The correlation between coping mechanisms and premenstrual syndrome among female nursing students in Al-Najaf Provence

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Abstract
Objective: The current study aims to examine the relationship between coping mechanisms and premenstrual syndrome among female nursing students.
Methodology: To achieve the study objectives descriptive cross-sectional study was conducted. The study's period was November 2022–February 2023. The self-administered questionnaire was created to investigate the relationship between premenstrual syndrome and coping mechanisms in female nursing students. Three sections form the questionnaire. Items for gathering demographic information about the female students are included in the first section, while observations of menstrual history and the Pre-Menstrual Syndrome Scale (PMSS) are included in the second. Lastly, coping mechanisms used in PMS were included in the final section.
Results: According to the data, 49.6% of the female participants were between 11 and 13 years old at menarche, and more than half of them had no family history of PMS. Additionally, the majority of female students related the physiological PMS symptoms were distributed between moderate and severe (24.1%), while the majority of study participants experienced moderate symptoms related to psychological and behavioral PMS symptoms (31.4%) (25.5%). The results also revealed that the most commonly utilized coping mechanisms by the female participants were rest (88.3%) sleeping (84.7%), massaging (774%), listening to music (40.1%), and taking coffee or soft drinks (57.7%). At a P-value of less than 0.05, the results demonstrate a strong correlation between coping mechanisms and premenstrual syndrome, including three domains: Physiological Symptoms, Psychological Symptoms, and Behavioral Symptoms.
Conclusion: The current study found that the majority of the female participants under study experienced moderate levels of behavioral, psychological, and physiological PMS symptoms, while the smallest proportion of female participants experienced quite severe PMS symptoms. The study also revealed that the most commonly utilized coping mechanisms by the female participants were massage, sleep, rest, listening to music, and consuming coffee and soft drinks. Furthermore, three domain of premenstrual syndrome symptoms—physiological, psychological, and behavioral—were linked significantly to coping mechanisms. However, in the item of physiological symptoms, there is no association between sitting calm and relaxing, crying, taking coffee or soft drinks, massages, or taking vitamin and mineral supplements, also psychological Symptoms with hot back and medication. In addition, there is no association between the behavioral symptoms and taking medication or spending time with friends and family.

Keywords: Premenstrual syndrome (PMS), coping mechanisms, female nursing students

Introduction

Premenstrual syndrome (PMS) is a common health problem characterized by behavioral, psychological, and physical symptoms that appear during the luteal phase of the menstrual cycle and disappear immediately following menstruation (Mumtaz *et al*., 2018; Dönmez & Gümüssoy, 2019) [24, 11]. According to Bhuvaneswari *et al*. (2019) [16], PMS can have a serious negative impact on quality of life leading to poor performance and impaired concentration at school and work (Buddhabunyakan *et al*., 2017) [6]. The 5th edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) lists premenstrual dysphoric disorder (PMDD), a more severe type of PMS, as a s a mental health problem (Bhuvaneswari *et al*., 2019) [16].

The precise cause of PMS is unknown, but its symptoms coincide with menstrual cycle fluctuations, so it may be caused by age and genetic factors (Shrestha *et al*., 2019) [31], or by hormonal imbalances such as excess estrogen and progesterone deficit, certain neurotransmitters like serotonin, GABA, opioids, and catecholamines (Stoner *et al*., 2017) [33]. Changes in appetite, weight gain, headaches, low back pain, nausea, constipation, anxiety, irritability, anger to continue, tiredness, restlessness, and swings in mood are among the clinical symptoms of PMS (Yesildere Saglam & Orsal, 2020) [36]. The most common mood symptom of PMDD is irritability, while mood swings, anxiety, and depression are sometimes noted. Physical and behavioral issues, such as fatigue and inability to concentrate, interfere with everyday activities and interpersonal relationships (American Psychiatric Association, 2013; Yonkers & Simoni, 2018) [4, 37]. In that they arise during the luteal phase and disappear soon menstruation starts, PMDD symptoms are related to those of PMS (Ryu & Kim, 2015; Petersen *et al*., 2016) [27, 26]. However, in contrast to PMS, PMDD often leads to serious functional and social impairment, negatively affecting an individual's quality of life and general well-being (Ryu & Kim, 2015) [27]. Physical, emotional, social, and environmental factors of life are all impacted by PMS (Victor *et al*., 2019) [35]. Students have specifically

experienced poor concentrate, missing classes, and nonparticipation in social gatherings and events (Oo *et al*., 2016; Shamnani *et al*., 2018) [25, 30]. Regardless of the menstrual cycle events, Chinese women with PMS reported persistently abnormal emotional behavior (Liu *et al*., 2017) [20]. According to student reports, academic performance was the area where PMS had the biggest impact (Kalsoom *et al*., 2018; Tolossa & Bekele, 2014) [17, 34]. In India, almost 80% of students with PMS reported being less productive, whereas 100% of women having severe PMS (Premenstrual Dysphoric Disorder, or PMDD) reported being less productive during the menstrual cycle's luteal phase (Durairaj & Ramamurthi, 2019) [12].

Although PMS is very common and has significant symptoms, there is currently no proven cure for it; medications are only aimed at managing symptoms (Mohebbi Dehnavi Z *et al*., 2018) [22]. Premenstrual syndrome symptoms are alleviated by both pharmaceutical and nonpharmacological approaches (Imai A *et al*., 2015; Bahrami A *et al*., 2018; Ç Çitil ET& Kaya N, 2021) [15, 5, 7]. Women frequently utilize hot applications, massage, analgesics, rest, sleep, altering their diets, and exercise to manage PMS (Eshetu N *et al*., 2022; Yorulmaz DS & Karadeniz H, 2021) [13, 38]. According to Derya YA *et al*. (2019) [10], PMS is a significant and widespread issue that impacts quality of life. Young women with PMS can have a better quality of life and maintain their physical and mental well-being by receiving support for their coping mechanisms. Thus, knowing the coping mechanisms of young women with PMS is very important for research as well as therapeutic practice.

Few studies regarding PMS or menstruation disorders in several contexts have been conducted in Iraq (Al-Qazaz HK & Al-Dabbagh RO, 2020; Ahmed S & Saeed A, 2019) [3, 1]. Coping mechanisms still haven't been explored. To the greatest of the examiner's knowledge, no previous study has examined the relationship between coping mechanisms and premenstrual syndrome in female nursing students. For this reason, the purpose of this study is to investigate this relationship in order to gain a deeper understanding of the syndrome and to suggest more specific research directions for the development of interventions in the future.

Methodology

Design of the study

A Descriptive Cross-sectional study was carried out throughout the present study in order to achieve the study objectives. The period of the study was from November 2022 to February 2023.

The sample of the study

A Non-Probability (Purposive Sample) of 137 students at the University of Kufa/ faculty of nursing, Altoosi University College/Department of Nursing, Al- FuratAl – Awsat Technical University/ Kufa Technical Institute/Department of Nursing.

The study instrument and data collection

Study instrument

The self-administered questionnaire was designed to study the relationship between coping mechanisms and premenstrual syndrome among female nursing students. The questionnaire is divided into three parts. The first part includes items for collecting demographic data of the student, and the second part includes observations of the Menstrual history and Pre-Menstrual Syndrome Scale (PMSS). Finally, the third part included items Coping Mechanisms used in PMS.

Part 1: Demographic data

A demographic data sheet, which consists of (11) items: Age, Residence, Academic year, with whom she lives, Regular exercise, Diet, Water Consumption, do you have information regarding PMS, Family Problems, Friends Problems.

Part 2: Menstrual history

The second part of the questionnaire is consists of two parts (A) Menstrual history include: Age of menarche, Family History of PMS, Duration of blood flow, Amount of blood flow, Menstrual interval, Menstrual regularity (B) Pre-Menstrual Syndrome Scale (PMSS): Pelvic discomfort pain, Abdominal cramps, Change in bowel habit, Muscle and joint pain, Generalized aches and pain, Abdominal bloating, Food cravings, Increased appetite, Fatigue, Skin changes, Rashes, Pimple, Nausea, Vomiting, Weight gain, Headache, Palpitation, Dizziness/Fainting, Breast tenderness and swelling, Psychological Symptoms, Mood swing, Irritability, Anxiety, Tension, Easy crying/spells, Loss of concentration, Aggression, Sleep changes, Depression, Hopelessness, Forgetfulness, Confusion, Behavioral Symptoms, Restlessness, Benign over sensitive, Lack of interest in usual activities, Social withdrawal, Lack of self control, Irritational thoughts, Feeling guilty, Impaired performance, Compulsive behavior, Obsessional thoughts, Clumsiness, Poor Judgement.

Part 3: Coping mechanisms used in PMS

The third part of the questionnaire consists of (23) items, including Sleeping، Taking rest, Hot packs, Sitting calmly and relax, Listening to music, Spending time with friends and family, Hot shower, Di*et al*teration, Increasing fluid intake, Crying, Yoga, exercise and meditation, Reading novels, Coffee and soft drinks, Breaking things-mobile, Massage, Talk to self, Taking selfies, Medication, Seeks physician, Taking vita/mineral supplements, Oral contraceptive, Herbal medicine, smoking.

Data collection

Each female student was interviewed by a researcher while seated comfortably in the consulting area of the nursing college. The questions were read to them and their responses were entered into the proforma by the researcher. The data collection process has been performed from November 2022 to February 2023. Each subject spends approximately (15-20) minutes to complete the interview.

Data analyses

Data are analyzed through the use of the application of the statistical package (SPSS) ver. (22), and the Microsoft Excel (2010):

The following statistical data analysis methods are used to analyze and assess the results of the study:

- Frequencies (F).
- Percentages (%).
- Means (x).
- Standard Deviations (SD).
- Means of score.

Results

Table 1: Distribution of the nursing female students according to their socio-demographic characteristics (N= 137)

Socio-Demographic Data	Rating and intervals	Frequency	Percent
Age	<= 20	63	46.0
	21 – 24	63	46.0
	25+	11	8.0
Total		137	100.0
Residency	In Suburban area	122	89.1
	In Rural areas	15	10.9
Total		137	100.0
Academic year	1st Class	16	11.7
	2nd Class	36	26.3
	3rd Class	45	32.8
	4th Class	40	29.2
	Total	137	100.0
With whom she lives	Family	117	85.4
	University accommodation	20	14.6
Total		137	100.0

This table show that the ages of the female students under study was ranged between 20-24 years. The majority of participated female students (89.1%) was lived in Suburban area. (32.8 %) of them were in the 3rd Class. According to the findings, the majority of them (85.4 %) were lived with their families.

Table 2: Distribution of the studied nursing female students according to their total level of physiological, psychological and behavioral PMSS (N= 137)

Total levels of PMSS	Physiological symptoms		Psychological symptoms		Behavioral symptoms	
	Freq.	%	Freq.	%	Freq.	%
Never	17	12.4	20	14.6	22	16.1
Mild	29	21.2	17	12.4	25	18.2
Moderate	33	24.1	43	31.4	35	25.5
Sever	33	24.1	26	19.0	27	19.7
Very sever	25	18.2	31	22.6	28	20.4
Total	137	100.0	137	100.0	137	100.0

This table show most of female student distributed between Moderate and Sever (24.1%) in related to physiological symptom of PMS. Also, the table show most study sample have moderate in related to psychological symptoms and behavioral symptom of PMS (31.4%), (25.5%).

Table 3: Coping mechanisms of the studied nursing female students used in PMS

Coping mechanisms		Frequency	Percent
Sleeping	Yes	116	84.7
	No	21	15.3
Taking rest	Yes	121	88.3
	No	16	11.7
Hot Packs	Yes	53	38.7
	No	84	61.3
Sitting calm and relax	Yes	32	23.4
	No	105	76.6
Listening to music	Yes	55	40.1
	No	82	59.9
Spend time with friends and family	Yes	40	29.2
	No	97	70.8
Hot Shower	Yes	58	42.3
	No	79	57.7
Di*et al*teration	Yes	66	48.2
	No	71	51.8
Increasing fluid intake	Yes	67	48.9
	No	70	51.1
Crying	Yes	51	37.2
	No	86	62.8
Yoga, exercise and meditation	Yes	60	43.8
	No	77	56.2
Reading novels	Yes	68	49.6
	No	69	50.4
Coffee and soft drinks	Yes	79	57.7
	No	58	42.3
Breaking things-mobile	Yes	70	51.1
	No	67	48.9
Massage	Yes	106	77.4
	No	31	22.6
Talk to self	Yes	76	55.5
	No	61	44.5
Medication	Yes	37	27.0
	No	100	73.0
Seeks Physician	Yes	26	19.0
	No	111	81.0
Taking Vita/Mineral Supplements	Yes	61	44.5
	No	76	55.5
Oral Contraceptive	Yes	33	24.1
	No	104	75.9
Herbal Medicine	Yes	53	38.7
	No	84	61.3
Total		137	100.0

Table 4: Correlation between nursing female students' PMSS and coping mechanism

Coping mechanisms of the studied nursing female	PMSS					
	Physiological Symptoms		Psychological Symptoms		Behavioral Symptoms	
	R	P	R	P	R	P
Sleeping	.204*	0.017	-.196-*	0.022	.197*	0.021
Hot Packs	.193*	0.024	-	-	.182*	0.033
Sitting calm and relax	-	-	-.246-**	0.004	-.178-*	0.037
Listening to music	-.207-*	0.015	.170*	0.047	.227**	0.008
Spend time with friends and family	-0.165	0.054	.248**	0.003	-	-
Di*et al*teration	-.277-**	0.001	-.172-*	0.045	-.199-*	0.020
Crying	-	-	-.190-*	0.026	-.194-*	0.023
Yoga, exercise and meditation	-.170-*	0.047	-.169-*	0.048	.251**	0.003
Coffee and soft drinks	-	-	-.172-*	0.044	.241**	0.004
Massage	-	-	.177*	0.039	.200*	0.019
Medication	-.175-*	0.040	-	-	-	-
Taking Vita/Mineral Supplements	-	-	-0.166	0.052	.186*	0.030
Oral Contraceptive	-.171-*	0.046	-.206-*	0.016	-.173-*	0.043

** Highly Significant at $p< 0.001$, * Significant at $p<0.005$

This table shows a significant relationship between coping mechanisms and Pre-Menstrual Syndrome including three domains (Physiological Symptoms, Psychological Symptoms, and Behavioral Symptoms) at a P-value of less than 0.05. Except, in the item physiological Symptoms with Sitting calm and relaxed, crying, Coffee and soft drinks, massage, and Taking Vita/Mineral Supplements there is no relationship. Also, psychological Symptoms with hot back and medication. In addition to behavioral symptoms there is no relationship between spending time with friends and family and medication.

Discussion

The purpose of this study was to investigate the relationship between female nursing students' coping mechanisms and PMS. To the best of our knowledge and based on the literature that is currently accessible, no research has been carried out in Iraq to investigate the correlation between coping mechanisms and PMS. 49.6% of the female participants in the current study were between 11 and 13 years old at menarche. This finding is consistent with a study by K. Bhuvaneswari *et al*. (2019) [16], which found that most of the students in that study menarched between the ages of 12 and 15. In terms of menstrual cycle regularity, the current study found that 40.1% of the students had regular menstrual cycles, while 50.9% had irregular ones, these findings are consistent with studies by Chhetri and Singh (2020) [8] and Koganti CT and Bobba NS (2020) [19], which also found that most participants had irregular cycles. This period's regularity could be linked to changes in hormones and the environment. The term "premenstrual syndrome" (PMS) refers to a wide variety of behavioral, emotional, and physical symptoms. The current study found that the majority of the female students under investigation experienced moderate levels of behavioral, psychological, and physiological PMS symptoms. This is consistent with the findings of Seedhom *et al*. (2013) [28], who found that the majority of participants (64.8%) reported moderate PMS, followed by mild PMS (21.7%), and severe PMS (finally). However, it contradicts Kelbessa *et al*. (2017) [18], who found that most participants had mild premenstrual syndrome problems.

The most common coping mechanisms for PMS that have been reported are sleeping, resting, listening to music, self-medication, drinking hot drinks, receiving massage therapy (Tolossa & Bekele, 2014) [34], and using nutritional supplements like fish oils (Molugulu *et al*., 2016) [23]. These are similar to those that were utilized in the current study. While sleeping, getting a massage, di*et al*teration, crying, listening to music, drinking coffee, and soft drinks, yoga, physical activity, meditation, or oral contraceptives. are all statistically significant when combined with PMS symptoms. Female participants in this study used several kinds of medications to alleviate their PMS pain, which had a strong correlation with PMS (Physiological Symptoms). Students in this study rarely seek medical care from professionals when suffering from PMS, which is consistent with (Durairaj & Ramamurthi, 2019; Molugulu *et al*., 2016) [12, 23]. This study relates to others that have examined the use of nonsteroidal anti-inflammatory medicines and analgesics to treat PMS symptoms (Shahbazi *et al*., 2020; Tolossa & Bekele, 2014) [29, 34]. Female participants in this study also used Oral contraceptives to treat PMS symptoms, and there was a statistically significant correlation between the usage of contraceptives and PMS. This is consistent with research using oral contraceptive pills (OCP) to treat PMS symptoms (Lydon *et al*., 2020; Molugulu *et al*., 2016; Shahbazi *et al*., 2020) [21, 23, 29]. However, it contradicts Ethiopia, where Geta *et al*. (2020) [14] found no statistically significant link between the usage of contraceptives and PMS among students. OCP users were also more likely to experience PMS symptoms in previous research (Akoku *et al*., 2020) [2]. While several individuals mentioned exercise as a coping method, in this study sample, exercise was statistically substantially associated with PMS. Research from da Silva & Pires, 2021; Yoshimi *et al*., 2019) [9, 39] supports this, it showed that resistance training and physical activity have been shown to reduce students' psychological PMS symptoms. One of the psychological and emotional signs of PMS is crying. It is also a response to painful sensations. A useful relaxation strategy to assist shift attention from pain is to listen to music. In this study, it was linked to PMS statistically significantly.

Conclusions

The current study found that the majority of the female participants under study experienced moderate levels of behavioral, psychological, and physiological PMS symptoms, while the smallest proportion of female participants

experienced quite severe PMS symptoms. The study also revealed that the most commonly utilized coping mechanisms by the female participants were massage, sleep, rest, listening to music, and consuming coffee and soft drinks. Furthermore, three domains of premenstrual syndrome symptoms—physiological, psychological, and behavioral—were linked significantly to coping mechanisms. The study also reported, that there is no association in the item of physiological symptoms, between sitting calm and relaxing, crying, taking coffee or soft drinks, massages, or taking vitamin and mineral supplements, also psychological Symptoms with hot back and medication. In addition, there is no association between the behavioral symptoms and taking medication or spending time with friends and family.

Recommendations

Based on previous findings and the conclusions of this study, the following recommendations are proposed: It is advised to raise the degree of PMS knowledge among nursing students and to educate them on coping mechanisms based on the results of prior research and the current study. This will help to reduce PMS-induced psycho-social losses and improve the quality of care they will give after graduation. It will also improve their quality of life. Lastly, to protect their psychological well-being, parents should have open discussions about this issue with their female students.

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