Premenstrual Syndrome among Thai Nurses: Prevalence, Impact and Self-management Strategies

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Abstract: Premenstrual syndrome (PMS) is a common health problem among reproductive women, and may adversely affect female nurses experiencing stress from their occupation, due to its interference with one's endocrine function. The purposes of this descriptive prospective study were to: (a) explore the occurrence, intensity and impact of PMS, and (b) describe the type and effectiveness of PMS self-management strategies used by participants. One hundred and sixty-one, 20-45 year old, Thai nurses were recruited from four hospitals in Bangkok. Data related to the occurrence, intensity and impact of PMS were obtained, for two consecutive menstrual cycles, through the use of the Women's Daily Health Diary (DHD), the General Data Record (GDR) and the Negative Impact section of the Daily Record of Severity of Problems (DRSP). The type and effectiveness of PMS self-management strategies used by the participants were obtained, by way of a telephone interview, using the researcher created Self-Management Measures Questionnaire (SMMQ).

Results revealed the prevalence of PMS to be 16.8%, with the most common symptoms being irritability, fatigue, painful or tender breasts, anger, bloating or swelling of abdomen, tension and rapid mood change. The highest intensity of PMS symptoms included: increased appetite, craving for specific food or tastes, painful or tender breasts, irritability and feeling out of control. Although, interference with relationships was a commonly reported impact symptom of PMS, the most disturbing symptom reported was irritability. The most common self-management technique used to alleviate irritability was to decrease time spent with others.

The findings suggest symptom prevalence, intensity and impact were dependent on the individual's perceptions at the time. In addition, no one particular strategy or self-management was found to be most effective in managing any given disturbing symptom, as symptoms were managed with a variety of strategies and self-management techniques.

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Introduction

Although, premenstrual syndrome (PMS) has been recognized in Western societies since 1953, particularly in the United Kingdom (UK).[1] From the primary researcher's professional experiences, PMS, in Thailand, is not a well-known or understood phenomenon. PMS refers to the cyclical recurrence of a combination of distressing physical, psychological

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or behavioral symptoms that occur during the luteal phase of the menstrual cycle and remit for at least 1 week in the follicular phase.[2,3] These symptoms can include fatigue, fluid retention, painful or tender breasts, backache, headache, irritability, anxiety and depression that interfere with family, social or work-related activities.[2,3]

Different etiologies have been proposed for the diverse manifestations of PMS, including abnormal hypothalamic-pituitary-adrenal (HPA) axis functioning, which leads to deficiencies in adrenal hormone secretion; nutritional deficiencies, including magnesium, pyridoxine and carbohydrate intolerance; environmental factors, including stress.[4] Additionally, it is suggested that the etiology and pathophysiology of PMS are related to the ovulation-related luteal activity of the gonadal hormones and their complex interactions with serotonin and other neuro-transmitters.[3]

PMS is a common cause of substantial psychological and physical distress for women during their reproductive years.[5] About 23- 31 % of reproductive aged women experience PMS to a degree that affects their daily lives.[6] Currently, approximately 50% of the female population, in Thailand, is 15-49 years of age.[7] Thus, because of their age, these women could possibly experience the effects of PMS.

The majority of nurses, in Thailand, are 21-50 years old,[8] which includes part of their reproductive years. The nursing profession is recognized as a highly stressful occupation,[9] since nurses, not only have to deal with personal and family issues, but are involved in crucial decisions, when caring for patients,[10] and subject to work-related stress, including the: number and severity of patients cared for in a given shift; quantity of administrative work required; and, necessity of working different shifts.[11]

The stress nurses experience may interfere with their endocrine function, precipitate menstrual cycle disorders and affect the occurrence of PMS.[10] Perceived stress has been associated with increased levels of cortisol, epinephrine and norepinephin;[12] all of which can interfere with endocrine function and produce menstrual disorders, and, in turn, lead to PMS.[4] Thus, nurses, because of the high stress levels produced by their jobs, have a need to understand PMS, and its consequences and management. In addition, nurses, as members of the health care team, could serve as advocators and educators for women who keep silent about their disturbing PMS symptoms.

Conceptual Framework and Review of Literature

The Symptom Management Model (SMM), which consists of three interrelated dimensions, was used to guide this study.[13] The three interrelated dimensions include: (1) symptom experience, (2) symptom management strategies and (3) symptom outcome.[13] This study focused on symptom experience and symptom management strategies. Symptom experience refers to one's perception of discomfort, or abnormal changes, the evaluation of symptom intensity, and the impact the symptoms, have on one's life style. On the other hand, symptom management strategies, refers to the actions an individual takes to relieve, or delay, symptoms, and are determined by the type and effectiveness of the specific actions. In the SMM, self-management is a dynamic process which requires changes in strategies. The effectiveness of self-management strategies can be modified, as a result of individual outcomes in the self-management strategies dimension.

PMS is a combination of physical, psychological and/or behavioral symptoms that appear during the week prior to menstruation, and interfere with a woman's lifestyle and relationships, even though it resolves within a week of the onset of menses.[3] The impact of PMS on one's interpersonal relationships and well-being can be considerable, with daily functioning being disrupted, reduced work efficiency, increased absenteeism from work and interpersonal

relationship difficulties, both within and outside the family.[14-16]

Although PMS has been reported in 20-40% of reproductive age women, only 2-10% of women report severe PMS.[2, 17, 18] The prevalence of PMS, among nurses, in Thailand, has been found to be 25.1%.[19] One, however, needs to approach the prevalence data with caution, since retrospective recordings of PMS symptoms was used and found to produce inflation, in prevalence, compared to data obtained from prospective records.[20] The prevalence of PMS among students, in one prospective study, was found to be 100%, when only one menstrual cycle was assessed.[21] To differentiate PMS from normal menstrual symptoms, it is recommend that a prospective record, of at least two consecutive menstrual cycles, be obtained.[2, 22] The use of prospective record keeping has not been reported, in Thailand, regarding PMS. Thus, a prospective study of PMS, across two menstrual cycles, among Thai nurses, may provide accurate data.

The most common negative symptom impact of PMS, among Thai nurses, has been found to be a disturbance in work efficiency.[19] However, the negative impact of PMS symptoms, related to psychological or emotional issues, precipitated by PMS, among Thai nurses, have not been reported.

Different management strategies have been shown to relieve PMS symptoms.[23] The most common treatments for symptoms of PMS, in the United States of America (USA), are vitamins, exercise, diet modification and medications.[5, 24] In Japan and Thailand, the most common measures, for PMS, are: taking a rest/nap; medications;[21, 25] applying hot compresses to the abdominal area; drinking warm water; self-massage of the abdomen; aerobic exercise; and, yoga.[21] Although various strategies, such as supplementary food, alternative therapies and herbs, have been employed to relieve the symptoms of PMS, few studies have reported strategies Thais use to reduce their symptoms. Studies have reported the overall management of symptoms of PMS, but have not provided specific management strategies for each PMS symptom, except for dysmenorrhea.[21, 25] In addition, no studies could be located that have reported the effectiveness of management strategies, used by Thais, to deal with the symptoms of PMS. In one Western country, the effectiveness of pharmacological treatments, in the management of PMS, has included the use of serotonergic antidepressants, anti-anxiety agents and non-steroidal anti-inflammatory drugs.[17]

The premenstrual experience is recognized as a phenomenon laden with cultural and social significance,[26, 27] with secrecy and concealment being common barriers to seeking treatment.[6, 27] The most common reason for not seeking treatment for the symptoms of PMS, among 18-49 year old American, British and French women, is their belief that their symptoms are not severe enough for treatment. Adolescent Thai females have revealed they believe having painful menses are a normal and natural female experience.[28] Thus, Thai women may: not pay attention to, or conceal having, PMS; not seek knowledge to enable them to better care for themselves; or, use ineffective self-treatment strategies, when they have PMS. It appears essential, therefore, to determine the strategies used by Thai nurses to manage their PMS symptoms, since their personal and professional knowledge, as health care professionals, may be helpful to others.

Purposes of the Study

The purposes of this study, of Thai nurses, were to: (a) explore the prevalence, intensity and impact of PMS; and, (b) describe the type and effectiveness of PMS self-management strategies used.

Method

Design and setting: A prospective descriptive design, with self-report instruments and a telephone interview, was used to obtain data from nurses working

in a hospital setting. Four hospitals, in Bangkok, were used, including a: university hospital; military hospital; Ministry of Public Health hospital; and, private hospital. The hospitals were selected because they provided a wide variety of work environments; work stressors, related to patient case loads and severity of care required; organizational structures; income levels; and, promotion opportunities. In addition, they represented the types of hospitals available in Bangkok. Data were gathered between November 2007 and January 2009.

Ethical considerations: Approval to conduct the study was obtained from the Institutional Review Board of each of the hospitals where data were collected. Potential participants were: informed about the study, the activities involved and the usefulness of its outcomes: assured their confidentiality and anonymity would be maintained; informed they could withdraw, at any time, without repercussions; and, given an opportunity to ask questions. Those who consented to participate, in the study, were asked to sign a consent form.

Sample: Non-probability convenience sampling was used to select potential participants from each hospital. The required number of subjects (n=155), in the sample, was based upon prior research, which found, using menstrual symptom severity criteria, a 9% prevalence rate of PMS among women of child bearing age.[29, 30] Potential participants were nurses, who were working the day shift, in each of the hospitals.

The number of participants recruited, per hospital, was based upon an equitable proportion of the total number of nurses working in all of the facilities. Of those who were recruited: 43% (n = 78), were from a university hospital; 37% (n = 40) were from a military hospital; 31% (n = 38) were from a public health hospital; and, 23% (n = 25) were from a private hospital. Similarly, among those who completed the study (n = 161): 70 (43.5%), were from a university hospital; 37 (22.9%) were from a military hospital; 31 (19.3%) were from a public health hospital; and, 23 (14.3%) were from a private hospital. The clinical units on which they were employed included: outpatient departments (n =20; 12.4%); medical units (n = 24; 14.9%); surgical units (n = 28; 17.4%); obstetrical/gynecological units (n = 32; 19.9%); pediatric units (n = 8; 5.0%); operating rooms (n = 12; 7.5%); intensive care units (n = 9; 5.6%); emergency rooms (n = 2; 1.2%); labor rooms (n = 6; 3.7%); optical and otolaryngology units (n = 14; 8.7%); and, psychiatric units (n = 6; 3.7%).

The inclusion criteria involved being a: hospital employed, Thai, female, registered nurse who: (1) was 20-45 years of age; (2) currently was having regular menstrual periods; (3) had not given birth or breast feed in the previous six months; (4) was not using hormonal contraceptives; (5) was not taking psychotropic medications; and, (6) was willing to participate. A total of 191 nurses were approached to participate. However, only 181 met the eligibility criteria. The other 10 were excluded because they: refused to participate (n = 4; 2.0%); had irregular menstruations (n = 3; 1.6%); were older than 45 years (n = 2; 1.0%); or, used hormonal contraceptives (n = 1; 0.5%). The responses of another 20 were not considered, because of: lack of responses (n = 9; 4.7%); loss of questionnaires (n = 4; 2.0%); use of hormones after beginning the study (n = 3; 1.6%); not having a menstrual cycle after beginning the study (2 (1.0%); or, quitting their jobs and not being able to be contacted (n = 2; 1.0%). Thus, data from 161 participants was used.

Participants ranged in age from 22-45 years, with a mean of 33.3 years (SD = 6.6). They primarily were single (69.6%); had no children (80.1%); worked as staff nurses (87.6%); worked the day and night shift (64%); and, had worked 1 month - 24 years, with a mean of 10.8 years (SD=6.8). Most participants (79.5%) had obtained a bachelor's degree in nursing science, and reported an average monthly income of 19,976 baht, with a monthly range of 8,500 - 70,000 baht. Their average age of menarche was 13.2 years (SD=1.4), with a range of 9-17 years. Over half (53.4%) reported a 21- 28 day interval of menstruation. Caffeine consumption was reported by 47.8%, of the participants, and 13.7% reported engaging in regular exercise.

Instruments: Three self-report instruments were used to collect data, including the: General Data Record (GDR); Women's Daily Health Diary (DHD);[29] and, negative impact section of the Daily Record of Severity of Problem (DRSP) questionnaire.[31] In addition, the Self-Management Measures Questionnaire (SMMQ) was used to guide phone interviews, conducted by the primary investigator. An 88.9% return rate was achieved for the self-report instruments.

The researcher designed GDR sought to obtain general data regarding each subject's: age; address; phone number; occupational title; marital status; number of children; income; educational level; age of menarche; frequency and duration of menstruation; and, caffeine consumption, based on weekly number of cups of caffeinated beverage consumed. In addition, each subject was asked to report her exercise behavior, based on the type, weekly frequency and duration of exercise activities.

The DHD, a multidimensional symptom assessment instrument, designed to explore symptom occurrence and symptom intensity of 57 menstrual symptoms, during the menstrual cycle, was used to classify the prevalence and experience of PMS.[29, 32] The fifty-seven menstrual symptoms address: sexual behavior (2 items); concentration (4 items); sleep (4 items); appetite (7 items); somatic area (16 items); psycho-emotional area (20 items); and, well- being (4 items). These 57 items are grouped into three categories: physical symptoms, psycho-emotional symptoms and behavioral symptoms. Each of the 57 items is measured on a 5-point Likert-like scale, ranging from 0 (not present) to 4 (extreme). Symptom occurrence is interpreted together with the record of symptom intensity, since it is assumed that each time intensity of a symptom is recorded it also indicates the presence of the symptom. Thus, to calculate a mean symptom intensity score, the daily score obtained on each of the 57 items, for day one through day 5 before menstruation begins, are summed and divided by 5. To calculate a symptom occurrence score, a summation of the number of times a participant records a symptom intensity score, which can range from 1 to 4, is made. An intensity score of zero (0) is not used in the calculation of the symptom occurrence score.

The Daily Record of Severity of Problems (DRSP) is a 24-item questionnaire that assesses premenstrual symptoms.[31] However, only the three questionnaires items, in the DRSP, that assess the negative impact of premenstrual symptoms were used, in this study. The three items included: (1) reduced productivity in work, home or daily activities; (2) interference with hobbies or social activities; and, (3) interference with relationships. Each item is rated on a scale of 1 (not at all) to 6 (extreme). A total score for the impact of premenstrual symptoms is calculated by summing the score obtained for each of the three items. In addition, the questionnaire asked the women to identify and rank order the five most disturbing premenstrual symptoms they experienced.

Permission to use and translate the DHD, and the three negative impact items, from the DRSP, was obtained from the original authors.[29, 31] Since the DHD and DRSP originally were written in English, they required translation into Thai. An expert panel of five individuals (three nursing instructors in obstetrics and gynecology, one expert in PMS and two reproductive endocrinologists) reviewed the translations. Based upon the experts' assessment of the translations, minor alterations in wording took place. Both instruments, then, were translated back into English, by a bilingual nursing lecturer, in the USA, to assure no alterations in meaning occurred. The back translated version of the instruments was shared with the original authors. Based upon their feedback, additional wording revisions were made until a satisfactory translated version of each instrument was obtained.

The DHD and DRSP were piloted on a sample of 15 nurses, who were not part of the study, to determine the understandability and feasibility of the translated versions of the instruments. The participants revealed having to turn three pages of the DHD, to record the 57 items daily, was inconvenient. Thus, the instruments' format was changed, so all daily recordings could be made on one page.

The test- retest reliability, for the DHD, was 0.81, for two menstrual cycles. The test- retest reliability, of the three negative impact questions of the DRSP, was shown to be: 0.72, for the item addressing reduced productivity in work, home or daily activities; 0.74, for the item addressing interference with hobbies or social activities; and, 0.77, for the item measuring interference with relationships.

The researcher designed SMMQ was developed to guide the phone interview, whereby information was obtained regarding the type and effectiveness of specific actions the subjects' used to relieve or delay their symptoms of PMS. The SMMQ development process involved: a review of the literature; and, PMS management program.[33] From this review, lists of measures were created on how to manage each symptom, and the effectiveness of the management strategies used. Examples of possible self-management strategies included: thinking before taking action; delaying action until coming up with a better solution; putting one's self in the other person's situation; thinking in a positive manner; and, when feeling angry, counting to 100 before taking action. So as not to miss any self-management strategies used, during the interview, each participant was asked to indicate measures she used that were not on the list read over the phone. The instrument's scoring system was modified from a self-care diary that had been used with cancer patients.[34] Participants were asked to rate the effectiveness of reported symptom management measures, using a scale of 0 (no relief), 1 (a little relief), 3 (quite a bit of relief), and 4 (completely relieved). Prior to its use, the SMMQ was assessed for content validity, by the same five experts who examined the DHD and the negative impact section of the DRSP instruments. They found its content validity index (CVI) to be 0.98.

Procedure: After signing the consent form, each subject was: (a) given a copy of the GDR instrument and two copies of the DHD and the negative impact section of the DRSP instrument; (b) told how to complete the instruments; and, (c) asked to complete the instruments daily, before going to bed, over two menstrual cycles. They also were asked to complete, daily, the DHD and the negative impact section of the DRSP, for seven days following the completion of the second menstrual cycle. The date the questionnaires were distributed, to each participant, was recorded.

Since completion of the instruments required the participants' involvement over a period of two months, each of them received a phone call, or left a phone message, from the primary investigator, approximately half way through the two month time frame. The phone call, or phone message, was done for the purpose of reminding each subject to adhere to the requirements for completing each instrument. At the estimated end of each participant's two month time frame, the primary investigator called to ask if both instruments had been completed. If the instruments had been completed, an appointment was made to review their completeness and retrieve them. Most appointments were held at the participants' workplace or residence. If a subject had not completed the instruments, she was asked to provide an approximate date as to when they might be completed. Based upon the data from the questionnaires, a determination was made, using the American College of Obstetricians and Gynecologists (ACOG) guidelines,[2] as to whether a respective subject had a diagnosis of PMS.

ACOG guidelines stipulate a diagnosis of PMS requires a woman to have at least one psycho-emotional symptom of moderate to extreme intensity ($\geq$ 3), and one physical symptom of the 31 menstrual symptoms identified in the DHD, during a five-day period prior to menstruation. In addition, symptom intensity must occur five days before menstruation, for at least two menstrual cycles, and end within four days after menstruation starts. The magnitude of cyclical changes requires at least a 30% change in symptom intensity between pre-menses and four days after menstruation.[2, 35] If a participant presented with PMS in only one of her two recorded menstrual cycles, a PMS medical specialist was consulted, to determine whether she should be considered to have PMS.

Participants assessed as having PMS (n = 27) were telephonically contacted and an interview date and time were established. It took 1- 5 times (average = twice) to set up each interview. Two participants were unreachable, after 9 phone attempts. Thus, they not included in the final stage of the study. The interview, based upon the SMMQ, addressed each subject's use and effectiveness of PMS self-management strategies. Twenty-five participants were interviewed. Each interview took 10 - 40 minutes to complete.

Results

The prevalence of diagnosed PMS was 16.8% (n=27). Those diagnosed with PMS were 23 - 42 years of age (mean = 31.7 years). The majority (59.3%) were single, consumed caffeine (63%), had an average age of menarche of 13.3 years and a mean income of 17,247.04 baht (SD=4,729.9). However, only 14.8% engaged in regular exercise. The demographics, between participants diagnosed with PMS and those without PMS were found not to be significantly different.

The participants identified 31 symptoms of PMS, from the list of symptoms (see **Table 1**). The five most common symptoms reported, in two menstrual cycles, were: (1) painful or tender breasts; (2) bloating or swelling of the abdomen; (3) sensation of weight gain; (4) fatigue; and, (5) irritability.

Table 1 Premenstrual symptom occurrence (n = 161)

Symptoms	Cycle 1		Cycle 2	
	n	%	n	%
1. Painful or tender breast	**103**	**64.0**	**103**	**64.0**
2. Bloating or swelling of abdomen	**99**	**61.5**	**81**	**50.3**
3. Sensation of weight gain	**84**	**52.2**	**74**	**46.0**
4. Swelling of hands or feet	32	19.9	24	14.9
5. General aches and pain	52	32.3	48	29.8
6. Fatigue	**87**	**54.0**	**87**	**54.0**
7. Headache	62	38.5	59	36.6
8. Backache	64	39.8	55	34.2
9. Increased sensitivity to cold	26	16.1	15	9.3
10. Skin disorder	70	43.5	68	42.2
11. Irritability	**83**	**51.6**	**86**	**53.4**
12. Anger	67	41.6	62	38.5
13. Tension	64	39.8	66	41.0
14. Anxiety	45	28.0	48	29.8
15. Rapid mood change	65	40.4	59	36.6
16. Tearfulness, crying easily	19	11.8	14	8.7
17. Feeling out of control	9	5.6	9	5.6
18. Depression (feel sad or blue)	17	10.6	17	1.6
19. Desire to be alone	20	12.4	17	10.6
20. Increased appetite	75	46.6	77	47.8
21. Increased food intake	72	44.7	77	47.8

Table 1 (continued)

Symptoms	Cycle 1		Cycle 2	
	n	%	n	%
22. Craving for specific food or taste	68	42.2	65	40.4
23. Decreased appetite	36	22.4	28	17.4
24. Decreased food intake	25	15.5	22	13.7
25. Awakening during the night	29	18.0	21	13.0
26. Early morning awakening	21	13.0	15	9.3
27. Increased sleeping	43	26.7	35	21.7
28. Difficulty in getting to sleep	32	19.9	28	17.4
39. Confusion	16	9.9	10	6.2
30. Difficulty concentrating	33	20.5	32	19.9
31. Forgetfulness	26	16.1	18	11.2

Note: The five most frequently occurring symptoms are **bolded.**

Symptom occurrence among those diagnosed with PMS, during two menstrual cycles, is shown in **Table 2.** The most common physical symptoms, among this group, were fatigue, and bloating or swelling of the abdomen, during menstrual cycle 1, while in menstrual cycle 2 their most intense symptom was fatigue. The most common psycho-emotional symptom, for both menstrual cycles, was irritability, while increased appetite was found to be the most common behavioral symptom in both menstrual cycle 1 and 2.

Table 2 Premenstrual Symptom Occurrence (n = 27)

Symptoms	Cycle 1		Cycle 2	
	n	%	n	%
Physical Symptoms				
1. Fatigue	**22**	**81.5**		
2. Bloating or swelling of abdomen	**22**	**81.5**		
3. Painful or tender breasts	20	74.1		
4. Sensation of weight gain	19	70.4		
5. Headache	16	59.3		
1. Fatigue			**23**	**85.2**
2. Painful or tender breasts			22	81.5
3. Bloating or swelling of abdomen			19	70.4
4. Sensation of weight gain			17	63.0
5. Headache			13	48.1

Table 2 (continued)

Symptoms	Cycle 1		Cycle 2	
	n	%	n	%
Psycho-emotional Symptoms				
1. Irritability	**24**	**88.9**		
2. Anger	22	81.5		
3. Rapid mood change	21	77.8		
4. Tension	20	74.1		
5. Depression (feel sad or blue)	5	18.5		
5. Tearfulness, crying easily	5	18.5		
1. Irritability			**25**	**92.6**
2. Tension			21	77.8
3. Anger			20	74.1
4. Rapid mood change			18	66.7
5. Anxiety			11	40.7
Behavioral Symptoms				
1. Increased appetite	**17**	**63.0**		
2. Increased food intake	14	51.9		
3. Craving for specific food or taste	13	48.1		
4. Difficulty concentrating	10	37.0		
4. Increased sleeping	10	37.0		
5. Difficulty in getting to sleep	9	33.3		
1. Increased food intake			**17**	**63.0**
2. Increased appetite			11	40.7
3. Difficulty in getting to sleep			10	37.0
4. Difficulty concentrating			9	33.3
5. Increased sleeping			8	29.6

Note: The most frequently occurring symptoms, in both menstrual cycles, are **bolded**.

The overall scores, for symptom intensity, among those diagnosed with PMS, ranged from mild to moderate (see **Table 3**). The symptom rated most intense, in the physical domain of the DHD, was painful or tender breasts, while inconsistent reporting was noted, within the psycho-emotional domain of the DHD, between menstrual cycle 1 and 2. In menstrual cycle 1, irritability was found to be the most intense symptom, while in menstrual cycle 2, the most intense symptom was feeling out of control. Within the behavioral domain of the DHD, the most intense symptom was increased appetite, while in menstrual cycle 2, the most intense symptom was early morning awakening.

Table 3 Premenstrual symptom occurrence (n = 27)

Symptoms	n	Level of intensity (%)				mean	SD
		Min	Mld	Mod	Ext		
Physical Symptoms							
Cycle 1							
1. Painful or tender breasts	20	10.0	30.0	40.0	20.0	2.74	0.76
2. Bloating/swelling of abdomen	22	13.6	31.8	45.5	9.1	2.60	0.63
3. General aches and pains	13	7.7	53.8	23.1	15.4	2.56	0.75
4. Sensation of weight gain	19	15.8	26.3	52.6	5.3	2.52	0.75
5. Swelling of hands or feet	9	11.1	44.4	33.3	11.1	2.50	0.84
Cycle 2							
1. Painful or tender breasts	22	18.2	31.8	45.5	4.5	**2.40**	0.63
2. Bloating/swelling of abdomen	19	21.1	26.3	52.6	-	2.36	0.65
2. Headache	15	33.3	20.0	33.3	13.3	2.36	0.95
2. Fatigue	23	17.4	34.8	43.5	4.3	2.36	0.71
5. Swelling of hands or feet	7	14.3	57.1	28.6	-	2.32	0.51
Psycho-emotional Symptoms							
Cycle 1							
1. Irritability	24	12.5	37.5	33.3	16.7	**2.59**	0.76
2. Anger	22	13.6	36.4	40.9	9.1	2.49	0.72
3. Rapid mood change	21	9.5	42.9	47.6	-	2.47	0.58
4. Tension	20	20.0	45.0	30.0	5.0	2.25	0.75
5. Depression (feel sad or blue)	5	20.0	60.0	20.0	-	2.15	0.82
Cycle 2							
1. Feeling out of control	3	-	33.3	66.7	-	**2.67**	0.58
2. Rapid mood change	18	11.1	27.8	61.1	-	2.51	0.60
3. Irritability	25	16.0	44.0	36.0	4	2.35	0.74
4. Anger	20	5.0	70.0	25.0	-	2.31	0.50
5. Tension	21	19.0	47.6	33.3	-	2.17	0.64
Behavioral Symptoms							
Cycle 1							
1. Increased appetite	17	5.9	17.6	47.1	29.4	**2.97**	0.81
2. Craving specific food or tastes	13	7.7	38.5	23.1	30.8	2.77	1.01
3. Increased food intake	14	7.1	21.4	57.1	14.3	2.74	0.78
4. Difficulty in getting to sleep	9	11.1	33.3	33.3	22.2	2.73	0.89
5. Increased sleeping	10	10.0	60.0	30.0	-	2.28	0.51

Table 3 (continued)

Symptoms	n	Level of Intensity (%)				mean	SD
		Min	Mld	Mod	Ext	-	
Cycle 2							
1. Early morning awakening	1	-	-	100	-	3.00	-
2. Increased sleeping	10	-	37.5	62.5	-	2.61	0.47
3. Increased appetite	16	6.3	37.5	56.3	-	2.60	0.43
4. Decreased appetite	7	-	42.9	57.1	-	2.57	0.53
5. Increased food intake	10	5.9	41.2	52.9	-	2.56	0.45

Note: Min = minimal; Mld = Mild; Mod = Moderate; Ext = extreme.
The symptoms with the highest intensity, for each menstrual cycle, are **bolded.**

The impact of PMS included: 1) reduced work productivity, home or daily activities; 2) interference with hobbies or social activities; and, 3) interference with relationships. The overall score of impact intensity was at a mild to moderate level. The number reporting severe impact ranged from 7.4 to 18.5%, and extreme impact ranged from 3.7 to 11.1%. The impact intensity mean ranged from 3.26 to 3.63 (SD = 1.04-1.45) on a scale of one to six. In menstrual cycle 1, interference with relationship was rated the most intense (mean=3.63, SD=1.04), while participants reported interference with hobbies or social activities as the greatest intensity (mean = 3.44; SD=1.45) in menstrual cycle 2.

The five most disturbing symptoms reported by those diagnosed with PMS (irritability, fatigue, painful or tender breasts, backache and headache). Their related self-management strategies are shown in **Table 4.** The most frequently used, and most effective self-management strategy reported, was taking a pain reliever for a headache, while the most frequently reported, and least effective strategy used self-management strategy, was doing nothing for dealing with painful or tender breasts.

Table 4 Top five disturbing PMS symptoms and effectiveness of their respective self-management strategies (n=25)

Self-management strategies	n	%	Range	Mean	SD
1. Irritability (n=19)					
a. **Decrease time spent with other people**	15	**78.9**	0-4	2.80	0.86
b. **Do something else to feel better**	15	**78.9**	1-4	2.53	0.74
2.1 Read a book	3	15.8	2-3	2.67	0.58
2.2 Sleep	3	15.8	2-4	3.00	1.00
2.3 Watch T.V.	4	21.1	2-3	2.25	0.50
2.4 Listen to music	6	31.6	1-3	2.00	0.89
2.5 Use the internet	4	21.1	0-3	1.75	1.26
2.6 Clean house	1	5.3	3	3.00	-
2.7 Cook	2	10.5	3	3.00	0

Table 3 (continued)

Self-Management Strategies	n	%	Range	Mean	SD
2. Fatigue (n=13)					
a. **Take a nap**	10	**76.9**	1-4	2.80	0.92
b. Go to bed earlier than usual	8	61.5	2-4	3.25	0.71
3. Painful or tender breasts (n=13)					
a. **Do nothing**	11	**84.6**	0	0	0
b. Wear comfortable clothes	9	75.0	0-3	1.44	0.88
4. Backache (n=13)					
a. **Change sleeping position**	9	**69.2**	0-3	1.22	1.09
b. Do nothing	7	53.8	0	0	0
c. Stretching exercise for neck & back 2-3times per day	6	46.2	1-4	2.83	1.17
5. Headache (n=9)					
a. Sit or lie in dark quite room and try to relax	**8**	**88.9**	**1-4**	**2.38**	**0.92**
b. **Take pain reliever**	8	**88.9**	1-4	3.00	1.07
2.1 Paracetamol	5	55.6			
2.2 Cafergot	3	33.3			
2.3 Ponstan	1	11.1			

Note: The most frequently reported self-management strategies, for each of the symptoms, are **bolded.**

Discussion

The prevalence of PMS, among reproductive aged, registered and practical nurses, in Thailand, found through use of a retrospective study, was reported to be 23 to 25%,[19, 36] which is inconsistent with the PMS prevalence rate of 16.8% found among reproductive aged, registered, Thai nurses in this study. The difference in the prevalence rate of PMS, between the two studies, could be the result of variance in method and sample.

The prior study used a retrospective study design. Thus, respondents were asked to recall each menstrual symptom during the previous six months. The use of a retrospective design could have produced inflation in a PMS prevalence rate when compared to the results of a prospective study design,[20] such as the one used in this study. In addition, the prior study[19, 36] failed to report the criteria used to classify PMS, even though the assessment instrument was based on the Diagnostic and Statistical Manual of Mental Disorder, 4th edition (DSM-IV)[22] criteria. Finally, both registered and practical nurses were included in the prior study, while the current study utilized only registered nurses.

The most common symptom occurrence reported, in this study, was irritability (88.9-92.6%). These results are fairly consistent with prior research, conducted

in Turkey, where irritability was reported by 71- 72% of the subjects.[37] However, unlike the current study, less symptom occurrences [bloating or swelling of the abdomen (66.6%); fatigue (66.6%); painful or tender breasts (53.1%); rapid mood change (53.9%); headache (48.3%); and anger, (35.3%)] were reported in the Turkish study.[37]

It is known the nursing profession is highly stressful.[9] Stressors, experienced by nurses, include: low job control; high job demands; low supportive relationships in the workplace; concern about quality of nursing and medical care; dealing with death and dying; heavy workload; being moved among different care units within the healthcare organization; being on one particular clinical unit for an extended period of time; and, dealing with uncooperative family members and patients.[11] These workplace stresses could interfere with endocrine functions and, as a result, produce menstrual cycle disorder.[10]

Although the most common occurring psycho-emotional symptom, in this study, was irritability, the highest symptom intensity scores reported where the behavioral symptoms, increased appetite and early morning awakening. Unlike this study, prior investigations[37] did not report symptom intensity using the ACOG criteria for PMS. Feeling out of control was the most intense symptom, in the psycho-emotional symptom category, reported during menstrual cycle 2. However, the occurrence of this symptom was rarely reported, or not reported, as one of the five most common symptoms, under psycho-emotional symptoms. Therefore, the most prevalent symptom occurrence is not necessarily the symptom with the highest intensity.

The five most disturbing PMS symptoms reported included: irritability; fatigue; painful or tender breasts; backache; and, headache. The symptom with the highest intensity reported in menstrual cycle 1 was not necessarily the same symptom reported in menstrual cycle 2. Also, the highest mean intensity symptom score was not necessarily the most disturbing symptom. The intensity of symptoms was inconsistently reported and appeared to depend on the perception of the subject.

Similar to prior research,[6] the participants, in this study, experienced greater interference with hobbies or social activities than with work and home/daily activities. Interference with relationships was reported as having sustained a lower impact from PMS symptoms than work, home/daily activities and hobbies/social activities.[16] Previous research,[6, 16, 19] however, has reported that reduced work productivity and home/daily activities more commonly were reported, by women with PMS, than was interference with hobbies/social activities, and interference with relationships. By comparison, reduced work productivity, home/daily activities and interference with relationship, in this study, were impacted to a lesser degree than was interference with hobbies/social activities. These findings may be explained in that responsibility for human life is a major accountability of nursing professionals. Although they were affected by PMS, participants, in this study, tried to complete their work responsibilities. On the other hand, hobbies/social activities easily could be avoided when they were impacted by the presence of PMS symptoms, because they were personal activities that would not interfere with one's career and could be done any time.

To deal with the common and disturbing symptom of irritability, one of the most frequently reported and effective strategies was decreasing time spent with other people. Participants indicated it seemed harder to deal with irritability, than with physical symptoms, because of unavoidable confrontations with others in the performance of their nursing role. During the interviews, participants reported they tended to talk less and spend less time in patients' rooms. They felt less motivation to deal with those with a negative mood or having special needs. Doing something else (i.e. reading a book, sleeping or listening to music) also was reported as a self-

management strategy for alleviating irritability. This strategy suggests that the women desired to engage in an activity that allowed them to avoid people.

The most frequently reported self-management strategy for dealing with fatigue was taking a nap. Going to bed, earlier than usual, was the strategy with the highest effectiveness level of the self-management measures. No previous research could be located that examined menstrual associated fatigue management during the week prior to menstruation. Measures that have been found to alleviate fatigue, from PMS, have included: balancing carbohydrate intake with some low-fat protein; increasing the intake of plant-based food that are high in potassium and magnesium; trying relaxation techniques to revitalize the mind and body; and, engaging in aerobic exercises for 15-minute sessions three to four times per week.[33, 38]

Regarding painful or tender breasts, most of those with PMS reported they did nothing, or wore comfortable clothing, in an attempt to alleviate the symptom. Although the guidelines for dealing with painful or tender breasts suggests use of a supportive bra,[33] the interview data indicate participants felt more discomfort when so doing. Most reported they did nothing because they knew the symptom would dissipate once menstruation started. Dealing with painful or tender breasts also can be dealt with by decreasing fluid retention (i.e. restricting sodium and simple sugar, taking 1200 mg. of calcium carbonate or 100 mg. of spironolactone daily).[5, 39, 40] However, participants, in this study, did not indicate they engaged in these actions on a regular basis.

Similar to suggested self-management strategies, used by others contending with a backache, during the premenstrual phase,[33] the participants tended to change their sleeping positions, as well as use stretching exercises for their neck and back. In addition, more than 50% reported doing nothing. These actions are different from those stated in the literature, whereby the first line of defense for relieving a backache, during the luteal phase, is taking non-steroidal anti-inflammatory drugs; trying hot compresses to the abdominal region; taking a hot bath for about 30 minutes; or, avoiding physically demanding activities.[5, 33]

The participants dealt with headaches, the fifth most disturbing PMS symptom, by sitting or lying in a dark, quiet room, to relax, or by taking medications. Both of these approaches are consistent with the recommended treatment for a PMS related headache.[33,41] In clinical practice, the medications of choice tend to be non-steroidal anti-inflammatory drugs or triptans.[41] In this study, however, only 11.1% of the participants tended to use non-steroidal anti-inflammatory drugs, while more than 50% used paracetamol, which is a practice much different from what is reported in the literature.[41] Although the participants did not report these actions as their most frequent strategies for managing a PMS related headache, it is recommended that, during the luteal phase of the menstrual cycle, women avoid stress, get sufficient sleep, regularly exercise and take magnesium.[41]

All PMS symptoms can be managed by a variety of strategies, "doing nothing" was found to be a common practice when contending with both painful or tender breasts, and a backache. This may imply that Thai women continue to believe that PMS discomfort is just a normal part of the luteal phase of menstruation and that the discomfort will eventually go away, regardless of what is done.

Limitations

Like all studies, this study had limitations. For example, random sampling was not performed, due to the research method employed. In addition, the researcher needed to communicate directly, face to face, with each participant, to ensure she recorded her daily symptom experiences. This interaction could have influenced how the participants' responded, since they may have

wanted to please the investigator with their responses. Thus, one can only assume they were truthful in their responses.

Conclusions and Recommendations

PMS is an intermittent problem that cannot be resolved until menopause. However, appropriate management can help to alleviate the disturbing symptoms of PMS. Findings, of this study, could be used to guide health care providers, who work with those experiencing PMS, regarding what symptoms tend to occur most often, which symptoms tend to have the highest intensity and what strategies to use to effectively deal with the most disturbing symptoms.

Future research needs to consider the use of a qualitative approach to explore how individuals with PMS feel about their symptoms, and what they believe about the PMS experience. Quantitative research, addressing the effectiveness of the self-management strategies, may prove beneficial in developing evidence-based nursing practice to deal with the effects of PMS. Finally, beliefs about menstruation require further examination within the context of the Thai culture.

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ความชุก ผลกระทบ และวิธีการดูแลตนเองเกี่ยวกับกลุ่มอาการก่อนมีประจำเดือนในพยาบาลไทย

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บทคัดย่อ : กลุ่มอาการก่อนมีประจำเดือน (PMS) เป็นปัญหาที่พบได้ทั่วไปในสตรีวัยเจริญพันธุ์ พยาบาลเป็นอาชีพที่จัดได้ว่ามีความเครียด ซึ่งความเครียดสามารถรบกวนระบบการทำงานของฮอร์โมน และสามารถส่งผลกระทบให้ต่ออาการก่อนมีประจำเดือนได้ การวิจัยนี้เป็นการวิจัยเชิงพรรณนาแบบติดตามไปข้างหน้า มีวัตถุประสงค์เพื่อสำรวจความชุกและอธิบายประสบการณ์กลุ่มอาการก่อนมีประจำเดือน ตลอดจนวิธีการดูแลตนเองของสตรีที่มีอาการก่อนมีประจำเดือน โดยใช้เกณฑ์การวินิจฉัยของ ACOG

กลุ่มตัวอย่างเป็นพยาบาล จำนวน 161 คนจาก 4 โรงพยาบาลในกรุงเทพมหานคร อายุระหว่าง 22-45 ปี กลุ่มตัวอย่างใช้แบบบันทึกสุขภาพประจำวัน และแบบบันทึกผลกระทบจากอาการ PMS ทำการบันทึกอาการต่างๆทุกวันเป็นระยะเวลา 2 รอบติดกันของการมีประจำเดือน

ผลการวิจัยพบความชุกของกลุ่มอาการก่อนมีประจำเดือนร้อยละ 16.8 อาการที่พบบ่อยได้แก่ หงุดหงิดง่าย รู้สึกเพลียเหนื่อยล้า เจ็บคัดเต้านม โกรธง่าย รู้สึกท้องโตขึ้น ตึงเครียดและอารมณ์เปลี่ยนแปลงง่าย ระดับความรุนแรงของอาการที่พบค่าเฉลี่ยสูงได้แก่ อยากรับประทานอาหารมากขึ้น อยากรับประทานอาหารบางอย่างเป็นพิเศษ เจ็บคัดเต้านม หงุดหงิดง่าย และรู้สึกควบคุมตัวเองไม่ได้ สำหรับผลกระทบที่พบบ่อยของอาการก่อนมีประจำเดือนคือผลกระทบต่อสัมพันธภาพกับผู้อื่น ส่วนอาการที่ผู้หญิงรู้สึกว่ารบกวนมากที่สุดคืออาการหงุดหงิดง่าย ซึ่งวิธีที่ใช้บ่อยที่สุดในการดูแลตนเองคือ ลดการพบปะผู้คน

ผลการศึกษาในครั้งนี้ชี้ให้เห็นว่าอาการที่ปรากฏ ระดับความรุนแรงของอาการและผลกระทบเป็นการรับรู้ส่วนบุคคล การบรรเทาอาการใดอาการหนึ่งทำได้หลายวิธี และการดูแลตนเองวิธีใดวิธีหนึ่งสามารถบรรเทาอาการได้มากกว่าหนึ่งอาการ

วารสารวิจัยทางการพยาบาล 2009; 13(4) 285 - 301

คำสำคัญ: กลุ่มอาการก่อนมีประจำเดือน การจัดการตนเอง การดูแลตนเอง

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