International Journal of Science and Research (IJSR)
ISSN: 2319-7064
Impact Factor 2024: 7.101

Prevalence of Kinesiophobia in All Trimesters of Primigravida using Tampa Scale: A Prevalence Study

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Abstract: ***Background: Pregnancy includes significant physiological and anatomical changes, often accompanied by physical discomfort and psychological stress, which may result in Kinesiophobia. The Tampa Scale for kinesiophobia (TSK) measures and its impact on pregnant women. Objective: To determine the prevalence of kinesiophobia across all trimesters in primigravida women and identify the trimester with the highest prevalence. Methods: A cross - sectional study involving 100 primigravida women aged 18 - 35 years was conducted over six months in Pune, India. Participants were assessed using the TSK, with scores analyzed by trimester. Descriptive and inferential statistics were used to interpret the data. Results: Of the participants.54% exhibited trimester showing the highest prevalence (59%). Kinesiophobia scores correlated with increased physical discomfort and psychological challenges as pregnancy progressed. Conclusion: Kinesiophobia is prevalent in primigravida women, particularly during the third trimester. Early screening and targeted interventions, including prenatal exercise programs, are recommended to reduce kinesiophobia and improve maternal health outcomes.***

Keywords: Pregnancy, Kinesiophobia, Primigravida, Third Trimester, Maternal Health

1. Introduction

The condition between conception and birth, during which the fertilized egg develops in the uterus. Pregnancy is the term used to describe the period in which a fetus develops inside a woman's womb or uterus. Pregnancy usually lasts about 40 weeks, or just over 9 months, as measured from the last menstrual period to delivery. There are three segments of pregnancy, called trimesters. [1, 2]

Term pregnancy, defined as 37 - 41 weeks of gestation (260 - 294 days), is generally regarded as a period of homogeneous pregnancy risk. Studies that investigate perinatal outcomes often use deliveries that occur over the entire length of the term period as the reference group. This definition of term gestation, however, was determined in a relatively arbitrary fashion. [1, 2]

Primigravida (PG), defined as a woman who conceives for the first time. A pregnancy is divided into three stages called trimesters: the first, second and third trimester. A trimester lasts between 12 and 14 weeks, while a full - term pregnancy lasts around 40 weeks from the first day of a women's last period. In each trimester, the fetus will meet specific development milestones. [3]

The first trimester of pregnancy is counted from the firt day of last period through to week 12. This is because most women who conceive naturally won't know the date of conception. During this period, baby's body structure and organ develop. The body under goes major changes, and nauseatic feeling, fatigueness, breast tenderness and frequent urination. [4]

The second trimester lasts for week 14 to week 27. The fetus continues developing during this trimester - adding weight and taking on the features of a newborn. There energy is increased and also there sleep is better compared to first trimester. Back pain, abdominal pain, leg cramps, constipation or heartburn is commonly seen in them. [4]

The third trimester is the last stage of pregnancy. It lasts from weeks 29 to 40. During this trimester, baby grows, develops, and starts to change position to get ready for birth. The fetus continues to grow in size and weight. [4]

During pregnancy, the body goes through variousvanatomical and physiological changes to provide suitable environment for foetal development, to cater to the increased metabolic demands and to prepare for the childbirth. Anatomical changes occur to meet the increased metabolic needs, to permit appropriate development of foetus and to prepare the body for childbirth. [4]

Due to anatomical changes, the apical impulse is shifted laterally and cephalad to the fourth intercostal space. Increased blood volume provides some reserve for the normal blood loss during delivery and peripartum haemorrhage. [4]

Physiological changes occur in pregnancy to nurture the developing foetus and prepare the mother for labour and delivery. During pregnancy, the pregnant mother undergoes significant anatomical and physiological changes in order to nurture and accommodate the developing foetus. It is important to understand the normal physiological changes occurring in pregnancy as this will help differentiate from adaptations that are abnormal. [4, 5]

Mean maternal weight and mean body composition values remain unchanged in the first trimester of pregnancy. This has

implications for guidelines on maternal weight gain during pregnancy. [6]

Disturbances in body - perception and sleep elevates the kinesiophobia in pregnancy. [7]

As pregnancy advances, muscles strength decreases and the fear of falling experienced by pregnant woman increases, which significantly impairs the quality of life in the domains of environment, physical, and mental health. [8]

All women those having low back pain in third trimester also has kinesiophobia. The level of low back pain highly contributes in kinesiophobia. [9]

Pregnancy related lumbopelvic pain becomes persistent while multiple factors may lead to post - partum disabilities such as kinesiophobia, sleep disturbance, body perception or mindfulness. [9]

Kinesiophobia is defined as a irrational, weaking and devasting fear of movement and activity stemming from the belief of fragility and susceptibility to injury. [10]

Fear in relation to pain has been described with a variety of conceptual definitions among which pain - related fear, fear of movement and kinesiophobia are most commonly used. [10]

Pregnancy related low back pain cancause kinesiophobia during pregnancy and kinesiophobia may cause limitations of movements. [11]

Considering the negative effects of pregnancy - related low back pain and kinesiophobia by health professionals is important during this period; [11]

The tampa scale of kinesiophobia (TSK) is a 17 - item self report checklist using a 4 - point Likert scale that was developed as a measure of fear of movement. The scale is based on the model of fear of work related activities, fear of movement. [12, 13, 14]

The tampa scale of kinesiophobia (TSK) has been used for a decade and is a valuable tool in researching pain - related fear. The tampa scale of kinesiophobia (TSK) that was developed in 1990 is a 17 item scale originally developed to measure the fear of movement. The Tampa Scale for Kinesiophobia (TSK) is a self - report measure developed to assess 'fear of movement'. [12, 13, 14]

The Tampa Scale for Kinesiophobia (TSK) was used to evaluate fear of movement. This scale consists of 17 items. Total scores ranged between 17 and 68. The higher the score, the greater the degree of kinesiophobia, showing that the respondent fears moving because of pain. [14]

Safe maternity care with improved neonatal outcomes relies heavily on proper antenatal care services. Exercises plays a pivotal role in the lives of women and is an essential part of antenatal care. It is believed to offer numerous benefits to expectant mothers, such as improving maternal and fetal health. Pregnant women are often encourages to participate in aerobic and muscle - strengthening exercises throughout pregnancy to enhance their overall well - being and reduce pregnancy - related risks.

Primigravida women, experiencing pregnancy for the first time, undergo significant physical and emotional changes. These changes often lead to fears related to labor, childbirth, and even simple movements during later stages of pregnancy. In addition to these fears, they may face various challenges, including stress, anxiety, self - esteem issues, and depression. Conditions like low back pain, lumbopelvic pain, disturbed body perception, and sleep disturbances further contribute to a heightened fear of movement, commonly referred to as kinesiophobia.

Kinesiophobia can result in a reluctance to engage in antenatal exercises due to the fear of falling or worsening physical discomfort. This fear discourages women from attending antenatal classes or performing essential movements during pregnancy, which can hinder their physical preparedness for childbirth. The objective is to find out the prevalence of kinesiophobia in all trimester in primigravida female using tampa scale and also to find out which trimester in primigravida females have the higher kinesiophobia score. Hence, studying the prevalence of kinesiophobia in all trimesters of primigravida women using tampa scale is crucial to addressing these concerns and encouraging better antenatal care practices.

2. Methodology

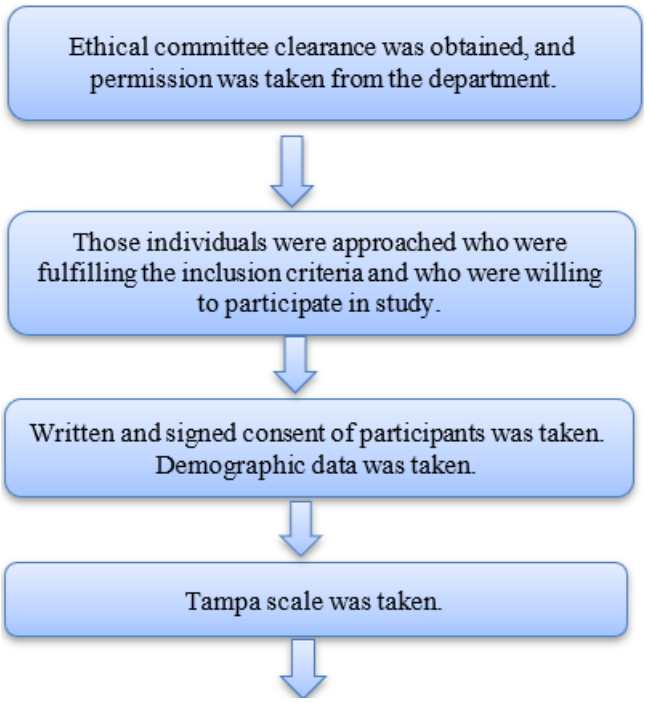
This observational study explored prevalence of kinesiophobia across all trimesters in primigravida women and identified the trimester with the highest kinesiophobia score. A sample of 100 participants was selected using simple random sampling. Conducted in Pune over six months, the study obtained ethical committee clearence and departmental approval.

Participants who met the inclusion criteria and provided written, signed consent were included. Demographic data, including age and trimester, were collected. The tampa scale of kinesiophobia, a validated tool for measuring fear of movement, was used to assess participants.

The data were analyzed to identify the prevalence and severity of kinesiophobia in each trimester. The study's findings aim to highlight psychological challenges faced by primigravida women during pregnancy. By addressing these concerns, the research seeks to improve antenatal care practices, reduce fear of movement, and enhance maternal health outcomes and preparedness for childbirth.

Inclusion Criteria	Exclusion Criteria
Age 18 - 35	High - risk pregnancy
Primigravida females	Hypertension
Literate	Gestational diabetes
Willing to participate	

3. Procedure



Outcome Measures

The Tampa Scale is a reliable and valid tool with demonstrated statistical significance. Its reliability is supported by correlation coefficients (r [s]) ranging from 0.64 to 0.80, with a p - value of less than 0.01, indicating consistency in measurement. Additionally, the scale's validity is reflected in correlation coefficients (r [s]) between 0.33 and 0.59, also significant at $p<0.01$, showing its effectiveness in assessing what it aims to measure. These findings highlight the scale's credibility for use in relevant research or clinical settings, ensuring accurate and meaningful results in evaluating the constructs it was designed to assess.

4. Results

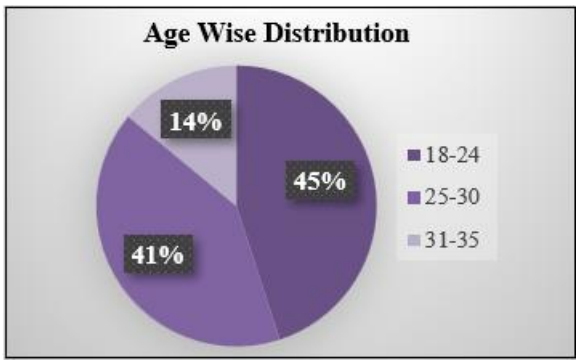
The study included 100 primigravida females as participants. Based on age distribution, graph 1 showa that 45 participants (45.0%) were in the age group of 18 - 24 years, while 41 participants (41.0%) were in the age group of 18 - 24 years, while 41 participants (41.0%) were in the age group of 25 - 30 years. The remaining 14 participants (14.0%) belonged to the age group of 31 - 35 years.

Graph 2 categorizes participants according to their pregnancy trimester. It reveals that 29 participants (29.0%) were in first trimester, 34 participants (34.0%) were in the second trimester, and 37 participants (37.0%) were in the third trimester.

Graph 3 highlights kinesiophobia levels across trimesters. In the first trimester, 13 females had low tampa scale scores (indicating minimal kinesiophobia), while 16 showed high score (indicating increasing kinesiophobia). In the second trimester, 18 had low scores, and 16 had high scores. Similarly, in the third trimester, 15 had low scores, while 22 had high scores, showing increasing kinesiophobia trends as pregnancy progresses.

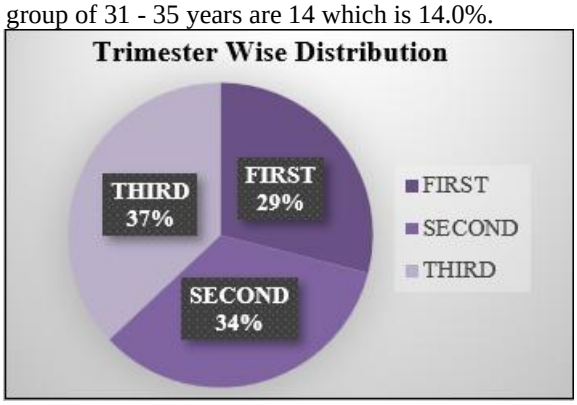
Finally, graph 4 summarizes the overall Tampa Scale results for all 100 participants. It indicates that 46 females (46%) had low Tampa Scale scores, suggesting minimal kinesiophobia, whereas 54 females (54%) had high scores, signifying higher levels of kinesiophobia. This provides a comprehensive view of kinesiophobia levels in primigravida females across different trimesters.

Demographic Distribution



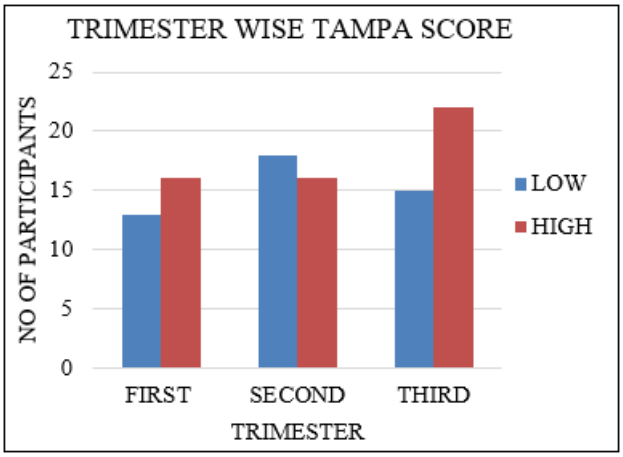
Graph 1

The pie diagram shows that number of participants between the age group of 18 - 24 years are 45 which is 45.0% and number of participants between the age group of 25 - 30 years are 41 which is 41.0% and number of participants between the age group of 31 - 35 years are 14 which is 14.0%.



Graph 2

The pie diagram shows that the number of participants in first trimester are 29 that is 29.0% and number of participants is second trimester are 34 that is 34.0% and number of participants in third trimester are 37 that is 37.0%.

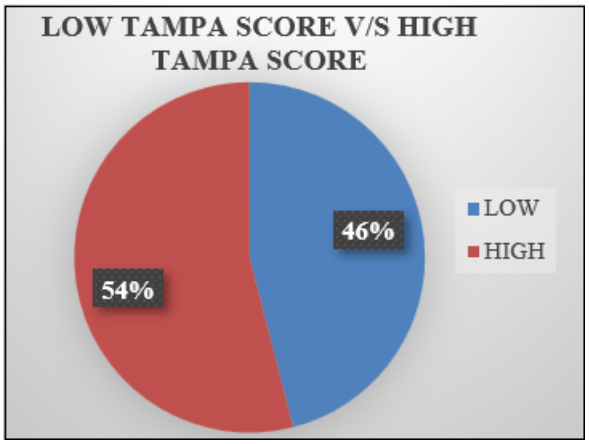


Graph 3

This bar diagram shows that in the first trimester there were 13 females with low score in the tampa scale i. e lowest or negligible kinesiophobia were as 16 females showed high score in the tampa scale i. e they have increasing degree of kinesiophobia.

In the second trimester there were 18 females with low score in the tampa scale i. e lowest or negligible kinesiophobia were as 16 females showed high score in the tampa scale i. e they have increasing degree of kinesiophobia.

In the third trimester there were 15 females with low score in the tampa scale i. e lowest or negligible kinesiophobia were as 22 females showed high score in tampa scale i. e they have increasing degree of kinesiophobia.



Graph 4

The pie diagram shows that from 100 female participants there are 46 females with low tampa score i. e 46% and 54 females with high tampa score i. e 54%

5. Discussion

This study aimed to find the prevalence of kinesiophobia in primigravida females across all trimesters using tampa scale for kinesiophobia. The results revealed that 54% of participants experienced high kinesiophobia, with the third trimester showing the highest prevalence (59%). These findings suggest a significant level of fear of movement among pregnant women, particularly as pregnancy progresses, which could potentially impact their quality of life and well - being.

Kinesiophobia, defined as an excessive, irrational, and debialiting fear of physical movement and activity due to a feeling of vulnerability to painful injury, can have a profound impact on a pregnant woman's mental and physical health. In this study, more women in the third trimester experienced higher levels of kinesiophobia, which aligns with the fact that physical discomfort and limitations oftrn increases as pregnancy progresses.

One likely explanation for the increase in kinesiophobia during the third trimester is the range of biomechanical and hormonal changes that occur as pregnancy progresses. These changes can significantly alter musculoskeletal alignment, posture, and movement patterns. For example, pregnancy can lead to anterior pelvic tilt, increased lumbar lordosis, and hyperkyphosis of the thoracic spine, as well as changes in gait such as the characteristic "waddling" gait pattern in late pregnancy. These shifts can impact balance, increase back pain, and raise the risk of falls, contributing to a heightend fear of movement.

One of the key changes involves the forward shift of the pelvis, known as anterior pelvic tilt. As the baby grows and adds weight to the front of the body, the pelvis tilts forward, altering spinal alignment and placing strain on the lower back. To balance this change, the spine's lower region, or lumbar area, develops an exaggerated inward curve called lumbar lordosis. This increases in curvature can lead to lower back pain and discomfort, making movement more challenging and uncomfortable.

Additionally, the upper spine, or thoracic area, compensates by curving outward more than usual, a condition known as hyperkyphosis. These changes in posture can strain muscles and joints, further contributing to physical discomfort. In the later stages of pregnancy, a woman's walking pattern often changes as well. The characteristic "waddling" gait emerges as the growing belly shifts the center of gravity forward, making balance more difficult. This altered gait can increase the risk of fall, which adds to the sense of instability during movement.

Various hormonal factors, particularly the increased levels of relaxin, also contribute to ligament laxity, further destabilizing the joints and hormonal changes often result in physical discomfort that could explain why more women in the third trimester report higher levels of kinesiophobia.

On top of these biomechanical adjustments, hormonal changes also play a significant role. Pregnancy triggers an increase in the hormone relaxin, which loosens the ligaments in preparation for childbirth. However, this loosening occurs throughout the body, making joints less stable and more prone to discomfort or pain.

The combined effects of these biomechanical and hormonal changes create physical discomfort, instability, and an increased risk of injury or falling. These factors can lead women in the third trimester to become more cautious or fearful of movement, contributing to higher levels of kinesiophobia.

The high prevalence of kinesiophobia in this study highlights the importance of early identification and intervention. Regular prenatal checkups should consider not only the physical but also the psychological barriers that may prevent women from staying active. Exercise programs tailored for pregnant women may help alleviate these fears and promote a healthier pregnancy experience.

The findings may guide policy development, advocating for standardized screening of kinesiophobia during pregnancy and the implementation of prenatal exercise programs that cater to women's physical and psychological needs throughout their pregnancy journey.

6. Conclusion

The study concludes that kinesiophobia, the fear of movement or physical, is prevalent in 54% of primigravida females. This indicates that more than half of first - time pregnant women experience this condition, which could impact their physical well - being and overall health during pregnancy. Furthermore, the study reveals that this prevalence is even higher among females in their third trimester, with 59% showing significant levels of kinesiophobia. This finding emphasizes the need for targeted interventions and awareness programs to address this issue and promote better physical and mental outcomes during pregnancy.

Acknowledgements
I would like to thank the staff of Late Shree Fakirbhai Pansare Education Foundation for all their constant help in our study. I would also like to thank the participants for their keen participation in our study.

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