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Social Anxiety and Quality of Life among Female Adolescents with Premenstrual Syndrome: A Cross-Sectional Study

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ABSTRACT

This cross-sectional correlational study investigated the relationship between premenstrual syndrome (PMS), social anxiety, and quality of life (QOL) among adolescent females age ranging 13 to 16 from three districts in Punjab, Pakistan Gujrat, Jhelum, and Mandi Bahauddin. A total of 566 school and madrasah-going girls were selected through convenience sampling. Validated tools including the WHOQOL-BREF, Social Anxiety Scale for Adolescents, and the Premenstrual Syndrome Scale were used to assess respective variables. Data analysis via SPSS (Version 21) using non-parametric tests revealed significant variations across demographic and institutional lines. PMS symptoms were more prevalent among urban and madrasah students, while social anxiety was higher in rural and school-going girls. Furthermore, QOL was comparatively lower in urban and school populations. The findings highlighted that PMS significantly contributes to elevated social anxiety and reduced QOL, emphasizing the need for early awareness, mental health support, and targeted interventions for adolescent girls in diverse educational settings.

Introduction

The present study explores, a population often overlooked due to cultural interdiction about menstruation and emotional vulnerabilities, the interrelationship of premenstrual syndrome, social anxiety and quality of life among female adolescents. Premenstrual syndrome (PMS), characterized by a complex cluster of physical, emotional, and behavioral symptoms, can significantly disrupt adolescents' daily functioning. These hormonal fluctuations may heighten emotional sensitivity, leading to increased social anxiety defined as a persistent fear of social situations and negative evaluation. Social anxiety further compounds the distress experienced by adolescents, negatively impacting their ability to engage confidently in school and peer

interactions. As a result, their overall quality of life encompassing physical health, psychological well-being, social relationships, and environmental satisfaction—is adversely affected. This study focuses on understanding how these variables interconnect in the lives of school and madrasa-going girls across rural and urban settings. By addressing the interplay between these factors, the research aims to fill a critical gap and promote adolescent female well-being in educational contexts.

Premenstrual syndrome is a syndrome which occurs in females in just two weeks before their period during its luteal phase of menstrual cycle and disappear on the onset of a new menstrual cycle (Dickerson et al., 2003; Zietal, 2017). It includes a variety of signs and symptoms for instance physical (fatigue, tender breasts, cramps bloating), psychological (depression, irritability, mood swings) and social (withdrawal, sensitivity to interaction) and almost 90% of women are suffering from it (Kwan & Onwude, 2015; Perveen et al., 2022; Gudipally & Sharma, 2023).

Every woman, over 20%, must have experience at least the mild symptoms of premenstrual syndrome sometime in their life (Potter et al., 2009), 5% of women at child bearing age suffer from it (Halbreich, 2003). The prevalence of PMS in literature range from 42 to 78%, the subgroup prevalence was 59% in high school students, 50.3% in university students and 66% in women in the general population (Akbulut et al., 2024). There is always a high chance of PMS to turn to premenstrual dysphoric disorder (PMDD) due to fluctuating hormones having nearly very same symptoms as premenstrual syndrome (Halbreich, 2003; Mishra et al., 2023) and PMS itself may act as a stressor, potentially creating a negative feedback loop that exacerbates symptoms and affecting the well-being and mood of the women suffering from it (Liu et al., 2024). It grows worse with age and differ women to women (Tatsumi et al., 2020) and the symptoms stopped at the menopausal stage when no longer menstruation occur (Gudipally & Sharma, 2023).

Premenstrual Syndrome (PMS) consist of following types which are basically characterized by the symptoms by American College of Obstetricians and Gynecologists, (2015) and they show these during this phase due to certain causes as neurochemical and hormonal fluctuations, poor diet, smoke, or stress:

i. **PMS-A (Anxiety):** Marked by irritability and emotional sensitivity due to low serotonin and cortisol imbalance (Gudipally & Sharma, 2023).
ii. **PMS-D (Depression):** Involves low mood and confusion caused by reduced serotonin and thyroid activity (Kwan & Onwude, 2015).
iii. **PMS-H (Hydration):** Bloating and breast tenderness result from estrogen excess and fluid retention (White et al., 2011).
iv. **PMS-C (Craving):** Cravings and fatigue arise from serotonin deficiency and adrenal fatigue (Souza et al., 2018).

It highly disrupts health of a person increasing chronic fatigue, bladder pains, digestive issues, irritable bowel syndrome, early menopausal symptoms and mainly anxiety which increases the fear of social interactions and limit communication which in turn highly impact the well-being of the female adolescents dealing with such issues (Boneva et al., 2015; Pati et al., 2021; Powell-Boone et al., 2005; Dickerson et al., 2003). Though researches explained that exercise, healthy diet, counseling, and medication they can control it but still it highly hinders the basic vitalities of life and hence the person suffer high social anxiety and emotional vulnerabilities (Read et al., 2014); El-Lithy et al., 2015); Kaur et al., 2004). Moreover, Shavaisi et al. (2024) stated that non pharmaceutical intervention based on positive psychology can be very effective in alleviating anxiety and stress in premenstrual syndrome suffering females.

Social Anxiety, previously referred as shyness (Hippocrates, 400 BC) or phobia (Greeks), is defined to be a disruption in daily functioning due to recurrent fears and worries about the situations of social life often accompanied by sweating, shaking, palpitations and respiratory distress (Jefferson, 2001). A characteristic feeling, studied by Michael (1985) occurs when we are very overly concerned about us being humiliated, embarrassed, evaluated or rejected by others in social situations according to DSM-V criteria (National Collaborating Centre for Mental Health UK, 2013) and such that history evaluated that females, which are single school or college going adolescents, were the most common suffering from it consisting of almost 13% of the population (Ambusaidi, 2022). Social anxiety brings them severe loneliness and social withdrawal symptoms and one highlighted cause is Premenstrual syndrome which heightens the anxiety and hence affect the social life of these vulnerable adolescents.

Social anxiety affects their life in range of mild to panic level anxiety which significantly cause disruptions in well-being of the female adolescents. Mild Anxiety **c**auses shyness, nervousness, and awkwardness that slightly impact emotions and social interactions. Moderate Anxiety **i**nvolves continuing worry and restlessness that interfere with daily functioning. Severe Anxiety brings physical and mental distress similar to GAD, with difficulty in concentration and relaxation. Panic Level Anxiety **t**riggers intense panic attacks with physical symptoms like rapid heartbeat and fear of death (Clearbrook Treatment Centers Massachusetts, 2022).

Conquer Social Anxiety Ltd, (2025) explained that social anxiety also consists of varied types which significantly play their role in causing disruption in quality of life of women suffering from PMS:

i. **Generalized Social Anxiety:** Characterized by fear and anxiety in almost all social situations, often beginning in adolescence.
ii. **Non-Generalized Social Anxiety:** Involves anxiety limited to specific situations with less overall impairment.
iii. **Circumscribed Social Anxiety Disorder:** Fear is specific to one or very few social situations, like public speaking.

Social anxiety has range of causes as, it could be inherited, due to overactive amygdala, or traumatic social experiences (Martin et al., 2009). Social anxiety exhibits different symptoms explained by APA, (2013); Jefferson, (2001) which are emotional and behavioral (judgment, anxious) and physical (nausea, dizziness, trembling). The research by Jefferson, (2001) highlighted the preventive measure that could be taken to lessen the effect of social anxiety on quality of life by getting help, tracking emotional disruptions, and adopting positive behaviors.

Quality of life (QOL) is defined as the standard of life or the attribute by which a person reaches a level of satisfaction he achieved in his life, whether it is in terms of social, physical, psychological and environmental domains (Binswanger, 2006; Felce & Perry, 1995). Tajvar et al. (2008) evaluated that adolescents had to face daily life challenges and single females had more difficulty in dealing and maintaining their social life and quality of life due to lack of moral support from the social factors which could effectively deteriorate their well-being. A person can be said living a high quality of life when he can regulate emotions, meet personal needs, have cooperative relationship and have good well-being (Frías-Luque, & Toledano-González, 2022; Zhang & Xiang, 2019; Alshammari et al., 2023).

Mousavi et al. (2025) stated that premenstrual syndrome significantly affects the quality of life of female students, it can lower their academic grades and professional performance effectively, moreover it can cause social media addiction as a way of escape from social world affecting well-

being and health. Gümüşsoy et al. (2024) examined the PMS effect on anxiety sensitivity and found it to be significantly high among them which in turn affect their well-being and quality of life. This creates a feedback loop, where heightened anxiety worsens PMS perception and further deteriorates QOL. Thompson et al. (2019) and Suryaningrum, (2021) provided the evidence from the previous studies that the problem in the social performance occurs in the individuals who are suffering from social anxiety and it was seen more in females but in the few aspects of performance affecting their well-being.

Moreover, Chattu et al. (2020) and Tayag and Gonzales (2021) conducted the study to describe the quality of life as experiences, behaviors and emotional responses towards the situation in our life, which verily decrease performance with the fear of negative evaluation, and with some anxiety and social dysfunctions (Namdar, 2017). All this significantly contribute to premenstrual syndrome, Acikgoz and Binbay (2017) stated that students suffering from negative worries, depressive symptoms and deteriorated well-being suffer from high premenstrual issues. Sarwar & Rauf (2021) concluded that the females with menstruation problem are suffering from low quality of life, depression, anxiety and stress and also have low social support.

The relationship between Premenstrual Syndrome (PMS), Social Anxiety, and Quality of Life (QOL) among adolescent females is both intricate and deeply interwoven. Girls suffering from PMS are more prone to generalized or specific forms of social anxiety, leading to withdrawal, low self-esteem, and hindered academic or personal growth. The compounded effect ultimately deteriorates their QOL, as they struggle with physical discomfort, mental distress, and social isolation. This relationship underscores the importance of early awareness, supportive environments, and psychosocial interventions to improve well-being and functioning in adolescent females. The present study aimed to examine the level of social anxiety and quality of life among girls dealing with premenstrual symptoms. The study also evaluates the demographic correlates in relation to study variables.

Methods

The cross-sectional research design was used in the present study to check that how premenstrual syndrome affect social anxiety and quality of life of different females living at different places at the specific point of time (Larakas, 2008).

Sampling and Participants

There were total 566 carefully selected female students sample of 13 to 16 age ranging from schools (private and government) and madrasahs of three districts: Mandi-Baha-ud-Din, Jhelum and Gujarat were included to collect data for the present study through convenience sampling technique. The demographic included the information regarding age, Institution, educational institution, birth order, social status, family system, residential area and monthly income. The data was collected with permission of the institutions and consent of the students on the demographics and the three scales given in 25-30 minutes.

Measures

Social Anxiety Scale

La Greca and Lopez (1998) developed the anxiety scale which consist of 18 items (5 point likert) reflecting activity and social preference thorough self-report measure. It consists of 3 sub-scales: Fear of Negative Evaluation (FNE) 8 items, Social Avoidance and Distress (SAD New) 6 items,

and SAD general 4 items, respectively evaluating fear of negative judgment, distress of new situation and generalized discomfort. The scores are obtained by adding scores of all three sub-scales and the score range is 18-90. The internal consistencies of the sub scales range from 0.69 (SAD-GENERAL) to 0.78 (SAD-New) to 0.86(FNE). Construct validity was also supported.

Premenstrual Syndrome Scale

PMSS was developed by Gencdogen, (2006) consisting of 44 items, but in this study the modified version consisting of 40 items (5 point Likert scale) by Padmavathi et al. (2014) was used. It consists of three sub scales measuring: Physical symptoms (1-16 item), Psychological symptoms (17-26 item), and Behavioral symptoms (27-40 item). The score varied from 40 to 200. The reliability assessment with sensitivity range from 83 to 100% and its specificity range from 64 to 90% and the reliability is 0.81 to 0.97.

Quality of Life Scale WHOQOL-BREF

World Health Organization, (1998) developed the quality of life measuring scale. In this study its Urdu version was used. It consists of 4 subscales: Physical (7 items), Psychological (6 items), Social (3 items), and Environmental (8 items) measured on 5 point Likert scale. The higher the scores the lower will be the quality of life.

Procedure

The study is to measure the effect of premenstrual syndrome on quality of life and social anxiety of the adolescent's females. In this process 3 scales respectively were used Premenstrual Syndrome Scale, Quality of Life Scale WHOQOL-BREF, and Social Anxiety Scale for Adolescents to measure the correlation among the variables. Multiple stratified sampling was used to gather the data from the participants (566 out of 600 were used) following the relevant procedure of getting permission from the department and university, from the schools and madrasah, followed by the informed consent from the participants in the period of 1 month. For analysis SPSS version 27 was used for the demographics, correlation was also measured to check the relationship between them and regression analysis was used in the current study. Neural networks were also measured. Mann-Whitney U test was performed to compare the means of residential areas (rural and urban) and educational institutes (school and madrasah). Moreover, the psychometric properties (reliability and internal validity) of scales and sub-scales were measured to be high.

Ethical Considerations

The permission was taken from the head of department of psychology to start this research. All the scales used in this research was used after taking the permission from their authors. Consent of participant were taken and it was ensured that the information would strictly be confidential and would not be used without permission.

Results

The present research studied premenstrual syndrome and its presence's effect on social anxiety and quality of life in the female adolescents, in Pakistan. The results of the current study were derived from the SPSS. First of all, demographics were ensured. The normality test run suggested that data do not meet the criteria of normality so in this study non parametric tests were used like Spearmen correlation, Regression analysis, and Mann-Whitney U.

Table 1: Frequency and percentage of demographic variables

Variables	Category	Frequency	Percentage
Gender	Females	566	100%
Age	13	72	12.7
	14	191	33.7
	15	201	35.5
	16	102	18.0
Institution	Government	282	49.8
	Private	284	50.2
Educational Institution	Schools	384	67.8
	Madrasah	182	32.2
Family system	Joint	209	36.9
	Nuclear	356	62.9
Residence	Rural	252	44.5
	Urban	314	55.5
Social status	Lower	49	8.7
	Middle	473	83.6
	Upper	43	7.6

Table 2: Spearman correlation among variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
PHY_QOL	-	.46**	.47**	.49**	.77**	-.24**	-.13**	-.17**	-.24**	-.34**	-.36**	-.32**	-.37**
PSY-QOL		-	.37**	.50**	.75**	-.22**	-.14**	-.13**	-.22**	-.17**	-.17**	-.13**	-.17**
SOC-QOL			-	.48**	.67**	-.19**	-.09*	-.15**	-.19**	-.19**	-.21**	-.19**	-.25**
ENV-QOL				-	.84**	-.20**	-.15**	-.18**	-.23**	-.23**	-.23**	-.11**	-.23**
TOT-QOL					-	-.28**	-.17**	-0.19	-.29**	-.21**	-.31**	-.26**	-.31**
FNE_SASA						-	.41**	.41**	.79**	.16**	.22**	.16**	.20**
SAD_NEW_SASA							-	.51**	.83**	0.07	.12**	.09*	.10*
SAD_G_SASA								-	.72**	.20**	.22**	.20**	.22**
TOT-SASA									-	.17**	.23**	.18**	.21**
PHY-PMSS										-	.74**	.77**	.92**
PSY-PMSS											-	.80**	.91**
BEH-PMSS												-	.92**
TOT-PMSS													-

Note (N = 566). PHY-QOL = Physical Quality of life; PSY-QOL = Psychological Quality of Life; SOC-QOL = Social Quality of Life; ENV-QOL = Environmental Quality of life; TOT-QOL = Total Quality of Life; FNE-SASA = Fear of Negative Evaluation-Social Anxiety Scale for Adolescents; SAD-NEW-SASA = Social Anxiety Disorder- New- Social Anxiety Scale for Adolescents; SAD-G-SASA = Social Anxiety Disorder –General-Social Anxiety Scale for Adolescents; TOT-SASA = Total Social Anxiety Scale for Adolescents; PHY-PMSS = Physical Premenstrual Syndrome Scale; PSY-PMSS = Psychological Premenstrual Syndrome Scale; BEH-PMSS = Behavioral Premenstrual Syndrome Scale; TOT-PMSS = Total Premenstrual Syndrome Scale.*p < .05. **p< .01

The correlation matrix indicated that the Quality of Life (QOL) scale exhibited positive inter-correlations among its subdomains. The strongest positive relationships were observed between total QOL and environmental QOL, $r = .84$, $p < .01$, and between total QOL and physical QOL, $r = .77$, $p < .01$. Similarly, the Premenstrual Syndrome Scale (PMSS) showed strong internal consistency among its subscales, with the highest correlation found between physical PMSS and total PMSS, $r = .92$, $p < .01$. The Social Anxiety Scale for Adolescents (SASA) also demonstrated strong positive interrelations, particularly between SAD-New and total SASA, $r = .83$, $p < .01$.

All QOL subdomains were negatively correlated with SASA subscales. The strongest negative associations were between total QOL and fear of negative evaluation (FNE), $r = –.28$, $p < .01$, and

between physical QOL and total SASA, $r = –.24$, $p < .01$. Likewise, all PMSS subscales (physical, psychological, and behavioral) showed moderate to strong negative correlations with QOL domains. The most notable were between total PMSS and total QOL, $r = –.31$, $p < .01$, and total PMSS and physical QOL, $r = –.37$, $p < .01$. Lastly, small but significant positive correlations were observed between PMS and social anxiety**,** with the strongest being between total SASA and total PMSS, $r = .21$, $p < .01$.

Table 3: Regression Coefficients of QOL with dependent variable PMSS

Variable	B	β	S.E
Constant	177.49***		10.91
Total-QOL	-.897***	-0.312	0.115
R^2	0.095		

N=566, ***p<.001

A simple linear regression was conducted to examine the impact of quality of life on premenstrual syndrome among females experiencing social anxiety. The model was statistically significant, F (1, 564) = 60.64, p < .001, and explained 9.5% of the variance in premenstrual syndrome scores (R^2 = .095). Quality of life significantly predicted premenstrual syndrome, β = –.31, p < .001.

Table 4: Regression Coefficients of QOL with dependent variable SASA

Variable	B	B	S.E
Constant	66.099***		3.978
Total-QOL	-.287***	-.276	.042
R^2	.076		

Note: N=566, ***p<.001

A simple linear regression was conducted to examine the impact of quality of life on social anxiety among females with premenstrual syndrome. The model was statistically significant, F (1, 564) = 46.65, p < .001, and explained 7.6% of the variance in social anxiety (R^2 = .076). Quality of life was a significant negative predictor of social anxiety, β = –.28, p < .001.

Table 5: Means of two groups according to their residential area

	Rural	Urban	U
	Mean rank	Mean rank	
QOL-total	268.80	295.30	1.917
SASA-total	310.11	262.15	3.469
PMSS-total	278.89	287.20	0.601

A Mann–Whitney U test was conducted to examine differences in quality of life, social anxiety, and premenstrual syndrome (PMS) between participants based on their residential area (urban vs. rural). The results indicated statistically significant differences across all three scales. Specifically, mean ranks for quality of life and PMS were higher among participants from urban areas, suggesting that girls residing in urban settings reported lower quality of life and greater PMS symptoms compared to their rural counterparts. Conversely, social anxiety scores were significantly higher among participants from rural areas, indicating that girls in rural environments

exhibited greater social anxiety during the premenstrual phase. However, this does not imply that rural girls had better overall quality of life, only that the degree of impairment was comparatively lower than that of urban females.

Table 6: Means of two groups according to educational institution

	School	**Madrasah**	**U**
	Mean rank	**Mean rank**	
QOL-total	309.00	229.69	5.392
SASA-total	287.88	274.26	.926
PMSS-total	269.43	313.20	2.975

A Mann–Whitney U test was conducted to compare quality of life, social anxiety, and premenstrual syndrome (PMS) scores between students from mainstream schools and madrasahs. The results revealed significant differences across all three scales. Students from mainstream schools had significantly higher mean ranks on both qualities of life and social anxiety measures compared to madrasah students, indicating that school girls reported better quality of life and higher levels of social anxiety. In contrast, PMS scores were significantly higher among madrasah students, as reflected by their higher mean rank, suggesting that madrasah girls experienced more severe PMS symptoms. These findings suggest that while school girls tend to have better perceived quality of life but experience more social anxiety, madrasah girls are more affected by premenstrual syndrome.

Discussion

The current study is focused on to determine the relationship between premenstrual syndrome, social anxiety and quality of life among females. Sarwar & Rauf, (2021) investigate that how premenstrual syndrome effects the quality of life and how the unavailability of social support led to the social anxiety and in turn gets affected by the premenstrual syndrome. Similarly, Mathur et al., (2018) performed a study to investigate the effects of premenstrual dysphoric disorder on depression, anxiety, self-esteem and quality of life in the female students of the urban area. Following discussion is based on the results investigating this relationship.

The correlation matrix revealed significant associations among PMS, social anxiety, and QOL, supporting the first hypothesis that a relationship exists among these three variables. Strong positive correlations within the subscales of each construct validated their internal consistency. For instance, total QOL was strongly associated with environmental QOL and physical QOL, consistent with WHOQOL-BREF's structure. PMS subscales also displayed internal cohesion, particularly between physical and total PMS, consistent with Victor et al. (2019); Branecka-Woźniak et al. (2022) and Ogawa et al. (2024) that PMS significantly affects all the domains of quality of life and social relationship among females.

Social anxiety, measured via SASA, also showed strong internal consistency, especially between SAD-New and total SASA. Negative correlations between all QOL domains and SASA subscales support the second hypothesis—that PMS is positively correlated with social anxiety—highlighted by the strong inverse relationship between total QOL and fear of negative evaluation. Similar trends were reported by Alsamghan (2021) and Farooq et al. (2017), linking high social anxiety with low life satisfaction in females moreover recent study by Üstündağ et al.'s (2025) supported the hypothesis of this study that social anxiety significantly lower the well-being of the individual mainly through fear of negative evaluation which impact quality of life directly. Additionally, PMS was negatively associated with QOL. The strongest correlations were between total PMS and physical QOL and total PMS and total QOL, confirming the third hypothesis that PMS negatively

correlates with quality of life. These results align with Mousavi et al. (2025), who identified QOL as a sensitive indicator of PMS impact, indicating how PMS significantly affect the well-being and mindfulness of the female adolescents.

The regression model was significant, and explained 9.5% of the variance in PMS. The negative beta value confirms that as QOL decreases, PMS symptoms increase in the female adolescents. This result aligns itself with Bertone-Johnson et al. (2015) and Al-Shahrani et al. (2021) studies, reinforcing the hypothesis that PMS severity is inversely related to well-being. This supports targeted interventions that enhance QOL to mitigate PMS symptoms. Regression results showed that QOL significantly predicted social anxiety, stated that social anxiety significantly affect the well-being, productivity and quality of life (Ezadi et al., 2025). This supports the hypothesis that lower QOL is associated with higher social anxiety, consistent with Hajure & Abdu (2020) and Bacak & Satilmis (2025) researches. Given the bidirectional influence of PMS and anxiety, improving QOL may help prevent escalation of social anxiety in adolescents.

Significant differences emerged in PMS, social anxiety, and QOL based on residential area. Urban girls had higher PMS scores and lower QOL, suggesting that lifestyle and environmental stressors may intensify PMS symptoms and reduce well-being, supporting Goswami et al. (2024). Rural girls had higher social anxiety scores, possibly due to lower psychosocial support, as seen in Jefferies and Ungar (2020). These findings reflect the intersectional impact of geography on adolescent mental health. Institutional differences also revealed significant findings. School girls had higher mean ranks in QOL and SASA, while madrasah students had higher PMS scores. This suggests that while school girls may experience greater social exposure and associated anxiety, they report better overall well-being. Conversely, madrasah students may be more isolated, leading to increased PMS symptoms, consistent with Acikgoz and Binbay (2017) and Alkahtani et al. (2023).

Conclusion

All findings collectively validate the study's hypotheses:

- A significant relationship exists between PMS, social anxiety, and QOL.
- PMS is positively correlated with social anxiety.
- PMS is negatively correlated with QOL.

This reinforces the reciprocal relationship among the three constructs and emphasizes the need for comprehensive psychosocial interventions targeting adolescent girls in different institutional and residential contexts. It is suggested that improvement in physical or environmental quality of life is strongly associated with overall QOL. Future programs should consider environment, school type, and socio-emotional support systems to mitigate the psychological and physiological impacts of PMS.

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