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Effect of Mindfulness on Premenstrual Syndrome Among Faculty Nursing Students in King Saud University

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Abstract

Objectives: This subject could contribute deeply in understand the relation between mindfulness and PM disorders. Mindfulness is beneficial in a variety of fields, including health care and education. To investigate the level of mindfulness and its relation to the premenstrual disorders among nursing students in KSU and shed the light on the premenstrual disorders to deep understand the effecting factors and evaluate the accompanied symptoms. Methodology: A cross- sectional and descriptive design targeted 302 faculty nursing students at King Saud University, collecting data questionnaires, structured Interview for Socio-demographic information and menstrual history, clinician-friendly version of the Premenstrual Symptoms Screening questionnaires and mindfulness questionnaire based on five elements are all designated to understand the relationship between mindfulness and premenstrual syndrome among faculty nursing student's in KSU through qualitative statistical analysis and significance measure at 0.05%.

Conclusion: There is a statistically significant positive Effect of mindfulness on premenstrual syndrome among faculty nursing students in King Saud University, it is correct the second hypothesis and the more it increased mindfulness level 1% is the ability to handle premenstrual syndrome among faculty nursing students in King Saud University has increased 0.085%.

Keywords: *Premenstrual syndrome, Mindfulness, Nursing students.*

Introduction

Mindfulness has a significant impact on mental health, bodily element, and behaviour as indicated in the previous studies. As a result, educating a more mindful way of being is associated with fewer psychological sufferings, a more optimistic state of mind, and better living standards. Furthermore, mindfulness practice can have a beneficial influence on the mind, the sympathetic nervous system, hormones such as cortisol, the immune response, and health appearance (Matsumoto et al., 2017).

Moreover, Joe et al. 92017) investigated the effect of cognitive treatment mindfulness on reducing premenstrual symptoms, nervousness, and distress in women with premenstrual syndrome. They found, mindfulness-based psychotherapy improved psychiatric symptoms, as well as total premenstrual disorder scores (Matsumoto et al., 2017) they observed that mindfulness is effective in helping a certain individual contribute to the

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attainment of daily life, although it may be that much more beneficial in healthcare, during which pressures are high and the ability to provide quality care is critical.

In a study by Fernández et al. (2019), they looked at the prevalence and occurrence of premenstrual symptoms in university students aged fifteen to twenty. They found that about one-quarter of them met the criteria for premenstrual syndrome. People who were tired, had a bad mood, had a sudden emotional state of sorrow, felt a lot of self-consciousness, had back pain, and didn't get enough sleep. It was said that the people in the study have a lot of PMS. A study by (Rafique & Al-Sheikh, 2018) strongly suggested that women should try to prevent and manage premenstrual syndrome. They said that the clinical presentation of menstrual periods as a premenstrual symptom led them to classify it as a group of unspecified depressive disorders. In order to make a diagnosis, at least five of the twelve signs and symptoms in the DSM criteria must be present. Komada et al. (2019), investigated the impact of menopausal symptoms on women's health-related life satisfaction and found that it could impede work efficiency. The research was performed out as a descriptive survey on hospital nurses at Urmia University of Medical Sciences, and the results revealed that 39.4 % of the subjects fit the criteria for premenstrual syndrome, which has an effect on the wellbeing of people's lives (Shehadeh et a., 2018). Another study, conducted by Desrosiers et al. (2017), sought to investigate frustration and exasperation levels in females struggling from premenstrual syndrome. Using an anger and assessment of premenstrual ailments survey form, fifty women with premenstrual disorder were contrasted to fifty normal controls women. (Alfayez et al., 2023; Yakout et al., 2023). The results revealed that participants with premenstrual syndrome had higher scores on the rate the quality anger scale than healthy individuals.

Aim of the Study

To investigate the level of mindfulness and its relation to the premenstrual disorders among nursing students in King Saud University and shed the light on the premenstrual disorders to deep understand the effecting factors and evaluate the accompanied symptoms as well as to Raise the awareness among health practitioners with one of quality-related issue in the health communities.

Research Question

What is the Relationship between Mindfulness and Premenstrual Syndrome among Faculty of Nursing Student at King Saud University?

Methodology

Research Approach

The current study used the analytical method, through which statistical methods used in analyzing the research data of questionnaire study achieve the objectives of the research.

Study Design:

The current study will build on a cross- sectional and descriptive design as main approach

Study Duration

The study was designed to be carried out through two study years that the presented timetable

This study targeted faculty nursing students at King Saud University

Target Population: The faculty nursing students enrolled at all academic years in the King Saud University are the targeted population (544 students)

Sample size:

The study sample will be determined using a sample size estimating software and the total number of nursing students across all academic years (544 students). The sample will be drawn from all enrolled students across all academic years., the study used the sampling method by selecting a simple random sample of faculty nursing students and the study distributed the link on social networking sites, e-mail and the means of communication used by faculty nursing students and the answered the questionnaire was 302 students

Data Collection/Data Source:

Throughout their break time, participants will be separated into groups with researchers to explain the objective of the project, obtain students' approval to participation in the study, and convince them about the anonymity and anonymity of the participants.

The study tools will then be distributed, along with instructions on how to fill them. Research will be conducted on an individual basis from students who will miss the group on a rare occasion. The data were collected over the course of three weeks during the current academic year 2022, first from beginning of February 2022 to the end of June 2022.

Questionnaires/data Sheets from other authors (Copyrights or permission to use, or open access for academic and research purpose)

For this study, three questionnaires to be used:

1- Structured Interview: for Socio-demographic information and menstrual history

2- A clinician-friendly version of the Premenstrual Symptoms Screening questionnaires.

3-Mindfulness Questionnaire based on five elements

Data Analysis

The research will use the SPSS23 to analyze the data of questionnaire using Alpha coefficient, Frequencies, percentages, mean, standard deviation, relative weight, and Pearson correlation coefficient

Study tool

The research will use the electronic questionnaire form as a tool for the field study by preparing the questionnaire and its axes and phrases by using the theoretical framework of the study, previous studies related to the subject of the study. The five-degree Likert scale was used in answering the questions of the study tool

Ethical Considerations:

Upon providing the appropriate clarification about the objectives of the investigation and the methodology of the study, students provided informed oral consent. Individual replies' privacy and anonymity, voluntary involvement, and the right to refuse taking part in the study were all emphasized to the students.

Validate the study tool

The validity of the questionnaire was verified by calculating the correlation coefficients to determine the extent of the internal homogeneity of the study tool:

Table (1) Correlation phrase questionnaire

Phrases	Correlation coefficient	P-value
1. When I am walking, I deliberately notice the sensations of my body as it moves.	0.253**	**0.000**
2. I can find words to describe my feelings.	0.396**	**0.000**
3. I perceive my feelings and emotions without reacting or responding to them.	0.605**	**0.000**
4. When I do things my mind wanders, and I get distracted easily.	0.592**	**0.000**
5. I am awake/attentive to the feeling of water on my body while taking a shower.	0.598**	**0.000**
6. I can easily express my beliefs, opinions and expectations in words.	0.316**	**0.000**
7. I do not pay attention to what I'm doing, because I'm daydreaming or anxious or distracted.	0.383**	**0.000**
8. I tell myself I do not have to feel the way I feel.	0.644**	**0.000**
9. I notice the effect of food and drinks on my thoughts, feelings and body sensations.	0.422**	**0.000**
10. It's hard for me to find the words to describe what I'm thinking.	0.618**	**0.000**
11. It is easy to get distracted.	0.334**	**0.000**
12. I think some of my thoughts are weird/unnatural or bad and I should not think that way.	0.633**	**0.000**
13. Pay attention to different sensations such as the feeling of the wind moving my hair or the feeling of the sun touching my face.	0.597**	**0.000**
14. I find it hard to think of the right words for how I feel about things.	0.660**	**0.000**
15. I pay attention to different sensations such as the feeling of the wind moving my hair or the feeling of the sun touching my face.	0.490**	**0.000**
16. I find it hard to think of the right words for how I feel about things.	0.641**	**0.000**
17. I make judgments about whether my thoughts are bad or good.	0.640**	**0.000**
18. I find it difficult to stay focused on what is happening in the present moment.	0.662**	**0.000**
19. When I have thoughts or images that make me feel uncomfortable, I step back and comprehend the idea or image without being preoccupied with it.	0.579**	**0.000**
20. Pay attention to the different sounds such as the chimes of the clock, the chirping of birds or cars passing by.	0.591**	**0.000**
21. In difficult situations, I can stop without reacting at once.	0.662**	**0.000**
22. When I have a feeling in my body, I find it hard to describe it because I can't find the right words.	0.628**	**0.000**
23. I seem to act automatically without much awareness of what I'm doing.	0.621**	**0.000**
24. When I have thoughts or images that make me feel stressed/disturbed, I feel calm shortly afterwards.	0.503**	**0.000**
25. I tell myself I don't have to think the way I think.	0.636**	**0.000**
26. I notice the smells and flavors of things.	0.436**	**0.000**
27. When I'm so frustrated, I can find a way to put that into words.	0.503**	**0.000**
28. I indulge in activities without really paying attention to them.	0.522**	**0.000**
29. When I have thoughts or images that bother me or make me feel pressured, I can only notice them without reacting.	0.650**	**0.000**
30. I think some of my feelings are bad or inappropriate and I shouldn't feel them.	0.658**	**0.000**
31. I observe visual components in art or nature such as colors, shapes, textures, or patterns of light and shadow.	0.526**	**0.000**
32. My natural tendency is to express my experiences/experiences in words.	0.465**	**0.000**
33. Whenever I have thoughts or images that bother me or make me feel pressured, I just notice them and then let them go.	0.565**	**0.000**
34. I do my work and tasks automatically without being aware of what I am doing.	0.685**	**0.000**
35. When I have thoughts or images that bother me or make me feel pressured, I judge myself as good or bad based on the quality of those thoughts or images.	0.643**	**0.000**

36. I pay attention to how my feelings affect my thoughts and behavior.	0.504**	**0.000**
37. I can usually describe what I'm feeling at the moment in great detail.	0.502**	**0.000**
38. I find myself doing things without paying attention.	0.643**	**0.000**
39. I disagree with myself when I have irrational/illogical thoughts.	0.388**	**0.000**

All correlation for questionnaire items was statistically significant in 0.01 and the tool has structural validity.

Reliability study tool

Cronbach's alpha coefficient was calculated for the study tool, and it was found that the value of the Reliability coefficient Alpha was greater than 0.7, reaching 0.939, which confirms the validity and relevance of the study tool's statements and the high level of Reliability of the tool used in the study.

Analysis and Results

Introduction

In this chapter, we will address the applied framework of the study by analysing the questionnaire, identifying the characteristics of the study sample, analysing the questionnaire, and testing the study's hypotheses in order to achieve the objectives of the study.

Personal data:

- Age:

Divided is 18-24 years old 28.5%, 25-30 years old 16.6% and 31-35 years old 34.4 %, 36-40 years old 11.9 % and 41 -45 years old 8.6 %

Table (2) sample according to age

Categories	N	%
18–24	**86**	**28.5**
25–30	**50**	**16.6**
31–35	**104**	**34.4**
36–40	**36**	**11.9**
41–45	**26**	**8.6**
Total	**302**	**100**

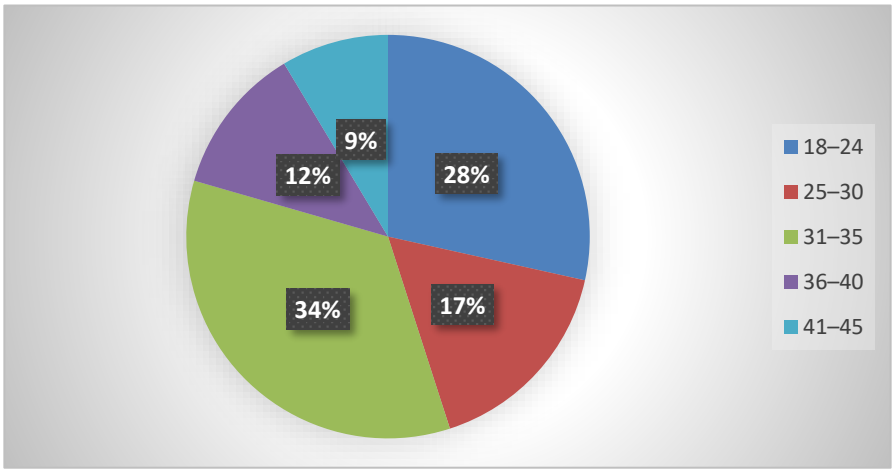

Figure (1) sample according to age

- Educational Level

Divided is University level 73.5 % and Postgraduate 26.5 %

Table (3) sample according to Educational Level

Categories	N	%
University level	**222**	**73.5**
Postgraduate.	**80**	**26.5**
Total	**302**	**100**

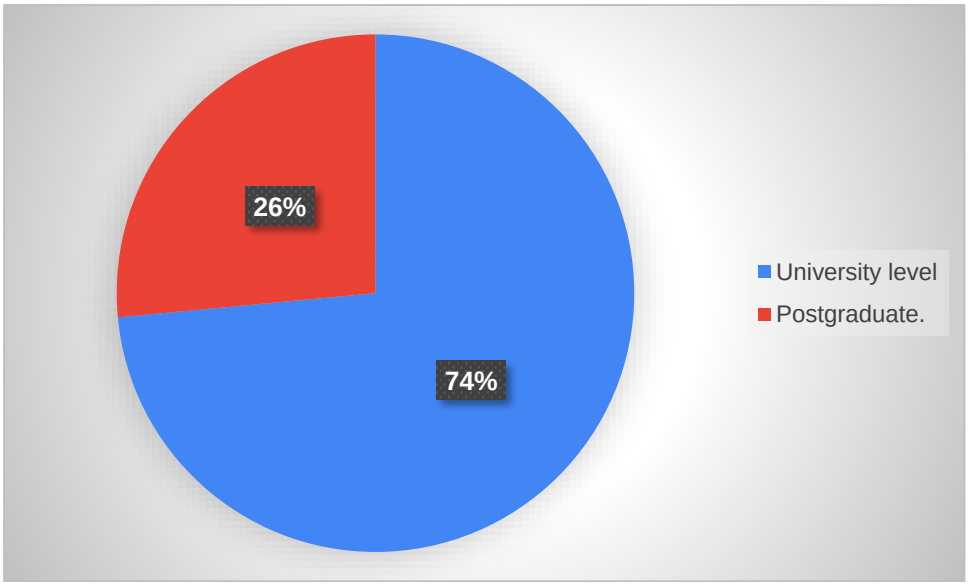

Figure (2) sample according to Educational Level

- Employment status

Divided is Employed 42.4 % Unemployed 17.9% and Student 39.7 %

Table (4) sample according to Employment status

Categories	N	%
Employed	**128**	**42.4**
Unemployed	**54**	**17.9**
Student	**120**	**39.7**
Total	**302**	**100**

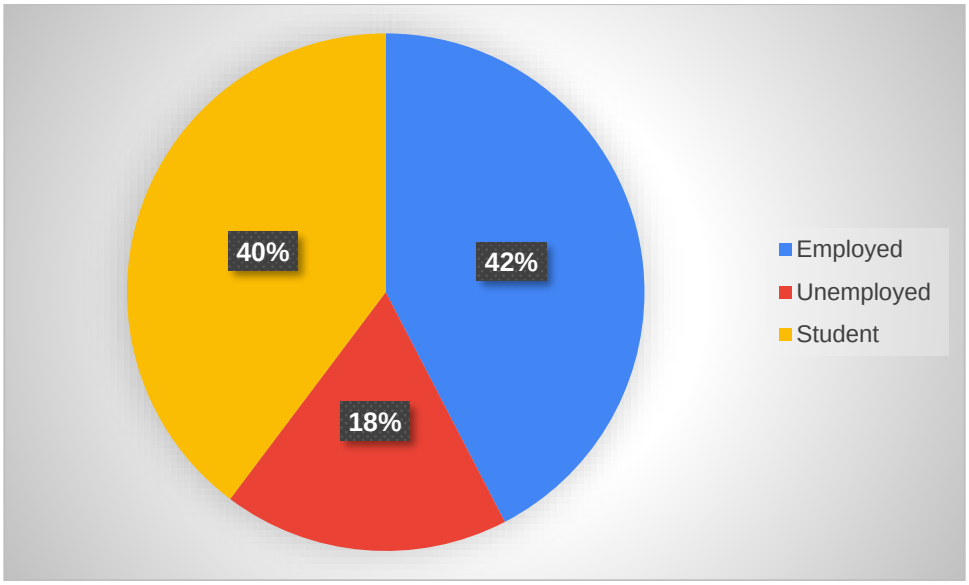

Figure (3) sample according to Employment status

- Marital status

Divided is Married 86.4 % and Single 13.6 %

Table (5) sample according to Marital status

Categories	N	%
Married	**261**	**86.4**
Single	**41**	**13.6**
Total	**302**	**100**

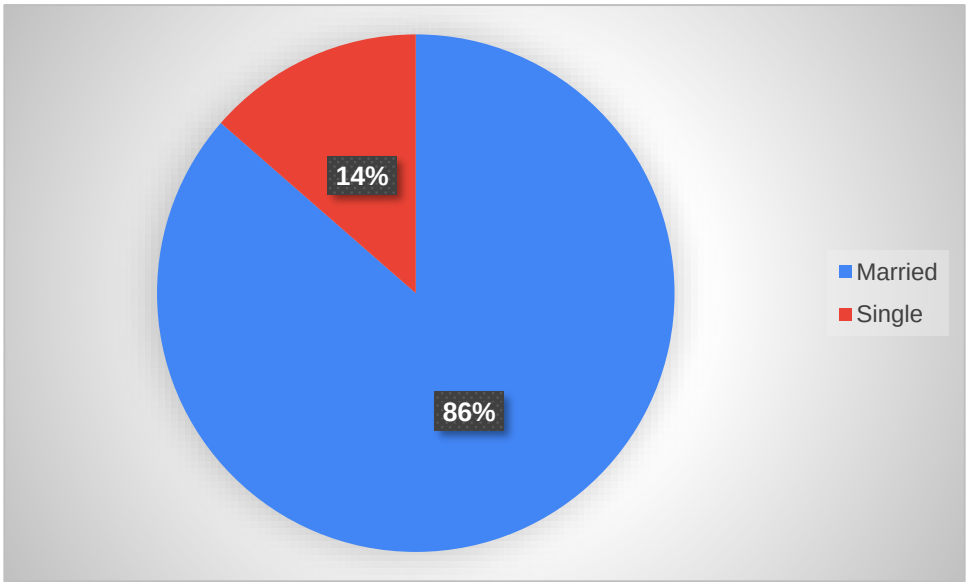

Figure (4) sample according to Marital status

- Family monthly income (Saudi Riyal.)

Divided is Less than 4000 SR 7.9 % 4000 to 8,000 SR 13.2% 8,000 to 12000 SR 41.1 % and more than 12000 SR 37.7 %

Table (6) sample according to Family monthly income (Saudi Riyal.)

Categories	**N**	**%**
Less than 4000 SR	**24**	**7.9**
4000 to 8,000 SR	**40**	**13.2**
8,000 to 12000 SR	**124**	**41.1**
More than 12000 SR	**114**	**37.7**
Total	**302**	**100**

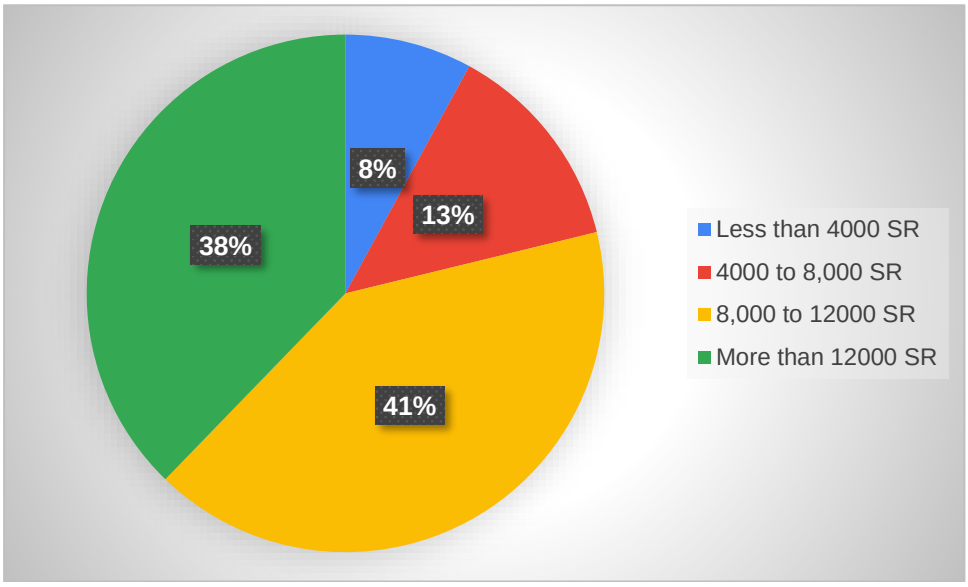

Figure (5) sample according to Family monthly income (Saudi Riyal.)

The analysing the questionnaire

Table (7) Phrases of the questionnaire

N.	Phrase	Mean	S. D	Relative weight	Degree
1	When I am walking, I deliberately notice the sensations of my body as it moves.	3.550	1.298	0.710	High
2	I can find words to describe my feelings.	3.808	0.990	0.762	High
3	I perceive my feelings and emotions without reacting or responding to them.	2.947	1.186	0.589	Medium
4	When I do things my mind wanders, and I get distracted easily.	2.987	1.236	0.597	Medium
5	I am awake/attentive to the feeling of water on my body while taking a shower.	3.126	1.172	0.625	Medium
6	I can easily express my beliefs, opinions and expectations in words.	4.000	1.181	0.800	High
7	I don't pay attention to what I'm doing, because I'm daydreaming or anxious or distracted.	3.735	1.036	0.747	High

8	I tell myself I don't have to feel the way I feel.	2.291	1.255	0.458	Medium
9	I notice the effect of food and drinks on my thoughts, feelings and body sensations.	3.629	1.109	0.726	High
10	It's hard for me to find the words to describe what I'm thinking.	3.258	1.223	0.652	Medium
11	It's easy to get distracted.	3.709	1.362	0.742	High
12	I think some of my thoughts are weird/unnatural or bad and I shouldn't think that way.	2.768	1.270	0.554	Medium
13	Pay attention to different sensations such as the feeling of the wind moving my hair or the feeling of the sun touching my face.	3.033	1.096	0.607	Medium
14	I find it hard to think of the right words for how I feel about things.	2.550	1.277	0.510	Low
15	I pay attention to different sensations such as the feeling of the wind moving my hair or the feeling of the sun touching my face.	3.371	1.250	0.674	Medium
16	I find it hard to think of the right words for how I feel about things.	2.689	1.177	0.538	Low
17	I make judgments about whether my thoughts are bad or good.	2.987	1.181	0.597	Medium
18	I find it difficult to stay focused on what is happening in the present moment.	2.947	1.208	0.589	Medium
19	When I have thoughts or images that make me feel uncomfortable, I step back and comprehend the idea or image without being preoccupied with it.	3.285	1.071	0.657	Medium
20	Pay attention to the different sounds such as the chimes of the clock, the chirping of birds or cars passing by.	2.728	1.344	0.546	Medium
21	In difficult situations, I can stop without reacting at once.	3.166	1.078	0.633	Medium
22	When I have a feeling in my body, I find it hard to describe it because I can't find the right words.	2.609	1.247	0.522	Medium

23	I seem to act automatically without much awareness of what I'm doing.	2.828	1.191	0.566	Medium
24	When I have thoughts or images that make me feel stressed/disturbed, I feel calm shortly afterwards.	3.430	1.127	0.686	High
25	I tell myself I don't have to think the way I think.	3.139	1.215	0.628	Medium
26	I notice the smells and flavors of things.	3.159	1.403	0.632	Medium
27	When I'm so frustrated, I can find a way to put that into words.	3.503	1.068	0.701	High
28	I indulge in activities without really paying attention to them.	3.113	1.091	0.623	Medium
29	When I have thoughts or images that bother me or make me feel pressured, I can only notice them without reacting.	2.907	1.249	0.581	Medium
30	I think some of my feelings are bad or inappropriate and I shouldn't feel them.	2.848	1.323	0.570	Medium
31	I observe visual components in art or nature such as colors, shapes, textures, or patterns of light and shadow.	2.980	1.371	0.596	Medium
32	My natural tendency is to express my experiences/experiences in words.	3.675	1.047	0.735	High
33	Whenever I have thoughts or images that bother me or make me feel pressured, I just notice them and then let them go.	3.219	1.158	0.644	Medium
34	I do my work and tasks automatically without being aware of what I am doing.	2.927	1.153	0.585	Medium
35	When I have thoughts or images that bother me or make me feel pressured, I judge myself as good or bad based on the quality of those thoughts or images.	2.735	1.328	0.547	Medium
36	I pay attention to how my feelings affect my thoughts and behavior.	3.821	1.082	0.764	High
37	I can usually describe what I'm feeling at the moment in great detail.	3.656	1.100	0.731	High
38	I find myself doing things without paying attention.	2.967	1.161	0.593	Medium

39	I disagree with myself when I have irrational/illogical thoughts.	4.119	1.105	0.824	High

The 12 expressions in questionnaire were the high and 25 expressions in questionnaire were the medium and 2 expressions in questionnaire were the low it shows the medium level of the Mindfulness among nursing students where mean is 3.185 and S.D 1.190

Test Research Hypotheses:

The research used correlation coefficient Pearson and simple regression to determine the validity of the hypotheses the results were as follows:

The first hypothesis:

There are statistically significant the relationship between mindfulness and premenstrual syndrome among faculty nursing students in King Saud university

Table (8) the relationship between mindfulness and premenstrual syndrome among faculty nursing students in King Saud University

variable	**premenstrual syndrome among faculty nursing students in King Saud university**
mindfulness	****0.762**

In table (8) positive correlation between mindfulness and premenstrual syndrome among faculty nursing students in King Saud university at 0.01, which correctness of the first hypothesis and positive effect between mindfulness and premenstrual syndrome among faculty nursing students in King Saud university

The second hypothesis:

There is statistically significant Effect of mindfulness on premenstrual syndrome among faculty nursing students in King Saud University

Table (9) the Effect mindfulness and premenstrual syndrome among faculty nursing students in King Saud University

B	**T**	**F**	**P-VALUE**
0.085	**20.362	**414.626	0.000

In table (9) The simple regression equation was significant at the level of 0.01, and the There is a statistically significant positive Effect of mindfulness on premenstrual syndrome among faculty nursing students in King Saud university, it is correct the second hypothesis it turned out that the more it increased mindfulness level 1% is the ability to handle premenstrual syndrome among faculty nursing students in King Saud university has increased 0.085%

Discussion

The research aimed to identify Effect of mindfulness on premenstrual syndrome among faculty nursing students in King Saud university and the research found the medium level of the Mindfulness among nursing students where mean is 3.185 and S.D 1.190 and positive correlation between mindfulness and premenstrual syndrome among faculty nursing students in King Saud university and correctness of the first hypothesis and There is a statistically significant positive Effect of mindfulness on premenstrual syndrome among faculty nursing students in King Saud university, it is correct the second hypothesis and the more it increased mindfulness level 1% is the ability to handle premenstrual syndrome among faculty nursing students in King Saud university has increased 0.085%

Conclusion

The research aimed to identify the Effect of mindfulness on premenstrual syndrome among faculty nursing students in King Saud university the research found there existence of medium level of the Mindfulness among nursing students, which indicates the need to work to raise the level of Mindfulness among nursing students by providing the appropriate environment and providing the needs and capabilities that contribute to achieving this, along with providing courses and training programs that help in increasing the level of Mindfulness ability among nursing students

There is a statistically significant positive Effect of mindfulness on premenstrual syndrome among faculty nursing students in King Saud University, it is correct the second hypothesis and the more it increased mindfulness level 1% is the ability to handle premenstrual syndrome among faculty nursing students in King Saud university has increased 0.085% .

Managerial Relevance

The study contributed to identifying the level of alertness among female nursing students, studying the relationship between the level of alertness and premenstrual disorders among nursing students in King Saud University, as well as shedding light on premenstrual disorders in order to understand the factors influencing them in depth, assessing the associated symptoms, and educating health practitioners on one of the issues related to quality in healthy communities.

Scientific Implications

The proposed topic is of great interest to the health community and the scientific community. This topic can contribute deeply to understanding the relationship between wakefulness and PM disorders. Mindfulness is useful in a variety of areas, including healthcare and education. Mindfulness increases awareness of the present moment by blocking thoughts from the past and the future Mindfulness, entails a focus on intention, in the present life, as well as the promotion of holistic or non-judgmental and non-reactive awareness. This understanding has been described as a discrete metacognitive state in which one is aware of one's own mental processes without being immersed in them. The goal of mindfulness is to free oneself from automatic responses to thoughts, emotional responses, and events. 14. The abilities taught aim to help participants identify and accept negative thought patterns, as well as respond in intentional ways. The individual receives tensions, stress, and suffering, as well as disturbing emotions such as fear, frustration, and feelings of inferiority.

Limitations, Recommendations, and Scope for Future Research

There are a number of difficulties faced by the study, the most important of which is the occurrence of the Covid_19 pandemic, which led to the occurrence of precautionary measures that reduced the researcher’s ability to collect study data, and the study was exposed to the unwillingness of many individuals to answer the study’s questions, so the researcher used a Google form in order to Collecting study data and distributing the link on social networking sites and e-mail to the study sample members.

The study recommends the need to work on providing the appropriate environment and providing the needs and capabilities that contribute to achieving this, along with providing courses and training programs that help in increasing the level of mental ability of nursing students, studies and research procedures related to students, the impact of physiological variables on them, and how to take advantage of the available conditions to increase their capabilities.

References

Alfayez, H. H., Al Mutairi, A. A. H., & Shahbal, S. (2023). Women's Use of Antenatal Care Services: A Systematic Review. HIV Nursing, 23(3), 1538-1543.

Ansong, E, Arhin, S.K., Cai, Y. et al. Menstrual characteristics, disorders and associated risk factors among female international students in Zhejiang Province, China: a cross-sectional survey. BMC Women's Health 19, 35 (2019). https://d0i.org/10.1186/s12905-019-0730-5

Arcikowska, Z; Rajkowska-Labon, E; Grzybowska, M.E.; Dijakiewicz, G.; Hansdorfer-Korzon, R.; Zorena, K. The influence of manual therapy on the level of dysmenorrhea and concentration of sex hormones in young women—A pilot study. In Proceedings of the XVIl Congress of Polish Society Physiotherapy, Pabianice, Poland, 6—7 December 2019; pp. 89—90.

Bertone-johnson ER, Houghton SC, Whitcomb BW. Association of Premenstrual Syndrome with Blood Pressure in Young Adult Women. 2018;0: 1—7.

Del Mar Fernández M, Regueira-Méndez C, Takkouche B. Psychological factors and premenstrual syndrome: a Spanish case-control study. PLOS One. 2019;14:e0212557.

Hardy C., Griffiths A., Norton S., Hunter M.S. Self-help cognitive behavior therapy for working women with problematic hot flushes and night sweats (MENOS@ Work): A multicenter randomized controlled trial. Menopause. 2018;25:508—519.

Hardy C. , Griffiths A. , Thome E. , Hunter M. Tackling the taboo: Talking menopause-related problems at work. Int. J. Workplace Health Manag. 2019;12:28—38.

Hardy, C, & Hunter, M. S. (2021). Premenstrual Symptoms and Work: Exploring Female Staff Experiences and Recommendations for Workplaces. Internationaljournal of environmental research andpublic health, 18(7), 3647. https://doi.org/10.3390/ijerph18073647

Hussein Shehadeh J, Hamdan-Mansour AM. Prevalence and association of premenstrual syndrome and premenstrual dysphoric disorder with academic performance among female university students. Perspect Psychiatr Care. 2018;54: 176—84.

Joe W, Subramanian SV. Subjective health and well-being: toward robust cross-cultural comparisons. SSM Popul Health. 2017;14:814—6.

Komada Y, Ikeda Y, Sato M, Kami A, Masuda C, Shibata S. Social jetlag and menstrual symptoms among female university students. Chronobiol Int. 2019;36:258—64.

Kroll-Desrosiers AR, Ronnenberg AG, Zagarins SE, Houghton SC, Takashima-Uebelhoer BB, Bertone-Johnson ER (2017) Recreational Physical Activity and Premenstrual Syndrome in Young Adult Women: A Cross-Sectional Study. PLoS ONE 12(1): e0169728. https://d0i.org/10.1371/joumal.pone.0169728

Lavu D, Kadian S, O'Brien PMS. Biopsychosocial factors in premenstrual syndrome. In: Edozien LC, O'Brien PMS, editors. Biopsychosocial factors in obstetrics and gynaecology. Cambridge: Cambridge University Press; 2017. p. 94—101

Matsumoto T, Asakura H, Hayashi T. Premenstrual disorders: luteal phase recurrent enigmatic conditions. In: Lal M, editor. Clinical psychosomatic obstetrics and gynaecology: a patient-centred biopsychosocial practice. Oxford: Oxford University Press; 2017. p. 175—98.

Matsumoto T, Kimura T, Hayashi T. Does Japanese citrus fruit Yuzu (Citrus junos Sieb. Ex Tanaka) fragrance have lavender-like therapeutic effects that alleviate premenstrual emotional symptoms? A single-blind randomized crossover study. J Altern Complement Med. 70.

Matsumoto, T., Egawa, M., Kimura, T. et al. A potential relation between premenstrual symptoms and subjective perception of health and stress among college students: a cross-sectional study.

BioPsychoSocia1 Med 13, 26 (2019). https://d0i.org/10.1186/s13030-019-0167-y

Mauramo E, Lahti J, Lallukka T, Lahelma E, Pietiläinen O, Rahkonen O. Changes in common mental disorders and diagnosis-specific sickness absence: a register-linkage follow-up study among Finnish municipal employees. Occup Environ Med. 2019;76(4):230—5

Mohebbi Dehnavi Z, Jafamejad F, Sadeghi Goghary S. The effect of 8 weeks aerobic exercise on severity of physical symptoms of premenstrual syndrome: a clinical trial study. BMC Womens Health.

Rafique N, Al-Sheikh MH. Prevalence of menstrual problems and their association with psychological stress in young female students studying health sciences. Saudi Med J. 2018;39:67— 73.

Rezaei H, Yousefi A, Larijani B, Dehnavieh R, Rezaei N, Adibi P. Internationalization or globalization of higher education. J Educ Health Promot. 2018;7:8.

Viertiö, S., Kiviruusu, 0., Piirtola, M. et al. Factors contributing to psychological distress in the working population, with a special reference to gender difference. BMC Public Health 21, 611 (2021). https://doi.org/l().1186/s12889-021-10560-y

Wu, M., Liang, Y., Wang, Q. et al. Emotion Dysregulation of Women with Premenstrual Syndrome. Sci Rep 6, 38501 (2016). https://doi.org/l().1038/srep38501

Yakout, S. M., Alanazi, S., Jahlan, I., & Shahbal, S. (2023). Assessing the Significance of Pre-and Post-Health Education on the Changes of Knowledge Levels and Self-Efficacy in Pregnant Women with Urinary Tract Infections. HIV Nursing, 23(3), 1572-1579.