Low Back Pain Effects, Management and Coping Strategies among Pregnant Women Attending Antenatal Clinic in Eastern Uganda: A Cross-Sectional Study.

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Abstract

Background

Despite Low back pain (LBP) being one of the most common complaints among pregnant women, healthcare workers write it off as a normal experience of the pregnancy, thus remaining untreated. It is known to affect the daily functionality of many pregnant women in activities including those that involve sitting, walking, standing and lifting. The inadequacy of information on LBP among pregnant women in Uganda may have led to the unavailability of obstetric guidelines for its diagnosis and management. This study established the effects of LBP effects on daily performance, management and coping strategies among pregnant women attending an antenatal clinic in Eastern Uganda.

Methods

This was a cross-sectional study that enrolled 341 pregnant women attending antenatal care. The primary outcome measure was LBP. The study enrolled pregnant women who reported having LBP and correctly located the site of the pain using the pain and body chart as having LBP. Data on sociodemographic characteristics, pain intensity, functional disability, effects of LBP on daily performance, management and coping strategies were collected.

Results

Of the 341 respondents, (105, 30.8%) reported LBP. Majority of the women with LBP (71, 67.6%) had minimal disability with an Owestry Disability Index (ODI) score of 0-20%. The activities that were most affected with mild interference on daily routine activities were lifting 81%, standing 74%, personal care 74% and traveling 74%. Majority of the respondents (80, 76.19%) reported their LBP during the Antenatal care (ANC) visits at the hospital and of these 62 (79.49%) were given painkillers, 13 (16.67%) received counselling and patient education, 3 (3.85%). For the respondents who did not receive any treatment from the ANC visits, the majority (23, 60.53%) used herbs and others used self-medication (5, 13.16%)

Conclusion

LBP affects most of the daily functional activities of pregnant women with minimal and moderate disability. Although the disability is not severe, it affects their quality of life and productivity. The pregnant women managed their LBP mainly by conservative means of treatment, especially by the use of pharmacological management and rest from activities.

Introduction

Low back pain is one of the most common complaints among women during pregnancy[1]. Despite this, it is often written off as a normal experience during pregnancy and mostly overlooked by healthcare professions[2], thus remaining untreated in many women. Studies show that among postnatal women if LBP is left untreated, it can even persist after delivery [3] and is likely to cause depression, sleep problems, fatigue and a general inability to perform activities daily functional activities especially those that involve carrying or lifting[4–6]. Several studies suggest that LBP is a major contributor to poor quality of life among pregnant women[7] and is one of the factors responsible to limitations in work and accomplishment of domestic tasks, social life and leisure activities[8]; also collectively called functional disability. For this reason, LBP during pregnancy can be regarded as a disorder of public health importance because it reduces a woman's capacity to work and leads to loss of work hours. It is the leading cause of absence from work and maternity leave during pregnancy[9]. Although many studies have been carried out on the prevalence and associated factors of LBP in pregnancy, it is still not possible to accurately predict which pregnant woman will develop which kind of LBP and disability[10]. Due to its benign nature, little emphasis has been placed to it by Health Workers (HWs). Many HWs often dismiss it as being trivial and a normal occurrence that happens during pregnancy [11] hence leaving many to suffer without getting professional relief. This discomfort results into many women resorting to self-care through the use of self-prescribed painkillers and other postural coping mechanisms. Little is known about the effects of these self-care models and it's believed that they could even be detrimental to the unborn babies. The potential health risks associated with the use of different medical products and procedures have hence made many pregnant mothers to opt for conservative management, such as physiotherapy, stabilization belts, nerve stimulation, acupuncture, massage, relaxation and physical exercise[12]. Unfortunately, most health systems, especially in low-income countries, have not adopted many of these approaches for in treatment of LBP amongst pregnant women. There seems to be no interest from HWs as well to adopt to these methods and as a result there is improper pain management. For the health professionals who go an extra mile to address the problem of LBP in pregnancy, acetaminophen, Nonsteroidal Anti-Inflammatory Drugs (NSAIDs), muscle relaxants and opioids have been largely used as drugs of choice[13].

Although it is not well studied and documented, it is hypothesized that physiological symptoms that occur during pregnancy like LBP could be among the contributing factors of poor maternal outcomes in Uganda. Information specific to LBP is not captured by the National Health Management Information System (HMIS), and as a result, there is limited information on its management and coping mechanisms during pregnancy. The paucity of information on LBP in Uganda presents an opportunity for researchers to study it to inform treatment and management perspective in order to make pregnancy a desirable experience for women. Therefore, the aim of this study was to assess the effects of LBP on daily functional activities and identify the different management and coping strategies employed by pregnant women.

Methods

Study Setting and Design

This was a cross-sectional study involving 341 women attending ANC in Kamuli District Hospital conducted between March and April 2020 using both quantitative and qualitative data collection methods. Kamuli District Hospital is a government-owned hospital located in Kamuli town in Kamuli District. It's the district's referral hospital and hence a level 5 health facility where lower-level health centres like HCIIs (found at parish level), HCIIIs (found at sub-county level) and HCIVs (found at county/Health Sub-District level) refer to. In addition, it is the major referral hospital in the rural eastern part of the Busoga region and receives patients from the neighboring districts of the Kaliro, Buyende and Luuka districts that do not have district hospitals. Kamuli District has a total fertility rate that is above the national average (6.8 and 5.8, respectively), and according to the HMIS records reviewed for the year 2018/2019, on average, Kamuli District Hospital received approximately 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.

Sample size determination and Sampling procedure

The sample size for this survey was determined using the Kish-Leisle formula for cross-sectional studies[14]. We considered a prevalence of LBP amongst pregnant women of 33.2% [15]. A margin of error (d) of 5% corresponds to a 95% level of confidence. This yielded a sample size of 341 respondents. We obtained a response rate of 100%, as all 341 women who were approached consented to take part in the study.

Participants were recruited from the Antenatal clinic. To obtain the required sample size, participants were enrolled by systematic sampling in which 17 respondents were interviewed per working day of the week. The first participant of the day was randomly selected, and thereafter, every 2nd woman was recruited into the study. This process continued until the required total number of study participants was obtained. The interview was done after the women had completed their usual antenatal assessment and given treatment for that particular visit. Participants who were identified to have LBP were referred for treatment if they had not been given treatment in the initial antenatal assessment.

For qualitative data, the study used purposively selected key informants based on their clinical knowledge and experience with LBP and maternal health. With guidance of the Kamuli Hospital Medical Superintendent, the researcher identified 4 key informants based on perceived knowledge and understanding of maternal health issues, including LBP, in pregnancy because 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.

Instruments

A pretested semi structured interviewer-administered questionnaire was used to collect data. The questionnaire had sections that collected social demographic and individual characteristics,

management and coping strategies. In addition, the questionnaire also had a pain body chart, visual analogue scale and Oswestry Disability questionnaire embedded in it for continuity of data collection.

Pain and Body Chart: This is a drawing representing the body's map, which respondents who reported LBP further used to pin down the exact location of the pain. The study used the chart as a screening tool and confirmatory test for cases of LBP that fell into the required criteria of this study.

Visual Analogue Scale (VAS) for pain: VAS for pain is a horizontal line, 100 mm 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)" This was used by respondents who qualified to be identified as cases of LBP to estimate the intensity of their current pain.

Oswestry Low Back Pain Disability Questionnaire: Functional disability was assessed using a standard modified version (2.0) of the Oswestry Disability Index (ODI) tool [13]. Here, the pregnant 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%).

Data Collection Procedure

Semi structured questionnaires and key informant guides were used to collect the required data from the pregnant women and key informants (KIs), respectively, through face-to-face interviews. Low back pain was defined as "*the individual's self-reported pain expressed while pregnant in the lower back area located between the twelfth rib and the fold of the buttocks and was persistent for longer than one week".* 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*" and interviewed further; those contrary to this were taken "*not to have LBP*". Data were collected by 2 trained research assistants who were enrolled nurses (persons with a clinical background who could easily make a diagnosis of LBP and recommend further management). The entire questionnaire was translated and administered in Lusoga (the local language that is spoken in Kamuli District).

Study Variables

The outcome of interest was the presence of LBP, which was assessed through a question on self-reported LBP followed by 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", and those contrary to this were taken "not to have LBP". Independent variables included sociodemographic and individual characteristics, management and coping strategies and daily functional activities.

Statistical Analysis

Data were entered using Epi Data software version 3.1 and exported to STATA version 15.0 for further analysis. Descriptive statistics such as the means and standard deviations were used to summarize continuous data, while categorical data were expressed as frequencies and proportions. The prevalence of LBP was calculated as the percentage of respondents who were reported to have LBP. Since the standard Oswestry functional disability tool was used, its guidelines for analysis were adopted, and the results are presented as percentages and frequencies as summary measures[16]. 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 Oswestry Disability Index. The treatment-seeking behaviour and different management and coping strategies employed by pregnant women suffering from LBP were analysed and presented as percentages and frequencies. Thematic content analysis was used to analyze findings from key informant interviews.

Results

Social Demographic and Individual Characteristics

A total of 341 pregnant women were enrolled and successfully interviewed, giving a response rate of 100%. A summary of selected sociodemographic characteristics of the participants is presented in Table 1. The mean age of the participants was 26 years (range 16-40 years), the mean height was 1.61 meters (range 1.22-2.1 meters), and the mean weight was 64.4 kg (range 32-99 kg). Of the 341 pregnant women interviewed, 105 respondents reported LBP, giving an overall prevalence of LBP of 30.8%.

Table 1
Social demographic and individual characteristics

Characteristic	Low Back Pain	
	Yes, n (%)	No, n (%)
Age group	2 (1.90%)	3 (1.27%)
<17 years	70 (66.67%)	176 (74.58%)
18 to 28 years	29 (27.62%)	55 (23.31%)
29 to 39 years	4 (3.81%)	2 (0.85%)
40 years and above		
Residence	50 (47.62%)	121 (51.27%)
Urban	55 (52.38%)	115 (48.73%)
Rural		
Religion	23 (21.90%)	71 (30.08%)
Catholic	38 (36.19%)	81 (34.32%)
Protestant	28 (26.67%)	43 (18.22%)
Born Again	16 (15.24%)	41 (17.37%)
Muslim		
Marital Status	2 (1.90%)	3 (1.27%)
Separated	94 (89.52%)	220 (93.22%)
Married	9 (8.57%)	13 (5.51%)
Single		
Education Level	15 (14.29%)	25 (10.59%)
No education	29 (27.62%)	83 (35.17%)
Primary	45 (42.86%)	103 (43.64%)
Secondary	16 (15.24%)	25 (10.59%)
Tertiary		

Characteristic	Low Back Pain	
	Yes, n (%)	No, n (%)
BMI (kg/m^2) Category	4 (3.81%)	10 (4.24%)
Underweight (<18.5)	60 (57.14%)	107 (45.34%)
Normal weight (18.5-24.9)	31 (29.52%)	81 (34.32%)
Overweight (25-29.9)	10 (9.52%)	38 (16.10%)
Obese (>30)		
Occupation	30 (28.57%)	48 (20.34%)
Subsistence farming	26 (24.76%)	60 (25.42%)
Trade	15 (14.29%)	20 (8.47%)
Public servant	4 (3.81%)	12 (5.08%)
NGO employee	16 (15.24%)	82 (34.75%)
Housewife	5(4.74%)	7 (2.97%)
Student	9 (8.57%)	7 (2.97%)
Unemployed		
Average Monthly Income	52 (49.52%)	96 (40.68%)
Below 150,000	15 (14.29%)	37 (15.68%)
150,000 – 300,000	17 (16.19%)	18 (7.63%)
300,001 – 500,000	15 (14.29%)	60 (25.42%)
500,001 – 1,000,000	6 (5.71%)	25 (10.59%)
Above 1,000,000		

Pain Intensity Amongst Respondents

The majority of the respondents had moderate pain, 66 (62.85%), 37 (35.23%) had mild pain, and only 2 (1.92%) had severe pain.

Effect Of Lbp On Daily Functional Activities

The study subjected the eligible respondents to the Oswestry Disability Index (ODI) questionnaire to determine the effect of LBP on their daily functional activities. Table 2 shows the disability findings. The majority of the women (71, 67.6%) had minimal disability with an ODI score of 0-20%, while the others

(33, 31.4%) had moderate disability with an ODI score of 21-40%, and only 1 had severe disability with an ODI score of 41-60%.

Table 2
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**	

In addition, LBP had mild effects on the daily functional activities of the respondents. The activities that were most affected with mild interference on daily routine activities were lifting 81%, standing 74%, personal care 74% and traveling 74%, as shown in Table 3.

Table 3
Effects of low back pain on different daily functional activities according to the ODI tool

Daily Functional Activity	The Score in Each Section		
	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)
Traveling	22 (21)	78 (74)	5 (5)

Management And Coping Strategies

The majority of the respondents (80, 76.19%) reported their LBP during the ANC visits, compared to the 25 (23.81%) who did not report their LBP. Many of those who reported their LBP cases in the ANC visits (78, 97.50%) received treatment for their ailment from the medical worker. Among the respondents who received treatment during the ANC visits, 62 (79.49%) received painkillers, 13 (16.67%) received counseling and patient education, 3 (3.85%) received physiotherapy and none received other modes of care, such as acupuncture and epidural injections.

Among the respondents who received treatment, 48 (61.54%) reported getting mild (slight) improvement, 22 (28.21%) reported full recovery, and 8 (10.26%) did not get any relief at all.

For the respondents who did not receive any treatment from the ANC visits, the majority (23, 60.53%) used herbs, others used self-prescribed painkillers (5, 13.16%), and the rest used other coping mechanisms (9, 26.31%). Among these respondents, 16 (42.11%) reported full recovery, 11 (28.95%) reported mild (slight) relief, and 1 (2.63%) did not obtain any relief at all, as presented in Table 4.

Table 4
Management and coping strategies of LBP

Variable	Frequency, n=105	Percentage (%)
Reported LBP at ANC	80	75.47%
Yes	26	24.53%
No		
Access to LBP treatment	78	97.50%
Received treatment	2	2.50%
Did not receive treatment		
Treatment given	62	79.49%
Painkillers	3	3.85%
Physiotherapy	13	16.67%
Counselling		
Effect of treatment given	22	28.21%
Got relief from LBP	48	61.54%
Mild relief	8	10.26%
No relief		
LBP coping mechanisms	23	60.53%
Used herbs	5	13.16%
Self-prescribed painkillers	1	2.63%
Resting from activity	9	23.68%
others		
Relief from coping mechanisms	16	42.11%
Got relief from LBP	11	28.95%
Mild relief	1	2.63%
No relief	10	26.32%
NA		

Discussion

This study aimed at assessing the effects of LBP on daily functional activities and to identify the different management and coping strategies employed by pregnant women.

Disability And Effect Of Lbp On Daily Functional Activities

The results showed that LBP affected most of the daily functional activities, including pregnant women's personal care, travelling, standing, sleeping, sex life, social life, sitting and walking. Since LBP is such a discomfort, conducting these activities would be done with difficulty. This limits their engagement in such activities, which affects pregnant women's 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 and affected their productivity and quality of life [17–19]. Lifting and sitting were among the most affected activities. This is not a surprise since many women in Kamuli District are engaged in subsistence farming, house wife duties and trading, which involve bending and sitting motions as noted by one Key Informant (KI). These activities could actually stretch the lumber and pelvic muscles hence leading to LBP.

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 differ from other studies, which showed that moderate disability was the most common form, followed by mild and then severe disability[10, 18]. This could be because of the difference in perception of pain and limitation of daily activities by the study respondents and those from other studies. Unlike other forms of disabilities, mild disability rarely needs aggressive medical treatment apart from patient education, counselling and avoiding strenuous physical activity[16]. Health workers interviewed as KIs noted that pregnant women attribute their LBP to long hours of physical activity encountered on a daily basis while doing domestic chores and other duties. Therefore, this explains why their initial response is to stop the activity for a while or reduce the time spent doing it.

Management And Coping Strategies For Lbp

Most pregnant women reported their LBP ailments during the ANC consultation clinics, especially those in the third trimester. This shows that in the current study actually many pregnant women sought medical help for LBP from qualified medical workers. During these sessions, medical workers encouraged them to air out all their medical ailments. This reflects the importance of patient cooperation during ANC consultations. This agrees with a study in Turkey where visiting a physician for LBP complaints was very common, especially among pregnant mothers in the third trimester[10]. However, some other studies contradict this finding. They reported pregnant women not seeking health care from qualified HWs for their LBP unless it posed some disability[17]. This could be because of a reduced perception of the disease's severity, where even the women themselves might have perceived LBP as a normal occurrence of pregnancy that does not require medical attention. The attitude of health workers toward LBP could also be a deterrent for women with LBP seeking help. Interviews with the KI health workers found that there was no standardized treatment protocol for LBP in pregnancy. The form of management given or prescribed depended on the individual practitioner, with some practitioners prescribing analgesics, muscle

relaxants while others completely not prescribing at all; i.e., taking LBP as a normal occurrence in pregnancy. These wide range of treatment options are available to several practitioners[20] and their use is largely determined by the HW's personal preference.

The respondents who did not disclose their LBP ailments in the ANC clinic opted for other management choices, including the 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 when pain struck before the ANC due date. Using herbs is not surprising since herbal medicine use in the treatment of pregnancy-related ailments, including LBP, is still popular among Ugandan women[21]. 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[17].

Many mothers receive conservative management options from health care practitioners as opposed to surgical management options for their LBP from the ANC clinic. Although there was no standardized treatment protocol available for the management of LBP in pregnancy, conservative management by the use of analgesics was the most common treatment of choice for pregnancy-related LBP since it is less invasive and more tolerable[1]. It is therefore not surprising that the clinicians opted for it at Kamuli District Hospital. However, as opposed to the current study, other studies show that nonpharmacological management options such as physiotherapy and patient education are preferred to pharmacological management during the treatment of pregnancy-related LBP[17, 22]. The reason for the low uptake of physiotherapy may be the non-availability of physiotherapy services and rehabilitation professionals in rural upcountry hospitals[23], hence limiting HWs' management options.

Study Strengths And Limitations

Strengths

The key strengths of the study were its relatively large sample size, which makes the results more reliable, the 100% response rate, and its mixed methods approach. The use of both quantitative and qualitative methods also increased the scientific rigor of the study. Qualitative methods allowed the addition of explanatory depth to quantitative methods.

Limitations

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. In addition, the study also depended on self-reported LBP status, which was prone to information bias by the participants. It is likely that some respondents exaggerated their condition or misreported it to be included in the study.

Conclusion And Recommendations

The findings of this study have an implication on maternal morbidity and productivity. We note that LBP affects most of the daily functional activities of pregnant women with minimal and moderate disability. Although the disability is not severe, it affects their quality of life and productivity. We recommend that HWs and public health specialists be aware of such functional limitations which may be present during pregnancy and propose avenues to address them. This study also contributes to understanding the prevalent modes of pregnancy related LBP management in Uganda. We established that LBP was managed mainly by conservative means of treatment, especially by the use of pharmacological means and patient education. In addition, there was low uptake of physiotherapy services. We recommend that physiotherapy services be revitalized in Kamuli District Hospital in order to improve their prescription and minimize pharmacological treatment options. There is also need for more studies on exploration of the effectiveness of the various conservative methods in the management of LBP in pregnancy.

Abbreviations

ANC: Antenatal Clinic

HC: Health Centre

HW: Health Worker

KI: Key Informant

LBP: Low Back Pain

N/A: Not Applicable

NGO: Non-Governmental Organisation

ODI: Owestry Disability Index

VAS: Visual Analogue Scale

Declarations

Ethical approval and consent to participate

This study was approved by the Makerere University School of Public Health (MakSPH) – Higher Degrees Research & Ethics Committee (HDREC). 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 verbal 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.

Consent for publication

Not applicable

Availability of data and materials

The datasets used in analysis for this study are available from the corresponding author on reasonable request.

Competing Interests

The authors declare that they have no competing interests.

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Authors' contributions

Conceptualised the study and designed the study proposal: RZ, RKM and DG. Conducted field survey, data collection and analysis: RZ, IM. Contributed in writing original draft: RZ and IM. Review and editing of the manuscript: RZ, HM, SW, MT, IM, RKM, JBI, SK and DG. All authors read and approved the final manuscript.

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