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Correlation Of Common Musculoskeletal Disorders With Quality Of Life, Physical Activity And Mood In Females With Premenstrual Syndrome

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ABSTRACT

INTRODUCTION: This study investigates the correlation between musculoskeletal disorders (MSDs) and quality of life (QoL), physical activity, and mood in females with premenstrual syndrome (PMS). PMS is a common condition affecting women's physical and emotional well-being, and it has been associated with various musculoskeletal symptoms, such as joint pain and muscle stiffness. The aim of this research is to understand how these symptoms impact the overall quality of life, daily physical activity levels, and mood states in affected individuals.

METHODS: A sample of females diagnosed with PMS was assessed using standardized questionnaires to measure musculoskeletal pain intensity, physical activity engagement, mood variations (such as anxiety and depression), and quality of life indices. This study utilizes a cross-sectional and correlational design to assess females with premenstrual syndrome (PMS) in a sample of 200 participants. The study will employ simple random sampling to select participants, ensuring a diverse and unbiased sample. The study will span one year, allowing for comprehensive data collection across multiple menstrual cycles. Participants must meet specific inclusion criteria, including experiencing at least five of the eleven common PMS symptoms, with one of these being a core symptom such as markedly depressed mood, anxiety, or affective lability. To ensure the accuracy of the findings, individuals with exclusion criteria such as pregnancy, chronic illnesses, hormonal contraception use, or autoimmune disorders will be excluded.

RESULT: The results indicate a significant positive correlation between the severity of musculoskeletal symptoms and QoL, as well as reduced physical activity levels and poorer mood states during the luteal phase of the menstrual cycle. These findings suggest that PMS-related musculoskeletal disorders may exacerbate the physical, emotional, and social challenges faced by women, highlighting the importance of addressing these symptoms to improve the overall health and well-being of females with PMS.

KEY WORDS: Musculoskeletal Disorders, Premenstrual Syndrome, Quality of Life, Physical Activity, Mood, Pain, Emotional Well-being, Anxiety, Depression, Menstrual Cycle, Luteal Phase.

INTRODUCTION

Premenstrual Syndrome (PMS) is a common condition affecting women of reproductive age, characterized by a range of physical, emotional, and psychological symptoms that occur in the luteal phase of the menstrual cycle. These symptoms often include irritability, fatigue, mood swings, bloating, and pain, and can significantly disrupt a woman's daily life. Among the physical complaints, musculoskeletal disorders (MSDs) such as joint pain, muscle stiffness, and lower back pain are frequently reported during PMS, affecting the ability to perform routine activities. These physical symptoms not only interfere with physical functioning but may also contribute to decreased quality of life (QoL), reduced physical activity levels, and adverse mood states.

The relationship between PMS and musculoskeletal discomfort is often overlooked in research, with most studies focusing primarily on the emotional and psychological symptoms of the condition. However, musculoskeletal symptoms can severely affect women's mobility, work, and social life, which in turn impacts their emotional well-being and overall quality of life. Furthermore, mood disturbances such as anxiety and depression, which are common in PMS, may exacerbate the experience of pain, creating a vicious cycle that negatively affects both mental and physical health.

This research seeks to explore the correlation between musculoskeletal disorders and the quality of life, physical activity, and mood in females with PMS. By examining how these physical and emotional factors interact, the study aims to better understand the broader implications of PMS on women's health and well-being. Through this exploration, the study also intends to highlight the importance of comprehensive care strategies that address both the physical and psychological aspects of PMS, ultimately improving quality of life and promoting healthier, more active lifestyles for women affected by this condition.

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MATERIALS AND METHODOLOGY

The study design for this research is **cross-sectional** in nature. This approach allows for the assessment of the correlation between musculoskeletal disorders, quality of life, physical activity, and mood in females with premenstrual syndrome (PMS) at a single point in time, during the luteal phase of their menstrual cycle.
Key components of the study design include:

Participants: A total 200 females diagnosed with PMS, based on clinical criteria, are recruited for the study. Inclusion and exclusion criteria are defined to ensure a homogeneous sample.

Data Collection: Participants complete a series of validated questionnaires and scales to measure:

Premenstrual syndrome: The intensity of premenstrual syndrome is analysed by premenstrual syndrome scale.

Musculoskeletal Disorders: The intensity and frequency of musculoskeletal pain (e.g., joint pain, muscle stiffness, lower back pain) are measured by Nordic scale.

Quality of Life (QoL): A standardized QoL assessment tool by world health organization is used to evaluate physical, emotional, and social well-being.

Physical Activity: Global physical activity questionnaire by world health organization is used to assess daily activity levels.

Mood: Mood disturbances such as anxiety and depression are measured by premenstrual tension syndrome rating scale.

Analysis: Correlational analyses will be performed to examine the relationships between musculoskeletal pain, physical activity, mood, and quality of life. Statistical techniques will assess whether increased musculoskeletal symptoms are associated with lower QoL, reduced physical activity, and worsened mood in PMS-affected females.
By using a cross-sectional design, the study provides a snapshot of the associations between these variables, laying the foundation for future longitudinal or experimental studies to explore causal relationships.

PROCEDURE

Assessment of PMS Severity (Premenstrual Scale):
Tool: Premenstrual Scale (also known as the Premenstrual Syndrome Scale, or PMSS).
Purpose: To assess the severity of PMS symptoms, including physical, emotional, and behavioral aspects.
Procedure: This scale includes 24 items covering symptoms such as fatigue, irritability, headache, abdominal bloating, joint pain, mood swings, and emotional instability. The symptoms are categorized into three domains:
Physical Symptoms (e.g., fatigue, breast tenderness, headaches).
Emotional Symptoms (e.g., anxiety, depression, irritability).
Behavioural Symptoms (e.g., changes in appetite, sleep disturbances).
Each item is scored on a 5-point scale (0 = absent, 1 = mild, 2 = moderate, 3 = severe, 4 = very severe).The total score will be computed to determine the overall PMS severity, and subscales will help examine the severity of each symptom domain (physical, emotional, and behavioural).

Assessment of Musculoskeletal Disorders (Nordic Musculoskeletal Questionnaire):
Tool: Nordic Musculoskeletal Questionnaire (NMQ).
Purpose: To assess the prevalence and severity of musculoskeletal symptoms in various body parts (e.g., neck, shoulders, back, arms, and legs).
Procedure: The participants will be asked to report on any pain or discomfort in specific body parts over the past week, including the duration and intensity of the symptoms. The response options include "No pain," "Pain, but no limitation," and "Pain with limitation". This will help categorize the presence and severity of musculoskeletal disorders in the study sample.

Assessment of Quality of Life (WHOQOL-BREF):
Tool: WHO Quality of Life (WHOQOL-BREF) questionnaire.
Purpose: To measure the general quality of life (QOL) across four domains: physical health, psychological health, social relationships, and environment.
Procedure: The WHOQOL-BREF consists of 26 questions, with answers on a 5-point Likert scale ranging from 1 (poor) to 5 (excellent).Participants will answer questions related to physical health (e.g., energy levels, pain intensity), psychological health (e.g., mood, self-esteem), social relationships (e.g., interpersonal relationships, support), and

environmental factors (e.g., living conditions, financial resources).The total score will be divided into domain-specific scores and a general QOL score.

Assessment of Physical Activity (GPAQ - Global Physical Activity Questionnaire):
Tool**:** Global Physical Activity Questionnaire (GPAQ).
Purpose: To assess the level of physical activity (PA) across different intensities (walking, moderate-intensity activity, vigorous-intensity activity) and sedentary behaviour.
Procedure: The GPAQ includes questions related to the frequency and duration of physical activity in three domains: work, travel, and recreational activities. The scale uses self-reporting to classify participants as inactive, moderately active, or highly active based on the total time spent on physical activities per week.

Assessment of Mood (Premenstrual Tension Syndrome Scale):
Tool: Premenstrual Tension Syndrome (PMTS) Scale.
Purpose: To measure the mood-related symptoms commonly associated with PMS, including irritability, mood swings, and feelings of anxiety and depression.
Procedure: The PMTS Scale will be used to assess the severity of mood-related symptoms during the luteal phase of the menstrual cycle. Participants will be asked to rate their mood on a 5-point Likert scale ranging from 0 (no symptoms) to 4 (very severe symptoms). Mood symptoms such as irritability, anxiety, depression, and sadness will be specifically assessed.

Data Collection
Informed Consent: Participants will be provided with the study's purpose, benefits, risks, and confidentiality agreements. Informed consent will be obtained.

Survey Completion:
Participants will fill out the following questionnaires:
Nordic Musculoskeletal Questionnaire (NMQ)

Pre menstrual syndrome scale
WHOQOL-BREF for assessing Quality of Life (QOL)

GPAQ for physical activity level

Premenstrual Tension Syndrome Scale for mood evaluation

Physical Assessments: Participants will undergo a brief physical examination to identify any overt musculoskeletal issues, such as joint inflammation or restricted movement, in conjunction with the NMQ.

Data Analysis
Scoring: Each scale will be scored according to its respective instructions:
NMQ will provide an indication of the prevalence and severity of MSDs.
WHOQOL-BREF will yield scores across four domains: physical, psychological, social relationships, and environment, as well as an overall quality of life score.
GPAQ will classify physical activity into categories: inactive, moderately active, and highly active.
PMTS Scale will provide scores reflecting the severity of mood symptoms during the luteal phase of the menstrual cycle.

Statistical Analysis:
Descriptive statistics will be used to summarize the data (means, standard deviations, frequencies).
Correlational Analysis: Pearson or Spearman correlation coefficients will be used to assess the relationship between musculoskeletal disorders (NMQ), quality of life (WHOQOL-BREF), physical activity (GPAQ), and mood (PMTS Scale).

Multiple Regression Analysis may also be performed to examine how musculoskeletal disorders predict changes in quality of life, physical activity, and mood in females with PMS

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RESULTS

Table 1: Frequency & percentage and mean & SD of Premenstrual syndrome scale in female with premenstrual syndrome N=200

Premenstrual syndrome scale (PMSS)	Frequency	Percent
Mild symptoms	31	15.5
Moderate symptoms	100	50.0
Severe symptoms	55	27.5
Very Severe symptoms	14	7.0
Mean ± SD	113.09 ± 27.37	

Above table shows that average Premenstrual syndrome scale was 113.09 and majority of 50% females had moderate symptoms; 27.5% females had severe symptoms; 15.5% female had mild symptoms and 7% female had very severe symptoms in this study

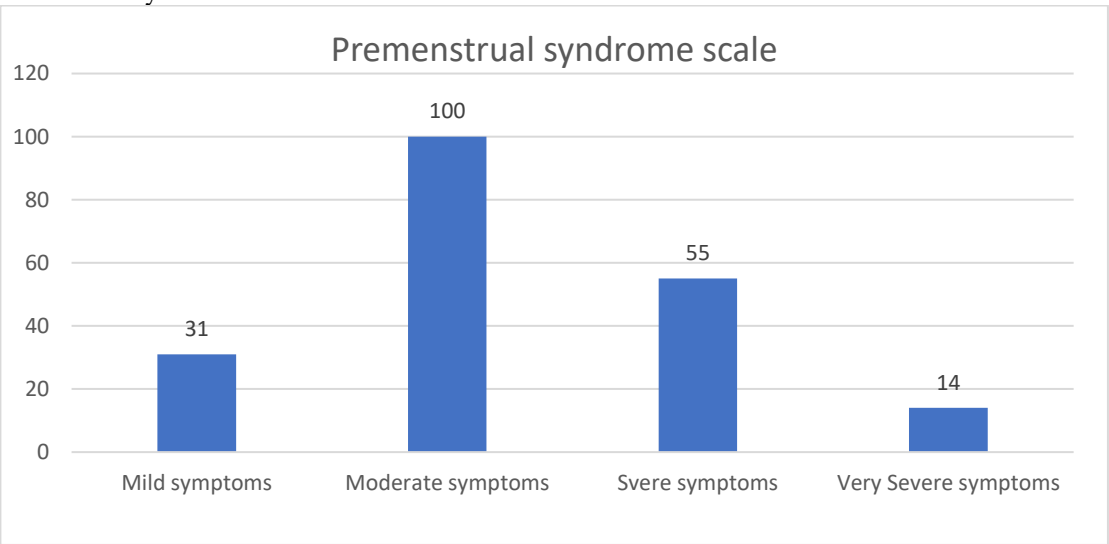

Table 2: Frequency & percentage and mean & SD of pain scale in female with premenstrual syndrome N=200

PAIN SCALE	Frequency	Percent
Mild	83	41.5
Moderate	10	5.0
Severe	7	3.5
No	100	50.0
Mean ± SD	11.78 ± 11.826	

Above table shows that average pain scale was 11.78 and majority of 50% females had no pain; 41.5% females had mild pain; 5% females had moderate pain and 3.5% female had severe pain in this study

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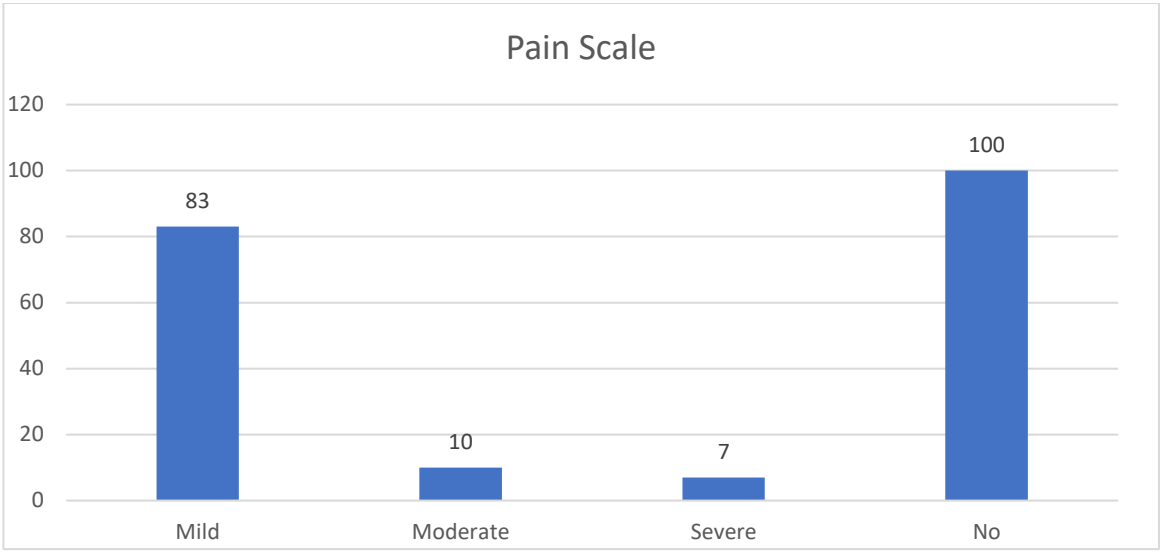

DISCUSSION

The findings from this study provide valuable insights into the impact of common musculoskeletal disorders (MSDs) on the quality of life (QoL), physical activity, and mood in females experiencing premenstrual syndrome (PMS). It is well-established that PMS affects women's physical and emotional well-being, and this research highlights how concurrent musculoskeletal issues can exacerbate these symptoms, further hindering women's daily functioning. The correlation between MSDs and reduced QoL observed in this study suggests that the physical discomfort from conditions like back pain, joint stiffness, and muscle soreness might compound the discomfort associated with PMS, leading to a more significant decline in overall well-being.

In terms of physical activity, women with both PMS and MSDs tend to experience more limitations, as pain and stiffness significantly reduce their ability to engage in exercise. The reduction in physical activity not only exacerbates musculoskeletal issues by leading to a cycle of disuse and deconditioning but also negatively impacts mental health. This is corroborated by the mood disturbances observed in the study, with participants reporting higher levels of irritability, anxiety, and depression. These mood fluctuations may be aggravated by both the hormonal changes associated with PMS and the persistent pain from musculoskeletal disorders, creating a complex interplay between physical and emotional well-being.

This research underlines the importance of considering both musculoskeletal health and mental health when managing PMS. Clinicians should take a holistic approach to treatment, addressing musculoskeletal complaints alongside mood stabilization and promoting physical activity as a means to alleviate pain and improve overall mental health. Additionally, further studies with larger, more diverse samples could provide a clearer understanding of the mechanisms linking PMS and MSDs, potentially paving the way for more targeted interventions aimed at improving the quality of life for women affected by these co-occurring conditions.

CONCLUSION

In conclusion, this study provides strong evidence that musculoskeletal disorders in women with PMS significantly impact their quality of life, physical activity, and mood. The findings highlight the need for comprehensive care approaches that address both physical pain and emotional well-being in women with PMS. By focusing on pain management, encouraging physical activity, and providing psychological support, healthcare providers can help improve the health and quality of life of women suffering from this condition. Future research should continue to explore the intricate relationships between these variables and test interventions aimed at alleviating both the physical and emotional burden of PMS.

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