



Original Article

Prevalence of Knee Pain in Post-Partum Females in Pakistan; A cross-sectional survey

Saher Rasheed^{1*}, Sana Sameer²

^{1*}Coventry University, UK

²University of Brighton, UK

Abstract

Background: During the postpartum duration, emotional and psychosocial changes are experienced collectively with physiological transition, a mother can face some problems that might disturb the physical scenario of the mother or infant. This phase is very critical for female health that she experiences many difficulties before and after childbirth. Knee joint laxity enhances during pregnancy, and differences in ligamentous laxity persist in post-partum women. Joint laxity is a renowned risk factor responsible for knee osteoarthritis. Knee pain including patellofemoral disorder is common during pregnancy. **Objective:** The objective of this survey was to estimate the prevalence of knee pain in postpartum women in Pakistan. **Methods:** This cross-sectional study approved by the ethical committee comprised 79 participants from different hospitals in Pakistan, after fulfilling the eligibility criteria of knee pain in postpartum women. Each participant after the signing of an informed consent form filled out the compiled self-assessment questionnaire. Pregnant females aged between 25 to 45 years were included in the survey through non-probability convenient sampling. however, those having complications like gestational diabetes, pre-eclampsia, and hypertension were excluded. Data were analyzed by using SPSS version 25. For baseline characteristics, frequency and percentages were calculated. A histogram was plotted for the age variable. **Results:** The findings showed that 79 postpartum females with a mean age of 27.45 ± 2.36 years. In this study, the prevalence of knee pain in postpartum females was 54.3%. The mean value of the age of patients is given in Figure-I. About 30.4% of the females were overweight and 25.3% of females showed moderate knee joint pain when patients went up or down stairs. **Conclusion:** Pregnant and postpartum women are more likely to develop knee pain. Knee pain is common in women of childbearing age Based on the findings, the prevalence of knee pain is 54.3% in postpartum women.

Access the
article
online



SCAN ME

***Corresponding Author:** Saher Rasheed, Coventry University, UK
Email: amnarasheed121@gmail.com
Keywords: knee pain; prevalence; postpartum

Citation: Rasheed S, Sameer S. 2022. Prevalence of knee pain in post-partum females in Pakistan; A cross-sectional survey. *The Healer Journal of Physiotherapy and Rehabilitation Sciences*, 2(1):110-115

Introduction

Postpartum is a duration that starts straight away after delivery and ends at almost one month and a half. Changes of variations in women's physique during pregnancy that causes some strain on both joints added by a gain in the area of the belly and slacking of supportive structures due to 'relaxin' hormone. The postpartum length is the planning stage in which some transition is skilled for females. During the postpartum duration, emotional and psychosocial changes are experienced collectively with physiological transition, a mother can face some problems that might disturb the physical scenario of the mother or infant.¹ This phase is very critical for female health that she experiences many difficulties before and after childbirth.²

The prevalence of knee pain enhances with age although can occur at any age.³ In a Swedish study, 25% of subjects aged between 56 to 84 years, reported chronic pain in the knee joint.⁴ These women have been found to have a high prevalence of knee pain than men, but in younger groups both gender tend to have the same frequency.³ The prevalence of knee pain and osteoarthritis (OA) has become more prevalent during the past few years.⁵ The onset could be an acute injury like a torn meniscus or ruptured ligament, however, it can be insidious. In young women, patellofemoral pain is common and may increase the risk of having femuro-patellar OA.^{6,7} Genetic predisposition, female gender, advanced age, traumatic injury, obesity and muscle weakness are the well-known risks factors for knee pain.⁸

Female suffers from pain and faces many difficulties throughout the pregnancy. Knee pain usually occurs in mothers during childbearing age. Pregnant and postpartum females have more possibilities to develop pain in the lower leg as compared to non-childbearing females. The onset of late pregnancy implies that biomechanical factors have an important role in hormonal changes.⁹ Throughout the pregnancy several physical transitions occur in the female body to fulfill the additional dietary needs of an embryo and newborn. High calcium required throughout pregnancy makes

females more prone to bone loss and may develop osteoporosis. On the other hand, hormonal changes are a reason for calcium deficiency which results in more bone loss.¹⁰ After delivery, the postpartum period in a mother's life is filled with many variations, that is physical and hormonal, changes in sleep habits and she has to learn how to best care for a newborn.¹¹ Knee pain including patellofemoral disorder is not uncommon in pregnancy. The body part is most commonly affected by pain in the knee, which is exposed to great shear forces in motor activities.¹² Changes in posture, the gain of weight and increased laxity of ligaments can produce pain in the knee. There is marked improvement in the symptoms of knee pain by four months after delivery. The patellofemoral disease produces pain in the back of or across the patella, particularly while going up and down stairs or with extended sitting.¹³

Evidence of permanent changes in the musculoskeletal system in the post-partum phase is present. Knee joint laxity enhances during pregnancy, and differences in ligamentous laxity remain post-partum. Joint laxity is a renowned risk factor for knee OA. A study performed by Stein BP in 2021 found that anteriorly laxity increased at the start of the second trimester, although in the frontal plane and vice versa. Some structural variations are seen in the foot during post-partum, including a reduction in the arch height along with an increase in foot length and arch drop. Structural changes in the foot along with knee ligament can contribute to change in lower limb biomechanics and can be a predisposing risk for OA.¹⁴

Hormonal changes have also been implicated as a contributor to musculoskeletal problems, with an increase in ligament laxity during pregnancy. In particular, relaxin has been associated with decreased collagen expression and non-pregnancy-related knee injuries. However, the exact mechanism and timing in which hormonal changes influence knee symptoms during pregnancy remain unclear.¹⁵ Biomechanical factors related to pregnancy and the post-partum timeframe that could add to bring down further point outer muscle broken some changes on the focal point of gravity, variation

in a step design, weight gain, an increase in how much time spent in the side-lying position, and expanded lower limit request linked with infant child care. Since the net impact of the physical and hormonal changes during pregnancy shows up biomechanically disadvantageous to the lower limit, there is a higher occurrence of lower extreme point pain in pregnant females than in non-pregnant controls. This study described the area and disturbing variables of lower furthest point pain and inspected potential elements, for example, history of joint pain, weight gain, number of steps, and recurrence.⁹

However, much of the knee pain reported in population surveys may be moderate and have an impact on the patient's activities.¹⁶ The role of physiotherapy in obstetrics and gynecology includes gestation period, childbirth, and antenatal and postnatal care is important. It is essential to create awareness about physiotherapy in hospital setups among gynecologists to provide better health care services to females.¹⁷ As knee pain is much more common during and after pregnancy and there is a lack of evidence related to the prevalence of knee pain in post-partum females in Pakistan, so more studies are needed. Therefore, this survey was conducted to determine the prevalence of knee pain in postpartum women in Pakistan.

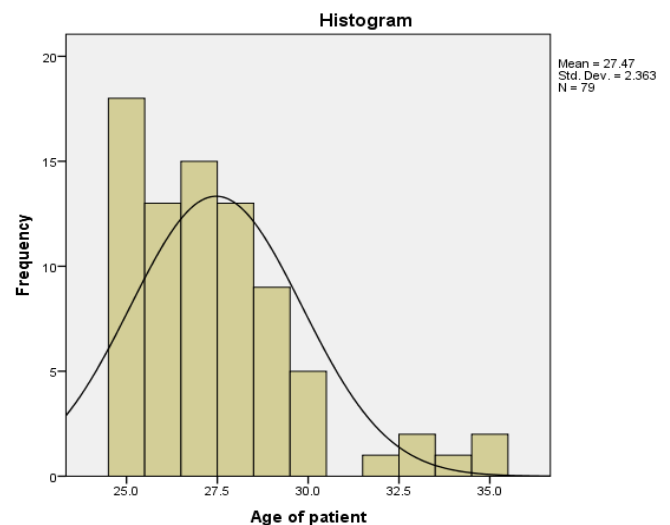
Methods

This cross-sectional study approved by the ethical committee comprised 79 participants from different hospitals in Pakistan, after fulfilling the eligibility criteria of knee pain in postpartum women. Each participant after the signing of an informed consent form filled out the compiled self-assessment questionnaire. Pregnant females aged between 25 to 45 years were included in the survey through non-probability convenient sampling. However, those having complications like gestational diabetes, pre-eclampsia, and hypertension were excluded. Data were analyzed by using SPSS version 25. For baseline characteristics, frequency and percentages were calculated. A histogram was plotted for the age variable.

Results

The findings showed that 79 postpartum females with a mean age of 27.45 ± 2.36 years. In this study, the prevalence of knee pain in postpartum females was 54.3%. The mean value of the age of patients is given in Figure-I. About 30.4% of the females were overweight and 25.3% of females showed moderate knee joint pain when patients went up or down stairs (Table-I)

Figure-I: Histogram showing the age of the patients



Discussion

This survey is aimed to assess the prevalence of knee pain in postpartum females. Pregnant women are more likely to develop knee pain. Based on the findings, the prevalence of knee pain is 54.3% in postpartum females and 79 postpartum females presented with a mean age of 27.45 ± 2.36 years. About 30.4% of the females were overweight and 25.3% of females showed moderate knee joint pain when patients went up or down stairs. The result of this study was supported by a study that also stated that the prevalence of knee pain in postpartum females was 22 out of 24 subjects with $p=0.03$. The average age of the pregnant women was 29.2 ± 5.7 ,

Table-I: Body mass index (BMI) of post-partum females, n=79

| | | Frequency | Percent |
|-----------------------------------|----------------------------|-----------------------|---------|
| BMI | Underweight <18.5 | 18 | 22.8 |
| | | 23 | 29.1 |
| | Normal weight 18.5-24.9 | 24 | 30.4 |
| | | Overweight 25-29.9 | 14 |
| | Obesity 30 or greater | | |
| Pain | Yes | 44 | 54.3 |
| | No | 35 | 43.2 |
| Pain while climbing stairs | No | 11 | 13.9 |
| | Mild | 17 | 21.5 |
| | Moderate | 20 | 25.3 |
| | Severe | 18 | 22.8 |
| | Extreme | 13 | 16.5 |
| | Total | 79 | 100.0 |

with a range of 17 to 42. The knee pain prevalence between controls and cases once the prior history of knee pain was taken into account.⁹

A study conducted by Roush JR in 2012 estimated that the prevalence rate of anterior knee pain of 25% has been commonly found in 724 young, active females with age between 18 and 35 years. The mean value of the age of the subjects was 24.17±2.34 years, and the mean BMI was 23.95±4.86 kg/m². Subjects filled the anterior knee pain questionnaire (AKPQ), a functional outcome tool used for the documentation of symptoms of knee pain. The calculated prevalence of knee pain in women 18 to 35 years of age was found to be 12–13%.¹⁸ On the other hand, the current study estimated a high prevalence of knee pain with a small sample (54.3%).

Another cross-sectional study was conducted by Zhou M in 2018 to determine the effects of hormonal and reproductive factors and obesity on knee osteoarthritis prevalence among Chinese

women. The study included 7510 women with a mean age of 62.6±8.6 years. A high number of pregnancies, oral contraceptives use, and HT are independent risk factors for KOA, and the effects of reproductive and hormone factors on KOA may be increased by obesity. Oral contraceptives and obesity showed effects on knee pain.¹⁹ However, the current study estimated the prevalence of knee pain and recruited a smaller sample as compared to this previous study. Ericsson YB (2021) conducted a study to determine the association between thigh muscle strength and knee pain in young women and to estimate the association between body composition, muscle strength, knee pain and physical activity by Spearman correlation. Overweight women had higher absolute thigh muscle strength, but lower weight-adjusted strength than normal-weight women ($p \leq 0.001$). Knee pain is found to be common in the mid-thirties among women. Maintaining sufficient thigh muscle strength and healthy body composition would be advantageous for the health of the knee joint.²⁰ So, based on all previous evidence and results of this study it is concluded that the occurrence of knee pain in postpartum females is common.

Conclusion

Pregnant and postpartum women are more likely to develop knee pain. Knee pain is common in women of childbearing age. Based on the findings, the prevalence of knee pain is 54.3% in postpartum women.

Declarations

Consent to participate: Written consent had been taken from patients. All methods were performed following the relevant guidelines and regulations.

Availability of data and materials: Data will be available on request. The corresponding author will submit all dataset files.

Conflict of interests: None

Funding: No funding agency was involved.

Authors' contribution: All authors read and approved the final manuscript.

References

1. UĞURLU M, ACAVUT G, YEŞİLÇINAR İ, KARAŞAHİN KE. Physical Symptom Severity of Women in the Early Postpartum Period. 2021.
2. ÇAPIK A, ÖZKAN H, APAY SEJDEÜHFED. Determination of affecting factors and postnatal comfort levels of postpartum women. 2014; 7(3): 186-92.
3. Baldwin J, McKay M, Simic M, et al. Self-reported knee pain and disability among healthy individuals: reference data and factors associated with the Knee injury and Osteoarthritis Outcome Score (KOOS) and KOOS-Child. *Osteoarthritis and Cartilage* 2017; 25(8): 1282-90.
4. Turkiewicz A, Gerhardsson de Verdier M, Engström G, et al. Prevalence of knee pain and knee OA in southern Sweden and the proportion that seeks medical care. *Rheumatology* 2015; 54(5): 827-35.
5. Nguyen U-SD, Zhang Y, Zhu Y, Niu J, Zhang B, Felson DT. Increasing prevalence of knee pain and symptomatic knee osteoarthritis: survey and cohort data. *Annals of internal medicine* 2011; 155(11): 725-32.
6. Smith BE, Selfe J, Thacker D, et al. Incidence and prevalence of patellofemoral pain: a systematic review and meta-analysis. *PloS one* 2018; 13(1): e0190892.
7. Eijkenboom J, Waarsing J, Oei E, Bierma-Zeinstra S, van Middelkoop M. Is patellofemoral pain a precursor to osteoarthritis? Patellofemoral osteoarthritis and patellofemoral pain patients share aberrant patellar shape compared with healthy controls. *Bone & Joint Research* 2018; 7(9): 541-7.
8. Lohmander LS, De Verdier MG, Roloff J, Nilsson PM, Engström G. Incidence of severe knee and hip osteoarthritis in relation to different measures of body mass: a population-based prospective cohort study. *Annals of the rheumatic diseases* 2009; 68(4): 490-6.
9. Vullo VJ, Richardson JK, Hurvitz EAJJofp. Hip, knee, and foot pain during pregnancy and the postpartum period. 1996; 43(1): 63-9.
10. El Miedany Y. Pregnancy, Lactation, and Bone Health. *New Horizons in Osteoporosis Management: Springer*; 2022: 735-61.
11. Thein-Nissenbaum JJPTiS. The postpartum triathlete. 2016; 21: 95-106.
12. Sá KN, de Mesquita Pereira C, Souza RC, Baptista AF, Lessa IJPM. Knee pain prevalence and associated factors in a Brazilian population study. 2011; 12(3): 394-402.
13. Adinma J, Adinma E, Umeononihu O, Oguaka V, Adinma-Obiajulu N, Oyedum SJJMDT. Prevalence, perception and risk factors for musculoskeletal discomfort among pregnant women in southeast Nigeria. 2018; 4: 063.
14. Stein BP, Boyer KAJG, Posture. Impact of parity on biomechanical risk factors for knee OA initiation. 2021; 84: 287-92.
15. Tanaka MJ, Forman JM, Otwell AG, et al. Characterization of knee dysfunction and related risk factors during pregnancy. 2021: 1-6.
16. Webb R, Brammah T, Lunt M, Urwin M, Allison T, Symmons DJJoPH. Opportunities for prevention of 'clinically significant' knee pain: results from a population-based cross sectional survey. 2004; 26(3): 277-84.
17. Nazar G. Awareness about the role of physical therapy in post-partum females among gynecologists. *The Healer Journal of Physiotherapy and Rehabilitation Sciences* 2021; 1(1): 21-6.
18. Roush JR, Bay RC. Prevalence of anterior knee pain in 18–35 year-old females. *International journal of sports physical therapy* 2012; 7(4): 396.
19. Zhou M, Chen J, Wang D, Zhu C, Wang Y, Chen W. Combined effects of reproductive and hormone factors and obesity on the prevalence of knee osteoarthritis and knee pain among middle-aged or older Chinese women: a cross-sectional study. *BMC Public Health* 2018; 18(1): 1-9.

20. Ericsson YB, McGuigan FE, Akesson KE. Knee pain in young adult women-associations with muscle strength, body composition and physical activity. *BMC musculoskeletal disorders* 2021; 22(1): 1-9.