Low back pain during pregnancy: Prevalence, pain characteristics, risk factors among pregnant women seen at Primary Health Care Centre in Damascus: a cross-sectional study.

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Abstract

Background

Low back pain is one of the most common problems during pregnancy that can affect the quality of life of the mother. The recognition of LBP pain characteristics during pregnancy is important to establish effective management.

Methods

This cross-sectional study was conducted among Syrian pregnant women in the outpatient clinic of El-Zahrawi Hospital in Damascus City using convince sampling approach with face-to-face interviews. Pain severity was assessed using the numeric rating scale (NRS), using a 0–10 scale, with zero meaning “no pain” and 10 meaning “the worst pain imaginable.”

Results

330 pregnant women were recruited for this study. The end-up prevalence rate of LBP in the sample is 209 (63.3%). Multiple logistic regression revealed factors correlated to low back pain as follows: Obesity [AOR = 2.11, CI 95% (1.128–3.976)], overweight [AOR = 1.82, CI 95% (1.052–3.167)], history of LBP in previous pregnancy [AOR = 2.01, CI 95% (1.221–3.311)], history of LBP during menstrual cycle [AOR = 1.83, CI 95% (1.020–3.301)], and postgraduate on educational level [AOR = 2.2, CI 95% (1.148–4.216)]. The majority of women 144 (68.9%) have moderate pain, 73 (34.9%) have onset pain in the first semester, 126 (60.3%) have their daily activity affected, and 163 (78%) have sleep disturbance due to the pain. Long-standing was the most reported pain exacerbating factor (78%), followed by carrying weight (48.3%). Nearly 60% of women with LBP did not consult a doctor for their pain management. Muscle stretching was the most reported pain-relieving factor (71.8%), followed by resting from the movement that triggers the pain (35.9%) and back massage (33%).

Conclusion

Low back pain is prevalent among Syrian pregnant women, mostly with moderate severity with significant risk factors. Awareness should be raised about this common problem during pregnancy and seek a doctor's help to apply effective strategies and reduce the impacts of the pain on daily activity and quality of life.

Introduction

Pregnancy is a challenging experience in a woman's life it commonly carries numerous problems as pregnant women mostly complain of the altered normal state of health which can negatively impact their...
well-being, especially if the problem has a persistent or progressive pattern. There is no doubt that Low back pain (LBP) and Pelvic girdle pain (PGP) are the most common musculoskeletal grouses during pregnancy. However, how common this problem is is a controversial issue as its prevalence rate, even during pregnancy, has a wide range of variability depending on many factors related to the design of each study (1–3). How research papers identify low back pain is likewise one of the factors contributing to the prevalence rate. According to the European Guidelines, LBP is pain between the 12th rib and the gluteal fold and includes pelvic girdle pain, which is a specific form of low back pain (3, 4). Most research indicates a prevalence of more than 50% (5–9), another paper stated that up to 86% of pregnant women may experience lumbopelvic pain during the third trimester (10). In general, females are more prone than men to experience low back pain and other chronic musculoskeletal disorders (2). During Pregnancy, several predisposing factors have been largely discussed in the literature, such as high body mass index, low educational level, parity, lack of physical activity, history of LBP, low back pain during the menstrual cycle and others. While the aetiology remains uncertain, hormonal changes, mainly relaxin, along with other mechanical mechanisms are suggested to play a major role (11, 12). Consequences for pregnancy-related LBP can be quite negatively affecting the quality of life, mental health, and even more the no regression experience which correlated with Low self-efficacy (13, 14). This study aims to investigate the prevalence of low back pain and determine predisposing factors and its characteristics among healthy Syrian pregnant women.

Methods

Study design, setting, and participants:

This cross-section observational study was carried out in the outpatient clinic of the El-Zahrawi Hospital from August 2022 to February 2023, using convince sampling method. El-Zahrawi Hospital is an obstetric and gynaecological specialized hospital and the primary health care centre in Damascus City. All pregnant women aged 18 and above seen at the outpatient clinic were recruited for this study, face-to-face interviews were conducted for each patient after taking written informed consent to their inclusion in the study. Exclusion criteria were as follows: (1) younger than 18 years old, (2) Spinal deformities, such as Scoliosis, (3) history of previous surgery or injury to the pelvis or the spine, (4) life-threatening illnesses such as cancer, (5) history of taking affecting bone health medications. The collected data were as follows: (1) socio-demographics (age, residency, displacement, economic status, educational level, working status, smoking, alcohol, physical activity, shoe pattern if flat or high heels), (2) height and weight were obtained and BMI were calculated, (3) information regarding their pregnancy (Gravidity, single or twin pregnancy), (4) medical history (history of low back pain during the menstrual cycle, low back pain during a previous pregnancy, reported difficulty in breathing, current low back pain and any other pain in the rest of the body). Low back pain during pregnancy was defined by the European Guidelines. For those who reported low back pain, the following pain characteristics were obtained: (1) onset of pain regarding pregnancy trimesters, the timing of pain, if the pain radiates, frequency and severity, if the pain gets worse as pregnancy progress if the pain gets better on painkillers, and its effect
on activities and sleep (Yes/No). Pain severity was assessed using the numeric rating scale (NRS), which is the most commonly used screening tool for pain using a 0–10 scale, with zero meaning “no pain” and 10 meaning “the worst pain imaginable. We used cut-off points for NRS as follows: ≤ 3 correspond to mild, scores of 4–6 to moderate and scores ≥ 7 to severe pain (15).

**Statistical analysis:**

Data were displayed as frequencies and percentages for categorical variables and means with standard deviations (SD) for continuous variables. The Statistical Package for Social Sciences version 26.0 (SPSS Inc., Chicago, IL, United States) was used to analyse the study. The chi-square test was performed to examine the association between low back pain and the background information of patients. Multiple logistic regression was conducted to evaluate the presence of low back pain as the dependent variable. independent variables were BMI, physical activity, Educational level, Pain in other locations, Hip pain, LBP during the menstrual cycle, and LBP in a previous pregnancy. Reference variables were set by the following: 18.5–24.9 on BMI, > 6 h per week, Basic and secondary, and “No” for the rest of the variables. Statistical significance was considered at p-value < 0.05.

**Ethical consideration:**

The Research Ethics Committee approved the study protocol by the Syrian private university (SPU), faculty of medicine at date (1/5/2021). Informed consent was obtained from every participant prior to participation. This study did not include participants younger than 18 years old. This study was performed in accordance with the Declaration of Helsinki.

**Results**

**Participants characteristics:**

330 pregnant women were recruited for this study, most of them aged between 26–30 years old (46.7%), followed by those aged 31–45 (33.3%) and 19–25 (20%). 82.1% were urban, 35.5% were displaced, and 27.6% had poor or moderate economic status. Most of them have a university degree of 85.5%, but only 25.5% work. Most do not smoke 66.4% or take alcohol 92.4%. 42.4% were overweight and 26.4% were obese, 73.3% do some sort of physical activity 4–6 hours per week.

Regarding medical history, most were multigravida 57.6%, most had a single pregnancy 96.7%, 79.7% stated low back pain during their menstrual cycle, 65.2% stated low back pain occurrence in previous pregnancies, 17.2% reported some sort of difficulty of having normal breathing, 37% reported pain in locations other than low back pain, 18.8% reported hip pain.

**Prevalence and predisposing factors of low back pain during pregnancy:**
Of 330 pregnant women, 252 (76.4%) reported low back pain during pregnancy, of which 43 (13%) were excluded for the following reasons: history of a gynaecological disorder, history of chronic rheumatological illnesses or other autoimmunity disorders such as psoriasis, inflammatory bowel disease (IBD) and any pattern of arthritis. In addition, the following complaints were checked and excluded if present: fever (> 38), weight and appetite loss, and diarrhoea. The end-up prevalence rate of LBP in the sample is 209 (63.3%). Women with university degrees, those who are overweight and obese, those who exercise less than four hours per week, those who report low back pain during the menstrual cycle, those who experienced low back pain during a previous pregnancy, and those who have hip pain or other types of pain were more likely to experience low back pain than other categories, with a statistically significant difference. 13.9% of women with low back pain have difficulty in breathing (p-value < 0.01). Of 209 pregnant women, 125 (59.8%) were multigravida but no statistically significant differences were present. Multiple logistic regression revealed factors correlated to low back pain. Significantly associated factors (p < 0.05) were the following: High BMI, Educational level, LPB in the menstrual cycle, and LBP in a previous pregnancy.

**Characteristics of low back pain:**

Out of 209 pregnant women with LBP, the onset of pain was in the first and second trimesters at 34.9% and 33.5% respectively. Regarding pain characteristics, the majority of women reported pain occurring during the day 139 (66.5%), daily 155 (74.2%), not radiating pain 165 (78.9%), and morning stiffness 88 (42.1%).

Most women state that pain is better with rest 159 (76.1%) and worse with movement 152 (72.7%), in general, 126 (60.3%) indicate the pain stops them from performing daily activities. Twenty pregnant (9.6%) had severe pain, 144 (68.9%) have moderate pain on NRS, and 164 (78.5%) stated they felt better after taking medications. Hip and Knee pain was the most commonly present with low back pain at 32 (15.3%) and 34 (16.3%) respectively. Long-standing was the most reported pain exacerbating factor (78%), followed by carrying weight (48.3%). Muscle stretching was the most reported pain-relieving factor (71.8%), followed by resting from the movement that triggers the pain (35.9%) and back massage (33%).

**Discussion**

The prevalence of LBP during pregnancy is highly changeable due to the study’s methodology and its definitions for LBP. It is estimated to be between 42% and 91% in studies assessing LBP retrospectively in late pregnancy, while in prospective studies varied between 49% and 81%. In this study, LBP affected 209 (63.3%) of the recruited sample during the third trimester using the European guidelines definition. This rate is lower than the multinational study stated an 80% prevalence during the third trimester (10). Furthermore, the rate is lower than several studies, among which are conducted in middle eastern countries, such as Jordan (16), Turkey (17), and other studies conducted in the US (18), India (19), Malawi (20), and Spain (21). While higher than studies conducted in Poland (22), Nigeria (23), Nepal (24), and another study in Turkey (25).
Low back pain can occur at any time regarding the three trimesters of pregnancy. Pregnancy-related LBP usually begins between the 20th and the 28th week of gestation (12), other reports suggest an earlier onset (17). 73 (34.9%) of pregnant women with LBP reported an early onset, while 66 (31.6%) reported a third-trimester onset, in agreement with Al-Sayegh et al (26).

It is still debatable if age has any bearing on low back pain during pregnancy. In this study, 51.2% of pregnant women who suffer from LBP aged between 26–30, and 18.2% aged between 19–25, but no significant correlation with age on chi-square analysis. Many reports further support this outcome (26, 27), while other research contradicts it (21).

Similar to age, the relationship between Body mass index and low back pain during gestation is still controversial through literature. Several previous research papers indicate a significant correlation (7, 22, 28, 29). This is reasonable, as a woman's weight can increase up to forty kilograms and this leads to a displacement of the body's axis, affecting the musculoskeletal system (8, 12). Thus, the increase in body mass during the gestational period is considered one of the most significant alterations that affect the musculoskeletal system. High body mass index (≥ 30), especially gradual gain, significantly correlates with pregnancy-related LBP. These claims are further supported by the study's findings, while other reports stated contrary results (6, 30). In agreement with other reports (20, 31), neither gravidity nor multiparity had a correlation with the LBP during pregnancy in this study. However, Previous history of abortions was also not correlated in contrast to other reports (31, 32).

Having a positive previous history is recognised as an additional risk factor in previous research papers (33, 34), with a difference in the percentage of pain recurrence. Mota et al (35), observed that 53.2% of women with current LBP had the same complaint in previous pregnancies, while Bryndal et al (22), stated a much higher result of 85.5%. In our research, 70.7% of women with LBP reported the complaint in a previous pregnancy. Lower results were reported (31).

Given the results of this paper, LBP during menstruation is a significant risk factor for LBP during pregnancy, which meets with previous research papers (12, 31), at the same time, the pathogenesis of this correlation remains unclear.

LBP during pregency can significantly affect the life quality of pregnant women (12, 17). In this study, 163 (78%) of pregnant women stated a sleep disturbance due to pain, and 126 (60.3%) reported that pain restrict their daily activity. 45 (21.5%) of women with LBP stated that painkillers are not always effective. Regarding the management of LPB, 71.9% of women indicated that they used muscle stretching techniques to reduce the pain, and only 24.9% take medications for pain relives, what is striking is that most women did not see a doctor to manage or evaluate their pain.

**Strengths and limitations:**

This well design cross-sectional study was conducted at an obstetric and gynaecological primary hospital in Damascus City using face to face interview approach. Some limitations are still present. First,
recall bias is a common problem in regard to cross-sectional study design. secondly, no physical exam was conducted for the patient which may raise subjective bias on how patients report their pain. At last, this research was conducted in single primary care in Damascus City with a small number of women seen in the outpatient clinic, thus there is predicted limited accuracy to generalize the results of this paper.

Conclusion

Low back pain is prevalent among Syrian pregnant women, mostly with moderate severity. The most significant risk factors are obesity or BMI $\geq 30$ and being overweight, history of LBP in a previous pregnancy, history of LBP during the menstrual cycle, and university degree educational level. identifying the characteristics of pain in pregnancy is necessary to determine the severity and determine the correct management. Our results showed a low consultation rate for LBP and a portion of women affected by LBP stated that their pain did not relieve by pain killers, awareness should be raised about this common problem during pregnancy and seek a doctor’s help to apply effective strategies and reduce the impacts of the pain on daily activity and quality of life.

Declarations

Ethical approval:

Ethical approval was obtained from the Institutional Review Board (IRB), Faculty of Medicine, Syrian Private University.

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Availability of supporting data:

The data that support the findings of this study are available from the Corresponding author, upon reasonable request.

Competing interests:

The authors declare that they have no competing interests.

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References


