Identifying and Evaluating the Risk Factors Contributing to Pelvic Pain in Pregnant Women

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ABSTRACT

Background & Objective: One of the most prevalent musculoskeletal issues during pregnancy is pelvic pain, which most pregnant women may experience to varying degrees. The current research aims to identify and evaluate the risk factors contributing to pelvic pain in pregnant women.

Materials & Methods: The present case-control research was conducted on 180 pregnant women at Baghdad's Alwiyah Hospital for Obstetrics and Gynecology in 2022. For data collection, two questionnaires and a checklist were utilized. The questionnaires included demographic information about women and questions about risk factors, and the checklist included the results of women's examinations to identify risk factors. Using SPSS.23 software, the data were analyzed, and the statistical significance level of the results was considered less than 0.05.

Results: The results showed that from the demographic variables, only the age variable showed a statistically significant difference between the two groups

(P<0.05). Also, evaluating the risk factors indicated a significant difference between the two groups for the baby's weight, back pain before pregnancy, and back pain in the previous pregnancy (P<0.001). Other demographic variables and risk factors did not significant difference between the two groups (P>0.05).

Conclusion: The results demonstrated that identifying the risk factors could aid in managing aggravating pelvic pain factors during pregnancy and preventing movement restrictions in postpartum women.

Keywords: Pelvic Pain, Risk Factors, Pregnant Women

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Introduction

Pelvic pain is one of the most common problems during pregnancy, with 20% of pregnancies reporting it, and it can influence women's quality of life (1). Most pregnant women who experience pelvic pain believe it has impacted their quality of life and daily activities such as sitting, walking, normal household activities, childbearing, sex, and work duties. Furthermore, some women claimed that pelvic pain rendered them disabled (2-4).

Women with pelvic pain are more disabled than women with back pain (5). Weight gain during the

pregnancy, an increase in the natural curvature of the vertebrae inward and an increase in pressure on the lower back, stretching of the abdominal muscles, loosening of the joints due to the release of relaxin hormone, irritation of the lumbar vertebrae, and fluid retention are all factors that cause back pain during pregnancy (6). Pain in the posterior and lower parts of the pelvis, associated with sacroiliac joint pain, is more common than pain in other parts and is frequently misdiagnosed as low back pain (7). Past pain history, previous pregnancy pain history, multiparity, and weight gain are all risk factors for pelvic pain. Pelvic pain in the third trimester of pregnancy increases the likelihood of cesarean delivery and prolongs labor, which increases pregnancy complications and abnormal conditions, raises health care costs, and increases mothers' stress and depression (8).

Pelvic and back pain are more common in the second trimester of pregnancy but can appear as early as the first trimester (9). Back and pelvic pains caused by pregnancy can last up to three months after delivery. Women with back pain before pregnancy are twice as likely to have back pain during the pregnancy (10). According to various studies, the influential factors in causing back pain and pelvic pain in pregnancy include maternal age, BMI, fetal weight, a record of back pain, a record of accident or trauma, and history of back or pelvic surgery (11, 12). It has also been stated that a composition of back and pelvic pain at the start of a pregnancy, poor marital relations, multiparity, job dissatisfaction, and stress can all be influential factors in causing pelvic pain (13, 14).

Given that common problems and complaints during pregnancy affect pregnant women's quality of life, it is critical for the healthcare team, particularly midwives, to pay attention to these complaints and implement appropriate care and treatment planning to control them (15). Several treatment options for skeletal pain in pregnancy have been proposed, including increased water and land exercise, alternative medicine, and drug therapy. Because drug therapy in pregnancy is limited, there is a need to control pelvic pain using nonpharmacological methods. The critical point is that proper treatment depends on knowing the pelvic pain risk factors (16).

Investigating various types of back pain and pelvic pain will result in a suitable diagnostic solution based on the relative frequency of the pain types (17). According to research findings, most cases of back and pelvic pain during pregnancy do not require drug treatment or numerous paraclinical measures (18). They can only be strengthened and symptoms significantly reduced by educating pregnant women in early pregnancy to maintain the correct body position in daily activities and performing isometric and water sports. It is also advised to exercise after giving birth to avoid a recurrence in future pregnancies (19).

Due to limitations in the evaluation and therapy of pelvic and lower back pain during pregnancy, it is necessary to investigate and determine the therapy using conservative and non-invasive methods and its prevention (20). Pain relapses are common, and the significant impact of psychological, environmental, and social factors has made it a chronic and debilitating condition. Examining various types of pelvic pain will provide appropriate diagnostic solutions based on their frequency (21).

Various studies have found that, despite the high prevalence of back or pelvic pain in pregnancy, most pregnant women and healthcare providers are unfamiliar with the different types of pain, their locations, and the risk factors that cause them. In this regard, conducting effective research is critical because it improves medical personnel's accuracy in determining and aggravating risk factors. This results in appropriate and low-cost diagnostic methods, preventive treatments, and rational treatment of pregnant women, and, ultimately, the prevention of postpartum movement restrictions in women, which is critical. The current research aimes to identify and evaluate the risk factors contributing to pelvic pain in pregnant women. Investigating the risk factors related to the times before and during pregnancy is the innovation of the current research.

Methods

The current case-control study was carried out on pregnant women at Baghdad's Alwiyah Hospital for Obstetrics and Gynecology in 2022. The statistical population included 937 women, and 180 women were chosen as statistical samples using a simple random sampling method. There were 90 pregnant women in the case group who had pelvic pain and 90 in the control group who did not. Given that most pregnant women experience pelvic pain in the third trimester, all women who participated in the study were in their third trimester. Furthermore, the samples were chosen so that the women in both groups were selected under the same conditions. Women were similar in terms of gestational age (with a maximum difference of 4 weeks), mother's chronological age (normal pregnancy age range of 18-35 years), number of previous pregnancies, weight (with a maximum difference of 15 kg), and height (with a maximum difference of 15 cm).

The inclusion criteria for the study included an interest in participating in the research, completing the questionnaire, attending the medical examination session, having a single birth, and having pain in the lower back greater than three on the visual analogue scales (VAS). Exclusion criteria include back pain, lumbar spine, hip and knee surgery, malignancy or urogenital infections, acute polyarthritis, rheumatoid arthritis, and the presence of disorders such as preeclampsia, placenta previa, and symptoms of premature labor. Before beginning the research, the women were informed of its goals and procedures. To comply with ethical considerations, participants were assured that their identities would be kept.

A demographic characteristics questionnaire, a pelvic girdle questionnaire, and a standard checklist for recording clinical examinations were used to collect data. Participants' demographic characteristics questionnaires included age, level of education, job, monthly income, living place, and smoking. The checklist included the results of clinical examinations of the participants performed by a physician to determine some risk factors.

The risk factors questionnaire included the length difference between two limbs, the number of previous pregnancies, ligament laxity, marital relations, the interval between previous and current pregnancy, smoking, and the contraceptive method used in the six months preceding pregnancy. The validity of the content content of the questionnaire was utilized to confirm its validity. The questionnaire was finalized after the researcher presented it to ten professors from the Department of Obstetrics and Gynecology at Al-Kindi Medical College, University of Baghdad, and made modifications based on their feedback. Using Cronbach's alpha coefficient method. the questionnaire's reliability was determined to be 0.78 after validating its validity.

In the current study, the method for pelvic pain assessment was using Visual analogue scale (VAS). The women marked the intensity of their pain on a 10 cm long ruler rated from 0 to 10 to perform the VAS. The number zero represents no pain, the numbers 1-3 indicate mild pain, 4-6 indicate moderate pain, and 7-10 indicate severe pain. The examined risk factors included strenuous work, a record of back pain, trauma to the bony pelvis, a gap between previous and current pregnancies, the number of pregnancies, smoking, contraceptives, age, marital status, job, and ligament laxity. The data were collected after the questionnaires and checklists were completed. The data were described using descriptive statistics like frequency, percentage, mean, and standard deviation. Statistical tests like the chi-square and t-test were also used to compare the results in two groups. The intended statistical analyses were carried out utilizing SPSS (SPSS software, version 23, IBM, USA), and the significance level of the results was less than 0.05.

Results

In the present research, 180 women were divided into case and control groups (90 pregnant women in each group). The mean age of women in the case group (with pelvic pain) was 26.84 ± 6.51 years, and 25.76 ± 6.37 years in the control group (healthy women). <u>Table 1</u> shows the demographic variables of the women. According to <u>Table 1</u>, most women (46.7%) was between the ages of 22 and 28. In addition, 53.3% of women had a secondary education, 84.4% were unemployed, 67.2% have a normal monthly income, 79.4% live in urban areas, and 92.8% do not smoke. Only the age variable indicated a significant difference between the two groups (P<0.05), while the other variables didn't show a significant difference (P>0.05).

Variable	Range	Frequency	D valuo		
		Case group	Control group	I-value	
Age	<22	18 (20%)	26 (28.9%)		
	22-28	41 (45.6%)	43 (47.8%)	0.006	
	>28	31 (34.4%)	21 (23.3%)		
Education	Illiterate	10 (11.1%)	6 (6.7%)		
	Secondary	49 (54.4%)	47 (52.2%)	0.38	
	College	31 (34.5%)	37 (41.1%)		
Job	Employed	12 (13.3%)	16 (17.8%)	0.57	
	Unemployed	78 (86.7%)	74 (82.2%)	0.37	
Monthly income	Low	21 (23/3%)	15 (16/7%)		
	Normal	57 (63/4%)	64 (71/1%)	0.31	
	High	12 (13/3%)	11 (12/2%)		
Living place	Urban	69 (76.7%)	74 (82.2%)	0.24	
	Village	21 (23.3%)	16 (17.8%)	0.24	
Smoking	Yes	5 (5.6%)	8 (8.9%)	0.62	
	No	85 (94.4%)	82 (91.1%)	0.02	

 Table 1. Results of demographic variables in groups

<u>Table 2</u> shows the frequency of pelvic pain risk factors during pregnancy by two groups. According to <u>Table 2</u>, most women (47.2%) had only had one pregnancy, and 66.1% had never had an abortion. In addition, 84.4% of women had no ligament laxity,

77.2% had satisfactory sexual activity, 92.8% had no history of back trauma, and 97.8% had no history of multiple births. Table 2 indicates that there is no significant difference between the two groups in terms of the variables mentioned above (P>0.05), but there is

a significant difference in terms of the baby's weight, back pain before pregnancy, and back pain in previous pregnancy variables (P < 0.001).

Although 74.4% of the babies were normal weight, there was a significant difference between the both groups' results (P<0.001), indicating the effect of the baby's weight on the cause of maternal pelvic pain.

<u>Table 2</u> revealed that 42 (46.7%) women in the case group and 6 (6.7%) women in the control group had back pain before pregnancy, with a significant difference between the both groups (P<0.001). Also, 51 (56.7%) women in the case group and 4 (4.4%) women in the control group had back pain in previous pregnancy, with a significant difference between the both groups (P<0.001).

Table 2. Frequenc	y of pelvic	pain risk	factors	during	pregnancy
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Variable	Range	Frequency	D voluo		
v ar fable		Case group	Control group	I -value	
	0	32 (35.6%)	29 (32.2%)		
Total number of pregnancies	1	40 (44.4%)	45 (50%)	0.26	
	>1	18 (20%)	16 (17.8%)		
	0	58 (64.4%)	61 (67.8%)		
Number of abortions	1	23 (25.6%)	22 (24.4%)	0.41	
	>1	9 (10%)	7 (7.8%)		
	Low	11 (12.3%)	14 (15.6%)		
Baby's weight	Normal	66 (73.3%)	68 (75.5%)	< 0.001	
	High	13 (14.4%)	8 (8.9%)		
	None	73 (81.1%)	79 (87.8%)		
Ligament laxity	Slight	16 (17.8%)	11 (12.2%)	0.48	
	Moderate	1 (1.1%)	0		
Sovuel estivity	Satisfactory	62 (68.9%)	77 (85.6%)	0.19	
Sexual activity	Unsatisfactory	28 (31.1%)	13 (14.4%)	0.19	
Pack pain before programmy	Yes	42 (46.7%)	6 (6.7%)	<0.001	
back pain before pregnancy	No	48 (53.3%)	84 (93.3%)	<0.001	
Pack pain in provious programay	Yes	51 (56.7%)	4 (4.4%)	<0.001	
back pair in previous pregnancy	No	39 (43.3%)	86 (95.6%)	~0.001	
History of back trauma	Yes	10 (11.1%)	3 (3.3%)	0.53	
flistory of dack trauma	No	80 (88.9%)	87 (96.7%)	0.55	
History of multiple hirths	Yes	3 (3.3%)	1 (1.1%)	0.76	
instory of multiple on the	No	87 (96.7%)	89 (98.9%)	0.70	

<u>Table 3</u> presents the mean values of other risk factors for pelvic pain. <u>Table 3</u> shows that none of the variables

differed significantly between the case and control groups (P>0.05).

Table 3. Mean values of pelvic pain risk factors during pregnancy

Variable	Mean	P_valua		
v ar rabit	Case group	Control group	I value	
Age of marriage	21.84 ± 3.76	21.38 ± 3.54	0.49	
Age of first pregnancy	26.37 ±6.14	25.16 ± 5.86	0.63	
Previous and current pregnancy intervals (year)	2.62 ± 0.83	3.41 ± 0.92	0.09	
Number of pregnancies	1.71 ± 0.46	1.58 ± 0.34	0.42	
Number of births	1.42 ± 0.32	1.29 ± 0.25	0.14	

Variable	Mean ± SD*		
Variable	Case group	Control group	I -value
Number of abortions	0.67 ± 0.28	0.53 ± 0.21	0.26
exercise per week (hour)	1.23 ± 0.81	2.07 ± 0.65	0.17
Body mass index (BMI)	29.46 ± 4.61	27.91 ± 4.38	0.34

*SD= Standard deviation

Discussion

The current research aims to identify and evaluate the risk factors contributing to pelvic pain in pregnant women. The results indicated a significant difference between the case and control groups for age, baby's weight, back pain before pregnancy, and back pain in the previous pregnancy. It is worth noting that other variables did not significant difference between the two groups. The current study's findings are consistent with some studies (22-26) but inconsistent with others (27, 28).

A high proportion of gynecological symptoms are among the causes of acute, periodic, and chronic pelvic pain. The gynecological etiology of pelvic pain is diverse, and the similar and sometimes concurrent symptoms of digestive, urological, musculoskeletal, and psychological disorders complicate matters (29). Because pelvic pain is a common problem among pregnant women and its causes are unknown, no definitive treatment for pelvic pain has been identified.

The most common location of pain in the current study's patients was the pelvis, followed by the lower back, and the mean onset of pain was in the 26th week of pregnancy. Since women in the first and second trimesters were not studied, most of these people reported the onset of pain in the third trimester. In the present study, there was no significant relationship between pelvic pain during pregnancy and the variables of education, job, monthly income, living place, smoking, total number of pregnancies, number of abortions, ligament laxity, sexual activity, history of back trauma, history of multiple births, age of marriage, age of first pregnancy, previous and current pregnancy intervals, number of pregnancies, number of births, number of abortions, exercise per week, and BMI.

According to studies, there is a possibility of increased pain as gestational age increases and abdominal enlargement due to fetal growth and increased pressure on the pelvic girdle (30). Paying attention to pelvic pain and implementing interventions to reduce it can improve the health of pregnant mothers and their quality of life during pregnancy, thereby ensuring the safety of mothers during pregnancy and childbirth. Because most of these pains are caused by pregnancy and will resolve independently, pregnant women's pain can be reduced by educating them early in their pregnancy.

Back pain is most common in weeks 0-12 of pregnancy due to the fetus' direct pressure on the lumbosacral region and the relaxation of the pelvic joints caused by the release of the relaxin hormone. Lower back pain is the most common type in weeks 0-12 and gets better as the pregnancy progresses. The most common type of pain in the final weeks of pregnancy (31-47 weeks) is pelvic pain, which can be caused by loose pelvic joints and the fetus' descent into the pelvis. Various studies have shown that the most common type of pain from the beginning to the end of pregnancy is pelvic pain, followed by lower back pain. Finally, it is hoped that by conducting this study, health personnel, particularly midwives, will understand the importance of distinguishing pelvic pain from back pain in pregnancy so that they can take preventive and supportive measures in pregnancy following the correct diagnosis of the location of the pain.

Finally, it is possible to conclude that pelvic pain in pregnant women is a problem that must be addressed. To reduce this, it is critical to diagnose the type of pain correctly and then recommend doing exercises specific to this period under the supervision of a rehabilitation specialist. In general, the best treatment in pregnancy is prevention through methods such as lifestyle and work changes, teaching pregnant women to improve their standing position, doing tasks and lifting objects, as well as teaching exercises to contract the muscles of the pelvic floor and back and using sacroiliac belts for short periods, massage therapy, and so on.

Limitations of this study

One of the limitations of the current study is that it was limited to hospital patients and had a small number of participants. Another area for improvement is the failure to follow up. Other factors affecting pelvic pain during pregnancy should be investigated in future studies. It is also suggested that a similar study be conducted on other races and countries and the results compared to the current research.

Conclusion

The current study looked into the risk factors associated with the emergence of pelvic pain during pregnancy because it is a common issue for pregnant women and because its causes are unknown. The results showed that from the demographic variables, only the age variable, and from the risk factors, the variables of the baby's weight, back pain before pregnancy, and back pain in previous pregnancy affect women's pelvic pain during pregnancy. Identifying these risk factors can aid in managing factors that exacerbate pelvic pain during pregnancy. Furthermore, identifying these factors leads to appropriate and lowcost diagnostic methods, preventive treatments, and rational treatment of pregnant women, and, ultimately, the prevention of movement restrictions in women after childbirth.

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Conflict of Interest

The authors declared no conflict of interest.

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