guided by the operational definition of LBP were taken to “have LBP”, those contrary to this were categorized as “not to have LBP”. The pain and body chart has been described as one of the reliable screening tools for qualitative measurement of location and distribution of musculoskeletal pain (Southerst et al., 2013). Its detailed description and application are found in section 5.7 under data collection methods and tools.

5.6.2 Independent Variables

Social demographic and Individual Factors: these were: age in complete years and marital status (married, single, separated and widowed), education level (whether none, primary, secondary or tertiary), maternal weight in kilograms and height in meters (this was used to calculate the Body Mass Index (BMI)), economic status (was determined by the average income, the kind of house and household items held and place of residence Urban; within Kamuli municipality or rural; any other area outside Kamuli municipality)

Health related Factors: included, self-reported history of pelvic/back trauma, history of LBP, pre-existing medical conditions, mode of delivery of the previous pregnancies, gravidity (confirmed number of pregnancies a woman has ever had regardless of the outcome), parity (number of children delivered regardless of the outcome) and the gestation age in weeks.

Occupational and Environmental Factors: These were the factors associated with the job and the physical geographical characteristics where the individual spent a substantial fraction of their time. They included occupation status (current form of employment), nature of daily activities at the workplace (which may involve manual repetitive lifting of heavy loads, continuous bending, tilting of the trunk), Duration of exposure to daily repetitive activities (reported in minutes), availability of rest breaks at work (reported in minutes), workspace (whether it is a confined workplace or not restrictive) and tools used in execution of job tasks (hand-held manual tools, semi-automated tools or automated tools).

5.7 Data Collection Methods and Tools

Quantitative data

These were collected using the following tools:

- I. **Structured Questionnaire:** A Structured interviewer administered questionnaire was developed and used to collect primary data from participants. The questionnaire had closed-ended and multiple response questions. It had a total of 4 sections, Section A: Social demographic and individual factors, in here some questions about the wealth indices were adopted from the Uganda Demographic Health Survey questionnaire used to collect data on household items (UBOS, 2016); Section B: Health Related Factors; Section C: Occupational and Environmental Factors; Section D: Management and coping strategies. This tool was used to gather information on the prevalence of LBP in pregnancy and as well identify its associated factors in addition to management and coping strategies. It also had the pain body chart, Visual Analogue Scale (VAS) and Oswestry LBP Disability Questionnaire embedded in it for continuity of data collection. These tools are described in detail below.

- II. **Pain and Body Chart:** This is a drawing representing the body's map. It was a self-administered tool which respondents who reported LBP further used to pin down the exact location of the pain. This was used as a screening tool and confirmatory test for cases of LBP that fell into the required criteria of this study. This is attached in appendix III.
- III. **Visual Analogue Scale (VAS) for pain:** VAS for pain is a horizontal line, 100mm long traversing through numbers 0 to 10 with the ends labeled as extremes of pain i.e. "no pain (0)" transcending through "mild pain (1-3)", "Moderate pain (4-6)", "severe pain (7-9)" to "worst imaginable pain (10)" (Aoki et al., 2012). As indicated above, the line was 100mm long embedded within the questionnaire with a scale of 10mm representing 1 unit of pain. It was a self-administered tool which respondents who qualified to be identified as cases of LBP used to estimate their current pain intensity. The VAS has been used in rural semi-illiterate Chinese population and was found to be a reliable tool for pain intensity (Yi et al., 2012). This is shown in appendix III.
- Oswestry Low Back Pain Disability Questionnaire:** Functional disability was assessed using a standard modified version (2.0) of the Oswestry Disability Index (ODI) tool (Fairbank and Pynsent, 2000). It was an interviewer administered tool where women rated their perceived disability on 10 different items: pain intensity, personal care, lifting, walking, sitting, standing, sleeping, social life, travelling and employment / homemaking. The items were scored from 0 to 5, giving a total score of 50. ODI scores of patients were divided into categories: having minimal or no disability (0-20%), moderate disability (20-40%), severe disability (40-60%), crippled (60-80%), or bed bound or exaggerating the symptoms (80-100%). This is shown in appendix III.

Qualitative data

These were collected using a Key Informant Interview Guide which was administered by the Principal Investigator. The tool had 4 questions which were used to guide the interview in view of the Key Informant's perspective of LBP in women accessing ANC services. This included their views on the LBP risk factors, their lived experiences on LBP management, their thoughts about coping strategies employed by pregnant women and challenges they faced while addressing the problem of LBP in pregnancy. The KIs

were interviewed in English since it was their preferred language of choice. KII guide is shown in appendix V.

5.7.1 Field Implementation

Recruitment and Training of Research Assistants

A total of 2 Research Assistants were recruited and trained for two days on the research methodology to be followed when collecting data from the field. Research assistants were enrolled nurses (persons with a clinical background) because of their training and working experience; they could easily make a diagnosis of LBP using the tools provided and also give further referral/guidance in case a respondent was diagnosed with LBP during the study and needed treatment. In addition to this, they were fluent in Lusoga (the local language spoken in Kamuli district) and English. During the training, the Principal Investigator explained the objectives to the research assistants and oriented them on how to build rapport, how to use the study tools, data collection techniques and how to administer the consent form.

Translation of the Tools

The tools were first translated from English to Lusoga. Translation was done by the Principal Investigator together with members of the research team who were fluent in both English and Lusoga. Then to check for accuracy, the tools were back translated by one of the research assistants fluent in both Lusoga and English, who didn't have any prior knowledge about the questionnaire. Any arising translation issues were then corrected.

Pretesting of the questionnaire

Pre-testing of the questionnaire was done to test for appropriateness, acceptability and comprehension of questions by the respondents. The Key Informant interview guides were also pre-tested. These tools were pre-tested in a purposively selected health facility which has a similar setting like Kamuli District Hospital, that is; Kamuli Mission Hospital in Kamuli District. Adjustments on the tools were made based on the observations from the pre-testing exercise.

5.8 Quality Control

To ensure reliability, validity and quality of the research, the following measures were taken:

- The Principal Investigator crosschecked all completed questionnaires and verified the accuracy of the data recorded. This included ensuring that the questionnaires are completed thoroughly and accurately by all Research Assistants, sampling responses for consistency, and following up on any missing and/or invalid responses in a timely manner.
- The Principal Investigator accompanied each Research Assistant on at least 10% of the interviews they conducted to ensure that field protocols were being followed.
- Data analysis was done as soon as the study tasks were completed from the field.

5.9 Data Management and Analysis

Quantitative data analysis

The data were entered, coded and cleaned using EpiData 3.1 software. It was then exported to STATA 15.0 for analysis.

For descriptive statistics, categorical variables were summarized as counts, proportions and percentages and were presented using frequency tables while continuous variables were summarized using means and standard deviation for the normally distributed data and using median for the non-normally distributed variables. The data analysis process was as follows:

Objective 1: To determine the prevalence of LBP among women attending ANC in Kamuli District Hospital

Prevalence of LBP was calculated as the proportion of study participants who were correctly identified to have LBP as per the study guideline. The numerator was the total number of participants with LBP and the denominator was the total number of participants enrolled in the study expressed as a percentage.

$$\text{Prevalence} = \frac{\text{No. of women identified with low back pain}}{\text{Total number of women enrolled in the study}} \times 100$$

Objective 2: To identify the factors associated with LBP among women attending ANC in Kamuli District Hospital

To determine the association between the outcome variable (Low Back Pain) and the independent variables (social demographic and individual factors, health related factors, occupational and environmental factors) a modified Poisson regression model was used following two steps.

In the first step every variable was entered into a bi-variate (binary) modified Poisson regression model to measure the association between the outcome variable (Occurrence of LBP) and the independent variables (social demographic and individual factors, health related factors, occupational and environmental factors). The level of significant association (P-Value <0.2) was used. This significance criterion of (P-Value <0.2) was employed to retain the significant covariates and as well as the confounding ones that were related to the outcome variable (Dunkler et al., 2014).

In the second step the variables that were found to be significant in bivariate analysis (potential correlates) were fitted into a modified Poisson regression model to identify the independent variables that were associated with the outcome variable (occurrence of LBP). This was done while simultaneously adjusting for potential confounders. In this multivariate analysis, all the variables that still remained to be significantly associated with the dependent variable (at significance level of P-Value < 0.05) and those that were thought to be probably associated with the dependent variable were all put into a full modified Poisson regression model to simultaneously adjust for their effect modification on the likelihood of the occurrence of the outcome of interest (LBP). A backward elimination method was employed. Adjusted Prevalence Ratios (aPR) at 95% Confidence Interval (CI) was used to measure associations.

Objective 3: To assess the effects of LBP on the daily functional activities of women attending ANC in Kamuli District Hospital

Since the standard OSWERTY functional disability tool was used, its guidelines for analysis (Fairbank and Pynsent, 2000) were adopted as illustrated below. However, percentages and frequencies were used as summary measures.

OSWERTY Tool Scoring and Analysis Instructions

The tool has 10 different sections with every section having six different statements which are scored from 0 to 5 depending on the responses. If the first statement is marked the section score is 0 and if the last statement is marked the score is 5. The sum of the scores from all the sections is obtained and then expressed as a percentage of the total possible score. This percentage is called the Owesstry Disability Index.

For example: Supposing 16 is total number scored

$$\text{Hence } 16/50 \times 100 = 32\%$$

If one section is missed or not applicable the score is calculated:

Supposing 28 is total scored

$$\text{Hence } 28/45 \times 100 = 62.2\%$$

Interpretation of the Owesstry Disability Index

0% to 20%	Minimal disability
21%-40%	Moderate disability
41%-60%	Severe disability
61%-80%	Crippled
81%-100%	Either bed-bound or exaggerating their symptoms.

Objective 4: To identify the different management and coping strategies employed by women suffering from LBP attending ANC in Kamuli District Hospital

The study identified the different management and coping strategies employed by pregnant women suffering from LBP using the study questionnaire. Percentages and frequencies were used as summary measures.

Qualitative Data Analysis

Qualitative data were used to offer explanation and augment findings of the quantitative data obtained. The Key Informant interviews were meant to provide an in-depth understanding of LBP from the experts' opinion and compliment findings on study objectives 2 and 4.

The audio recordings of the Key Informant interviews were transcribed verbatim and translated. Transcription was not merely aimed at capturing words of the Key Informants but also meanings and perceptions that determined contexts and explanations to

responses. All the transcripts were read several times in order to formulate a general impression. Transcription avoided summarizing statements but rather represented the entire scenario including slangs, jargons etc.

Since the transcript was likely to generate different theories and beliefs across a range of questions, thematic analysis was used (Nowell et al., 2017) a method of analysis that is preferred in such scenarios. By using thematic analysis, multiple level coding was performed. This method allowed the study of different theories and beliefs raised by the KIs. Relevant piece of information from the transcript was identified and categorized and that which was closely related to each other was put under one group as codes. The different categories generated by grouping closely related codes were referred to as sub-themes. Then thereafter closely related sub-themes were grouped together as themes. These emergent themes were properly labeled, defined and were used to report the aspect of data that was captured in form of quotes. In addition, they were used to systematically analyze the topics that made up the KI's opinions and experiences. Additionally, those KIs who came up with divergent opinions and experiences reflected the variations arising from the data.

5.10 Ethical Considerations

Approval to conduct the study was obtained from the Makerere University School of Public Health (MakSPH) – Higher Degrees Research & Ethics Committee (HDREC). Clearance was sought from Uganda national Council for Science and Technology (UNCST). Permission was sought from the District Health Officer of Kamuli District and the Medical Superintendent of Kamuli District Hospital. Written informed consent was sought from each participant after explanation of the purpose of the study, the benefits of the study, approximate time of the interview and assurance of respect for privacy and confidentiality of the respondents. The participants were interviewed in a private and secure room away from the ANC clinic to ensure privacy.

5.11 Dissemination of Results

The study findings with appropriate recommendations will be disseminated to key Kamuli District Maternal Health stakeholders including the District Health Office in order to inform their interventions on the matters arising. Therefore, the report will be disseminated to the following;

- a) Kamuli District Hospital- to help design local interventions for LBP amongst pregnant women
- b) The Makerere University School of Public Health as partial fulfilment for the requirement for the award of a Master of Public Health.
- c) The study findings will be submitted to national and international peer reviewed journals for publication.

CHAPTER SIX

RESULTS

6.1 Introduction

The study was conducted from March-April 2020, where 341 women attending ANC services in Kamuli District Hospital were enrolled. All the 341 women enrolled in the study were successfully interviewed.

6.2 Social Demographic Characteristics

According to the results as shown in table 2, majority of the respondents 45 (42.86%) were in the 25 to 29 years age group. The mean age of the respondents was 26 years with a standard deviation of 5.0 and range (16-40) years. There was almost an equal distribution from respondents from the urban area 171 (50.15%) and those from the rural areas 170 (49.85 %). Majority of the respondents were Basoga by tribe 207 (60.70%) while the remaining 134 (39.30%) constituted the other tribes like Baganda, Bagungu, Bagisu, Bagwere, Balamogi, Banyankole, Banyarwanda, Banyole, Itesot, Batooro etc. Many of the respondents were from the protestant 119 (34.5%) and Catholic 94 (27.6%) religions. Most of the women 314 (92.08%) were married as compared to 22 (6.45 %) who were single and 5 (1.46 %) who were separated. Majority of the respondents had attained secondary school education 148 (43.40%) as compared to those with primary school education 112 (32.84%), tertiary education 41 (12.02%) and no formal education 40 (11.73%). The mean weight was 64.4kg and standard deviation of 10.4 and range of (32-99) kg, mean height was 1.61 meters and standard deviation of 0.13 and range of (1.22-2.1) meters. Majority of the respondents fell in the normal BMI that is, 167 (48.97%) followed by those who were overweight 112 (32.84%) then the Obese 48 (14.07%) and lastly the underweight 14 (4.12%). The top three occupations of the respondents were being a house wife 98 (28.7%), getting involved in trade 86 (25.2%) and subsistence farming 78 (22.9%).

Majority of the respondents lived in houses with brick walls 271 (79.47%), iron sheet roofs 299 (87.68%) and cemented floors 237 (69.50%). Lastly, majority of the respondents 148 (43.40%), had an average monthly income below UGX 150,000.

6.3 Prevalence of LBP

Of the 341 women interviewed 105 (30.8%) respondents reported LBP. This therefore follows that the prevalence of LBP amongst women attending ANC clinic in this study was (30.8%; 95% CI 26.13-35.88%)

Nature and Severity of Low Back Pain

Out of the 105 respondents who reported having LBP, 101 (96.19%) complained of lumbar pain, and 4 (3.81%) complained of both lumbar and pelvic pain. Most of them, 88 (83.81%) had experienced the pain for more than 1 week with only 17 (16.19%) reporting to have experienced it for less than 1 week from the time of the study. Regarding the history of LBP, majority of the respondents indicated that it first occurred to them during their current pregnancy (85.71%) while 14 (13.33%) had a history of having it even in their last pregnancy and 1 (0.95%) during their last menstruation. In addition, 95 (90.48%) of the respondents believed that their current pregnancy was responsible for the LBP they were experiencing and only 10 (9.52%) thought otherwise. The variables are summarized in the table 1 below.

Table 1: Distribution of nature and severity of LBP

Variable	Frequency, n=105	Percentage (%)
Location of pain		
Lumbar region	101	96.19%
Both Lumbar and others	4	3.81%
Length of pain experience		
Less than one week	17	16.19%
More than one week	88	83.81%
1st experience of LBP		
Last pregnancy	14	13.33%
Last menstruation	1	0.95%
Current pregnancy	90	85.71%
Perceived cause of LBP		
Related to current pregnancy	95	90.48%
Not related	10	9.52%

Pain intensity amongst respondents

Majority of the respondents had moderate pain, 66 (62.85%), 37 (35.23%) had mild pain, and only 2 (1.92%) had severe pain. Figure 1 below illustrates the graphical representation of the different pain intensities.

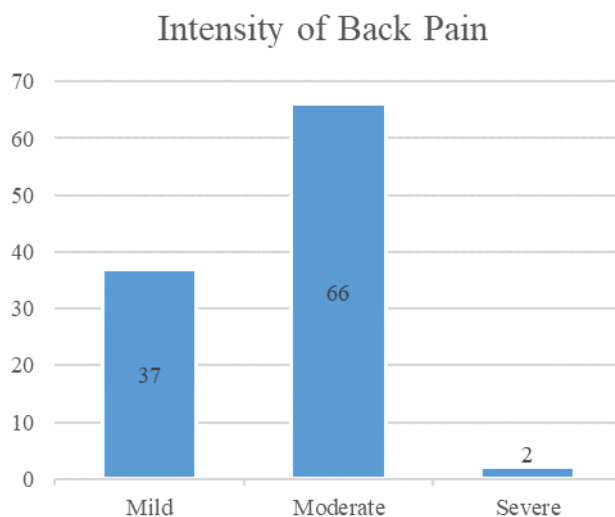


Figure 1: Occurrence of the different pain intensities

6.4 Factors associated with Low Back Pain

6.4.1 Social demographic and individual factors

After bivariate analysis, six social demographic and individual factors were found to be significantly associated with LBP amongst pregnant women (significance level of P-Value < 0.2) namely; tribe, religion, education level, occupation, types of housing walls, and average monthly income. Respondents who were Basoga by tribe (PR 1.66 (1.03-2.70)), unemployed (PR 1.46 (0.87-2.45)), born again (PR 1.61 (1.02-2.55)), and had an average monthly income ranging between 300,001 – 500,000 (PR 1.38 (0.92-2.07)), were more likely to have LBP, whereas respondents who had primary level education (PR 0.69 (0.41-1.15)); were housewives (PR 0.42 (0.25-0.72)); had houses with walls made of mud (PR 0.64 (0.33-1.24)); or an average monthly income ranging between 500,001–1,000,000 (PR 0.57 (0.34-0.94)) and above 1,000,000 (PR 0.55 (0.26-1.17)), were all less likely to have LBP. Comparison of occurrence of LBP among respondents of different social demographic and individual characteristics is illustrated in table 2.

Table 2: Comparison of Prevalence of LBP among Respondents of Different Social Demographic and individual Characteristics

Characteristic	Low Back Pain		Bivariate Analysis	
	Yes, n (%)	No, n (%)	PR (95% CI)	P-value
Age group				
<17 years	2 (1.90%)	3 (1.27%)	1.0	
18 to 24 years	33 (31.43%)	102 (43.22%)	0.60 (0.20-1.86)	0.387
25 to 29 years	45 (42.86%)	80 (33.90%)	0.90 (0.30-2.70)	0.851
30 to 34 years	18 (17.14%)	36 (15.25%)	0.75 (0.27-2.60)	0.754
35 to 39 years	3 (2.86%)	13 (5.51%)	0.47 (0.11-2.07)	0.317
>40 years	4 (3.81)	2 (0.85%)	1.67 (0.49-5.62)	0.410
Residence				
Urban	50 (47.62%)	121 (51.27%)	1.0	
Rural	55 (52.38%)	115 (48.73%)	1.11 (0.80-1.52)	0.534
Religion				
Catholic	23 (21.90%)	71 (30.08%)	1.0	
Protestant	38 (36.19%)	81 (34.32%)	1.31 (0.84-2.03)	0.238
Born Again	28 (26.67%)	43 (18.22%)	1.61 (1.02-2.55)	0.041*
Muslim	16 (15.24%)	41 (17.37%)	1.17 (0.68-2.02)	0.578
Marital Status				
Separated	2 (1.90%)	3 (1.27%)	1.0	
Married	94 (89.52%)	220 (93.22%)	0.75 (0.25-2.22)	0.602
Single	9 (8.57%)	13 (5.51%)	1.02 (0.31-3.35)	0.970
Education Level				
No education	15 (14.29%)	25 (10.59%)	1.0	
Primary	29 (27.62%)	83 (35.17%)	0.69 (0.41-1.15)	0.154*
Secondary	45 (42.86%)	103 (43.64%)	0.81 (0.51-1.30)	0.381
Tertiary	16 (15.24%)	25 (10.59%)	1.04 (0.60-1.81)	0.888
BMI (Kg/m²) Category				
Underweight (<18.5)	4 (3.81%)	10 (4.24%)	1.0	
Normal weight (18.5-24.9)	60 (57.14%)	107 (45.34%)	1.17 (0.50-2.71)	0.718
Overweight (25-29.9)	31 (29.52%)	81 (34.32%)	0.89 (0.37-2.13)	0.796
Obese (>30)	10 (9.52%)	38 (16.10%)	0.68 (0.25-1.81)	0.438
Occupation				
Subsistence farming	30 (28.57%)	48 (20.34%)	1.0	
Trade	26 (24.76%)	60 (25.42%)	0.79 (0.51-1.20)	0.269
Public servant	15 (14.29%)	20 (8.47%)	1.11 (0.69-1.79)	0.655
NGO employee	4 (3.81%)	12 (5.08%)	0.65 (0.27-1.59)	0.346
Housewife	16 (15.24%)	82 (34.75%)	0.42 (0.25-0.72)	0.002*
Student	5(4.74%)	7 (2.97%)	1.08 (0.52-2.24)	0.829
Unemployed	9 (8.57%)	7 (2.97%)	1.46 (0.87-2.45)	0.149*
Type of Roof				
Grass thatched	12 (11.43%)	30 (12.71%)	1.0	
Iron sheets	93 (88.57%)	206 (87.29%)	1.09 (0.66-1.81)	0.743
Types of Walls				
Mud	17 (16.19%)	27 (11.44%)	1.0	
Iron sheets	10 (9.52%)	16 (6.78%)	1.99 (0.37-2.69)	0.988
Bricks	78 (74.29%)	193 (81.78%)	0.64 (0.33-1.24)	0.189*
Types floors				
Cement / tiles	69 (65.71%)	168 (71.19%)	1.0	
Mud / Dung	36 (34.29%)	68 (28.81%)	1.19 (0.85-1.66)	0.305
Average Monthly Income				
Below 150,000	52 (49.52%)	96 (40.68%)	1.0	
150,000 – 300,000	15 (14.29%)	37 (15.68%)	0.82 (0.51-1.33)	0.421
300,001 – 500,000	17 (16.19%)	18 (7.63%)	1.38 (0.92-2.07)	0.118*
500,001 – 1,000,000	15 (14.29%)	60 (25.42%)	0.57 (0.34-0.94)	0.028*
Above 1,000,000	6 (5.71%)	25 (10.59%)	0.55 (0.26-1.17)	0.120*

Note: * P value < 0.2 || PR – Prevalence Ratio || CI – Confidence Interval.

6.4.2 Health related factors

Out of the 105 women who reported LBP, majority of them 59 (56.19%) were in their third trimester as compared to those in second trimester 41 (39.05%) and 5 (4.76%) in first trimester. Many of them 55 (52.38%) had between 3 – 4 pregnancies in their lifetime. In addition, majority of the women 58 (55.24%) with LBP had delivered 1 – 2 children. All the respondents reported to have attended at least one ANC session at the time of the study with majority of them 56 (53.33%) attending 3-4 times. A look at the mode of delivery of previous pregnancies of the respondents with LBP found that majority had had vaginal delivery 81 (77.14%).

Majority of the respondents 334 (97.94%) were found not to have a history of pelvic/back accidents and almost all respondents did not have a history of pelvic/back surgery 338 (99.12%) while 312 (91.49%) did not have existing medical conditions.

At bivariate analysis, six health related factors were significantly associated (significance level of P-Value < 0.2) with LBP namely; number of pregnancies (gravidity), ANC attendance, previous mode of delivery, history of pelvic/back accident, history of pelvic/back surgery and existing medical conditions as shown in table 3. According to the results, respondents who had 3 – 4 pregnancies (PR 1.44 (1.02-2.03)); attended ANC 3 – 4 visits by the time of the study (PR 1.58 (1.15-2.18)); or had delivery by both vaginal and caesarian (PR 2.01 (1.14-3.55)), were more likely to have LBP. On the other hand, respondents with no history of pelvic / back accidents (PR 0.42 (0.25-0.69)), history of pelvic surgery (PR 0.30 (0.26-0.35)), or no existing medical condition (PR 0.60 (0.40-0.92)) were less likely to have LBP.

Table 3: Comparison of Prevalence of LBP among Respondents of Different Health Related Factors

Factors	Low Back Pain		Bivariate Analysis	
	Yes, n (%)	No, n (%)	PR (95% CI)	P-value
Trimester				
1st	5 (4.76%)	11 (4.66%)	1.0	
2nd	41 (39.05%)	135 (57.20%)	0.75 (0.34-1.62)	0.458
3rd	59 (56.19%)	90 (38.14%)	1.27 (0.60-2.69)	0.539
Gravidity				
1 – 2	39 (37.14%)	113 (47.88%)	1.0	
3 – 4	55 (52.38%)	94 (39.83%)	1.44 (1.02-2.03)	0.038*
5 and above	11 (10.48%)	29 (12.29%)	1.07 (0.60-1.90)	0.812
Parity				
None	18 (17.14%)	51 (21.61%)	1.0	
1 – 2	58 (55.24%)	128 (54.24%)	1.20 (0.76-1.88)	0.439
3 – 4	18 (17.14%)	33 (13.98%)	1.35 (0.78-2.33)	0.277
5 and above	11 (10.48%)	24 (10.17%)	1.20 (0.64-2.26)	0.563
ANC attendance				
1 – 2	47 (44.76%)	143 (60.59%)	1.0	
3 – 4	56 (53.33%)	87 (36.86%)	1.58 (1.15-2.18)	0.005*
5 and above	2 (1.90%)	6 (2.54%)	1.01 (0.30-3.45)	0.987
Previous mode of delivery				
Vaginal	81 (77.14%)	180 (76.27%)	1.0	
Caesarian	2 (1.90%)	4 (1.69%)	1.07 (0.34-3.38)	0.903
Both	5 (4.76%)	3 (1.27%)	2.01 (1.14-3.55)	0.016*
NA	17 (16.19%)	49 (20.76%)	0.83 (0.53-1.30)	0.415
History of pelvic/back accidents				
Yes	5 (4.46%)	2 (0.85%)	1.0	
No	100 (95.24%)	234 (99.15%)	0.42 (0.25-0.69)	0.001*
History of pelvic/back surgery				
Yes	3 (2.86%)	0	1.0	
No	102 (97.14%)	236 (100%)	0.30 (0.26-0.35)	0.000*
Existing medical conditions				
Yes	14 (13.33%)	15 (6.36%)	1.0	
No	91 (86.67%)	221 (93.64%)	0.60 (0.40-0.92)	0.017*

Note: * P value < 0.2 || PR – Prevalence Ratio || CI – Confidence Interval

6.4.3 Occupational and Environmental Factors

The commonest daily routines among respondents with LBP were repetitive lifting of weight above 10kg that is, (57.69%) and posturing or tilting of the body (38.98%). Majority of the respondents with LBP 72 (68.57%) engaged in routine activities for more than 2 hours per day. In addition, almost all respondents 99 (94.29) indicated that they took breaks while performing their routine activities with a big majority of them 47 (47.47 %) taking breaks of between 15-30 minutes. Majority of the women with LBP reported to have been engaged in their work for more than 6 months 38 (36.19%) during the time of pregnancy as compared to those of less than 3 months 38 (36.19%) and those between 3-6 months (27.62%). Almost all respondents with LBP 101 (96.12%) had enough space to walk around at the workplace. The tools which were used by the majority of the respondents with LBP were manual hand held 96 (91.43%) followed by semi-automated 14 (13.33%) and lastly fully automated 5 (4.76%).

After bivariate analysis, three factors were found to be significantly associated (significance level of P-Value < 0.2) with LBP amongst pregnant women that is; duration of daily routine activities, duration of breaks at work and length of engagement in work as shown in table 4 below. According to the results, respondents who engaged in daily routine activities for 1 – 2 hours (PR 0.47 (0.27-0.80)) or more than 2 hours (PR 0.52 (0.37-0.74)); took breaks during work of more than 30 minutes (PR 0.44 (0.27-0.72)); and engaged in work during pregnancy for between 3 – 6 months (PR 0.54 (0.37-0.79)) or more than 6 months (PR 0.48 (0.34-0.69)), were all less likely to have LBP.

Table 4: Comparison of Prevalence of LBP among Respondents of Different Occupational Characteristics

Characteristic	Low Back Pain		Bivariate Analysis	
	Yes, n (%)	No, n (%)	PR (95% CI)	P-value
Duration of daily routine activities				
Less than 1 hour	19 (18.10%)	14 (6.36%)	1.0	
1 – 2 hours	14 (13.33%)	38 (17.27%)	0.47 (0.27-0.80)	0.005*
More than 2 hours	72 (68.57%)	168 (76.36%)	0.52 (0.37-0.74)	0.000*
Take breaks during work				
Yes	99 (94.29%)	204 (92.73%)	1.0	
No	6 (5.71%)	16 (7.27%)	0.83 (0.41-1.68)	0.614
Duration of breaks				
Less than 15 minutes	33 (33.33%)	44 (57.14%)	1.0	
15-30 minutes	47 (47.47%)	79 (38.73%)	0.87 (0.62-1.23)	0.429
More than 30 minutes	19 (19.19%)	81 (39.71%)	0.44 (0.27-0.72)	0.001*
Length of engagement in work				
Less than 3 months	38 (36.19%)	34 (15.60%)	1.0	
Between 3 – 6 months	29 (27.62%)	73 (33.49%)	0.54 (0.37-0.79)	0.001*
More than 6 months	38 (36.19%)	111 (74.50%)	0.48 (0.34-0.69)	0.000*

Note: * P value < 0.2 || PR – Prevalence Ratio || CI – Confidence Interval

6.4.4 Multivariate analysis of the factors associated with LBP

Multivariate logistic regression analysis was done and found that ANC attendance, history of pelvic/back accidents, duration of daily routine activities and duration of breaks during work, were significantly associated with prevalence of LBP among pregnant women at (significance level of P-Value < 0.05). Specifically, respondents who had 3-4 ANC visits were more likely to report LBP than those who had 1 – 2 ANC visits (aPR 1.50 (1.06-2.12)). Respondents with no history of pelvic/back accidents were less likely to report LBP as compared to those with history of pelvic/back trauma (aPR 0.40 (0.19-0.84)). Respondents who engaged in daily work routines for more than 2 hours (aPR 0.50 (0.29-0.87)) and 1 – 2 hours (aPR 0.67 (0.47-0.96)) were less likely to report LBP compared to those who engaged in work for less than 1 hour. Respondents who had

work breaks of more than 30 minutes were less likely to have LBP (aPR 0.53 (0.31-0.91)). The analysis of the variables is shown in table 5 below.

Table 5: Association of LBP with different characteristics

Variable	Multivariate Analysis		
	Unadjusted PR	Adjusted PR	P-value
Tribe			
Non Basoga	1.0	1.0	
Basoga	1.66 (1.03-2.70)	1.31 (0.77-2.22)	0.315
Religion			
Catholic	1.0	1.0	
Protestant	1.31 (0.84-2.03)	1.03 (0.48-2.32)	0.902
Born Again	1.61 (1.02-2.55)	1.24 (0.71-4.28)	0.384
Muslim	1.17 (0.68-2.02)	0.91 (0.53-1.54)	0.723
Education Level			
No education	1.0	1.0	
Primary	0.69 (0.41-1.15)	0.60 (0.36-1.00)	0.049
Secondary	0.81 (0.51-1.30)	0.66 (0.43-1.01)	0.055
Tertiary	1.04 (0.60-1.81)	0.80 (0.46-1.39)	0.438
Occupation			
Subsistence farming	1.0	1.0	
Trade	0.79 (0.51-1.20)	0.82 (0.48-1.42)	0.479
Public servant	1.11 (0.69-1.79)	1.60 (0.71-3.58)	0.225
NGO employee	0.65 (0.27-1.59)	0.52 (0.12-2.18)	0.368
Housewife	0.42 (0.25-0.72)	1.01 (0.51-1.98)	0.982
Student	1.08 (0.52-2.24)	3.66 (1.42-9.41)	0.257
Unemployed	1.46 (0.87-2.45)	1.69 (0.81-3.52)	0.165
Average Monthly Income			
Below 150,000	1.0	1.0	
150,000 – 300,000	0.82 (0.51-1.33)	0.68 (0.39-1.20)	0.180
300,001 – 500,000	1.38 (0.92-2.07)	1.15 (0.60-2.23)	0.669
500,001 – 1,000,000	0.57 (0.34-0.94)	0.63 (0.32-1.25)	0.189
Above 1,000,000	0.55 (0.26-1.17)	0.48 (0.16-1.42)	0.186
Gravidity			
1 – 2	1.0	1.0	
3 – 4	1.44 (1.02-2.03)	1.43 (0.92-2.23)	0.111
5 and above	1.07 (0.60-1.90)	0.86 (0.42-1.74)	0.668
ANC attendance			
1 - 2	1.0	1.0	
3 - 4	1.58 (1.15-2.18)	1.50 (1.06-2.12)	0.021*
5 and above	1.01 (0.30-3.45)	1.00 (0.20-4.85)	0.996

Previous mode of delivery			
Vaginal	1.0	1.0	
Caesarian	1.07 (0.34-3.38)	0.84 (0.14-4.99)	0.847
Both	2.01 (1.14-3.55)	1.18 (0.59-2.363)	0.637
NA	0.83 (0.53-1.30)	0.93 (0.53-1.61)	0.787
History of pelvic/back accidents			
	1.0	1.0	
Yes	0.42 (0.25-0.69)	0.40 (0.19-0.84)	0.015*
No			
History of pelvic/back surgery			
	1.0		
Yes	0.30 (0.26-0.35)		
No			
Existing medical conditions			
Yes	1.0		
No	0.60 (0.40-0.92)	0.73 (0.44-1.22)	0.231
Duration of daily routine activities			
	1.0	1.0	
Less than 1 hour	0.47 (0.27-0.80)	0.50 (0.29-0.87)	0.015*
1 – 2 hours	0.52 (0.37-0.74)	0.67 (0.47-0.96)	0.030*
More than 2 hours			
Duration of breaks			
Less than 15 minutes	1.0	1.0	
15-30 minutes	0.87 (0.62-1.23)	0.83 (0.57-1.20)	0.314
More than 30 minutes	0.44 (0.27-0.72)	0.53 (0.31-0.91)	0.021*
Length of engagement in work			
	1.0	1.0	
Less than 3 months	0.54 (0.37-0.79)	0.72 (0.49-1.08)	0.112
Between 3 – 6 months	0.48 (0.34-0.69)	0.56 (0.37-0.83)	0.108
More than 6 months			

Note: * P value < 0.05 || PR – Prevalence Ratio

6.5 Effect of LBP on daily functional activities

Respondents who reported to have LBP were subjected to the OSWESTRY Disability Index (ODI) questionnaire to determine the effect of the LBP on their Daily Functional Activities; results in table 6 show the disability findings.

Table 6: Oswestry Disability Index (ODI) scores for LBP

Disability (ODI scores)	f	% of 105
0-20% (Minimal disability)	71	67.6
21-40% (Moderate disability)	33	31.4
41-60% (Severe disability)	1	1.0
61%-80% (Crippled)	0	0.0
81%-100% (Bed bound)	0	0.0
Total	105	

Majority of the women 71 (67.6%) had minimal disability with an ODI score of 0-20% while others 33 (31.4%) had moderate disability with ODI score of 21-40% and only 1 had severe disability with ODI score of 41-60%

In addition, generally LBP had mild effects on the daily functional activities of the respondents. The activities which were mostly affected with mild interference on daily routine activities were lifting 81%, standing 74%, personal care 74% and travelling 74%. This is illustrated in table 7 below;

Table 7: Effect of Low Back Pain on different daily functional activities using OSWESTRY Disability Index (ODI)

	The Score in each section		
Daily Functional Activity	No effect 0 score n (%)	Mild effect 1 Score n (%)	Moderate to very Severe effect 2- 5 Score n (%)
Personal Care	25 (24)	78 (74)	2 (2)
Lifting	15 (14)	85 (81)	5 (5)
Walking	38 (36)	65 (62)	2 (2)
Sitting	28 (27)	61 (58)	16 (15)
Standing	22 (21)	78 (74)	5 (5)
Sleeping	34 (32)	70 (67)	1 (1)
Sex life	33 (31)	66 (63)	6 (6)
Social life	53 (50)	48 (46)	4 (4)
Travelling	22 (21)	78 (74)	5 (5)

6.6 Management and Coping Strategies

Majority of the respondents that is, 80 (76.19%) reported their LBP during the ANC visits as compared to the 25 (23.81%) who did not report. Many of those who reported their LBP cases in the ANC visits 78 (97.50%) received treatment for their ailment from a health worker.

Among the respondents who received treatment during the ANC visits, a big number of them that is, 62 (79.49%) were given painkillers while 13 (16.67%) received counseling and patient education, 3 (3.85%) received physiotherapy and none received the other modes of care like acupuncture and epidural injections. Among the respondents who received treatment majority 48(61.54%) reported getting mild (slight) improvement while 22 (28.21%) reported full recovery and 8 (10.26%) did not get any relief at all.

For the respondents who did not get any get treatment from the ANC visits, majority of them 23(60.53%) used herbs, others used self-prescribed painkillers 5(13.16%) while the remaining group used other coping mechanisms 9(26.31%) including rest from activity. Among these respondents, majority of them that is, 16(42.11%) reported full recovery while 11 (28.95%) reported mild (slight) relief and 1(2.63%) did not get any relief at all. These variables are summarized in table 8.

Table 8: Management and coping strategies of LBP

Variable	Frequency, n=105	Percentage (%)
Reported LBP at ANC		
Yes	80	76.19%
No	25	23.81%
Access to LBP treatment		
Received treatment	78	97.50%
Did not receive treatment	2	2.50%
Treatment given		
Painkillers	62	79.49%
Physiotherapy	3	3.85%
Counselling	13	16.67%
Effect of treatment given		
Got relief from LBP	22	28.21%
Mild relief	48	61.54%
No relief	8	10.26%
LBP coping mechanisms		
Used herbs	23	60.53%
Self-prescribed painkillers	5	13.16%
Resting from activity	1	2.63%
others	9	23.68%
Relief from coping mechanisms		
Got relief from LBP	16	42.11%
Mild relief	11	28.95%
No relief	1	2.63%
NA	10	26.32%

6.7 Qualitative Thematic analysis of factors associated with Low Back Pain, management and coping strategies amongst pregnant women

Two themes emerged from the content analysis namely; patient related factors and LBP management and coping strategies. The two themes are presented below; subthemes are summarized followed by quotes from the data. The results of the analysis are shown in table 9 below.

Table 9: Qualitative thematic content analysis results

Main theme	Subthemes	Categories	Codes
Patient related factors	Occupation	Nature of routine daily activities Resting during work Income	Work environment, working long hours, duration of rest from activity, strenuous type of work, manual work, payment of medical bills
	Medical history	History of back injury History of comorbidities Obstetric history	Gravidity, Abortion, UTIs, back accidents, caesarian section, advanced gestation age, obesity
	Patient's cooperation in ANC	Complete information from patient Positive relationship between HW and patient Willingness to take-up the medical advice	Provision of proper medical history, Explanation of medical conditions by HW, uptake of medical advice by patient
Management and coping strategies	Practices about LBP	Physiotherapy Patient education Use of analgesics Taking rest Physical exercise Herbs	Low uptake of physiotherapy, availability of screening tools, individual HW's perception about LBP, painkillers, counselling, stretching and exercises, identify high risk women, breaking off activity, use of local herbs
	Inappropriate recording system of LBP in ANC registers	LBP not illustrated as a stand out variable in ANC registers Total omission of LBP recording in ANC registers	Not recording of LBP cases during ANC visits, reporting of variables only indicated in the ANC registers, missing progress notes about LBP

6.7.1 Patient related factors

This theme mainly addressed the factors associated with LBP amongst pregnant women. Three subthemes emerged from this theme namely; occupation, patient's health condition and patient's cooperation.

6.7.1.1 Occupation

The women's occupation and work environment were believed to be associated with LBP in pregnancy. HWs say that pregnant women attribute their LBP to long hours of physical activity encountered on a daily basis.

... "this being an agricultural farming area supported mainly by women, some pregnant women we see in our clinics attribute their LBP to the long hours of bending they undergo while digging" the head of the obstetrics and gynecology department.

6.7.1.2 Medical history

The patient's past medical history was heightened by HWs among the factors that are associated with LBP in pregnancy. For instance, factors like history of back injury and having other medical conditions were mentioned as aggravating factors.

..." Evidence shows that there is a likelihood of reoccurrence of LBP if one has ever suffered from it and pregnant women are not necessarily exceptional" ... ADHO (Maternal and Child health)

6.7.1.3 Patient's cooperation in ANC

It was acknowledged that when a pregnant mother cooperates with the health worker during ANC consultations by giving proper information and following medical advice it improves on communication and treatment outcomes.

...If there is cordial relationship between the HW and the client, in most cases the treatment outcomes are superb...a case in point is that some women don't honor the ANC appointment dates, they instead prefer coming during advanced stages of pregnancy which is not a good sign of cooperation... the head of the obstetrics and gynecology department.

6.7.2 Management and coping strategies

This theme mainly addressed the ways LBP in pregnant women was managed by HWs and the challenges they faced during management. Two subthemes emerged from this

theme namely; Practices of HWs about LBP and Inappropriate recording system of LBP during pregnancy.

6.7.2.1 Practices about LBP

It was found out that health workers exhibited fundamental knowledge about the occurrence of LBP in pregnant women however their practices differed. In addition, pregnant women also sought other treatment modalities and coping strategies like herbal medicine and physical exercise.

‘Some health workers think that LBP in pregnancy is a normal occurrence which does not deserve any attention especially if pain is very mild ...others prescribe exercises, physiotherapy or analgesics; generally, there is no standardized treatment protocol for LBP in pregnancy in our hospital, it depends on the individual practitioner’ the head of the obstetrics and gynecology department

...there is low uptake of physiotherapy services simply because the physiotherapy department is under staffed to work on huge numbers ...so we most times end up prescribing pain killers to our patients suffering from LBP...Senior Nursing Officer in Charge of maternity ward

...when women experience pain before their ANC appointment date, they sometimes buy over the counter painkillers and to some extent some may use herbs or do stretching exercises for relief because of easy availability of these methods.... Midwife in charge of the ANC clinic.

6.7.2.2 Inappropriate recording system of LBP during pregnancy

Another issue which was highlighted was that all cases of LBP that were come across during ANC were not recorded because this parameter is not available in the ANC register books.

...” unlike other complaints, LBP is very difficult to document because it’s not part of the variables recorded in the ANC register during the ANC assessment visits” ADHO (maternal and Child health)

CHAPTER SEVEN

DISCUSSION

7.1 Introduction

This chapter discusses the main findings of the current study. This was a hospital based cross-sectional study conducted to determine the prevalence and factors associated with LBP amongst women attending ANC clinic in Kamuli District Hospital. The findings will be discussed in relation to the aim and objectives of the study and in relation to similar studies.

7.2 Prevalence of Low Back Pain

The prevalence of LBP among women attending ANC in Kamuli District Hospital was 30.8%. This prevalence is high and it could possibly be because many women are involved in doing domestic activities at home which involve a bending and lifting motions that expose them to LBP. However it is comparable to a similar African study which was done in Ethiopia which had a reported prevalence of 33.2% (Abebe et al., 2014) and within a range reported in other studies of 4-76% (Gutke et al., 2008, Kristiansson et al., 1996) and 25-90% (Gutke et al., 2018). This study's prevalence is however lower than the prevalence of 62% (Manyozo et al., 2019) and 55.4% (Jimoh, 2013) which were reported in other African study settings in Malawi and Nigeria respectively. The relatively lower prevalence reported by this study could be explained by the fact that many respondents with very mild pain could have been excluded. The study done by Sihvonen et al. (1998) estimated that the prevalence of pregnancy related LBP increases by 20% when women with mild symptoms are included.

According to Katonis et al. (2011), LBP can start at any stage of pregnancy. However, findings in this study show that LBP was most prevalent in the 3rd trimester. The possible explanation for high occurrence of LBP in third trimester could be probably due to high overload of the spine as the maternal weight increases (Ostgaard et al., 1991) in late stages of pregnancy. This is consistent with findings by Sencan et al. (2018) who reported that Pregnancy Related Low Back Pain (PRLBP) was more prevalent in the 3rd trimester.

Nature and severity of LBP

In an effort to describe the nature of LBP, the study found out that most of the pregnant women complained of lumbar pain. This is because there is more strain on the spine as compared to the pelvic floor during fetal development. This finding is consistent with literature which shows that lumbar pain is more prevalent than the pelvic girdle and mixed pain. (Casagrande et al., 2015). In regard to the severity of LBP, most women experienced moderate pain as opposed to mild and severe forms of pain. The reason for this is not well understood but could probably be because many women during these self-report studies may want to opt for a middle ground indicating that their pain is neither mild (minor) or severe (extreme) hence going for the moderate option. This is consistent with findings of studies done in USA and Ethiopia (Abebe et al., 2014, Wang et al., 2004) where it was observed that moderate pain was the most reported form of LBP severity.

7.3 Factors associated with LBP in pregnant women

The study's main findings about the factors which are associated with LBP in pregnant women were occupational and environmental factors. Specifically, this study found that pregnant women who worked for longer durations and those that had longer breaks during work were less likely to complain of LBP. This means that so long as respondents got more resting time (frequent breaks during work) they could work for longer hours (more than two hours) without complaining of LBP. This relationship has not been extensively studied therefore more research needs to be done in this area. However as noted by one KI, Kamuli district is an area where majority of the women are engaged in long hours of informal-labor intensive activities like subsistence farming, trade and housewife domestic chores. It therefore implies that having frequent breaks/rests from activity could be a key element that enabled pregnant women to go on for long hours of work during their daily routine activities. This is consistent with findings of a study by Malmivaara et al. (1995) which showed that continuation with intermittent routine activities permitted within the limits of pain offered a protective advantage against LBP.

Despite many studies linking association of LBP with BMI, occupation, maternal age, gravidity, parity or gestation age (Ahdhi et al., 2016, Mogren and Pohjanen, 2005, Pierce et al., 2012, Shijagurumayum Acharya et al., 2019, Uemura et al., 2018, Vermani et al., 2010, Wang et al., 2004), there was no association of these factors at multivariate level in

the current study. The reasons for non-association of the above factors at multivariate level are not well understood but some studies indeed concur with the non-association of the factors with LBP. For instance, Kristiansson et al. (1996) reported no association of maternal age with LBP and Sencan et al. (2018) reported no association between BMI with LBP. In addition, Abebe et al. (2014) observed that there was no association of occupation with LBP, Katonis et al. (2011) found that there was no association between economic status and LBP while Sencan et al. (2018) found that there was no association between parity and gravidity with LBP in pregnancy. However, in the current study at univariate level there was significant association between LBP and BMI, occupation, maternal age and gestation age.

In addition, ANC Attendance and having a history of pelvic trauma were significantly associated with LBP at multivariate level. The relationship between ANC attendance and LBP is not well studied but perhaps it is likely that women who suffered/complained of LBP may have attended previous ANC sessions without relief hence coming back for review visits to get remedy of their ailment. Notably though majority of the ANC attendances were in second and third trimesters. This was also observed by one KI who noted that pregnant women preferred coming for ANC during advanced stages of pregnancy. It is therefore likely that women who reported 3–4 ANC attendances were in advanced stages of their pregnancies (3rd trimester) and thus experiencing increasing symptoms of LBP, as this is known to be more prevalent in the 3rd trimester (Sencan et al. (2018).

The association between history of LBP and history of pelvic trauma could possibly be that the previous trauma may have caused prior damage and weakness in the pelvic muscles hence subsequently exacerbating LBP. This is consistent with a study which was done by Vermani et al. (2010) where women with a history of back trauma were more likely to have LBP complaints.

7.4 Disability and effect of LBP on daily functional activities

According to the results, LBP affects most of the daily functional activities of pregnant women like personal care, travelling, standing, sleeping, sex life, social life, sitting and walking. This is probably because since LBP is itself a discomfort, it falls therefore that most of the daily activities would not be done with ease and hence affecting productivity

and quality of life. These results are consistent with findings from Australia, Pakistan and Malawi where pregnant women reported that LBP limited their daily functional activities, affected their productivity and quality of life (Manyozo et al., 2019, Pierce et al., 2012, Qamar et al., 2018). Lifting, bending and sitting were among the most affected activities. This is not a surprise since many women are involved in subsistence farming, house wife duties and trading which involve bending and sitting motions that could actually stretch the lumbar and pelvic muscle. This is consistent with a study done by Gorginzadeh et al. (2016) which pointed out sitting, standing and lifting loads which involve the bending motion as the most affected activities in pregnancy, possibly due to hormonal and mechanical factors that cause changes in the pelvic and lumbar regions.

According to the ODI score, most pregnant women with LBP had minimal disability, followed by moderate disability. With minimal disability, it means that LBP did not totally incapacitate the respondents from carrying out their normal routine duties. They indeed went ahead with the execution of their daily activities despite the LBP. These results are different from other studies which showed that moderate disability was the commonest form followed by mild and then severe disability (Pierce et al., 2012, Rabiee and Sarchamie, 2018). These could possibly be due to the difference in perception of pain and limitation of daily activities from study group of the current study and that of other studies. In addition, unlike other forms of disabilities, Fairbank and Pynsent (2000), affirm that cases of mild disability usually don't need aggressive medical treatment apart from patient education, counseling and avoiding strenuous physical activity.

7.5 Management and Coping Strategies of LBP

The study observed that many respondents reported their LBP ailments during the ANC consultation clinics. This is a good sign that pregnant mothers seek health care from qualified medical workers. During these sessions pregnant women are encouraged to air out all their medical ailments. This reflects the importance of patient's cooperation during the ANC consultations as noted by one KI. This is in agreement with a study which was done in Turkey where visiting a physician for LBP complaints was very common especially among pregnant mothers in third trimester (Sencan et al., 2018). However, some other studies contradict this finding-they state that many pregnant women don't seek health care from clinicians for their LBP unless when it poses some degree of disability (Manyozo et al., 2019, Sencan et al., 2018). This could be because of

reduced perception in the severity of the disease where women perceive LBP as a normal occurrence of pregnancy which does not require medical attention (Gorginzadeh et al., 2016).

The respondents who did not disclose their LBP ailments in the ANC clinic opted for other management choices including use of herbs, over the counter self-prescription of analgesics and other coping mechanisms such as resting from activity and physical exercises. As noted by one KI, the ease and availability of these coping mechanisms may have influenced their use in times when pain struck before the ANC due date. The use of herbs is not surprising since herbal medicine use in treatment of pregnancy related ailments including LBP is still popular amongst Ugandan women (Nyeko et al., 2016). Furthermore in relation to self-prescription, this study concurs with the Malawi study where over the counter self-prescribed drugs were among the choices of coping mechanisms/treatments employed by pregnant mothers suffering from LBP (Manyozo et al., 2019).

In this study it is clear that many mothers received conservative management options from health care practitioners as opposed to surgical management options for their LBP from the ANC clinic. Although one KI noted that there was no standardized treatment protocol available for the management of LBP in pregnancy in Kamuli District Hospital and that most of it depended on the individual clinician, conservative management by use of analgesics was largely offered. It should be noted that conservative management is still the treatment of choice for pregnancy related LBP (Katonis et al., 2011) since it is less invasive and more tolerable. It is therefore not surprising that it was opted for by the clinicians at Kamuli District Hospital. However as opposed to the current study other studies show that non-pharmacological management options like physiotherapy and patient education are preferred to pharmacological management during the treatment of pregnancy related LBP (Manyozo et al., 2019, van Benten et al., 2014). The reason for low uptake of physiotherapy may be due to non-availability of physiotherapy services and rehabilitation professionals in rural upcountry hospitals (O'Sullivan et al., 2017), hence leaving the clinicians with only the option of pharmacological management.

7.6 Study Strengths and Limitations

The study derived its strengths from the 100% response rate and the use of both quantitative and qualitative methods which increased its scientific rigor. Qualitative methods allowed adding of explanatory depth to quantitative methods.

However, there were some limitations for instance the study suffered referral bias due to the nature of its setting which was health facility based. The women who did not attend ANC from the health facility at the time of study were missed out and their responses were not obtained, which could have introduced a bias. This was addressed by having a relatively big sample size of 341 participants studied across a relatively longer period of time of one month in order to at least capture a more representative sample from the general population.

The study also depended on self-reported LBP status which was prone to information bias by the participants. There could have been likelihood of exaggeration of mild symptoms of LBP or under reporting in some cases amongst respondents thus introducing a bias. Upon confession of self-reported LBP, this bias was addressed by further confirmation of the location of pain by use of a Pain Body Chart and the VAS for pain intensity. Only respondents who pointed to the correct location of the LBP (as per the operational definition of LBP) and pain intensity of more than 1 were taken to have LBP thus decreasing the risk of interviewee bias.

CHAPTER EIGHT

CONCLUSIONS AND RECOMMENDATIONS

8.1 Conclusions

The study's focus was to determine the prevalence and associated factors, of Low Back Pain amongst women attending the antenatal clinic in Kamuli District Hospital. This information provides some of the evidence that will inform treatment guideline formulation and preventive interventions by health workers in Kamuli District hospital and Kamuli District Local government. The study came up with the following conclusions;

1. The prevalence of LBP amongst women attending ANC clinic was 30.8%. This means that LBP is a common health problem among women attending ANC clinic in Kamuli District hospital affecting about 3 out of 10 women.
2. The study found that LBP in pregnancy is associated with the duration of daily activities and duration of breaks from activity. Those women with longer durations of activity and breaks from activity were less likely to have LBP. Therefore, having frequent breaks from a lengthy activity was protective against LBP in pregnancy.
3. The study found that LBP affects most of the daily functional activities of pregnant women giving minimal and moderate disability. Although the disability was not severe, it affected their quality of life and productivity.
4. The study established that the LBP was managed by mainly conservative means of treatment especially by use of pharmacological management and patient education.

8.2 Recommendations

Basing on the above conclusions, the study provides the following recommendations.

1. The Kamuli District Hospital health team should update its treatment guidelines to ensure that pregnant women are assessed for LBP in order to allow effective management and follow-up since LBP is a common problem in this hospital. The study findings can therefore be used as basis of informing policy makers the public health importance of LBP in pregnancy as treatment guidelines are updated.

2. ANC health workers in Kamuli District Hospital are advised to step up their patient education programs and include in them the sensitization of pregnant mothers about the need of having frequent breaks while carrying out their daily routine work activities. In addition, pregnant women should be advised to seek immediate medical care should they get any symptoms of LBP in order to avoid any disabilities/complications that may arise.
3. The management of Kamuli District Hospital should revitalize physiotherapy services and ensure their utilization by pregnant women suffering from LBP. This will improve on the prescription and uptake of physiotherapy and thus reducing on the pharmacological prescription burden.
4. The study found several interesting findings but still there is need for its replication. This was a cross-sectional study that even if common method variance was taken care of, a longitudinal study is worth undertaking to better unearth all salient issues that could have remained untouched. Therefore, more studies are needed to be undertaken by public health researchers, especially in the areas of occupational and environmental factors associated with pregnancy related LBP in order to study the impact of ergonomic interventions on LBP in a community setting.

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APPENDICES

Appendix I: Consent Form

Respondent's Code:

A Study to Determine the Prevalence and factors associated with Low Back Pain amongst Women Attending Antenatal Clinic in Kamuli District Hospital

Introduction: Dear Madam, my name is.....I am collecting data for a Master of Public Health student of Makerere University conducting a study to determine prevalence and associated factors of Low Back pain amongst women attending antenatal clinic Kamuli District Hospital.

Purpose of the study: Low Back pain is prevalent among pregnant women though its magnitude and associated factors are not well documented. This study will therefore determine the prevalence of Low Back Pain and will document its associated factors amongst pregnant women in Kamuli Hospital. The information generated will assist the Ministry of Health, Kamuli District Local Government and other humanitarian actors to develop and implement evidence-based interventions to manage Low Back Pain in Pregnant women.

Study Procedure: Because we can't study every woman attending antenatal care services in all Kamuli district health facilities due to time and resources, we selected Kamuli District Hospital. You have been randomly selected to participate in this study and a questionnaire will be administered to you. I therefore request you to participate in this study by responding to the questions that I will ask you in the next few minutes.

Benefits and Risks: Acceptance to participate in this study has both direct and indirect benefits. The direct benefits being offering you free and crucial information on back pain during pregnancy and how to manage it. Indirect benefits will include the improved focus on low back pain management by healthcare professionals in Kamuli district hospital.

Voluntary participation: Taking part in this study is entirely voluntary and if you decide not to take part in it, this will not affect the care of services you receive at this or any other health facility in your area. However, if you participate, you are making a great

contribution to the national fight against low back pain in pregnant women in Uganda. You will be treated the same no matter your decision. If you agree to take part in this study, you will be asked to sign this consent form.

Confidentiality: The information you will provide will be treated with confidentiality and your name will not appear on any report that will be generated. Questionnaires will be anonymous and data will be securely kept. Interviews will be conducted in a private, comfortable and secure room. Information and records about you will be kept confidential and will not be available to anyone who is not connected to the study.

Duration of the interview: The interview will take about 20 minutes

Consent to participate: I would like to seek your permission to participate in this study.

Do you consent to participate in the interview for this study? 1=Yes 2=No

If yes, please proceed to the next section of declaration of consent to participate

Declaration and Signature:

The above information has been clearly explained to me and I have understood it. I do hereby voluntarily agree to participate in this study. I have understood that my participation in this study is voluntary. I know that I may quit the study at any time without any consequences. I also understand that the investigator in charge of this study may decide at any time that I should no longer participate in this study.

Thumbprint/Signature of respondent.....Date.....

Thumbprint/signature of Interviewer.....Date.....

Contact Information:

If you have any questions regarding this study, please call the Principal Investigator, Mr. Robert Zavuga on 0772655723. If you have any issues pertaining your rights and participation in this study please contact the Chairperson of the Institutional Review Board, Makerere University School of Public Health; Dr. Susanne Kiwanuka on telephone number 0701888163 or Uganda National Council of Science and Technology, on plot 6 Kimera Road Ntinda, Kampala or Call telephone number 0414-705500.

Appendix II: Translated Consent Form

Ennamba yabuzibwa.....

Essomo kukunonereza ku nsonga edhigemagana ku bulumi obwomugongo mubakyala abembutto abalikunwa edhagala mu dhwaliro lye kamuli.

Okweyandhura: Maama, amana gange ninzenkunganyha obubaka kulwo musomi we Makerere University akora Masters Degree oba ndikuguka mu by'obulamu obwabantu mwena mwena. (Masters in Public Health) nga anonereza ku nsonga edhigemagana ku bulumi obwomugongo mubakyala abembutto abali kunwa edhahala mu dhwaliro lye Kamuli.

Amakuru mu kunonoreza kuno: Okulumula omugongo mubakyala abali embuto kuungi inho era kukaali kuwandiikibwa ku nakufibua ku bulungi. Okunonereza kuno bwa kudakuyamba okutorayo amazima kunsonga edhigemagana kubulumi obwomugongo mubakyala abembuto era –kidhakuyamba ku nekitongore ekyobulamu kyagavumenti eyawakati, district eye Kamuli, nebitongole ebindi abyanakyewa okuyamba abakyala abo.

Engeri eyokunonereza: Olwensonga nti tetusobora kunonereza ku buli mukyala ali olubuto mu district yona yona, olwe'biseru ne ssente, twasazeewo okulondhamu edhwaliro lye Kamuli District. Walondebwa okwetaba mu kunonereza kuno era oja kubuuzibwa ebibuuzo ebyedhawulo. Buti nkusaba wetabe mu kunoneeza kuno nga oyanukula ebibuuzo byenja okukubuuza.

Emigaso n'obuzibu obukirimu: Okwikiriza okweitaba mukunonereza kuno kulimu emigaso ebiri gy'oyinza okufuna obuterevu oba obutali buterevu. Emigaso gy'oyinza okufuna obuterevu giri nti ojja kufuna amawulire agagemagana ku bulwaire bw'omugongo mu bakyala abe'embuto nangeri ki gyebayinza okweyidhandhaba mu. Omugaso omundi guli nti abasawo mu dhwaliro lye Kamuli baja kwongeramu amanyi mukudhandhaba obulwaire bw'omugongo mubakyala abali embuto.

Okwetaba mukunonereza ngawendere: Okweramu ebibuuzo kwa kyeyendere, era bwosalawo okukikora tikidha kukosa bwidhandhaba bwofuna okuva mu idhwaliro. Bwo wetabamu oba okoze kyamakuru ihno kunsonga eyokulwanisa obulumi obwo mugongo

mubakyala abali embuto Uganda. Odhakwidandabibwa nibwoba nga ebirowooza bwawukaine kubyabaino. Bwoba okiriza, taku ekinkumu wano.

Obutalalasa kyama: Ensonga dho dhona dhona dhonampa ndha kudikuma bulungi nga ezira wundi gwendikobera era namaina gho tidha kugataku ku report dhona dhona dhenjokuwandiika. Ebiibuzo bidhakuba nga biva buli wamu era ensonga dho dhidakukumibwa bulungi.

Ekisera kyetuidha okumara: Okubuza kwidhakumara dakika 20 (abiri)

Okwikiriza okwetaba mu kunonereza: Nkusaba weyitabe mu kunonereza kuno. Oyikiriza okwetaba mu kunonereza kuno? 1= yi 2= mbe
Oba yi, weyongere mumaaso kukitundu ekigemagana kukukakasa mukwetwaba mu kunonereza kuno.

Okukakasa nokutaku omukono

Byonabyona ebingaibwa waigulu mbitegeile, mbikiriza nga teri ankase. indhidhi inti indhiza okuva mukunonereza kuna ekisera kyona kyona nga inzira kibi kiyinza kudhirira. Era nkitegeera nti omunonereza omukulu asobola okusalawo inti ndhekerera awo okwetaba mu kunonereza kuno

Ekinkumu/Omukono gwo Ennaku dhomwezi.....

Ekinkumu/Omukono gwo munonorezi..... Ennaku dhomwezi

Ebikugemaku esimu

Woba nga orina ekibuzo kyona kyona ekigema kukunonereza kuno, buza omunonoreza omukulu; Mr. Robert Zavuga ku 0772655723. Woba olina ensonga yona yona ku ddembe do eyekuusa kukunonoreza kuno, yeta akukulira Institutional Review Board Makerere University School of Public Health ewa Dr. Susanne Kiwanuka ku 0701888163 oba Uganda National Council of Science & technology on Plot 6 Kimera Raod Ntinda, Kampla oba 0414705500

Appendix III: Questionnaire

A Study to Determine the Prevalence and Associated Factors of Low Back Pain amongst Women Attending Antenatal Clinic in Kamuli District Hospital

Respondent's Code:

Interview Date: Interviewers Name:

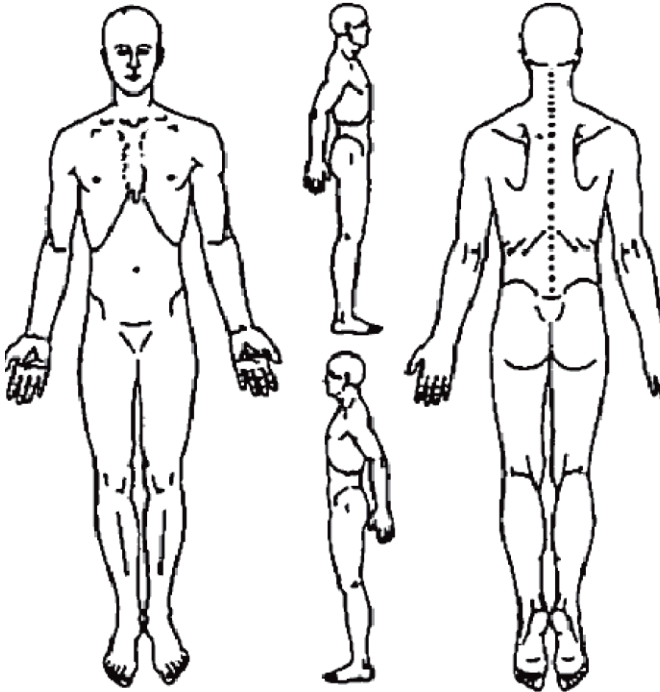
SECTION A: Social Demographic Characteristics and Individual factors

A01	How old are you? (Age in completed years)	
A02	What is your tribe?
A03	What is your place of residence? (look at the village list of the municipality)	1. Urban (Municipality) 2. Rural
A04	Which religion are you?	1. Catholic 2. Protestant 3. Born Again 4. Muslim 5. Other (specify).....
A05	Marital Status	1. Married 2. Single 3. Separated
A06	Level of Education	1. None 2. Primary 3. Secondary 4. Tertiary
A07	Biometric measurements	1. Height.....Meters 2. Weight.....Kgs
A08	Does your household have any of the following items	1. Radio Y N 2. TV Y N 3. Electricity Y N 4. Mobile phone Y N 5. Refrigerator Y N 6. Motor cycle Y N 7. Sofa set Y N

		8. Car Y N 9. Bicycle Y N 10. Chair Y N 11. Table Y N 12. Bed Y N 13. Cupboard Y N 14. Clock Y N 15. Cow Y N 16. Goat Y N 17. Agricultural land Y N
A09	Type of roof for house of residence	1. Grass thatched 2. Iron sheets 3. Tiles 4. Other.....
A010	Type of walls for house of residence	1. Grass thatched 2. Mud 3. Iron sheets 4. Bricks/blocks 5. Other.....
A011	Type of floor for house of residence	1. Cement/tiles 2. Mud/cow dung smeared 3. Loose floor surface 4. Other.....
A012	How much is your approximate average monthly income?	1. Below 150,000 2. 150,000-300,000 3. 300,001-500,000 4. 500,001-1,000,000 5. Above 1,000,000

SECTION B: Health Related Factors

B01	How old is this pregnancy in weeks?
B02	Gravidity: How many pregnancies have you ever had including the current one?	<ol style="list-style-type: none"> 1. One 2. Two 3. Three 4. Four 5. Five 6. More than five
B03	Parity: How many children have you delivered so far	<ol style="list-style-type: none"> 1. None 2. One 3. Two 4. Three 5. Four 6. Five 7. More than Five
B04	How many times have you attended ANC for this pregnancy?	<ol style="list-style-type: none"> 1. Once 2. Twice 3. Thrice 4. Four times 5. More than four times
B05	What was the mode of delivery of the previous pregnancies?	<ol style="list-style-type: none"> 1. Vaginal 2. Caesarian section 3. Both 4. N/A
B06	If by Caesarian section or both, were you given spinal anesthesia?	<ol style="list-style-type: none"> 1. Yes 2. No
B07	Are you currently experiencing any pain in the back region?	<ol style="list-style-type: none"> 1. Yes 2. No.....if No skip to B013
B08	If yes in B07 , where is it located? Use the pain body chart below to pinpoint the site	<ol style="list-style-type: none"> 1. Lumber region (between 12th rib

		<p>and fold of buttocks)</p> <p>2. Other region Specify.....</p> <p>3. Mixed (both Lumbar and other region)</p>
B09	If yes in B07 for how long?	<p>1. Less than one week</p> <p>2. More than one week</p>
B010	<p>Describe the intensity of this pain (use Visual Analogue Scale)</p> <p>Please circle the number which best describes your current level of pain.</p> <p>No pain 0 1 2 3 4 5 6 7 8 9 10 Worst possible pain</p>	<p>1. Mild (1-3)</p> <p>2. Moderate (4-6)</p> <p>3. Severe (7-9)</p> <p>4. Worst Pain Imaginable (10)</p>
B011	When did you first experience LBP?	<p>1. Last pregnancy</p> <p>2. Last Menstruation</p> <p>3. Current pregnancy</p>
B012	Do you believe that your current pregnancy is responsible for the LBP you are experiencing?	<p>1. Yes</p> <p>2. No</p>
B013	Have you had an accident that affected your pelvis or back in the past?	<p>1. Yes</p> <p>2. No</p>
B014	Have you had surgery of the pelvis or back in the past?	<p>1. Yes</p> <p>2. No</p>

B015	Do you have any existing medical condition other than the back pain?	1. Yes (specify) 2. No
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SECTION C: Occupational and Environmental Factors

C01	What is your occupation	1. Subsistence farming 2. Trade/business 3. Public servant 4. NGO employee 5. House wife 6. Student 7. Unemployed 8. Other (specify).....
C02	Which activities describe your daily routine, you may circle more than one option	1. Repetitive Lifting a. below 10Kgs b. above 10kgs 2. Continuous Bending 3. Posturing or tilting of the body 4. Sitting for a long duration 5. Other (Specify).....
C03	For how long do you do the above activities per day	1. Less than 1 hour 2. 1 hour to 2 hours 3. More than 2 hours
C04	Do you take breaks at work/during the daily routine activities?	1. Yes 2. No..... if No skip to C06
C05	If Yes above in Qn C04, how long is your break	1. Less than 15 minutes 2. 15-30 minutes 3. More than 30 minutes
C06	For how long have you been engaged in this work ever since you got pregnant?	1. Less than 3 months 2. Between 3-6 months

		3. More than 6 months
C07	Have you had to leave work/daily activities due to back pain-(got a sick off)	1. Yes 2. Noif No skip to C09
C08	If yes in C07, for how long?	1. Less than 1 month 2. Between 1-2 months 3. More than 2 months
C09	Please describe your work space area	1. I have space to walk around while am at work 2. I don't have space to walk around while am at work
C010	Describe the kind of tools you use at work, you can circle more than one option	1. Hand held manual tools* 2. Semi-automated** 3. Fully automated*** *Uses only hands without any other machine (e.g hoes, spades, etc) **Uses a combination of hands and machine (e.g bicycle, non-speed boat etc) ***Uses only machine (e.g motorcycle, car, computer, phone, etc)
C011	<p>How does the LBP affect your daily performance of essential duties apart from those that are work related? Administer the OWESTRY Questionnaire</p> <p>Oswestry Low Back Pain Disability Questionnaire</p> <p>Instructions</p> <p>This questionnaire has been designed to give us information as to how your back pain is affecting your ability to manage in everyday life. Please answer by checking ONE box in each section for the statement which best applies to you. We realize you may consider that two or more statements in any one section apply but please just shade out the spot that indicates the statement which most clearly describes your problem.</p>	

Section 1: Pain Intensity		Section 2 – Personal care	
<input type="checkbox"/>	I have no pain at the moment	<input type="checkbox"/>	I can look after myself normally without causing extra pain
<input type="checkbox"/>	The pain is very mild at the moment	<input type="checkbox"/>	I can look after myself normally but it causes extra pain
<input type="checkbox"/>	The pain is moderate at the moment	<input type="checkbox"/>	It is painful to look after myself and I am slow and careful
<input type="checkbox"/>	The pain is fairly severe at the moment	<input type="checkbox"/>	I need some help but manage most of my personal care
<input type="checkbox"/>	The pain is very severe at the moment	<input type="checkbox"/>	I need help every day in most aspects of self-care
<input type="checkbox"/>	The pain is the worst imaginable at the moment	<input type="checkbox"/>	I do not get dressed, I wash with difficulty and stay in bed
Section 3 – Lifting		Section 4 – Walking	
<input type="checkbox"/>	I can lift heavy weights without extra pain	<input type="checkbox"/>	Pain does not prevent me walking any distance
<input type="checkbox"/>	I can lift heavy weights but it gives extra pain	<input type="checkbox"/>	Pain prevents me from walking more than 1 km
<input type="checkbox"/>	Pain prevents me from lifting heavy weights off the floor, but I can manage if they are conveniently placed e.g. on a table	<input type="checkbox"/>	Pain prevents me from walking more than half a km
<input type="checkbox"/>	Pain prevents me from lifting heavy weights, but I can manage light to medium weights if they are conveniently positioned	<input type="checkbox"/>	Pain prevents me from walking more than 100m
<input type="checkbox"/>	I can lift very light weights	<input type="checkbox"/>	I can only walk using a stick or crutches
<input type="checkbox"/>	I cannot lift or carry anything at all	<input type="checkbox"/>	I am in bed most of the time

Section 5: Sitting		Section 6 – Standing	
<input type="checkbox"/>	I can sit in any chair as long as I like	<input type="checkbox"/>	I can stand as long as I want without extra pain
<input type="checkbox"/>	I can only sit in my favorite chair as long as I like	<input type="checkbox"/>	I can stand as long as I want but it gives me extra pain
<input type="checkbox"/>	Pain prevents me sitting more than one hour	<input type="checkbox"/>	Pain prevents me from standing for more than 1 hour
<input type="checkbox"/>	Pain prevents me from sitting more than 30 minutes	<input type="checkbox"/>	Pain prevents me from standing for more than 30 minutes
<input type="checkbox"/>	Pain prevents me from sitting more than 10 minutes	<input type="checkbox"/>	Pain prevents me from standing for more than 10 minutes
<input type="checkbox"/>	Pain prevents me from sitting at all	<input type="checkbox"/>	Pain prevents me from standing at all
Section 7 – Sleeping		Section 8 – Sex Life	
<input type="checkbox"/>	My sleep is never disturbed by pain	<input type="checkbox"/>	My sex life is normal and causes no extra pain
<input type="checkbox"/>	My sleep is occasionally disturbed by pain	<input type="checkbox"/>	My sex life is normal but causes some extra pain
<input type="checkbox"/>	Because of pain I have less than 6 hours sleep	<input type="checkbox"/>	My sex life is nearly normal but is very painful
<input type="checkbox"/>	Because of pain I have less than 4 hours sleep	<input type="checkbox"/>	My sex life is severely restricted by pain
<input type="checkbox"/>	Because of pain I have less than 2 hours sleep	<input type="checkbox"/>	My sex life is nearly absent because of pain
<input type="checkbox"/>	Pain prevents me from sleeping at all	<input type="checkbox"/>	Pain prevents any sex life at all
Section 9 – Social Life		Section 10 – Travelling	
<input type="checkbox"/>	My social life is normal and gives me no extra pain	<input type="checkbox"/>	I can travel anywhere without pain
<input type="checkbox"/>	My social life is normal but increases the degree of pain	<input type="checkbox"/>	I can travel anywhere but it gives me extra pain
<input type="checkbox"/>	Pain has no significant effect on my social life apart from	<input type="checkbox"/>	Pain is bad but I manage journeys over two hours

	<input type="checkbox"/>	limiting my more energetic interests e.g., sport	<input type="checkbox"/>	
	<input type="checkbox"/>	Pain has restricted my social life and I do not go out as often	<input type="checkbox"/>	Pain restricts me to journeys of less than one hour
	<input type="checkbox"/>	Pain has restricted my social life to my home	<input type="checkbox"/>	Pain restricts me to short necessary journeys under 30 minutes
	<input type="checkbox"/>	I have no social life because of pain	<input type="checkbox"/>	Pain prevents me from travelling except to receive treatment

SECTION D: Management and Coping Strategies

D01	Did you report your back pain problem during the ANC visits?	1. Yes 2. No..... If No skip to D05
D02	If Yes in Qn. D01 , did the medical worker give you any medical treatment?	1. Yes 2. No..... If No Skip to D05
D03	If Yes in Qn. D02 , specify the kind of medical treatment	1. Painkillers 2. Physiotherapy 3. Counselling/patient education 4. Acupuncture 5. Epidural injections 6. Others specify.....
D04	In view of the above methods in D03, did you get any relief	1. Yes 2. Mild relief 3. No 4. N/A
D05	If No in Qn D02 , which coping mechanisms did you use	1. Used herbs 2. Self-prescribed pain killers 3. Resting from activity 4. Others specify.....
D06	In view of the above methods in D05, did you get any relief	1. Yes 2. Mild Relief 3. No 4. N/A

Thank you for your time

Appendix IV: Translated Questionnaire

Okukunonereza ku nsonga edhigemagana ku bulumi obwomugongo mubakyala abembuto abalikunwa edhagala mu dhwaliro lye Kamuli

Ennamba yabuzibwa:

Ennaku dhomwezi: Amaine ga buziiza:

EKITUNDU A: Ekikula ekyabantu ne Enfaawo

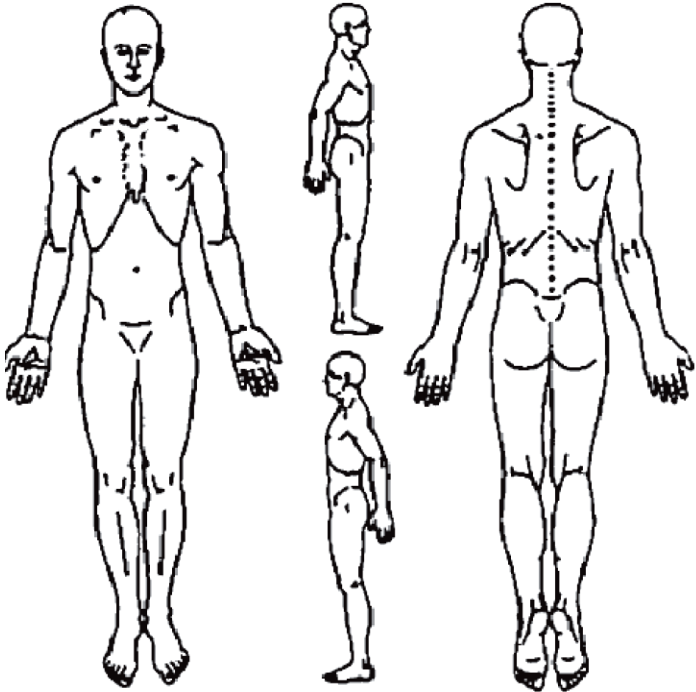
A013	Olina emyaka emeka?	
A014	Oli Kabila ki?
A015	Obeera wa?	1.Mu kibuga 2.Mu kyalo
A016	Oli wa idhini ki?	1. Mukatuliki 2. Mupotesitante 3. Mulokole 4. Musilamu 5. Eyindhi.....
A017	Olimufumbo?	1. Mufumbo 2. Timufumbo 3. Bayaukana
A018	Wakoma mukibina kya kumeka?	1. Tyasoma ku 2. Pulaimare 3. Siniya 4. Etendekero eryawaigulu
A019	Ebipimo byomubiri	1. Obuwanvu..... 2. Obuzito.....Kilo
A020	Amaka go galimu ebintu bino wamanga	1. Lediwoo Yi Mbe 2. TV Yi Mbe 3. Amasanyalaze Yi Mbe 4. Essimu yomungalo Yi Mbe 5. Firigi Yi Mbe 6. Pikipiki Yi Mbe 7. Entebe zomudhiiro Yi Mbe 8. Emotoka Yi Mbe 9. Egaali Yi Mbe

		10. Entebe Yi Mbe 11. Emeeza Yi Mbe 12. Ekitanda Yi Mbe 13. Kabadha Yi Mbe 14. Esaawa yokukisenge Yi Mbe 15. Ente Yi Mbe 16. Embuzi Yi Mbe 17. Ettaka lyokulimaku Yi Mbe
A021	Ekika kyakasolya keyinnumba yo	1. Ni ssubi 2. Ni mabaati 3. Ni Mategulo 4. Eyindhi.....
A022	Ekika kyekisenge ekyazimbiwa kuyinnumba yo	1. Ni ssubi 2. Ni bitoomi 3. Ni mabaati 4. Ni Mataffoli 5. Eyindhi.....
A023	Ekika kyomwaliro gwe yinnumba yo	1. Seminti/tayiro 2. Obusa bwente 3. Wazira kintu kyona kyona 4. Ekindhi.....
A024	Buli mwezi ofuna sente naimeka?	1. Wansi wa 150,000 2. 150,000-300,000 3. 300,001-500,000 4. 500,001-1,000,000 5. Dhisinga 1,000,000

EKITUNDU B: Ensonga edhigemagana ne byobulamu

B016	Olubuto lwa sabiti emeka?
B017	Wakaba embuto emirundi emeka nga neluno olubalidhemu?	1. Mulala 2. Ebiri 3. Esatu 4. Enna

		5. Etano 6. Okusoba mumirundi etano
B018	Wakazara abaana bameka?	1. Wazira 2. Mulala 3. Babiri 4. Basatu 5. Banna 6. Bataano 7. Basoba mubataano
B019	Wakanwa edhagara emirundi emeka?	1. Mulala 2. Ebiri 3. Esatu 4. Enna 5. Okusoba mumirundi enna
B020	Abaana bo wabazaranga otya?	1. Buringi 2. Bakusara busare 3. Byombi 4. Tekingemaku
B021	Bwebaba bakusala busare oba byombi, bakusilisaku kitundu?	1. Yi 2. Mbe
B022	Olumula obulumi mumugongo buti?	1. Yi 2. Mbe..... bwekiba mbe ka ku B013
B023	Bwekiba Yi mu B07 , obulumi buli mukitundu ki? Kozesa ekifanani wano wamanga osonge ku kitundu kyomubiri ekiri kulumula	1. Mumugongo a. (wakati wolubiriizi olwe kumi nebiri nakabina wekatandhikira) 2. Mukitundi ekindi.....

		3. Byombi
B024	Bwekiba nti yi B07 obulumi bumaze bbanga ki?	1. Wansi wa sabiti ndala 2. Busoba sabiti ndala
B025	Nyonyola engeri gyolumula mu obulumi buti Please circle the number which best describes your current level of pain. No pain 0 1 2 3 4 5 6 7 8 9 10 Worst possible pain	1. Kimpowooze (1-3) 2. Mpolampola (4-6) 3. Bungi (7-9) 4. Bungi inho inho (10)
B026	Watandika dhi okufuna obulumi?	1. Olubuto olusembyeyo 2. Musoga zabakyala 3. kuluno lwenina
B027	Olowwoza nti olubuto luno nobulese obulumi mumugongo?	1. Yi 2. Mbe
B028	Wali offunyeku akabenje mubisera byo ebyayita?	1. Yi 2. Mbe
B029	Wali offunyeku okulongosebwa ku mugongo oba mundira mubisera byo ebyayita?	1. Yi 2. Mbe
B030	Olinayo endhwalo eyindhi okujjako obulumi bwomugongo?	1. Yi (ndwaro ki) 2. Mbe

EKITUNDU C: Engonga edhigemagana ku byomulimu nobutonde

C0	Okola mulimu ki?	<ol style="list-style-type: none"> 1. Mulimi 2. Musubuzi 3. Mu kozi wa gavumenti 4. Kitongole ekya nakyewa 5. Mukyala wa waka 6. Musomi 7. Nzira mulimu 8. Ogundhi?
C0	Emirimu gyo gyetaaga ki?Which activities describe your daily routine, you may circle more than one option	<ol style="list-style-type: none"> 1. Kusitula <ol style="list-style-type: none"> c. Wansi bwa Kilo10 d. Dhisinga Kilo 10 2. Bwakukutama 3. Kwesera 4. Kutyama 5. Odundhi?.....
C0	Omala bwire ki nga okola emirimu dho waigulu buli lunaku?	<ol style="list-style-type: none"> 1. Wansi wa saawa indala 2. Wakati wa saawa indala ne saawa ebiri 3. Dhisinga saawa ebiri
C0	Ofuna obwire wawumula ku nga okola emirimu dho?	<ol style="list-style-type: none"> 1. Yi 2. Mbe.....bwekiba nti mbe ka ku C06
C0	Bwekiba nga yi waigulu mu C04, wawumula obwire ki	<ol style="list-style-type: none"> 1. Wansi bwa dhakiika 15 2. Wakati bwa dhakiika15 ku 30 3. Dhisinga dhakiika 30
C0	Omazeyo kumulimu bbanga ki kasooka ofuna lubuto?	<ol style="list-style-type: none"> 1. Wansi bwa myezi dhi 3 2. Wakati bwa myezi 3-6 3. Dhisinga myezi 6
C0	Wali ofunhyeyo obwire wawumula nga kiva ku bulumi bwamugomgo?	<ol style="list-style-type: none"> 1. Yi 2. Mbebwekiba nti mbe ka ku C09

C0	Bwekiba nti yi mu C07, ku mamala bbanga ki?	1. Wansi bwa mwezi mulala 2. Wakati bwa myezi 1-2 3. Dhisinga myezi
C0	Buti nyonyola ekifo mwokolera bwekifanana	1. Nina ekifo wesobola okutambuliramu 2. Wazira kifo kyensobola okutambuliramu
C0	Buti nynyola ebintu byokozesa nga okola ekirimu dho	1. Bwabyuuma bwa mikono* 2. Byuuma bwa mikono na komputa** 3. Bwa komputa*** *Okozesa mikono dhonka dhonka (okugeza enkumbi nebindi) **Ogaita emikono nebyuuma ebindi (okugeza eggaali, elyaato nebindi) ***Okozesa bwabyuuma bwonka bwonka (okugeza pikipiki, emotoka, kompyuta nebindi)
C0	Obulumu bwomugongo bukulemesa butya okukola emirimu dho edha bulidho? Kozesa ebibuuzo bya OWESTRY Ebibuuzo bya Oswestry nga bikwata ku bulumi obwomugongo Amateeka Olupapula olwebibuuzo luno lwakolebwa kuwa bidhubo ku obulumu obwemigongo obukuliku nga ngeri ki obulwalire obwo gwe butataganyamyu obulamu bwo Aye eramu nga osinira ku bikuwerebwa mu bu bokisi ebizibu ebikukwataku.	
Ekitundu 1: Obuungi bwo bulumi		Ekitundu 2 – Okwelabilila
<input type="checkbox"/>	Nzira bulumi buti	<input type="checkbox"/> Nsobola okwerabirira nga nzira bulumi
<input type="checkbox"/>	Obulumu bwa mpola mpola	<input type="checkbox"/> Nelabirira aye ne kosa
<input type="checkbox"/>	Obulumu butono inno	<input type="checkbox"/> Mpulira obulumu nga nelabirira
<input type="checkbox"/>	Obulumu butono	<input type="checkbox"/> Netagaku obuyambi obutonotono
<input type="checkbox"/>	Obulumu bungi inno	<input type="checkbox"/> Netaga okunambaku buti
<input type="checkbox"/>	Ndikulumizibwa inno inno	<input type="checkbox"/> Tyeyambaza, inaba nobulumu bungi

	buti		inho
Ekitundu 3 – Okusitula		Ekitundu 4 – Okutambula	
<input type="checkbox"/>	Nsitula ebizito nga wazira buzito	<input type="checkbox"/>	Obulumi tibunemesa kutambula
<input type="checkbox"/>	Okusitula ebizitowa kuleta obulumi	<input type="checkbox"/>	Titambula 1km lwa bulumi
<input type="checkbox"/>	Tikasitula bizitowa kuva wansi okutoraku nga biri ku kumeza	<input type="checkbox"/>	Titambula kitundu kya km lwa bulumi
<input type="checkbox"/>	Obulumi tibundikiriza kusitura ebizito okutolaku obutono	<input type="checkbox"/>	Obulumi tibundhikiriza kutambula 100m
<input type="checkbox"/>	Nsobora kusitura biwerere	<input type="checkbox"/>	Nsobora kutambura na kati oba mwigo
<input type="checkbox"/>	Tisoborelaku erara kusitura kintu kyona kyona	<input type="checkbox"/>	Mbera mubulili buli kisera
Ekitundu 5: Okutyama		Ekitundu 5 – Okwemerera	
<input type="checkbox"/>	Nsobora okutyama muntebe yona yona obwire bwenenda	<input type="checkbox"/>	Nsobora okwemerera paka bwerenda nga nzira bulumi
<input type="checkbox"/>	Nsobora okutyama mubisera byange ebyedembe	<input type="checkbox"/>	Nsobora okwemerera aye kimpa obuzibu
<input type="checkbox"/>	Obulumi bulemesa okutyama okuswika esawa indala	<input type="checkbox"/>	Obulumi bunemesa okwemerera okuswika esawa indala
<input type="checkbox"/>	Obulumi bunemesa okutyama okuswika dhakiika 30	<input type="checkbox"/>	Obulumi bunemesa okwemerera okuswika dhakiika 30
<input type="checkbox"/>	Obulumi bunemesa okutyama okuswika dhakiika 10	<input type="checkbox"/>	Obulumi bunemesa okwemerera okuswika dhakiika 10
<input type="checkbox"/>	Obulumi bunemesa okutyamilairala	<input type="checkbox"/>	Obulumi bunemesa okwemerera erala

Ekitundu 7 – Okulambala		Ekitundi – Ebyokwegadhanga	
<input type="checkbox"/>	Obulumi tibunsumbuwa ngandhikulambala	<input type="checkbox"/>	Indimulamu mu bito ebyo kwegadhanga era nzira bulumi
<input type="checkbox"/>	Obulumi bunsumbwa ku lulala na lulala	<input type="checkbox"/>	Inzira bulumi bwa mani okutolaku obutonotono nga negadhanze
<input type="checkbox"/>	Inambala sawa editaswika 6 olwobulumi bewempurila	<input type="checkbox"/>	Infuna obulumi nga indikuzana akazano kano akokwegadhanga
<input type="checkbox"/>	Inambala sawa editaswika 4 kulwobulumi	<input type="checkbox"/>	Impurila obulumi nga indikwegadhanga
<input type="checkbox"/>	Inambala sawa editaswika 2 kulwobulumi	<input type="checkbox"/>	Obulamu bwange Obwekwegadhanga buli katono kujja olwobulumi
<input type="checkbox"/>	Obulumi bunemesa okulambalairala	<input type="checkbox"/>	Obulumi bunemesa okwegadhangirairala
Ekitundu 9–Obulamu obwabulidho		Ekitundu 10 – Okujja wona wona	
<input type="checkbox"/>	Neyagala mubulamu bwange obwa bulidho . tiwurila bulumi	<input type="checkbox"/>	Nsobora okujja wona wona nga tuwurira bulumi
<input type="checkbox"/>	Impulira nga tyeyagala bulungi mu bulamu bwange obwabulidho	<input type="checkbox"/>	Mpuliramu obulumi nga njjire waneda
<input type="checkbox"/>	Obulumi tibunkosa inno mubulamu bwange obwabulido	<input type="checkbox"/>	Obulumi bubi aye nsobola okuja wona wona okumala ssawa ebiri
<input type="checkbox"/>	Obulumi bunemesa okweyagala mumbera zange	<input type="checkbox"/>	Obulumi bunemesa okutambula engendo ediswika sawa indala
<input type="checkbox"/>	Obulumi bunemesa okuva waka	<input type="checkbox"/>	Obulumi bunemesa okutambula inno-obutaswisa dhakiika 30
<input type="checkbox"/>	Nzira Isanyu lwa burumi bwempulira	<input type="checkbox"/>	Obulumi bunemesa okutambula okutolaku okufuna obwidandabi.

EKITUNDU D: Ensonga edhigemagana nobwidhandhabi

D07	Wakobera abasawo ku Idhwaliro?	1. Yi 2. Mbe..... bwekiba nti ka ku D05
D08	Bwekiba nti yi mu D01 , abasawo bakuwa obwidhandhabi?	1. Yi 2. Mbe... Bwekiba nti mbe ka ku D05
D09	Bwekiba nti yi mu D02 , bakuwa bwidhandhabi ki?	1. Obulezi bwobulumi 2. Okuniga ebinywa namagumba 3. Okunkobera 4. Obuyiso obutono obwomubiri 5. Empiso eyo kumugongo 6. Obundhi.....
D010	Okusinzira kubwidhandhabi waigulu mu D03, ofuna akalembereza?	1. Yi 2. Katono 3. Mbe 4. Tekingemaku
D011	Bwekiba nti mbe mu D02 , wakozesa magezi ki okweidhandhaba?	1. Obulezi bwe kinansi 2. Nagula idhagala lyo bulumi 3. Nawumulaku 4. Edhindhi.....
D012	Okusinzira kubwidhandhabi waigulu mu D05, ofuna akalembereza?	1. Yi 2. Katono 3. Mbe 4. Tekingemaku

Webale ino

Appendix V: KI Interview Guide

We are assessing the Prevalence of Low Back Pain in Pregnant Women in this hospital. The information generated will assist the Ministry of Health and Kamuli District Local Government and other humanitarian actors to develop and implement evidence-based interventions to manage Low Back Pain in Pregnant women.

Your knowledge would be very valuable and we hope you could make yourself available for in interview. The interview will only take [30] minutes.

Questions:

1. How long have you on pregnant with pregnant women?
2. I would like you to describe the occurrence of low back pain among pregnant women in Kamuli District Hospital
 - a. What do you think is influences the occurrence of low back pain among pregnant women in Kamuli District Hospital?
 - b. How have you treated or interacted with women with low back pain before? If so, what has your experience been?
 - c. Which management and coping strategies do you think are used by pregnant women suffering from low back pain and why?
3. What challenges do pregnant women with low back pain usually face in Kamuli District Hospital?
4. Any final thoughts or comments?

Thank you very much for your time

Appendix VI: STUDY AREA

