EFFECT OF PREMENSTRUAL SYNDROME ON QUALITY OF LIFE AMONG ATHLETES AND NON-ATHLETES

Dissertation submitted to Kerala University

In partial fulfillment of the requirements for the award of the Degree of

M. Sc. Counselling Psychology

By

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CERTIFICATE

This is to certify that the dissertation entitled **"Effect of Premenstrual Syndrome on Quality of life among Athletes and Non-athletes"** is an authentic work carried out by Ancy V Reg no: 60422115004 under the guidance of Ms. Anila Daniel during the fourth semester of MSc Counselling Psychology programme in the academic year 2022-2024.

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DECLARATION

I, Ancy V, do hereby declare that the dissertation titled "**Effect of Premenstrual Syndrome on Quality of life among Athletes and Non-athletes**", submitted to the Department of Counselling Psychology, Loyola College of Social Sciences, Sreekariyam, under the supervision of Ms Anila Daniel, Assistant professor of the Department of Counselling Psychology, for the award of the degree of Master's in Science of Counselling Psychology, is a bonafide work carried out by me and no part thereof has been submitted for the award of any other degree in any University.

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With Regards,

Ancy V

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ABSTRACT

AIM: This study examines the effect of premenstrual syndrome on quality of life among athletes and non-athletes.

Method: A total of 129 participants (62 Athletes and 67 non-athletes) were selected using convenient sampling. The premenstrual syndrome scale (PMSS) and WHOQOL-BREF scale were utilized to collect data. Spearman rho correlation and independent sample t test were used to investigate the severity and impact of premenstrual syndrome on quality of life among athletes and non-athletes.

Results: The independent sample t-test was used to determine significant differences between premenstrual syndrome and sports participation. Athletes had significantly higher PMS scores than non-athletes. There was a statistically significant difference in premenstrual syndrome scores between athletes and non-athletes, with athletes reporting lower PMS score. There was a significant negative relationship between Premenstrual syndrome and the physical health domain of quality of life ($r=1.327$, $p<0.01$). There was a significant negative relationship between Premenstrual syndrome and the psychological health domain of Quality of life ($r=-.384$, $p<0.01$). There was a significant negative relationship between Premenstrual syndrome and the environment domain of quality of life ($r=-.370$, $p< 0.01$).

Conclusion: The study highlights a significant impact of premenstrual syndrome (PMS) on the quality of life, with notable differences between athletes and non-athletes. Athletes tend to experience milder PMS symptoms, likely due to the physical activity and training they undergo, which can mitigate some of the discomforts associated with PMS. The negative correlations observed between PMS and various domains of quality of life, underscore the importance of addressing PMS as a multifaceted issue that affects overall well-being. These findings suggest that promoting physical activity could be a valuable strategy in managing PMS symptoms and improving the quality of life among women, particularly non-athletes.

Key words: Premenstrual syndrome, Quality of life, Athletes, Non-athletes

CHAPTER I

INTRODUCTION

Throughout the luteal phase of the menstrual cycle, premenstrual syndrome (PMS) brings about significant physical and emotional symptoms that negatively impact everyday life. These symptoms typically diminish within a few days of the onset of menstruation. PMS affects approximately 47.8% of women of reproductive age worldwide, with about 20% experiencing severe symptoms. The symptoms include changes in appetite, weight, abdominal/back pain, headache, breast swelling/tenderness, nausea/constipation, anxiety/irritability, and mood swings. Premenstrual dysphoric disorder (PMDD), a more severe form of PMS, is now acknowledged as a psychiatric condition in the DSM-5. Treatment for the symptoms involves both nonpharmacological and pharmacological approaches. Nonpharmacological treatments are initially used for mild symptoms, while severe symptoms require pharmacological therapy, primarily in the form of SSRIs. Nonpharmacological therapies for mild symptoms encompass physical activity and exercise, proper nutrition, herbal remedies, cognitive behavioural therapy, social support, adequate rest, hot baths, and vitamin supplements.

The exact cause of premenstrual syndrome remains uncertain. Hormonal imbalances, such as excess estrogen and deficient progesterone, have been proposed as potential causes of PMS symptoms due to their occurrence during the menstrual cycle. Symptoms are connected to serotonin as a major contributing factor. Among the three primary estrogen hormones, estradiol is the most potent. Fluctuating estrogen levels during the luteal phase led to mood swings in women. Levels of serotonin precursors experience significant increases between days 7 to 11 and 17 to 19 of the menstrual cycle. PMS is closely tied to mood disorders as a result of estrogen-serotonin regulation. Reduced estrogen levels prompt the hypothalamus to produce norepinephrine, leading to a decrease in acetylcholine, dopamine, and serotonin, often causing insomnia, fatigue, and depression during PMDD and PMS.

A study in Egypt found that PMS is linked to excessive consumption of sweets. Consuming junk food and coffee were also identified as significant contributing factors to PMS. Dietary factors such as fast food, sugary drinks, deep-fried foods, lack of exercise, and poor sleep quality are significantly associated with PMS, as demonstrated in a study among female university students. 80% to 90% of women display at least one PMS symptom, while 2.5% to 3% experience severe symptoms that affect daily activities and social interactions. This disorder is called Premenstrual Dysphoric Disorder (PMDD). Geographical differences in PMS prevalence among young adult females can be attributed to variations in genetics, diet, lifestyle, and community practices. The exact causes of premenstrual syndrome remain elusive. The influence of progesterone on neurotransmitters such as GABA, opioids, serotonin, and catecholamine is thought to impact PMS.

Another possible cause is a serotonin deficiency combined with heightened progesterone sensitivity. Increased levels or sensitivity to prolactin, altered glucose metabolism, HPA axis dysfunction, insulin resistance, genetic factors, and specific nutritional electrolyte deficiencies also contribute to PMS. Menstrual pain is partly due to stress-induced heightened uterine contractions. Premenstrual syndrome symptoms range from mild to severe. These symptoms may include changes in appetite, weight gain, abdominal pain, back pain, headache, breast swelling and tenderness, nausea, constipation, anxiety, irritability, anger, fatigue, restlessness, mood swings, and crying. Affective symptoms can last from a few days to 2 weeks. It is important to document alcohol consumption history before menstruation as symptoms worsen a week prior and peak two days before, and alcohol consumption increases the risk of PMS. Due to the lack of specific physical symptoms and insufficient diagnostic resources, PMS is challenging to diagnose. Close collaboration between the patient, nurses, and physician is essential for diagnosis. Patients can aid in early diagnosis by maintaining symptom diaries, and nurses can assist by collecting completed questionnaires during monthly

visits. When utilized by medical professionals to rule out alternative differentials instead of doctors, these tools can produce better results (Gudipally & Sharma, 2024).

Touching a menstruating woman has been associated with superstitions about crop failure and other negative effects in many cultures. Cultural factors play a significant role in the experience and severity of premenstrual syndrome symptoms. It was once believed that women's menstrual discomfort could impact their religious practices. Religions, where present, can help alleviate women's anxiety during menstruation by promoting a positive outlook. Healthcare providers diagnose PMS based on symptoms reported by the individual across menstrual cycles. Treatment options for PMS include lifestyle changes, dietary adjustments, exercise, stress management, and medication like pain relievers or hormonal therapies. According to the World Health Organization, an individual's quality of life is determined by their assessment of their current circumstances, considering cultural and value backgrounds, as well as their objectives, standards, expectations, and concerns. Concepts such as lifestyle, living conditions, personal satisfaction, and quality of life are closely related to happiness (Sahin et al., 2014; Pereira, Teixeira, & Santos, 2012).

Quality of life, or QoL, encompasses various aspects of a person's wellbeing. It is commonly understood to include both subjective and objective measures of life satisfaction and health. Functional status, referring to a person's ability to perform daily tasks and activities, is an important factor. Subjective well-being is a key aspect of quality of life, focusing on an individual's perception of their overall health and happiness. This includes assessments of one's own health and how it influences their quality of life. It's important to recognize that people's evaluations of their quality of life can change over time, especially when dealing with chronic conditions. Despite continuing health difficulties, psychological adaptation, also known as "response shift," might cause patients to perceive a better quality of life (Muldoon et al., 1998).

Athletes are those who participate actively in sports or other physical activities, usually at a competitive level. They may participate in organized sports like swimming, basketball, soccer, track and field, and normally go through training to improve their skills. From amateur to professional, athletes compete at all levels and often devote a significant amount of their time and resources to their sport, managing practice, competition, and occasionally obligations to their jobs or academics. Non-athletes are those who don't participate in organized sports or competitive physical activity. This group may include those who do not play sports but engage in recreational physical activities like jogging, walking, or fitness classes. Individuals who don't routinely participate in physical activities might also be classified as non-athletes. The term refers to a broad spectrum of people, including those who could place a higher value on extracurricular activities, academic pursuits, the arts, or other interests than playing sports.

Many aspects of quality of life are significantly impacted by PMS, such as relationships with others, academic or professional performance, emotional stability, and physical health. Women affected by PMS often struggle with increased irritation, mood swings, fatigue, and difficulty concentrating, making it challenging to manage daily responsibilities and maintain social interactions. The cyclical nature of PMS can lead to regular disruptions in plans and routines, contributing to dissatisfaction and decreased overall life satisfaction. The psychological and emotional aspects of PMS are particularly noteworthy as they can exacerbate existing mental health issues or give rise to new ones. Women affected by PMS frequently report feelings of anxiety, hopelessness, and low self-esteem, leading to heightened stress and reduced wellbeing. Recent research has emphasized the role of emotion regulation in mitigating the adverse effects of PMS on quality of life. Reducing the overall impact of PMS on women's lives and improving symptom management may be possible with the use of effective emotion control techniques (Ben Elazar et al., 2023).

Need and significance of the study

Premenstrual syndrome (PMS) involves a variety of physical, emotional, and psychological symptoms that occur during the latter part of the menstrual cycle. Managing PMS aims to alleviate symptoms and minimize disruption to daily life. Recent research suggests that combined therapy may be more effective than medication alone for addressing premenstrual syndrome. A combination of medications (such as SSRIs, oral contraceptive pills, etc.) can be used to effectively manage PMS. It's important to prioritize regular exercise, stress management, and good sleep practices during the premenstrual period. Cognitive behaviour therapy (CBT) can help address disruptive thoughts, behaviours, and emotions. By identifying these patterns and developing coping strategies, CBT can enhance day-to-day functioning.

Premenstrual syndrome is a common condition that affects women of childbearing age. Having an empathetic conversation with the patient to explain the factors contributing to her symptoms is crucial. Involving the spouse in addressing issues can encourage the patient to seek help at home or from a medical professional. Educating women about reproductive health and encouraging them to express their symptoms and seek treatment can improve patient-doctor relationships. Teaching family members and significant others to provide supportive actions can help lessen PMS symptoms. Couple-based CBT therapies for behavioural coping show promising results. Given the prevalence of PMS, widespread education about its diagnosis and effective treatment through various media channels could be beneficial (Gudipally & Sharma, 2024)

It is vital to understand the impact of PMS on the quality of life. PMS can also impact the performance, training, and overall well-being of athletes. Certain studies indicate that athletes experience less severe PMS compared to non-athletes. This suggests that physical activity and training may influence the severity and management of PMS. The insights gained

from these findings could lead to the development of targeted interventions and support systems for both athletes and non-athletes in effectively managing PMS. Raising awareness and understanding of PMS can contribute to improved health practices and mental health support for women.

Given the widespread occurrence of premenstrual syndrome among women, this study is crucial in addressing its considerable impact on their quality of life. Many women experience anxiety, depression, and physical discomfort during their menstrual cycle, which is collectively known as premenstrual syndrome (PMS). For some individuals, traditional medication treatment may not be the preferred option due to side effects or personal choices. Therefore, exploring swimming as an effective alternative therapy is essential. This study aims to investigate the effectiveness of swimming in reducing PMS symptoms as a non-pharmacological alternative for women seeking relief without medication.

The research, which centres on the use of swimming as a physical activity, has the potential to improve our understanding of how to manage Premenstrual Syndrome (PMS). The positive effects of swimming on both psychological and physical symptoms of PMS highlight the importance of incorporating regular exercise into women's health routines. The findings suggest healthcare providers recommend swimming for women experiencing PMS; promoting a holistic approach to health by emphasizing lifestyle modifications. This study not only tackles a widespread health concern but also enables women to manage their health through accessible and pleasurable physical activities (Maged et al., 2018).

Statement of the problem

The problem of the present study has been stated as “Effect of premenstrual syndrome on quality of Life among athletes and non-athletes”

Operational definitions of key terms

Premenstrual Syndrome

In this study, PMS was defined as symptoms that emerge during the premenstrual phase. This stage lasts for approximately seven days before the onset of monthly bleeding (or seven days before your period) to approximately the time at which the bleeding actually begins.

Quality of life

In this study, quality of life was defined as individual satisfaction in various domains of life, including physical, psychological, social, and environmental health.

Athletes

In this study, athletes were defined as individuals who undergo systematic training, engage in structured competitions, and possess physical abilities specific to their sport or discipline.

Non-athletes

In this study, non-athletes were defined as individuals who do not engage in regular or structured participation in competitive sports, systematic training regimes, or organized physical activities that require specific skill development

Objectives of the study:

- To compare the impact of premenstrual syndrome on the quality of life between athletes and non-athletes.
- To assess the severity of premenstrual syndrome in athletes and non-athletes.
- To assess the impact of premenstrual syndrome on quality of life among athletes and non-athletes

Hypotheses of the study:

- There is no significant correlation between Premenstrual syndrome and Quality of life among young adults.
- There is no significant difference between athletes and non- athletes in Premenstrual syndrome.

CHAPTER II

REVIEW OF LITERATURE

A review of the literature is a methodical examination of the available data that evaluates, summarizes, and analyses for easy reading (Fink, 2010). A review of the literature can also be regarded as a significant analysis and assessment of the topic (Jesson, et al., 2011). The primary topic of this chapter is an empirical literature review. The theoretical review looks at a range of conceptual frameworks and variable models. Numerous empirical studies conducted by other researchers that are pertinent to the current subject are included in the empirical review. To comprehend the concepts and associations of the variables of interest, a survey of the literature has been conducted**.**

Premenstrual syndrome and quality of life

Jose et al., (2023) conducted a study on "Predictors of premenstrual syndrome: outcome of a focus group discussion among late adolescent girls in a selected nursing college in Kerala, India - A mixed method approach." The prevalence and risk factors for PMS were ascertained among adolescent girls from a nursing college in Kerala, India utilizing both qualitative and quantitative study design purposively selected 100 students to estimate the prevalence and severity of PMS based on quantitative data Collection tools while 10 students were selected through purposive sampling for focus group discussion to qualitative data on factors consequent to PMS. PMS was found to have high prevalence with 86 % of the participants complaining of it. Of these, 24% of them had mild PMS symptoms, 54% moderate symptoms and 8% severe symptoms. The findings showed that hormonal changes are not the sole factors that affect the development and the degree of PMS, but lifestyle factors also play a role on the participants of the study. In addition, this study calls for the need to have and implement more

educational programs for PMS especially in the school-aged girl who is at a sensitive development period (Jose et al.,2023)

Irshad et al., (2022) conducted a study on "Frequency of Premenstrual Syndrome and Its Association with Quality of Life among University Students." The relation between PMS and quality of life was determined by SF-36 Quality of Life Questionnaire whereas to diagnose PMS in 500 university students from UHS, AIMC, SIMS, and FAST NU, a second questionnaire was employed. It was a cross-sectional study. The data was analyzed by utilizing the SPSS version 20; for qualitative features, graphs and percentage were used and for quantitative variables Mean ± SD of the students 339 of them were diagnosed with PMS, which makes a percentage of 678. 8%. Quality of life was assessed by the SF-36; the results showed severe disturbances in various aspects of the subject's daily life for the PMS group, suggesting that the presence of PMS is associated with a declined standard of living. In the light of that the value stated in the study was that PMS was highly prevalent among the students and its effect on the quality of life was significant therefore, the management strategies for students experiencing PMS should be effectively implemented to enhance the quality of life. Therefore, this study brings focus on the significant effect of PMS in day-to-day life and the need to consider it with regard to the university students (Irshad et al., 2022).

Prado et al., (2022) conducted a study on "Impact of Premenstrual Syndrome Symptoms on Sport Routines in Nonelite Athlete Participants of Summer Olympic Sports." This study therefore seeks to fill this gap studying the effects of PMS symptoms on the sport routines of non-elite female athletes involved in summer Olympic sports. The research utilized an online questionnaire to gather data from non-elite female athletes, dividing the participants into two groups: emerging and planned comparison groups: The two primary groups that will be compared in the study include; women with mild or moderate PMS symptoms (no-PMS) and women with severe PMS (p-PMS). The survey involved 234 eumenorrheic women with

78 (%) of the women in the study categorized into the p-PMS group. Demographic data were compared using an unpaired student t test while the effectiveness of PMS symptoms on training and competitive routines was analyzed using a chi-square test. The research provided clear evidence that PMS symptoms affected sport routines especially for the participants in p-PMS group. Fifty five percent of the women in this group said they had modified their training schedules owing to menstrual and 61% of the women in this group said they had modified their training schedules owing to premenstrual symptoms as compared to the no PMS group. This was in agreement with the study, where it was established, that severe PMS interfered with athletic training in an attempt to demonstrate the struggles that female athletes encounter while training for a competition while at the same time trying to handle their PMS symptoms. Performance and training exercise were reduced significantly by menstruation in all the participants with some more extreme reduction experienced by the group categorized as p-PMS. However, though altering the training schedules was more pronounced in the p-PMS group, competitive schedules changed less, leading to the suggestion that athletes are willing to endure discomfort to competition than change their training schedules (Prado et al., 2022).

Yi et al., (2021) conducted a study on "Prevalence of Premenstrual Syndrome in Korean Female National Athletes and Associated Risk Factors". The objectives of this study were to establish the proportion of this population that has PMS and to search for any factors that would exacerbate this illness. Nineteen women athletes completed the survey; all the participants were from 17 different sports teams, and their average age was 24 years. PMS was diagnosed using the Premenstrual Symptom Screening Tool (PSST). The results revealed that eighteen of the athletes had moderate to severe PMS with symptoms such as irritation, tiredness, poor concentration, joint and muscle discomfort, bloated abdomen, and weight gain. A rather small number of athletes visited a healthcare facility while experiencing these symptoms which implies that the true extent of the impact of the condition on athletes' lives might have been

overshadowed. The specific pool of exclusive talented performers could reduce the extent to which such risk factors implicating PMS could affect. In addition, to the extent that 76. 6% of athletes indicated their performances were impaired by PMS, it is apparent that this issue needs to be redressed in the athletics context. Consequently, the conclusions of the study should foster the idea of early PMS treatment and sexual health awareness among the female athletes. The high prevalence and impact of PMS on performance, even without direct risk factors specified in the study, raises the need for further research to identify other possible factors and develop targeted interventions. The fact that athletes do not run to seek medical attention also underlines the importance of having a platform that can provide support to female athletes with regard to PMS-related issues (Yi et al., 2021).

Kartal et al., (2020) conducted a study on "Comparison of Athletes and Sedentary Students in Terms of Premenstrual Syndrome and Dysmenorrhea." The present paper is descriptive research that targeted a sample of 341 students from the Physical Education and Sports College and the Nursing Department. Self-reports were administered in the form of an Information Form, Visual Analogue Scale and the Pre-menstrual Syndrome Score (PMSS). It was observed that sedentary and athlete students in terms of weight, marital status and economic status had similarities in their view, but the fitness level of sedentary students differed greatly from athlete student regarding age and height. The discomfort levels ranging from dysmenorrhea and PMS was reported to be frequent in both the groups as 92. of non-sedentary leaners were positive that they would be able to find the substance they sought when looking for information online. athletes who reported having dysmenorrhea; 5 % of athletes having headaches; 74 %. To test its reliability, the results were obtained and are as follow: 6% of sedentary students and 72. PMS incidence rate of athletes as 7%. Of the total, the mean PMSS scores were 118. 00 ± 40. 20 for sedentary students and 120. 93 ± 40. 75 for athletes and 76 for non-athletes and the difference was non-significant p> 0. Yet, the pain score for

dysmenorrhea was statistically varied in sedentary students with the mean score of 5. 54±2. 32 and athletes scoring 6. 15 ± 2. 85. These results suggest that even though PMS impacts both the athletes and non-athletes in equally the same way, the former suffers more severe dysmenorrhea pain than the latter. This study has established that a large number of the female students suffer from PMS and dysmenorrhea and that the condition is not limited to the students who engage in little or no physical activity, and therefore there is need for proper management of the conditions (Kartal et al., 2020).

Dutta et al., (2020) conducted a study on "Prevalence of premenstrual syndrome and premenstrual dysphoric disorder in India: A systematic review and meta-analysis to estimate the prevalence of PMS and PMDD among females in India." It is important to have this broad-ranging study to determine these disorders in the Indian population and its possible relation to the cultural, environmental, and lifestyle of the country. The systematic review followed the PRISMA and MOOSE guidelines for structuring the research. As a result, while conducting a search of relevant databases including PubMed, Cochrane Library, Scopus, and IndMed, the authors came across 524 citations all together and after applying inclusion criteria for final review 25 studies were selected which reported 8,542 participants of interest in total. For this reason, the random-effects meta-analyses made it possible to assess heterogeneity between the studies, where it was established that variability in the study outcomes could be attributed to the differences in the participants, methods as well as other characteristics of the studies. This meta-analysis analysis showed that the overall prevalence of the PMS in the Indian population was 0. 43 and of PMDD was 0. 08. Moreover, it was also alarming, that PMS was reported even more frequent in adolescents and targeted was 49%. 6%. These findings suggest a high prevalence of PMS and PMDD among Indian women, therefore the need to come up with more effective interventions and policies that target the women. The study also advocated the importance of forensic epidemiological studies in the identification of causative factors of high

prevalence of these conditions across the country. The authors recommend the following strategies for stakeholders and policymakers – PMS and PMDD should be addressed at the community as well as the personal level due to the fact that these conditions have a severe impact on the quality of the women's lives (Dutta, 2020).

Victor et al., (2019) conducted a study on "Quality of life among university students with premenstrual syndrome". The aim of the study was to determine the QoL of university students in Recife-Brazil that are affected by PMS. The present cross-sectional study aimed at the exploring the influence of PMS on various aspects of life using the WHOQOL-Bref Questionnaire that measures the physical, mental, social and environmental well-being. A total of 642 female students from the health-related study area with the age ranges eighteen to twenty-four years participated in the study. The diagnosis used to diagnose the PMS was the American College of Obstetricians and Gynaecologists' criteria. The response indicated that less than half of participants 49% had a right attitude towards the green premise. In as much as this was the case, 9% of the women stated they had PMS and while 23% said they had mild PMS. The analysis of the results revealed that students with PMS especially with PMDD had lower QoL scores in all the domains than those without PMS. The overall, physical and/or mental health documenting a t-test of 42. 03 revealed significant differences between students with mild PMS/PMDD and those without PMS ($p < 0.001$) (Victor et al., 2019).

Vancini et al., (2019) conducted a study on "Quality of Life, Depression, Anxiety Symptoms and Mood State of Wheelchair Athletes and Non-athletes: A Preliminary Study." According to the research hypothesis, wheelchair sport athletes will have better psychological and quality of life outcomes than non-athletes. This pilot study compared athletes and non-athletes on several measures. The investigators used standardized questionnaires to measure mood, anxiety, depressive symptoms, and quality of life. Chi-square tests and other statistical analyses were performed to determine group differences. Results indicated that no differences

existed between wheelchair athletes and non-athletes in their mean scores for quality of life, anxiety symptoms, depressive symptoms, or mood state. Although average quality of life scores for the athlete group were higher, this pattern was not evident in mood states or symptoms of tension and depression. The athletes had a slightly better distribution (fewer cases at high levels) with regard to depressive symptoms compared with the non-athlete group. Both groups reported moderate levels with respect to symptoms of anxiety; however, there was an obvious difference in state-anxiety between athletes and non-athletes whereby the players reported significantly higher levels. Chi-square tests revealed significant differences in patterns of state-anxiety but not among other variables (Vancini et al., 2019).

Bansal et al., (2019) conducted a study on "Premenstrual Dysphoric Disorder: Ranking the Symptoms and Severity in Indian College Students". The study found that 46.1% of participants had PMS/PMDD, with 10.2% matching PMDD criteria. The majority of PMDD group members (91.4%) reported physical symptoms, which were followed by emotional symptoms including impatience and rage. The study showed how chronic illnesses significantly impede day-to-day functioning, especially in relationships and duties, with PMDD having the worst effect. The results show a higher prevalence of PMS/PMDD among Indian college students than is estimated globally, highlighting the need for early detection and greater public awareness. Together with medication therapies like SSRIs, the researcher advises making lifestyle changes including cutting back on sugar intake and engaging in cardiovascular activity (Bansal et al., 2019).

Bhuvaneswari et al., (2019) conducted a cross-sectional study on "Prevalence of premenstrual syndrome and its impact on quality of life among selected college students in Puducherry" the study investigated the prevalence of premenstrual syndrome (PMS) and how it affected the quality of life of 300 Puducherry college students. By using the Shortened Premenstrual Assessment Form and self-reported questionnaires, the study discovered that

62.7% of participants had PMS, with the most prevalent symptoms being back, joint, and muscle aches, followed by abdominal heaviness and discomfort. The quality of life was greatly impacted by PMS, as students reported lower performance in every area. The study also demonstrated the link between PMS and dietary and lifestyle factors, such as the consumption of sweets, inactivity, and caffeine use ((Bhuvaneswari et al., 2019)).

Bertone-Johnson et al., (2016) conducted a study on "Association of Premenstrual Syndrome with Blood Pressure in Young Adult Women." The study shows possible link between premenstrual syndrome (PMS) and high blood pressure in young adult women has been investigated in a number of research. In a cross-sectional study, Bertone-Johnson et al. observed that, even after controlling for variables like body mass index and smoking, women with clinically severe PMS had a mean diastolic blood pressure that was 3.1 mm Hg higher than controls, comprising 409 women with a mean age of 21 years. Women experiencing particular symptoms including nausea, palpitations, amnesia, dizziness, hot flashes, insomnia, and sadness saw a more marked increase—greater than a 5% increase. These results imply that processes linked to hypertension and PMS, including renin-angiotensin-aldosterone system (RAAS) dysfunction, micronutrient deficiencies, and chronic inflammation, may be responsible for this connection (Bertone-Johnson et al., 2016).

Rezaeian, N (2015) conducted a study on "Comparison of Prevalence of Premenstrual Syndrome in Athlete and Non-Athlete Students". The research involved 360 non-obese female students aged 18-26 years, with 177 regular exercisers and 207 sedentary controls. The presence of premenstrual symptoms was assessed using the Moos Menstrual Distress Questionnaire (MDQ). Results indicated that PMS occurred in 61.76% of non-athletes compared to 41% of athletes. Among the exercisers, 41% had PMS, with 61.76% classified as mild, 27.94% as moderate, and 10.29% as severe. Additionally, 12.57% were diagnosed with premenstrual dysphoric disorder (PMDD). In contrast, 59% of sedentary participants had PMS,

with 39.66% classified as mild, 41.8% as moderate, and 18.54% as severe, and 15.7% were diagnosed with PMDD. These findings suggest that regular exercise can be an effective non-pharmacological intervention for managing PMS and PMDD symptoms in women (Rezaeian, N 2015).

Raval et al., (2016) conducted a cross-sectional study to investigate the prevalence of premenstrual syndrome (PMS) and premenstrual dysphoric disorder (PMDD) among college students in Bhavnagar, Gujarat. In addition to ranking prevalent symptoms and comparing the sensitivity and specificity of the Premenstrual Symptom Screening Tool (PSST) with the Structured Clinical Interview for DSM-IV-TR (SCID-PMDD), the study attempted to investigate the demographic and menstrual characteristics linked with PMS and PMDD. Results from 489 students showed that the prevalence of PMS was 18.4%, that of moderate-to-severe PMS was 14.7%, and that of PMDD was 3.7%. Reduced productivity at work or school was the most often reported functional impairment, although symptoms including exhaustion, lack of energy, and anger/irritability were also frequently noted. The PSST displayed a 90.9% sensitivity and a 57.01% specificity. The authors came to the conclusion that regular PSST screening could assist in identifying kids who would gain from receiving treatment (Raval et al., 2016).

Farrokh-Eslamlou et al., (2015) conducted a study on “Premenstrual syndrome and quality of life in Iranian medical students”. The hypothesis of this study was that PMS might cause a general decline in quality of life. A cross-sectional study comprising 142 female medical students was carried out by the researchers. A PMS questionnaire based on the DSM-IV criteria, the Premenstrual Syndrome Scale, and the World Health Organization's Quality of Life (WHOQOL-BREF) questionnaire were among the instruments they utilized to collect data. The WHOQOL-BREF was used to evaluate the student’s quality of life, and DSM-IV criteria was used to identify the cases of PMS. 56 out of 142 women, or 39.4%, fulfilled the

DSM-IV criteria for PMS, according to the study. Of those experiencing PMS, 14.2% reported severe symptoms, 25.1% had moderate symptoms, and 60.6% had light symptoms. Researchers found that students who had taken medication to relieve their PMS symptoms and those who had a family history of the disorder had a significantly higher prevalence of PMS. Notwithstanding these results, the participants' overall quality of life scores was low, especially in the social and psychological categories. Notably, when PMS severity rose, there was a substantial decline in quality-of-life scores for mental health and environmental health (Farrokh-Eslamlou et al., 2015).

Sahin, et al. (2014) conducted a study on "Evaluation of premenstrual syndrome and quality of life in university students." Aimed to determine the frequency of premenstrual syndrome (PMS), examine associated factors, and evaluate the quality of life among university students. Conducted at Sakarya University, Turkey, between October 25, 2012, and April 25, 2013, this cross-sectional study involved 1008 students with a median age of 21 years (ranging from 17 to 25 years). The Premenstrual Syndrome Scale, based on the Diagnostic and Statistical Manual III and IV (revised), was used to evaluate PMS, while the Short Form-36 (SF-36) was employed to assess quality of life. Statistical analysis included the Chi-square test, Mann-Whitney U test, and logistic regression analysis. The findings revealed that the frequency of PMS was lower among overweight/obese students ($p < 0.05$). Moreover, students with PMS had significantly lower average scores across all domains of quality of life ($p < 0.05$ for each domain). The study concluded that PMS is a significant health issue among university students, adversely impacting their quality of life (Sahin et al., 2014). This underscores the need for interventions to manage PMS and enhance the overall well-being of affected individuals (Sahin, et al. 2014).

Tulin, A (2012) conducted a study on “Menstrual syndrome comparison of athletes and non-athletes”. In a study carried out, the frequency and intensity of PMS were compared in athletes and non- athletes so as to determine the impact of exercise on the alleviation of PMS. The study sample consisted of 288 athletes and 242 non- athletes. The athletes had a mean age in sports participation of 11 years. 03 years and trained at least four days a week for two hours. Self-completion questionnaires where used which included the Premenstrual Syndrome scale (PSS) and the Menstrual Distress Questionnaire (MDQ). More specifically, the Mann-Whitney U test was used to compare PMS scores of the athletes with the non-athletes while the chi-square test for menstruation characteristics. Therefore, the mean number of menstruations per year, the frequency of menstruation and the length of the menstrual cycle did not differ between the two groups $p > 0.05$. However, in the case of PMS results obtained with different menstrual phases, PMS scores prior to the menstrual cycle were significantly lower among the female athletes as compared to the non-athlete females (< 0.05). Overall, athletes expressed a significantly lower level of pain, water retention, negative affect and perceived control problems than non- athletes ($p < 0.05$). These studies indicate that exercise could ameliorate some PMS symptoms thus endorsing exercise as a non-pharmacological approach for dealing with PMS despite the discrepancies traced in the literature (Tulin, 2012).

Delara et al., (2012) conducted a study on “Health related quality of life among adolescents with premenstrual disorders: a cross-sectional study.” The purpose of the study was to compare the quality of life of Iranian adolescent girls with premenstrual disorders, namely PMS/PMDDD In this research study 602 schoolgirl aged 14 to 19 years have taken part. The severity of PMS was indicated based on the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) and the International Classification of Diseases, Tenth Revision (ICD-10). For assessment of the HRQOL, the Short Form Health Survey (SF - 36) was used. The findings of the study revealed that 37.2% met the diagnostic criteria for

PMDD. There were significant differences between the 2 groups in all measures except for physical functioning. These differences were more evident on role emotional, role physical, social functioning and bodily pain (Delara et al., 2012).

Dehkordi, (2011) conducted a study on "The comparison between athlete females and non-athlete females regarding general health, mental health, and quality of life." The purpose of the study was to determine the differences in General Health, Mental Health, and Quality of Life between female athletes and non-athlete in Ahvaz. Fifty women were selected randomly as athletes and 50 women were selected randomly as non-athletes making a total of 100 women. The participants filled in the General Health Questionnaire (GHQ), the Symptom Checklist-25 (SCL-25) and the Quality-of-Life Questionnaire (QLQ). Specifically, the scores were subjected to Multivariate Analysis of Variance (MANOVA) test that pointed to a highly significant difference between the two groups. In terms of general health, mental health and overall quality of life, the outcome presented by the female athletes was higher than the scores obtained by the non-athlete females. From these findings it can be concluded that sports are beneficial in healthy lifestyle and wellbeing of women, including physical and mental health. These findings have further emphasized that in order to improve the overall health of people sports as well as some physical activities should be encouraged (Dekhordi,2011).

Conclusion

Premenstrual syndrome (PMS) affects both athletes and non-athletes, while evidence suggests that the two groups' symptoms differ in intensity. Studies show time and time again that non-athletes experience more severe symptoms and higher PMS ratings than their sporty counterparts. This difference can be attributed to the good effects of regular exercise, which have been demonstrated to lower the intensity of PMS symptoms. Exercise is believed to improve mood, balance hormones, improve circulation, and produce endorphins, which reduce

the emotional and physical symptoms of PMS. As a result, athletes usually experience less disruption to their daily schedules and overall wellbeing.

Even when their PMS scores are lower, athletes with more severe symptoms still encounter disturbances in their routines, particularly in training and performance. When coupled with PMS-related symptoms including fatigue, irritability, and discomfort, high-intensity exercise can negatively impact concentration, endurance, and overall sports performance. Although exercise may lower the severity of symptoms, athletes with more severe forms of PMS may find it difficult to adhere to a training schedule and compete consistently. This demonstrates the ongoing impact PMS has on these athletes' quality of life.

Earlier studies have examined the frequency of PMS in women in great detail, with differing degrees of severity impacting both everyday life and overall well-being. There is a research gap about the particular ways in which some lifestyle factors, such engaging in sports, mediate PMS symptoms and their impact on quality of life. For example, some research suggests that regular exercise helps reduce PMS symptoms (Rezaeian, 2015); however, other studies show no significant difference in PMS prevalence or impact on quality of life between athletes and non-athletes (Kartal et al., 2020).

CHAPTER III

METHOD

Research methodology is a systematic approach to solving scientific research problems. It entails learning the procedures and logic of research, such as selecting appropriate methodologies and techniques, comprehending assumptions, and assessing decisions. To ensure transparency and authenticity, researchers must carefully examine and document their decisions (Kothari, 2004).

Research Design

The plan that specifies what, where, when, and how data will be gathered, measured, and analysed is known as the research design. It guarantees effective research that strikes a balance between economy and relevancy. When taking into account variables such as the research problem, objectives, resources available, and study type (exploratory, descriptive, or hypothesis-testing), an effective design reduces bias and maximizes dependability. It is imperative that the study design be well planned because mistakes can seriously damage the project and produce false conclusions (Kothari, 2004).

The study adopts a quantitative research design to investigate the effects premenstrual syndrome on qualitative of life among athletes and non-athletes. A quantitative research method deals with quantifying and analysis of variables in order to get results. Williams (2011) remark that quantitative research starts with a statement of a problem, generating of hypothesis or research question, reviewing related literature, and a quantitative analysis of data. Similarly, (Creswell 2003; Williams, 2011) states, quantitative research “employ strategies of inquiry such as experiments and surveys, and collect data on predetermined instruments that yield statistical data”.

Participants

The data were drawn from a sample of 129 young adults aged between 18-25. The samples were selected using convenience sampling and data was collected through online mode. The sample consist of 62 Athletes and 67 Non-athletes.

Tools used for data collection

Variables: The variables in the current study are premenstrual syndrome and quality of life. In this study existing standardized research questionnaires were used to assess premenstrual syndrome and quality of life. A number of studies have statistically analyzed and tested the questionnaire in order to corroborate the reliability and validity.

The following scale was used to Premenstrual Syndrome:

Premenstrual Syndrome Scale (Srinivasagam Rajasankar, 2015)

Srinivasagam Rajasankar, 2014 developed the premenstrual syndrome scale which is one of most extensively studied symptoms assessment instruments, although the majority of studies focused on validity rather than reliability. Each of the symptoms below are symptoms that would occur during the premenstrual phase of your cycle. This phase begins about seven days prior to menstrual bleeding (or seven days before your period) and ends about the time bleeding starts.

Validity

The ability of the Premenstrual syndrome Scale to predict the development of PUs (predictive validity) has been tested extensively.

Reliability

Inter-rater reliability between .81 and .97 is reported. The tool has been shown to be equally reliable with adolescent girls. Sensitivity ranges from 83-100% and specificity 64-90% depending on the cut-off score used for predicting PU risk.

Scoring

The premenstrual syndrome scale comprised 40 questions with three sub-scales (Physiological, Psychological and Behavioral symptoms). This 5-point Likert- type scale consisting of 40 items. The measurements on the scale are set according to the following scoring system: the response Never was scored as “1”, rarely as “2”, sometimes as “3”, very often as “4” and always as “5” points. In addition, the total score obtained from the sub-scales established the “PMSS total score.” The scale’s lowest score is 40 and highest score is 200. If the scale’s total score reached 80 points or above, this indicates the occurrence of PMS. Increases in the scores indicate an increase in PMS severity. Based on the percentage of scores the levels of premenstrual symptoms were graded in four categories. They are “No symptoms”, “Mild”, “Moderate” “severe” and very severe symptoms.

World Health Organization Quality of Life – Brief Version, (1996)

The WHOQOL-BREF contains a total of 26 questions. To provide a broad and comprehensive assessment, one item from each of the 24 facets contained in the WHOQOL-100 has been included. In addition, two items from the overall quality of life and general health facet have been included. Quality of life refers to a subjective evaluation which is embedded in cultural, social and environmental context. The WHOQOL-BREF is based on a four-domain structure: physical health, psychological, social relationships and environment.

Validity

The correlation co efficient was found to be 0.78, which conforms that the test has concurrent validity. Apart from the concurrent validity the test also claims content validity and face validity.

Reliability

The reliability of each section was estimated using Spearman-Brown formula and found to be 0.58 for section A, 0.69 for section B and 0.70 for section C.

Scoring

WHOQOL-BREF is a 26-item abbreviated version of the WHOQOL- 100 (WHOQOL Group, 1995), is based on a four-domain structure: physical (seven items), psychological (six items), social (three items) and environmental (eight items). It is applicable cross-culturally. It uses a Likert-type five-point scale to grade the patient's response to the QOL items. The scale gives continuous scores ranging from 4 to 20 for each domain. Reverse scoring the negatively framed questions 3, 4 and 26. A higher score signifies better QOL.

Procedure for Data Collection

Data was collected online using google forms, with participants selected through convenience sampling. Informed consent was obtained from each participant, who were then provided with the questionnaires along with instructions to read carefully. Participants were asked to respond honestly and complete all items within a 20-minute timeframe. Upon completion, their responses were submitted, and gratitude was expressed for their cooperation.

Ethical Considerations

The privacy and well-being of the participants will be safeguarded during the study by adhering to ethical rules. Participants will be guaranteed that their personal information will remain anonymous and confidential, and data confidentiality will be upheld.

Statistical Techniques used for Data Analysis

Rigorous statistical analysis was performed on the gathered data to look for patterns and make comparisons between the relevant variables. Testing for normality: To determine whether the population was normal, the Shapiro-Wilk test was employed. A popular statistical technique for assessing whether a dataset has a normal distribution—a crucial presumption for many statistical analyses—is the Shapiro-Wilk test. The test offers a means of determining whether the sample data significantly deviates from normalcy, which is especially helpful when the normality of the population is under scrutiny. The test computes a W statistic and an associated p-value in order to assess the null hypothesis, which holds that the sample is representative of a normally distributed population. The p-value shows the probability that the observed data could occur if the population were normally distributed, whereas the W statistic assesses how well the data fits a normal distribution.

Spearman rho correlation analysis was used to evaluate the association between the imposter phenomenon and perceived parenting approaches. By quantifying the direction and degree of the interactions between these variables, our analysis clarified how these variables are related to one another. Independent sample t test is a parametric test. The purpose of t test is to tests the significance of difference between two independent or dependent group. T test is referred to as a robust test, which means that statistical inferences are likely to be valid even there are large departures from normality in population. The t test is likely to be robust to the violations of normality when large samples (N >3 0) are used.

All statistical analyses were carried out using appropriate software, ensuring accuracy and reliability. A significance level of $p < 0.01$ was adopted to determine statistical significance, providing a rigorous standard for evaluating the results.

CHAPTER IV
RESULTS AND DISCUSSIONS

The present study evaluated the relation between premenstrual syndrome and quality of life in a sample of athletes and non-athletes. A total of 129 sample were selected and the variables of interest namely premenstrual and quality of life were measured using Premenstrual Syndrome scale (Raja Sankar, 2014) and WHOQOL-BREF (1996). For the purpose of the data analysis, Shapiro wilk test was used to test the normality of the population. Since the data is not normally distributed suitable non parametric tests were used for further analysis using appropriate software, ensuring accuracy and reliability. The results obtained in the study have been presented in the tables and the results are discussed with respect to objectives and hypotheses.

Table 4.1: Test of normality

Shapiro-wilk test

variables	statistic	df	Sig
PMS	.980	129	.059
QOL-PHYSICAL HEALTH	.950	129	.000
QOL-PSYCHOLOGICAL	.955	129	.000
QOL-SOCIAL	.934	129	.000
QOL-ENVIRONMENTAL	.972	129	.000

The normality of the PMS and Quality of Life (QOL) variables was evaluated using the Shapiro-Wilk tests. According to the findings, PMS has a p-value of 0.059 and a Shapiro-Wilk

statistic of 0.980, indicating that the PMS scores are roughly regularly distributed. However, as shown by p-values less than 0.05, the QOL subdomains (Physical, Psychological, Social, and Environmental) all exhibit substantial departures from normality, suggesting that the variables are not regularly distributed.

Table 4.2

Independent Sample T-Test: PMS and Sports Participation(n=129)

	Sports participation	**N**	**Mean**	**Std. deviation**	**t**	**df**	**Sign(2tailed)**
PMS	Athletes	62	106.4194	34.686	-1.99	127	.048
	Non-athletes	67	118.5824	34.442	-1.99	127	.048

The independent sample t-test was used to determine significant differences between athletes and non-athletes in premenstrual syndrome. The results show a significant difference in PMS scores between the two groups (t (127) = -1.997, p = 0.048), with athletes having lower mean PMS scores (M = 106.42, SD = 34.69) compared to non-athletes (M = 118.58, SD = 34.44). Athletes has lower mean PMS scores than non-athletes. This may be because athletes engage in physical activities that lower premenstrual symptoms. There was a statistically significant difference in premenstrual syndrome scores between athletes and non-athletes, with athletes reporting lower PMS score.

Exercise on a regular basis is proven to improve mood and general wellbeing. Athletes who participate in regular physical activity may have reduced PMS-related negative affect and mood disorders. Exercise can help reduce common PMS symptoms like stress, melancholy, and worry. Hormonal balance can be influenced by physical exercise, which may result in a

more stable hormonal environment during the menstrual cycle. Because athletes may not have the same level of hormonal regulation as non-athletes due to lower exercise levels, this stabilization may help lessen the intensity of PMS symptoms in athletes. Regular exercising can have a stress-relieving impact on athletes, which could result in lower PMS ratings. Because of their competitive experiences and training, athletes may possess stronger coping strategies and psychological resilience. When compared to non-athletes, this psychological benefit may help explain why athletes perceive PMS symptoms less intensely (Tulin, 2012).

Table 4.3

Spearman's rho correlation – PMS AND QOL

		PMS	QOL-physical	QOL-psychological	QOL-Social	QOL-Environmental
Spearman's rho	PMS	( )				
	QOL-physical	-.327**	( )			
	QOL-psychological	-.384**	.516**	( )		
	QOL-Social	-.170	.356**	.371**	( )	
	QOL-Environmental	-.370**	.589**	.549**	.423**	( )

**. Correlation is significant at the 0.01 level (2-tailed).

There is a significant negative relationship between Premenstrual syndrome and the physical health domain of quality of life ($r = 1.327$, $p < 0.01$). There is a significant negative relationship between Premenstrual syndrome and the psychological health domain of Quality

of life ($r = -.384$, $p<0.01$). There is a significant negative relationship between Premenstrual syndrome and the environment domain of quality of life ($r = -.370$, $p < 0.01$). Therefore, we reject the null hypothesis. This suggests that increased PMS Symptoms are associated with a decrease in quality of life across multiple domains. Both athletes and non-athletes has severe PMS symptoms that could affect their dimensions in quality of life. Athletes who experience severe Premenstrual Syndrome (PMS) may see their performance affected in sports, while non-athletes may face challenges in academics and other areas. A previous study revealed that a significant proportion of female athletes, approximately 76.6%, reported that premenstrual symptoms interfered with their athletic performance, highlighting the potential impact of Premenstrual Syndrome (PMS) on physical activity and overall success in sports (Yi et al., 2020).

The findings of this study revealed a significant difference in the severity of premenstrual syndrome (PMS) symptoms between athletes and non-athletes, as well as a notable negative correlation between PMS and quality of life (QoL). These results provide valuable insights into the impact of physical activity on PMS and its broader implications for individuals' well-being. Athletes report more mild PMS symptoms compared to non-athletes based on the results. Athletes undergo rigorous training resulting in hormonal fluctuations and stress responses. The physiological adaptations of athletes could potentially account for differences in PMS symptom intensity among them and non-athletes. Athletes enhanced physical activity and fitness could alleviate some PMS symptoms, including mood swings, fatigue, and physical discomfort.

The analysis of the relationship between Premenstrual Syndrome (PMS) and Quality of Life (QOL) dimensions reveals significant insights into how PMS affects individuals' overall well-being. The results from the Spearman's correlation coefficients indicate that PMS has a negative correlation with various aspects of QOL. The correlation coefficient suggests a

negative relationship, indicating that higher PMS symptoms are associated with lower physical health quality. PMS can lead to physical discomfort, which may hinder daily activities and overall health perception. A negative correlation was observed with psychological well-being. This suggests that individuals experiencing more severe PMS symptoms may also report poorer psychological health, potentially due to mood swings, anxiety, and irritability commonly associated with PMS. This finding underscores the importance of addressing psychological symptoms in managing PMS.

The correlation coefficient of -0.370 ($p < 0.01$) indicates a significant negative relationship, suggesting that PMS may also affect how individuals perceive their environment and living conditions. This could be due to the overall discomfort and stress associated with PMS, which may lead to a less favorable view of one's surroundings. A previous study on "Evaluation of premenstrual syndrome and quality of life in university students" shows that students with PMS had significantly lower average scores across all domains of quality of life ($p < 0.05$ for each domain) Sahin, et al. (2014). The observed quality of life appears to decline with increasing PMS intensity, especially in the physical, psychological, and environmental domains, according to the negative correlations found between PMS and different QOL categories. This is in line with earlier studies that showed how PMS negatively affects women's general well-being (Biggs & Demuth, 2011; Nosek et al., 2010). The fact that there is no discernible relationship between PMS and the social domain of QOL may be because different women have differing perspectives on and approaches to managing social interactions during PMS.

The physiological symptoms of PMS, including breast soreness and swelling, weight gain, headaches, dizziness, palpitations, and abdominal cramps, were shown to be often experienced by participants. These results are in coincides with other research that has shown that PMS is frequently linked to these types of discomfort, especially during the luteal phase

of the menstrual cycle (Harel, 2006). Although each person's experience with these symptoms will differ in terms of their intensity, they all substantially lower wellbeing, especially if left untreated.

Among the individuals, mood swings, melancholy, forgetfulness, bewilderment, and moments of easy crying were among the psychological symptoms of PMS that were most common. The research indicates that emotional instability is a defining feature of PMS, and these findings are consistent with that (Direkvand-Moghadam et al., 2014). Additionally noted were behavioural symptoms such social disengagement, restlessness, guilt feelings, poor judgment, decreased productivity at work, and oversensitivity. Both athletes and non-athletes may experience increased stress as a result of these behavioural changes, which may also cause problems in their social lives and at work.

It's significant to consider that this study's athletes reported fewer PMS symptoms than non-athletes. This may be explained by the advantageous effect exercise has on controlling PMS symptoms. Frequent exercise has been demonstrated to control hormone swings and elevate mood, which helps lessen PMS's physical and psychological effects (Samadi et al., 2013). Exercise relieves physiological stress, which helps control mood swings, anxiety, and depression. It also helps with headaches, cramps, and other somatic complaints.

Another important factor contributing to athletes' lower incidence and severity of PMS symptoms is their dietary practices. Athletes frequently consume well-balanced meals full of vital nutrients, such as vitamin B6, and calcium which have been demonstrated to lessen PMS symptoms (Masoumi et al., 2016). For example, magnesium promotes muscular relaxation and lowers water retention, which is a typical cause of bloating and breast discomfort, while calcium helps relieve cramps and mood swings. The milder PMS symptoms among athletes may be further explained by a high consumption of omega-3 fatty acids, which are abundant

in fish and other foods and have also been connected to decreased inflammation and mood modulation (Mohammadi et al., 2022). In comparison to non-athletes, these dietary habits help athletes retain a greater quality of life and increase their resilience against PMS.

Studies on physical activity have shown that consistent exercise, particularly aerobic exercises like cycling, swimming, and running, and also yoga lessens the intensity of PMS symptoms (Kawabe et al., 2022). Exercise elevates endorphin levels, which function as endogenous mood stabilizers and analgesics, thereby mitigating the psychological and physiological distress linked to PMS. It also reduces exhaustion and encourages better sleep, two things that PMS individuals suffering frequently express. These advantages are frequently lost by non-athletes who could have more sedentary lifestyles, which raises the frequency and severity of PMS symptoms in this population.

A combination of medication and lifestyle changes has shown to be helpful for effectively treating PMS. By assisting people in reframing unfavourable thought patterns and creating coping mechanisms, cognitive-behavioural therapy (CBT) has demonstrated potential in treating the behavioural and emotional symptoms of PMS (Kleinstäuber et al., 2012). Oral contraceptives are among the hormonal treatments that are frequently used to control variations in hormone levels and lessen the intensity of mental and physical symptoms (Yonkers et al., 2008).

CHAPTER V

CONCLUSION

The aim of the study was to examine the effect of premenstrual syndrome on the quality of life among athletes and non-athletes. The study sample consisted of 62 athletes and 67 non-athlete females, totaling 129 participants. Using the convenience sampling method, females between the ages of 18 and 25 were chosen for the study. The Premenstrual Syndrome Scale and the BREF-WHOQOL Scale were used to measure the variables. Following data analysis, independent sample t-test, as it's a parametric test and Spearman's rho correlation, were used for statistical analysis of the data. The results obtained from the analysis are discussed comprehensively with respect to the objectives and hypotheses.

Summary of the study

This major objective of the studies was to compare the impact of premenstrual syndrome on the quality of life between athletes and non-athletes, to assess the severity of Premenstrual Syndrome in athletes and non-athletes, to assess the impact of Premenstrual Syndrome on quality of life among athletes and non-athletes. The study specifically focused on understanding whether sports participation has an impact on the severity of PMS symptoms and how PMS affects various domains of Quality of life, including physical, psychological, social, and environmental aspects. The PMS scores were found to be approximately normally distributed, while the quality-of-life scores across different domains were not, necessitating the use of non-parametric methods for further analysis. The study found that athletes had significantly lower PMS scores compared to non-athletes, suggesting that regular sports participation may be associated with reduced PMS severity. Significant negative correlations were found between PMS and the physical, psychological, and environmental domains of quality of life, indicating higher PMS severity is associated with lower quality of life in these

areas. However, the correlation between PMS and the social domain of quality of life was not significant.

Major findings of the study

The major findings of the study can be concluded as:

- Athletes has significantly lower PMS scores compared to non-athletes (df = 127).
- Premenstrual syndrome is negatively correlated with physical health domain of quality of life ($r=1.327$, $p < 0.01$).
- Premenstrual syndrome is negatively correlated with psychological domain of quality of life ($r=-.384$, $p<0.01$).
- Premenstrual syndrome is negatively correlated with environmental domain of quality of life ($r=-.370$, $p< 0.01$).

Tenability of hypotheses

The tenability of hypotheses based on the results obtained from the study is discussed here:

Table 5.1

Tenability of Hypotheses

No.	Hypotheses	Tenability
1.	There is a significant negative correlation between Premenstrual syndrome and Quality of life among young adults.	Rejected
2.	There is a significant difference between athletes and non- athletes in Premenstrual syndrome.	Rejected

Implications of the study

The results of this study have significant importance for our understanding of how sports engagement can lessen the negative impacts of premenstrual syndrome (PMS) on quality of life. As opposed to non-athletes, athletes were shown to have considerably lower PMS scores, which implies that engaging in regular physical exercise may function as a buffer against the severity of PMS. This research backs up the idea that encouraging physical exercise can help women with PMS without the need for medication. PMS symptoms may be lessened by encouraging young women, particularly those in the research age range (18–25 years), to participate in regular sports or exercise, which would improve their general well-being.

The study's findings also show that PMS significantly lowers quality of life in a number of areas, including the physical, psychological, and environmental domains. These findings underscore the necessity of all-encompassing health education and counselling initiatives to tackle the complex consequences of PMS. Coaches, educators, and healthcare professionals should be aware of the possible advantages of physical activity in lowering quality of life deficits associated with PMS. In addition to other supporting measures, implementing targeted treatments that encourage physical activity may help women better manage PMS symptoms and maintain a greater quality of life.

The study also emphasizes how crucial individualized approaches are for managing PMS. The degree of physical activity and other aspects of an individual's lifestyle should be taken into account when managing PMS, according to the strong associations shown between PMS severity and quality of life areas. Interventions that are specifically designed to address each woman's unique physical, psychological, and environmental needs may be more successful in reducing the harmful consequences of PMS.

Limitations of the study

- There were just 129 participants in the study, which could limit how far the results can be applied. Particularly in diverse cultural or geographic situations, the results might not be indicative of the general population.
- The study used a cross-sectional methodology, which only provides a glimpse of the link between PMS, sports involvement, and QOL at a certain point in time. Understanding how these interactions might evolve over time or drawing conclusions about causality are restricted by this design.
- Participants may overreport their perceived quality of life and PMS symptoms, leading to bias in the self-reported data used for QOL measures and PMS symptoms. The findings' accuracy may be impacted by this.
- The study did not take into consideration other variables including food habits, stress levels, sleep patterns, or the use of hormonal contraceptives that may affect PMS intensity and QOL. These elements might bias the associations that have been perceived.

Suggestions for future research

- Conducting longitudinal research to track PMS symptoms and QOL over time in participants, evaluating the long-term effects of physical activity.
- Study how gender dynamics and socioeconomic status influence PMS experiences and management in different segments of the Indian population.
- Investigate the effectiveness of psychological interventions, such as cognitive-behavioral therapy (CBT) and mindfulness-based approaches, in managing PMS symptoms and improving quality of life.

- Deeper insights into how women interpret the impact of PMS on their daily lives and how they manage these symptoms may be obtained by incorporating qualitative methods, such as focus groups or interviews. The quantitative conclusions may be strengthened and given a more contextualized understanding by the qualitative data.
- Future research could look into the effects of various physical activity kinds (such as aerobic vs. anaerobic exercise) as well as varied frequency and intensity ranges on PMS and quality of life. This would offer a more thorough comprehension of the most advantageous forms of exercise.

References

Bansal, D., Raman, R., & Rao, T. S. S. (2019). Premenstrual Dysphoric Disorder: Ranking the Symptoms and Severity in Indian College Students. *Journal of Psychosexual Health*, *1*(2), 159–163. https://doi.org/10.1177/2631831819827183

Ben Elazar, A., Canetti, L., Azoulay, M., Dan, R., Goelman, G., Segman, R., Kalla, C., Bonne, O., & Reuveni, I. (2023). Quality of Life among University Students with Premenstrual Symptoms: The Role of Emotion Regulation. *European Psychiatry*, *66*(Suppl 1), S648–S649. https://doi.org/10.1192/j.eurpsy.2023.1349

Bertone-Johnson, E. R., Houghton, S. C., Whitcomb, B. W., Sievert, L. L., Zagarins, S. E., & Ronnenberg, A. G. (2016). Association of Premenstrual Syndrome with Blood Pressure in Young Adult Women. *Journal of Women's Health*, *25*(11), 1122–1128. https://doi.org/10.1089/jwh.2015.5636

Bhuvaneswari, K., Rabindran, P., & Bharadwaj, B. (2019). Prevalence of premenstrual syndrome and its impact on quality of life among selected college students in Puducherry. *The National Medical Journal of India*, *32*(1), 17. https://doi.org/10.4103/0970-258X.272109

Biggs, W. S., & Demuth, R. H. (2011). Premenstrual Syndrome and Premenstrual Dysphoric Disorder. *American Family Physician*, *84*(8), 918–924.

Delara, M., Ghofranipour, F., Azadfallah, P., Tavafian, S. S., Kazemnejad, A., & Montazeri, A. (2012). Health related quality of life among adolescents with premenstrual disorders: A cross-sectional study. *Health and Quality of Life Outcomes*, *10*(1), 1. https://doi.org/10.1186/1477-7525-10-1

Direkvand-Moghadam, A., Sayehmiri, K., Delpisheh, A., & Kaikhavandi, S. (2014). Epidemiology of Premenstrual Syndrome (PMS)-A Systematic Review and Meta-Analysis Study. *Journal of Clinical and Diagnostic Research : JCDR*, *8*(2), 106–109. https://doi.org/10.7860/JCDR/2014/8024.4021

Farrokh-Eslamlou, H., Oshnouei, S., Heshmatian, B., & Akbari, E. (2015). Premenstrual syndrome and quality of life in Iranian medical students. *Sexual & Reproductive Healthcare*, *6*(1), 23–27. https://doi.org/10.1016/j.srhc.2014.06.009

Gudipally, P. R., & Sharma, G. K. (2024). Premenstrual Syndrome. In *StatPearls*. StatPearls Publishing. http://www.ncbi.nlm.nih.gov/books/NBK560698/

Harel, Z. (2006). Dysmenorrhea in adolescents and young adults: Etiology and management. *Journal of Pediatric and Adolescent Gynecology*, *19*(6), 363–371. https://doi.org/10.1016/j.jpag.2006.09.001

Kawabe, R., Chen, C. Y., Morino, S., Mukaiyama, K., Shinohara, Y., Kato, M., Shimizu, H., Shimoura, K., Nagai-Tanima, M., & Aoyama, T. (2022). The relationship between high physical activity and premenstrual syndrome in Japanese female college students. *BMC Sports Science, Medicine and Rehabilitation*, *14*, 175. https://doi.org/10.1186/s13102-022-00569-0

Kleinstäuber, M., Witthöft, M., & Hiller, W. (2012). Cognitive-Behavioral and Pharmacological Interventions for Premenstrual Syndrome or Premenstrual Dysphoric Disorder: A Meta-Analysis. *Journal of Clinical Psychology in Medical Settings*, *19*(3), 308–319. https://doi.org/10.1007/s10880-012-9299-y

Kothari, C. R. (2004). Research Methodology: Methods and Techniques (2nd Ed.). New Age International Publishers.

Maged, A. M., Abbassy, A. H., Sakr, H. R. S., Elsawah, H., Wagih, H., Ogila, A. I., & Kotb, A. (2018). Effect of swimming exercise on premenstrual syndrome. *Archives of Gynecology and Obstetrics*, *297*(4), 951–959. https://doi.org/10.1007/s00404-018-4664-1

Masoumi, S. Z., Ataollahi, M., & Oshvandi, K. (2016). Effect of Combined Use of Calcium and Vitamin B6 on Premenstrual Syndrome Symptoms: A Randomized Clinical Trial. *Journal of Caring Sciences*, *5*(1), 67–73. https://doi.org/10.15171/jcs.2016.007

Mohammadi, M. M., Dehghan Nayeri, N., Mashhadi, M., & Varaei, S. (2022). Effect of omega-3 fatty acids on premenstrual syndrome: A systematic review and meta-analysis. *The Journal of Obstetrics and Gynaecology Research*, *48*(6), 1293–1305. https://doi.org/10.1111/jog.15217

Muldoon, M. F., Barger, S. D., Flory, J. D., & Manuck, S. B. (1998). What are quality of life measurements measuring? *BMJ : British Medical Journal*, *316*(7130), 542–545.

Nosek, M., Kennedy, H., Beyene, Y., Taylor, D., Gilliss, C., & Lee, K. (2010). The Effects of Perceived Stress and Attitudes Toward Menopause and Aging on Symptoms of Menopause. *Journal of Midwifery & Women's Health*, *55*(4), 328–334. https://doi.org/10.1016/j.jmwh.2009.09.005

Raja Sankar, S. (2014). *Validity and Reliability Study of Premenstrual Syndrome Scale (PMSS)*.

Raval, C. M., Panchal, B. N., Tiwari, D. S., Vala, A. U., & Bhatt, R. B. (2016). Prevalence of premenstrual syndrome and premenstrual dysphoric disorder among college students of Bhavnagar, Gujarat. *Indian Journal of Psychiatry*, *58*(2), 164. https://doi.org/10.4103/0019-5545.183796

Samadi, Z., Taghian, F., & Valiani, M. (2013). The effects of 8 weeks of regular aerobic exercise on the symptoms of premenstrual syndrome in non-athlete girls. *Iranian Journal of Nursing and Midwifery Research*, *18*(1), 14–19.

Tulin, A. (2012). *Menstrual syndrome comparison of athletes and non-athletes*. *6*(9).

Vancini, R. L., Gomes, A. A., de Paula-Oliveira, H., de Lira, C., Rufo-Tavares, W., Andrade, M. S., Sarro, K. J., Sampaio, M. M., Viana, R. B., Nikolaidis, P. T., Rosemann, T., & Knechtle, B. (2019). Quality of Life, Depression, Anxiety Symptoms and Mood State of Wheelchair Athletes and Non-athletes: A Preliminary Study. *Frontiers in Psychology*, *10*. https://doi.org/10.3389/fpsyg.2019.01848

Victor, F. F., Souza, A. I., Barreiros, C. D. T., Barros, J. L. N. D., Silva, F. A. C. D., & Ferreira, A. L. C. G. (2019). Quality of Life among University Students with Premenstrual Syndrome. *Revista Brasileira de Ginecologia e Obstetrícia / RBGO Gynecology and Obstetrics*, *41*(05), 312–317. https://doi.org/10.1055/s-0039-1688709

WHOQOL-BREF. (1996) Retrieved from. https://www.who.int/tools/whoqol/whoqol-bref

Yi, T., & Bae, M. (2021). Prevalence of Premenstrual Syndrome in Korean Female National Athletes and Associated Risk Factors. *The Korean Journal of Sports Medicine*, *39*(1), 10–18. https://doi.org/10.5763/kjsm.2021.39.1.10

Yonkers, K. A., O'Brien, P. M. S., & Eriksson, E. (2008). Premenstrual syndrome. *Lancet (London, England)*, *371*(9619), 1200–1210. https://doi.org/10.1016/S0140-6736(08)60527-9

APPENDICES

APPENDIX A

PREMENSTRUAL SYNDROME SCALE

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S.No	Premenstrual syndrome scale (PMSS)	SCORES				
		Never (1)	Rarely (2)	Sometimes (3)	Very often (4)	Always (5)
	Physiological symptoms					
1	Breast tenderness and swelling					
2	Abdominal bloating					
3	weight gain					
4	Headache					
5	Dizziness/fainting.					
6	Fatigue					
7	Palpitations					
8	Pelvic discomfort and pain					
9	Abdominal cramps					
10	Change in bowel habits					
11	Increased appetite					
12	Generalized aches and pains					
13	Food cravings (Sugar/ Salt)					
14	Skin changes, rashes, pimples					
15	Nausea/vomiting					
16	Muscle and Joint pain					
	Psychological symptoms					
17	Irritability					
18	Anxiety					
19	Tension					
20	Mood swings					
21	Loss of concentration					
22	Depression					

23	Forgetfulness
24	Easy crying/ Crying spells
25	Sleep changes (Insomnia/ hypersomnia)
26	Confusion
27	Aggression
28	Hopelessness
	Behavioral symptoms
29	Social withdrawal
30	Restlessness
31	Lack of self-control
32	Feeling guilty
33	Clumsiness
34	Lack of interest in usual activities
35	Poor judgment
36	Impaired work performance
37	Obsessional thoughts
38	Compulsive behavior
39	Irrational thoughts
40	Being over sensitive

Level of symptoms	Actual Scores	Percentage of Scores
No symptoms	1- 40	< 20
Mild symptoms - only slightly apparent	41 - 80	21 -40
Moderate symptoms - aware of symptom, but it doesn't affect daily activity at all	81 – 120	41 60
Severe - continuously bothered by symptoms	121 - 160	61 -80
very severe - symptom is overwhelming and /or interferes with daily activity	161 -200	> 80

APPENDIX B

WORLD HEALTH ORHANISATION QUALITY OF LIFE – BRIEF VERSION

You would circle number 1 if you did not get any of the support that you needed from others in the last two weeks. Please read each question, assess your feelings, and circle the number on the scale for each question that gives the best answer for you.

THE WHOQOL-BREF

		Very poor	Poor	Neither poor nor good	Good	Very good
1 (G1)	How would you rate your quality of life?	1	2	3	4	5

		Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
2 (G4)	How satisfied are you with your health?	1	2	3	4	5

The following questions ask about **how much** you have experienced certain things in the last two weeks.

		Not at all	A little	A moderate amount	Very much	An extreme amount
3 (F1.4)	To what extent do you feel that (physical) pain prevents you from doing what you need to do?	1	2	3	4	5
4 (F11.3)	How much do you need any medical treatment to function in your daily life?	1	2	3	4	5
5 (F4.1)	How much do you enjoy life?	1	2	3	4	5
6 (F24.2)	To what extent do you feel your life to be meaningful?	1	2	3	4	5

		Not at all	A little	A moderate amount	Very much	Extremely

7 (F5.3)	How well are you able to concentrate?	1	2	3	4	5
8 (F16.1)	How safe do you feel in your daily life?	1	2	3	4	5
9 (F22.1)	How healthy is your physical environment?	1	2	3	4	5

The following questions ask about **how completely** you experience or were able to do certain things in the last two weeks.

		Not at all	A little	Moderately	Mostly	Completely
10 (F2.1)	Do you have enough energy for everyday life?	1	2	3	4	5
11 (F7.1)	Are you able to accept your bodily appearance?	1	2	3	4	5
12 (F18.1)	Have you enough money to meet your needs?	1	2	3	4	5
13 (F20.1)	How available to you is the information that you need in your day-to-day life?	1	2	3	4	5
14 (F21.1)	To what extent do you have the opportunity for leisure activities?	1	2	3	4	5

		Very poor	Poor	Neither poor nor good	Good	Very good
15 (F9.1)	How well are you able to get around?	1	2	3	4	5

The following questions ask you to say how **good or satisfied** you have felt about various aspects of your life over the last two weeks.

		Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
16 (F3.3)	How satisfied are you with your sleep?	1	2	3	4	5
17 (F10.3)	How satisfied are you with your ability to perform	1	2	3	4	5

	your daily living activities?					
18 (F12.4)	How satisfied are you with your capacity for work?	1	2	3	4	5
19 (F6.3)	How satisfied are you with yourself?	1	2	3	4	5
20 (F13.3)	How satisfied are you with your personal relationships?	1	2	3	4	5
21 (F15.3)	How satisfied are you with your sex life?	1	2	3	4	5
22 (F14.4)	How satisfied are you with the support you get from your friends?	1	2	3	4	5
23 (F17.3)	How satisfied are you with the conditions of your living place?	1	2	3	4	5
24 (F19.3)	How satisfied are you with your access to health services?	1	2	3	4	5
25 (F23.3)	How satisfied are you with your transport?	1	2	3	4	5

The following question refers to **how often** you have felt or experienced certain things in the last two weeks.

		Never	Seldom	Quite often	Very often	Always
26 (F8.1)	How often do you have negative feelings such as blue mood, despair, anxiety, depression?	1	2	3	4	5