ONLINE ISSN :3007-309X
PRINT ISSN :3007-3081

Journal of Medical & Health Sciences Review

PREVALENCE OF KINESIOPHOBIA IN PREGNANCY RELATED LOW BACK PAIN

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ARTICLE INFO:

KEYWORDS:
Pregnancy related Low back pain, kinesiophobia

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Article History:
Published on 17 July 2025

ABSTRACT

Background: Gestational low back pain (LBP) is common and can significantly affect a mother's health and behavior, making exercise and physical activity challenging. This difficulty may lead to kinesiophobia, a fear of movement, which is considered a risk factor for developing chronic LBP. Hence, our study was performed to find the occurrence of Kinesiophobia in pregnant females with low back discomfort in this territory.
Aim: Our study aimed to inspect the occurrence of kinesiophobia in pregnancy related to lower back discomfort**.**
Methodology: The descriptive cross-sectional study was conducted on n=212 gestating women diagnosed with LBP aged 18-40 years in all the three trimester of pregnancy presenting to gynecology outpatient department of the hospital of Rawalpindi and Islamabad between May 2024 and August 2024. Data was collected using non-probability convenient sampling technique with semi structured questionnaire, Numeric Pain Rating Scale for assessing pain intensity, and the Tampa Scale to measure degree of kinesiophobia. Results were described using means, standard deviations, frequencies, and percentages. Data analysis was performed using SPSS 27 version.
Results: Majority of the females in this study were from third trimester with the mean + SD score of age is 27.0236 ± 4.48741 and prevalence of Kinesiophobia was positive in 132 out of 201 subjects, which is 62.3% prevalence.
Conclusion: A noticeably high prevalence of kinesiophobia has been observed in pregnant women with LBP.

INTRODUCTION

Pregnancy can have a significant physiological impact on a female's body. It causes a variety of musculoskeletal alterations, including changes in posture and musculoskeletal discomfort in the lower back resulting in reduced daily living activities.(1)
Pregnancy-related back discomfort refers to a type of backache that arises during pregnancy in individuals who previously had no history of back issues.(2)
LBP is a typical complaint among pregnant women, and it is mostly musculoskeletal, which can be caused by mechanical, circulatory, hormonal, and psychological reasons.(3)
Fear of pain causes a fear of movement known as Kinesiophobia, which has a high positive connection with lumbopelvic discomfort.(5). Kinesiophobia is a commonly seen factor among patients with musculoskeletal pain.(6).This can have an adverse effect on an individual's overall functional performance as well as their mental health because it increases dependence on others for ordinary tasks.(1)
Women's experiencing musculoskeletal discomfort reported significantly higher kinesiophobia scores than those without. A rise in kinesiophobia in pregnant women was linked to a decrease in physical activity.(7)
During pregnancy, the shifting center of gravity causes compensatory hyperlordosis and increased anterior pelvic tilt, straining the lumbar spine and sacroiliac ligaments. This, combined with the laxity of ligaments, axial spinal loading, and vascular compression, contributes to low back pain (LBP) in pregnant women, with greater spinal compression and longer recovery times compared to those without LBP.(8)
The hormone relaxin, which increases significantly during pregnancy, is thought to cause inflammation and back pain by softening the tissues of the pelvis and lower spine, particularly affecting the sacroiliac joint. However, not all studies agree on the link between relaxin levels and back pain.(9)
Increased levels of relaxin, progesterone, and estrogen during pregnancy lead to greater joint laxity, contributing to low back and pelvic girdle pain (LBP and PGP). Relaxin, which peaks by the end of the first trimester, is particularly high in women with severe LBP, and estrogen amplifies its effect by increasing relaxin receptor sensitivity, further exacerbating joint laxity and pain.(8)
Patients who live a sedentary lifestyle are more likely to develop back discomfort than those who live an active lifestyle. Nonetheless, people with vocations defined as 'mostly active' and 'physically demanding' are more likely to have pain during pregnancy, indicating that severe levels of activity are probably not optimum.(9)
LBP symptoms can range in severity from mild to severe and manifest as dull ache to tearing, stabbing, and sharp shooting. They can also be localised or ambiguous in nature.(10)
Many studies have shown that people with low back pain (LBP) can develop kinesiophobia. It has been found to be one of the risk factors for chronicity in LBP and is considered a significant predictor of pain impairment in the population with chronic pain.(10).Kinesiophobia is a psychological condition characterised by a fear of reinjury, which can impair functioning.(11)
Fear is a crucial aspect in understanding how acute pain can become chronic for some individuals and even when tissue damage has healed, some effects (e.g. incapacity) persist. Kinesiophobia modifies movement patterns, possibly to prevent discomfort. It creates modifications to the motor behavioral factors impacting pain management and control. The perception of kinesiophobia may impact the processing of pain and related information in individuals with chronic musculoskeletal pain Higher degrees of kinesiophobia are associated with increased pain.(12)

The fear avoidance model postulates that during severe pain, a person may develop a phobia of movement, or "Kinesiophobia," which can result in a systematic avoidance of physical exercise and, over time, physical deconditioning.(10)

Women with low back pain are encouraged to avoid activities that cause pain. It is possible that this message causes excessive dread of movement and avoidance behavior, known as kinesiophobia, and is one of the reasons why the pregnancy-related low back pain did not resolve despite the fact that the pregnancy had ended.(13)

Chronic low back pain patients often avoid certain activities due to fear of discomfort or aggravation of the primary lesion. Fear of physical activity, known as "kinesiophobia," contributes to chronic low back pain and functional limitations. Kinesiophobia causes loss of flexibility, decreased muscle performance, muscle atrophy, and reduced social and physical activities, which can worsen impairments. This is called the deconditioning syndrome. This condition causes socio-professional difficulties, including professional disorientation and desocialization, which can lead to anxiety, depression, and self-deprecation.(14)

It was observed that individuals with the highest levels of kinesiophobia faced a 41% increased risk of physical impairment..(15)

So, one major contributing factor to the explanation of pain and functional impairment in individuals with chronic low back discomfort is kinesiophobia. Because of the fact that this movement-related fear due to pain causes behavioural avoidance, functional restrictions, and may have an adverse effect on rehabilitation outcomes.(16)

Assessing and treating kinesiophobia is crucial in rehabilitation, as high levels of fear of movement can hinder treatment adherence. Studies show that physical exercise is the most common approach for managing kinesiophobia, particularly in cases of low back and neck pain. Future research should prioritize interdisciplinary interventions that target fear of movement, accounting for patients' unique biological, psychological, and social experiences of pain.(17)

METHODOLOGY

This was a descriptive cross-sectional study conducted between April and August 2024 and the data were gathered through questionnaires from hospital settings of Rawalpindi/Islamabad, and directly from the gynaecology OPD of Rawal general and dental hospital Islamabad, holy family hospital Rawalpindi and POF hospital Wah cantt after getting permission from the institutional ethical committee. Ethical review was taken from the ethical review committee ERC of the university of Lahore Islamabad campus. .An Informed consent was taken from all the participants and data was collected from pregnant females with low back pain through non-probability convenience sampling technique. The participation was completely voluntary. All the data collected by the participants was kept confidential.Those participants who met inclusion and exclusion criteria and available at the time of conduction of the research were included in this study. The sample size for the study was estimated to be 212 pregnant females diagnosed with low back pain calculated by using Epitool-epidemiological calculator. The reference study used for sample size calculation was the study of Muhammad Kashif et al., 2020.(18). Those pregnant females aged between 18-40 years or having low back pain during first, second and third trimester of pregnancy were included in the study. Pregnant Females with history of low back pain before pregnancy, have a high-risk pregnancy, suffering from hypertension, gestational diabetes, Endocrine disorders, diagnosed psychological issues and those experiencing non-mechanical low back pain were excluded. Data was collected from pregnant females with low back pain through

questionnaires. A self-structured questionnaire was used for demographic data and low back pain related questions. Numeric pain rating scale was used to assess the intensity of pain and Tampa Scale for Kinesiophobia was used to evaluate kinesiophobia. (19). Total score of TSK varies from 17 to 68, with a cutoff value of 37. A score of 37 or higher is an indication of kinesiophobia. A total score is calculated after the reverse scoring of items 4, 8, 12, and 16. (20). For Numeric Pain Rating scale, on a scale of 0 to 10, with 0 being no pain at all, 1 to 3 means mild pain, 4 to 6 means moderate pain, 7 to 10 means severe pain. Tampa scale of kinesiophobia (TSK) One of the most popular tools used to evaluate pain-related fear in patients is the Tampa Scale for Kinesiophobia (TSK). This scale is valid and reliable for kinesiophobia.(21). Total score of TSK varies from 17 to 68, with a cutoff value of 37.A score of 37 or higher is indication of kinesiophobia. (22) Data was analyzed through IBM SPSS STATISTIC VERSION 27. Descriptive statistics carried out for quantitative variable as mean and standard deviation and for qualitative variable frequency and percentage were calculated. Data was displayed in the form of charts and tables.

RESULTS

Table 1: Demographic data of N = 212 participants

VARIABLES	MEAN ± SD
Age	27.0236 ± 4.48741
Height (cm)	5.3010 ± .27787
Weight (Kg)	67.2264 ± 10.47704
BMI (Kg/m^2)	25.9108 ± 4.61515

The data presented in table shows that the mean and standard deviation for Age were 27.0236 ± 4.48741, Height were 5.3010 ± .27787, while the Weight were 67.2264 ± 10.47704 and BMI were 25.9108 ± 4.61515.

Table 2: Pregnancy Trimester of N= 212 participants

Pregnancy trimester	Frequency (Percentage)
1st	38(17.9)
2nd	71(33.5)
3rd	103(48.6)
Total	212(100)

Out of 212 pregnant females, majority of females are from 3rd trimester with 38 participants (17.9%) lies in 1st trimester. 71 (33.5%) lies in 2nd trimester and 103 (48.6%) lies in 3rd trimester.

Table 3: Pain right now

	Frequency (Percentage)
No pain(0)	2(0.9)
Mild(1-3)	57(26.9)
Moderate(4-6)	103(48.6)
Severe(7-10)	50(23.6)
Total	212(100)

Table 3 is showing that Most of the pregnant females presented with moderate level of pain according to NPRS. Out of 212 females, 2 females presented with no pain, 57 (0.9%) females presented with present mild pain (26.9%), 103 presented with moderate pain

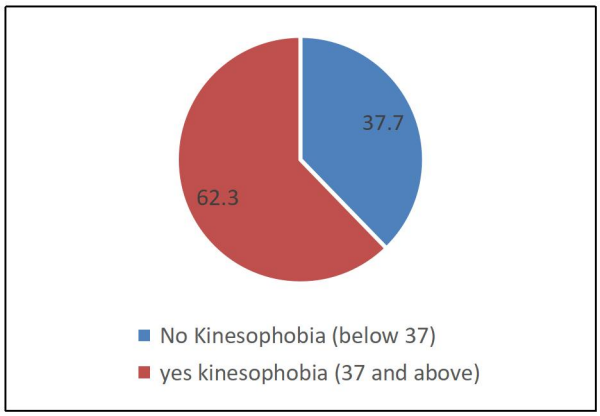
(48.6%) and 150 presented with severe pain (23.6%).

Table 4: Prevalence of kinesiophobia according to pregnancy trimester

		First trimester	Second trimester	Third trimester	Total
Kinesiophobia	No kinesiophobia below (37)	16	20	44	80
	Yes kinesiophobia (37and above)	22	51	59	132
Total		38	71	103	212

Out of 212 pregnant females, 132 present with kinesiophobia, 22 lie in first trimester, 51 lie in second trimester and 59 lie in third trimester of pregnancy.

Chart 1: Prevalence of kinesophobia



Pie chart showed that among 212 pregnant females, 62.3% present with kinesiophobia and 37.7 % have no kinesiophobia.

DISCUSSION

This study aimed to investigate the prevalence of kinesiophobia among gestating females experiencing low back discomfort, results were analyzed for 212 females, and it revealed a noticeably high proportion of kinesiophobia in pregnant females with LBP.

The Mean and standard deviation for Age of participants included in our study is 27.0236 ± 4.48741. This result is consistent with previous studies, such as study by Koca et al. investigated the co-occurrence of low back pain (LBP), kinesiophobia, disability, and related conditions during pregnancy with the mean and standard deviation of age was 27.4 ± 6.1.(23) As reported in the research conducted by Sarwat Mahmood et al., the ages of the subjects spanned from 23 to 40 years, with an average age of 36.57 years and a standard deviation of 6.64 years..(22). Other studies conducted by Maleeha Fuad et al. and BK Varol et al. also supported our findings.(5, 19)

In our Study mean and standard deviation of BMI is 25.9108 ± 4.61515.According to the study conducted by T. T. Koca et al., the average BMI was reported as 73.6 kg/m² with a standard deviation of 16.2 .(23)

In our study, females of all trimesters are included but majority of the females are from third trimester. But in a study conducted by Maleeha Fuad et al. and BK Varol kinesiophobia was observed only the in third trimester.(5, 19)

Most of the pregnant females participated in this study presented with moderate level (48.6%) of low back discomfort according to NPRS. According to the preliminary research in which Low back pain is measured by using VAS which showed that pregnant women are more likely to experience LBP than the general population, independent of age, gestational week, or gravida and 42.3% of gestating women had LBP (n=69)., with a mean VAS score of 5.5 ± 2 cm. (koca,2024).(23). According to the study conducted by BK Varol et al. intensity of low back pain was 5.47 ± 2.87 by using VAS which also supported our findings. (19).

Another study conducted by J.N. John et al. in which majority of participants reported having moderate pain intensity (58.0%) similar to our findings.(24)

The present study findings indicate that pregnant females with low back pain have been found to exhibit a noticeably high prevalence of kinesiophobia, accounting for 62.3%. According to study conducted by Sarwat Mahmood et al.women experiencing low back and pelvic discomfort have been found to exhibit a notably high rate of kinesiophobia, accounting for 46% of total population.(22). In the study executed by Maleeha Fuad et al., the mean kinesiophobia score was 25.14 ± 3.43. Among the patients, 18 (18.6%) exhibited a high level of kinesiophobia, while 52 (53.6%) and 27 (27.8%) demonstrated moderate and low levels, respectively.(5). Another study conducted by Fatih Okan et al. showed that Individuals experiencing musculoskeletal discomfort reported significantly higher kinesiophobia scores than those without.(7). Yasmeen Karaaslan et al suggested that pregnant women with LBP had a high kinesiophobia score (40.01 ± 9.02). (25).

Other studies conducted by Darren Beales et al. et al., J.N. John et al. and Pothiraj Pitchai et al. also showed that majority of participants reported having high levels of kinesiophobia.(26) (24) (10)

LIMITATION

Although the research met its objectives, there were some limitations. Due to time constraints, the research was carried out with relatively small sample size. More participants are needed to generalize the findings. In the current study, conducting a physical exam to enhance diagnostic accuracy was not possible, which represents a limitation. While interviewing it was difficult to communicate due to language barrier and illiteracy.

RECOMMENDATION

This study focuses on the prevalence of kinesiophobia in gestating females with low back discomfort, further studies should be conducted to investigate the effect of kinesiophobia in pregnant women and to find out preventive treatments for kinesiophobia in pregnancy.

CONCLUSION

It can be concluded that a significant proportion of pregnant women with low back pain exhibit a high prevalence of kinesiophobia and moderate pain severity. In this study, the majority of participants experiencing low back pain were in their third and second trimesters, compared to the first trimester; however, kinesiophobia was observed across all trimesters of pregnancy. These findings suggest that pregnancy induced low back discomfort may contribute to the development of kinesiophobia throughout pregnancy.

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