American Journal of Nursing Science
2015; 4(3): 84-93
Published online April 27, 2015 (http://www.sciencepublishinggroup.com/j/ajns)
doi: 10.11648/j.ajns.20150403.16
ISSN: 2328-5745 (Print); ISSN: 2328-5753 (Online)

Premenstrual Syndrome, Associated Symptoms and Evidence – Based Nursing Management: A Comparative Study Between Rural Menoufia Governorate (Egypt) and Hodidha Governorate (Yemen)

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To cite this article:
Amal Mohamed Gamal, Marwa Ahmed Shahin. Premenstrual Syndrome, Associated Symptoms and Evidence – Based Nursing Management: A Comparative Study Between Rural Menoufia Governorate (Egypt) and Hodidha Governorate (Yemen). *American Journal of Nursing Science*. Vol. 4, No. 3, 2015, pp. 84-93. doi: 10.11648/j.ajns.20150403.16

Abstract: Background: Premenstrual syndrome (PMS) is a common cause of substantial psychological and physical distress for women during their reproductive years. Forty percent of women have symptoms that are severe enough to disrupt some aspect of their daily lives, 5% are incapacitated by their symptoms. Despite the magnitude of this problem, a lot of confusion exists in medical and lay communities alike about what is and is not effective for treatment of PMS. The study aimed assessing premenstrual symptoms, self care practices among women at reproductive age attending Maternal and Child Health (MCH) centers in Menoufia governorate, Egypt and Hodidha governorate, Yemen and evaluate the effect of evidence-based nursing management on severity of premenstrual syndrome among them. Subjects and methods: A quasi experimental study was used. Subjects consisted of 2000 clients (1000 Hodidha clients and 1000 Menoufia clients). Structured Interviewing questionnaire, tool about assessment of premenstrual symptoms severity and pre – post knowledge test were used. Results: there was statistically significant differences in the severity of premenstrual symptoms before and after administration of evidence based nursing management for 3 months (3menstrual cycles). Conclusion: clients experience decrease severity of premenstrual syndrome after administration of evidence based nursing management for 3 months (3 menstrual cycle). Recommendation: Effective evidence based program about premenstrual syndrome, care of gynecological problems should be included into educational program of maternal and child health (MCH) centers in rural Menoufia governorate, Egypt and Hodidha governorate, Yemen. More research is needed to expand the evidence base on effective interventions for premenstrual syndrome and to translate knowledge into practices. Future studies are needed to be performed about prevalence, consequences, and management methods of premenstrual syndrome in different settings in Egypt and Yemen and other Arabic countries.

Keywords: Premenstrual Syndrome, Severity, Evidence Based Nursing Management

1. Introduction

Premenstrual syndrome (PMS) is one of the most common problems in women at their reproductive age. There is no single precise definition of the PMS, but it is generally accepted that premenstrual syndrome is a condition which manifests with distressing physical, behavioral and psychological symptoms, in the absence of organic or underlying psychiatric disease, which regularly recurs during the luteal phase of each menstrual (ovarian) cycle and disappears or significantly regresses by the end of menstruation [(1)].

The true prevalence of PMS is difficult to determine because of self-treatment, differences in availability and access to health serives, definition & diagnostic criteria and cultural practices [(2)]. It has been estimated from retrospective community surveys that nearly 90% of women have experienced at least one premenstrual syndrome. Epidemiological surveys have estimated that as many as 75% of women in their reproductive age experience some symptoms attributed to the premenstrual phase of menstrual cycle during their life [(3, 4)]. It is also estimated that up to 85% of premenopausal women experience at least one premenstrual symptom and 15-20% meet clinical criteria for

premenstrual syndrome (PMS) [5] .Among the gynecological problems, menstrual problems are said to be the major ones especially among adolescent females [6] .

The prevalence of premenstrual syndrome (PMS) of women in Egypt was also found to be variable in a study by Mekhail (2006) who studied the problem of premenstrual syndrome in general practice in EL-Salam district, Ismailia and reported a high prevalence (47.2%) of PMS among the studied females in El-salam district at Ismailia city. Of these, 39.1% had moderate, and 8.1% had severe PMS. Another study by El-Defrawi (2007) at Suez Canal area has reported a prevalence rate of PMS of 69.6% [7] .Despite the high incidence of premenstrual syndrome, its causes have not been clear and several etiologies have been suggested (e.g., hormonal change, neurotransmitters, prostaglandins, diet, drugs, and lifestyle) [8].

Pre menstrual symptoms reappear monthly and last for an average of 6 days per month for the majority of the reproductive years. It has been calculated that affected women experience almost 3000 days of severe symptoms during the reproductive years [9]. The significant appearance of these symptoms starts from the teen years and worsen through the process of aging [9]. More than 200 symptoms of PMS have been described in literature, ranging from mild symptoms to those severe enough to interfere with normal activities [10].

The most important somatic symptoms are feeling overwhelmed, food craving, insomnia or hypersomnia, headache, pelvic pain and discomfort, breast tenderness, joint pain, bloating ; and the most common and distressing affective symptoms are irritability, anxiety, depression, mood swinging, hostility, poor concentration, confusion, social withdrawal and interpersonal conflicts[11,12]. Of these, six symptoms identified as core symptoms suggesting that clinical diagnosis of PMS can be developed around a core symptom group. The identified core symptoms are: anxiety/tension, mood swings, aches, appetite/food cravings, cramps, and decreased interest in activities [13].

There are no specific physical findings or laboratory tests that can be utilized to make the diagnosis of PMS. In a Practice Bulletin published in the year 2000, The American college of obstetricians and gynecologists (ACOG) defined diagnostic criteria for PMS based on the work of Mortola (1990) describes that PMS can be diagnosed if at least one of the affective and one of the somatic symptoms are reported five days prior to the onset of menses in the three prior menstrual cycles .The symptoms must be prospectively recorded in at least two cycles and must cease within 4 days of onset of menses and not recur until after day 12 of the cycle. These symptoms must be recorded in the absence of pharmacologic therapy, or use of hormones, drugs, or alcohol, and cause identified dysfunction in social or work-related activities [10] .

Premenstrual symptoms may cause several difficulties for women including impairment in physical functioning, psychological health and severe dysfunction in social or occupational realms [14]. In young adolescents, symptoms might particularly affect school functions, and social interactions in a negative way [15]. Previous studies have also shown that women with premenstrual disorders have a poor health-related quality of life [16, 17].

Until recently, the focus on single, usually pharmacologic therapy has dominated the treatment of PMS. Now clinical research suggests that combination of treatments including pharmacotherapies (like non-steroidal anti-inflammatory drugs) and cognitive and behavioral therapies, aerobic exercises, homeopathic remedies, reflexology, light therapy, massage therapy, dietary or nutritional modifications have been used over the years to treat premenstrual symptoms. The results showed that the use of a combination therapy is more beneficial than the use of a single treatment [18,7] .

1.1. Significance of the Study

As the reviewed literature indicates, significant group of women of child bearing age experience some cyclic menstrual-related symptoms of various degrees. These PMS symptoms can have debilitating effects on women's health, quality of life and work production. However, race, ethnicity and culture may influence expression of premenstrual symptoms and their severity [19] .As the management of PMS continues to be poorly understood and in many cases inadequately managed [20].The current study was conducted to investigate the severity, most common symptoms of PMS, and apply evidence based nursing management to treat this condition effectively among women at child bearing age attending MCH centers in Menoufia governorate, Egypt and Hodidha governorate, Yemen which will promote quality of life, health and well being of these women.

1.2. Aim of the Study

This study was conducted with the aim of assessing premenstrual symptoms, self care practices among women (clients) at reproductive age attending Maternal and Child Health (MCH) centers in Menoufia governorate, Egypt and Hodidha governorate, Yemen and evaluate the effect of evidence-based nursing management on severity of premenstrual syndrome among them.

1.3. Research Hypothesis

Women (clients) of child bearing age at Menoufia governorate, Egypt and women at Hodidha governorate, Yemen will experience absence or decrease severity of premenstrual syndrome after receiving evidence-based nursing management for 3 months (3 menstrual cycles).

2. Participants and Methods

2.1. Study Design

A quasi-experimental design (nonequivalent control group design) was used in carrying out the current study.

2.2. Study Settings

The study was conducted in the following settings: four

MCH centers at Menoufia governorate, Egypt and four MCH centers at Hodidha governorate, Yemen.

2.3. Participants

Multistage random sampling technique was used in this studyThe sample size of the present study was calculated using Epi Info (2000) program depending on the following: the total number of primary health care centers attendants in Menoufia governorate per year which was 30321 (Menoufiya directorate of health records), the total number of primary health care centers attendants in Hodida governorate per year which was 28765 (Hodida directorate of health records), The prevalence rates of premenstrual symptoms in previous studies were 75 % of women at reproductive age [(4)]. The confidence interval was 95%. The calculated sample size was 966 attendants from Menoufia governorate. The calculated sample size was 932 attendants from Hodidha governorate.

The researchers recruited the whole study subjects according to the inclusion criteria as the study subjects were 2000 women.

The sample was divided into two groups (1000 clients in each group).

Study group1: Clients attending MCH centers at Menoufia governorate, Egypt complaining of premenstrual syndrome.

Study group 2: Clients attending MCH centers at Hodidha governorate,Yemen complaining of premenstrual syndrome .

2.3.1. Inclusion Criteria of the Sample Were

Clients within 15–49 years of age. had a menstrual period at least in the last two consecutive months. Clients experience on a regular basis both somatic and psychological symptoms which occur in the luteal phase, peak before menses, remit during or shortly after the onset of menses.

2.3.2. Exclusion Criteria of the Sample Were

History of chronic illness; diabetes, high blood pressure, heart disease, or current depression, anxiety, and any other psychiatric disorders, or currently using a hormonal method for contraception.

2.4. Study Tools

A. Tool I: Structured interviewing questionnaire which included the following data:

A- Basic data of studied clients including age, education, occupation, residence, income.

B- Menstrual history

C- Data about premenstrual symptoms

D- Data about self care practices and management of premenstrual syndrome.

B. Tool II: assessment of premenstrual syndrome severity: It assess severity of premenstrual syndrome as (0) absence of symptoms, (1) mild symptoms that may not interfere with everyday activities, (2) moderate symptoms that interfere with daily activities, and (3) severe symptoms that impede performing daily activities [(8)] .

C. Tool 3: Assessment of client's knowledge regarding premenstrual symptoms (pre & post test). It is consists of 6 questions scored as (1) sufficient knowledge, (2) insufficient knowledge.

2.4.1. Validity

The validity of the tools was ascertained by a group of experts in the topic. , the group consisted of 1medical staff (professor at obstetric department ,Faculty of Medicine, Menoufia University) and 2 nursing staff (professors at maternal and neonatal health nursing department,Faculty of Nursing ,Menoufia University) who reviewed the instruments for content validity. Also, they were asked to judge the items for completeness and clarity. Suggestions were considered and modifications were made.

2.4.2. Reliability

Test – retest reliability was applied by the researcher for testing the internal consistency of the tools. It refers to the administration of the same tool to the same subjects under similar conditions on two or more occasions. Scores from repeated testing were compared. It gives the same result so the tools was used

2.5. Pilot Study

Pilot study was carried out before starting data collection. This was done to estimate the time required for filling out the sheets and also to check the clarity, applicability, and relevance of the questions. The pilot study was conducted on 10% of the subjects and then they were excluded from the total sample. Based on the results of the pilot study, the necessary modifications were carried out.

2.6. Ethical Considerations

Necessary approvals from MCH centers authorities were taken after issuing an official letter from the dean of Faculty of Nursing of Menoufia University and dean of Faculty of Nursing, Hodidha University. An informed consent to participate in the current study was taken after the purpose of the study was clearly explained to each participant. Confidentiality of obtained personal data, as well as respect of participants' privacy were totally ensured. A summary of the intervention was explained to each woman before volunteering to participate in the study and women were informed that they can withdraw from the study at any time. No invasive procedures were required.

2.7. Study Intervention

The filed work of the present study was done by the two researchers who conducted the study .It was taken one year with range of 30 cases weekly (for collection of data and application of evidence – based nursing - management).

- Step 1: Interview and data collection: Subjects who fulfilled inclusion criteria were recruited by researchers to collect data after obtaining an informed consent. According to data collected, subjects complained from premenstrual syndrome were identified.
- Step 2: Educational session (Information focused therapy): Information given to participants were about

definition, incidence, physical symptoms, psychological symptoms, complications of PMS and general management of premenstrual symptoms at interviewing phase preceded by pretest and followed by post test.

- Step 3: Administration of Evidence-based nursing management: intervention included evidence-based nursing management program was administrated at the interview setting after finishing the filling of questionnaire. The evidence–based nursing management program included
  - Diet: calcium supplementation of 1200 mg daily during the late luteal phase for 3 months (3 menstrual cycles) through supplementation or through diet e.g "1 cup of low fat yogurt gives 415mg calcium so woman should eat 3 cups per day" .[21,22,23] . Complex carbohydrate-rich diet daily during the late luteal phase for 3 months (3 menstrual cycles) [21,22] .
  - Psychological approach: including relaxation technique for 20 minutes a day for 3 months (3 menstrual cycles) [24] .
  - Regular exercise: perform at least 20 to 30 minutes of regular exercise per day for at least 3 days each week for three months (3 menstrual cycles)[25].
- Step 4: Follow up: Subjects were followed up for 3 months (3 menstrual cycles) to assure the success of the program.
- Step 5: Evaluation phase: post intervention data were collected after 12 weeks.

2.8. Statistical Data Analysis

Upon completion of data collection, . The researchers coded the data into a coding sheet so that data could be prepared for computer use. Data was statistically analyzed using statistical package for social studies (SPSS. Inc, Chicago, IL, USA) version 12 on IBM compatible computer. Test of significance was used and level of significance was $p< 0.05$. Statistical presentation and analysis of the present study was carried out.

3. Results

Table (1) Presents a comparison between studied Yemeni (Hodidha) and Egyptian (Menoufia) clients regarding their socio-demographic characteristics. The only statistically significant difference was in their age (P=0.01). It is evident that more Yemeni clients were in the age group less than 20 years (37.4%), compared to 30.6% of the Egyptian ones . No significant differences were revealed between the two groups in regards to their marital status and level of education.

Concerning menstrual history, table (2), points to a statistically significant difference between the two study groups in regards of their age at menarche (P>0.001). While only less than one tenth of the Hodidha clients had their menarche at the age 9-11 years, about one fourth of the Egyptian (Menoufia) clients had their menarche at that age. Meanwhile, there were no statistically significant differences between the two groups regarding the duration and regularity of the menstrual cycle.

Table (3) illustrates a comparison between the two study groups regarding premenstrual symptoms before and during menstruation. Statistically significant differences were found in most of these symptoms between the two groups. Regarding premenstrual symptoms Yemeni (Hodidha) clients had higher percentages of anxiety / depression (48.6%),, severe mood changes (37.5%), and difficult concentration (28.1%)., Conversely, Egyptian (Menoufia) clients had more joint pain (68.3%), feeling tired (71.8%,), abdominal cramps (61.8%) and sleep disturbances (39.2%). ,

The same table also shows that during menstruation, Yemeni (Hodidha) clients had statistically significantly higher percentages of tension / discomfort (45.3%) and hostility (28.1%). Meanwhile, Egyptian (Menoufia) clients had higher percentages of severe abdominal pain and cramps (80.1%), breast tenderness (56.3%), nausea and vomiting (58.3%), headache and dizziness (43.1%), and bleeding over seven days (53.2%).

Table (4) displays a comparison between the two study groups regarding self–care practices for premenstrual syndrome. Statistically significant differences were found in all areas of self–care (P<0.001). As the table shows, Yemeni (Hodidha) clients had better personal hygiene (96.2%), and had higher intake of vegetables and fruits (51.6%), and more use of exercise and warm shower (42.8%). Meanwhile, significantly more Egyptian (Menoufia) clients avoided caffeine (80.8%), and spicy food (60.0%). Regarding fluid intake, the table shows that more Yemeni (Hodidha) clients preferred cold fluids, while more Egyptian (Menoufia) clients preferred hot fluids, 42.7% and 66.8%, respectively.

Concerning management of premenstrual symptoms, table (5), indicates statistically significant differences between Yemeni and Egyptian clients regarding the use of non prescribed medications (P<0.001). It is evident that more than three – fourth of the Egyptian (Menoufia) clients (79.5%) were using such medications, compared to less than half (43.3%) of Yemeni (Hodidha) clients. Moreover, the use of non – steroidal anti inflammatory medications was higher among Egyptian (Menoufia) (95.1%), compared to Yemeni (Hodidha) clients (89.2%). Meanwhile, no statistically significant differences could be detected between the two groups regarding the use of herbs or seeking medical advice.

Figure (1) illustrates a comparison between Yemeni (Hodidha) and Egyptian (Menoufia) clients regarding their knowledge about PMS before educational session. Slightly more Egyptian (Menoufia) clients had satisfactory knowledge (33.8%), compared to Yemeni (Hodidha) ones (31.7%).

Figure (2) illustrates a comparison between Yemeni (Hodidha) and Egyptian (Menoufia) clients regarding their knowledge about premenstrual syndrome after educational session. More Egyptian (Menoufia) clients had satisfactory knowledge (75.4%) , compared to Yemeni (Hodidha) ones (70.8%).

Concerning evidence based nursing management, table (6) indicates statistically significant differences between Yemeni (Hodidha) and Egyptian (Menoufia) clients regarding the

severity of premenstrual syndrome before and after intervention (P<0.001).

Table 1. *Comparison of demographic characteristics of women in the two study groups.*

Demographic characteristics	Hodidha (n=1000)		Menoufia (n=1000)		X2 test (p-vale)
	No.	%	No.	%	
Age (years)					
<20	374	37.4	306	30.6	10.33
20-30	452	45.2	504	50.4	.01
30+	174	17.4	190	19.0	
Illiterate	256	25.6	236	23.6	1.08
Educated	744	74.4	764	75.4	0.30
Residence					
urban	501	50.1	523	52.3	.97
Rural	499	49.9	477	47.7	0.33

Table 2. *Comparison of menstrual history of women in the two study groups.*

Menstrual characteristics	Hodidha (n=1000)		Menoufia (n=1000)		X2 test (p-vale)
	No.	%	No.	%	
Age at Menarche					
9-11	97	9.7	239	23.9	139.15
12-14	617	61.7	651	65.1	<0.001
15-17	286	28.6	110	11.0	
Duration of Cycle					
>7 days	505	50.5	490	49.0	1.47
6-3	379	37.9	404	40.4	0.48
<3	116	11.6	106	10.6	
Type of menstrual cycle					2.45
Regular	683	68.3	650	65.0	0.12
Irregular	317	31.7	350	35.0	

Table3. *Comparison of pre menstrual symptoms (syndrome) among women in the two study groups.*

Premenstrual symptoms	Hodidha (n=1000)					Menoufiya (n=1000)					X2 test	(p-vale)
	mild	moderate	severe	Total (No).	%	mild	moderate	severe	No.	%		
Before Menstruation												
Joint pain	250	279	89	618	61.8	262	270	151	683	68.3	. 9.29	.002
Feeling tired	231	311	75	617	61.7	152	312	254	718	71.8	22.98	<0.001
Headache	292	198	62	552	55.2	170	175	188	533	53.3	0.73	0.39
Abdominal cramps	112	243	190	545	54.5	183	301	134	618	61.8	10.95	<0.001
Anxiety / depression	114	160	212	486	48.6	101	152	122	375	37.5	25.13	<0.001
Breast tenderness	171	183	108	462	46.2	173	154	114	441	44.1	.89	0.35
Severe mood change	91	131	153	375	37.5	97	142	54	298	29.8	13.28	<0.001
Difficult concentration	92	100	89	281	28.1	77	71	30	178	17.8	30.00	<0.001
Sleep disturbance	102	98	74	274	27.4	120	151	121	392	39.2	31.34	<0.001
During menstruation												
Backache and joint pain	222	420	171	813	81.3	225	220	338	783	78.3	2.79	0.10
abdominal pain / cramps	85	289	288	662	66.2	111	452	238	801	80.1	49.19	<0.001
Breast tenderness	152	233	88	473	47.3	201	198	164	563	56.3	16.22	<0.001
Anorexia or excessive eating	186	197	84	467	46.7	191	203	65	459	45.9	0.13	0.72
Tension / discomfort	172	186	95	453	45.3	112	133	100	345	34.5	24.32	<0.001
Nausea / vomiting	99	265	63	427	42.7	183	276	124	583	58.3	48.68	<0.001
Headache / dizziness	102	180	71	353	35.3	197	205	29	431	43.1	12.76	<0.001
Bleeding over 7 days	78	300	60	438	43.8	198	304	30	532	53.2	17.69	<0.001
Hostility	104	100	77	281	28.1	53	40	32	125	12.5	75.21	<0.001

Table 4. *Self-care practice for premenstrual symptoms(syndrome) among women in the two study groups.*

Self – care practices	Hodidha(n=1000)		Menoufiya(n=1000)		X2 test	(p-vale)
	No.	%	No.	%		
Personal hygiene	962	96.2	899	89.9	30.69	<0.001
Increase intake of vegetables/ fruits	516	51.6	231	23.1	173.56	<0.001
Exercise and warm shower	428	42.8	143	14.3	199.09	<0.001
Avoid caffeine	417	41.7	800	80.0	307.88	<0.001
Avoid spicy food	411	41.1	600	60.0	71.45	<0.001
Increase fluids						
Hot	468	46.8	668	66.8	274.94	<0.001
Cold	427	42.7	105	10.5		
Both hot and cold	105	10.5	227	22.7		

Table 5. *Management for premenstrual symptoms (syndrome) among women in the two study groups.*

Management of premenstrual symptoms	Hodidha(n=1000)		Menoufiya(n=1000)		X2 test	(p-vale)
	No.	%	No.	%		
Use non – prescribed medications						
No	567	56.7	205	20.5	278.12	<.001
Yes	433	43.3	795	79.5		
Medication used						
Non- steroidal anti-inflammatory	386	89.2	757	95.1	15.28	<.001
Others	47	10.8	39	4.9		
Use herbs						
No	827	82.7	798	76.8	2.60	0.11
Yes	173	17.3	202	20.2		
Seek medical advice						
No	853	85.3	832	83.2	1.66	0.20
Yes	147	14.7	168	168		

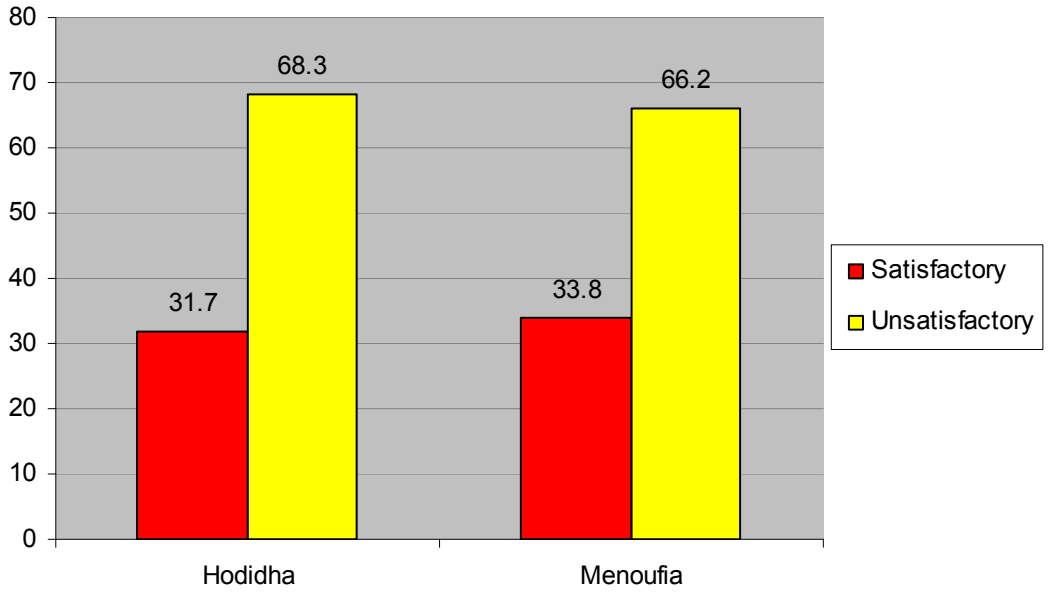

Figure (1). *Comparison of knowledge about premenstrual syndrome among women in the two study groups (pretest).*

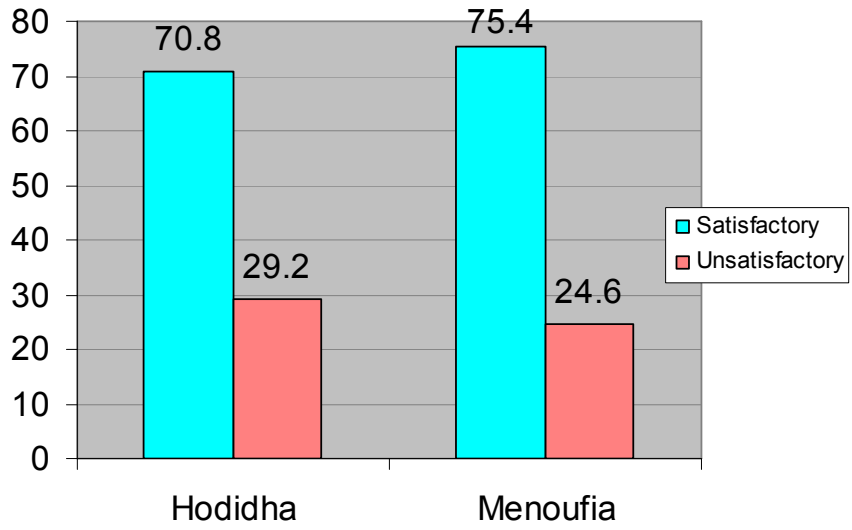

Figure (2). *Comparison of knowledge about premenstrual syndrome (syndrome) among women in the two study groups (posttest).*

Table 6. *Comparison of severity of pre menstrual symptoms among women in the two study groups before and after Evidence based nursing management.*

Severity of Premenstrual syndrome	Before Intervention		After intervention		X2 test	(p-vale)
	No.	%	No.	%		
Egyptian women (Menoufia governorate)						
None	-	0	275	27.5		
Mild	210	21	309	30.9	434.7	<.001
Moderate	452	45.2	302	30.2		
Severe	338	33.8	114	11.4		
Yemen women (Hodidha governorate)						
None	-	0	300	30.0		
Mild	292	29.2	189	18.9	364.8	<.001
Moderate	420	42.0	351	35.1		
Severe	288	28.8	160	16.0		

4. Discussion

The current study findings revealed statistically significant difference between clients at Menoufia governorate, Egypt and Hodidha governorate, Yemen regarding age (P=0.01). As evident from study finding more than half of Egyptian (Menoufia) clients had age from 20 to less than 30 compared to 45 percent of Hodidha clients. On the same line with the current study findings Rapkin and Winer [(26)], who studied PMS and premenstrual dysphoric disorder: quality of life and burden of illness reported that the most severe symptoms occur in the 20s to 30s.

It is also evident from study findings that more Hodidha clients were in the age group less than 20 years. the current study findings is congruent with study conducted by Mahin et al [(27)], who studied health related quality of life among adolescents with premenstrual disorders and revealed that the mean age of participants was 15.78 years ranging from 14 to 19 years.

Regarding education, the current study findings revealed that about three fourths of Hodidha clients and Egyptian (Menoufia) clients were educated. This result was consistent with studies in different countries indicated that PM symptoms are more common among high-level educated women than non- educated women with a possible association of stress with PMS [(28,29,30)].

Concerning menstrual history, the present study indicated that more than half of Hodidha clients and Egyptian (Menoufia) clients had mean age of menarche at 12-14 years, this result was consistent with study conducted by Abd El-Hamid et al.[(7)] who studied knowledge and practice of female employees about premenstrual syndrome and its effect on daily life activities in EL-Minia university and observed that the vast majority of the studied sample had normal mean age of menarche that was 13 ±.8 . Additionally, Bayan et al. [(31)] who studied premenstrual symptoms in dysmenorrheic college students: prevalence and relation to vitamin D and parathyroid hormone levels reported that the mean age of menarche was 13.3 ± 1.4 years.

In accordance with a study conducted by Mahin et al. (2012) [(27)] who found that the mean duration of menstrual bleeding was 7.2 days, the present study findings showed that about half of Egyptian (Menoufia) woman and Hodidha clients had > 7 days duration of menstrual cycle .

Diaz et al. (2009)[(32)] who studied menstruation in girls and adolescents observed that the entire studied sample had normal regularity of menstrual cycle , consistent with Diaz findings, the present study findings revealed that more than half of Egyptian (Menoufia) and Hodidha clients had regular

menstrual cycle.

Regarding premenstrual symptoms, before menstruation Egyptian (Menoufia) clients had more joint pain, feeling tired, abdominal cramps and sleep disturbances, than Hodidha clients. During menstruation, Egyptian clients had higher percentages of severe abdominal pain and cramps, breast tenderness, nausea and vomiting, headache and dizziness, and bleeding over seven days than Hodidha clients. The present study findings were consistent with study conducted by Abd El-Hamid et al. [7] who reported that the most common reported physical symptoms of premenstrual syndrome by the studied sample were; backache(79.64%), fatigue(75.22%), bloating(65.49%), breast tenderness(61.95%), headache(33.63%), nausea(21.24%) and vomiting(15.93%). Also , similar results were found by Ghonamy [33] who studied premenstrual syndrome among Egyptian Cairo university females and reported the most common somatic symptoms were backache, fatigue, headache, abdominal cramps and breast tenderness. Also, Khairani [34] who studied premenstrual symptoms and remedies practiced by Malaysian women attending a rural primary care clinic and reported that the commonly reported premenstrual symptoms were mainly physical symptoms, namely backache and joint pain, abdominal pain and breast pain.

The current study findings revealed that before menstruation, Hodidha clients had higher percentages of anxiety / depression, severe mood changes, and difficulty in concentration than Egyptian (Menoufia) clients. Also during menstruation , Hodidha clients had statistically significantly higher percentages of tension / discomfort, and hostility than Egyptian (Menoufia) clients. Such findings are almost similar to the study conducted by Hylan et al. [35] who studied the impact of premenstrual symptomatology on functioning and treatment-seeking behavior: experience from the United States, United Kingdom, and France and mentioned that up to 60% of American women with PMS reported psychological symptoms such as worry, depression, tension, nervousness and mood swings. On the same line, Derman et al. [36] who studied PMS and associated symptoms have reported that most common premenstrual symptoms were negative mood, particularly indicated as stress (87.6%) and irritation (87.6%). These differences could be due to variation in the scales used, as well as the variations in the women's ages, marital status, occupations, educational backgrounds, race and other characteristics.

Management of PMS differs in several aspects between disciplines and countries, sometimes following the evidence base but elsewhere departing from it [37].Hodidha clients had better personal hygiene, and consumed more vegetables and fruits, and more use of exercise and warm shower. Meanwhile, significantly more Egyptian (Menoufia) clients avoided caffeine, and spicy food. In regard to fluid intake, Hodidha women preferred cold fluids, while more Egyptian (Menoufia) clients preferred hot fluids. The study findings consistent with Fikru and Mebratu [1] who mentioned that the treatment modalities used were hot drinks, massage therapy and exercise.

Concerning management of Premenstrual symptoms, the present study findings indicated statistically significant differences between clients at Hodidha governorate, Yemen and Menoufia Governorate, Egypt regarding the use of non prescribed medications (P<0.001). It is evident that more than three fourths of the Egyptian (Menoufia) clients were using such medications, compared to less than half of Hodidha women. The findings of the present study are in accordance with the findings of study carried out by Sibel [38] who studiedPMS and management behaviors in Turkey and stated that 57.1% of women preferred taking painkillers to control their symptoms.

Regarding the effect of evidence based nursing management on premenstrual severity (diet, relaxation technique, and exercise), the present study revealed decrease severity of premenstrual symptoms after administration of evidence based nursing management for 3 months (3 menstrual cycles). The current study findings are in agreement with Sue Douglas[21] who studied evidence based treatment for premenstrual syndrome in family practice and mentioned that good scientific evidence shows that calcium carbonate (1200 mg/d) is effective treatments for PMS. Other treatments for which there is evidence include regular exercise, stress reduction, cognitive therapy, and a complex carbohydrate-rich diet

Thys-Jacobs et al.[22] conducted a large trial (12 sites) involving 466 women diagnosed with moderate-to-severe PMS. Women were randomized to a calcium carbonate (1200 mg/d) or placebo group. Women recorded their symptoms daily over three cycles. Compliance with treatment was measured. No significant reduction in symptoms was reported after the first cycle. By the third cycle, however, women who received calcium reported a 48% reduction in their total symptom scores (P < .001) compared with baseline., These findings provide good evidence for the effectiveness of calcium carbonate as a treatment for PMS. Calcium is also relatively inexpensive and is important in preventing osteoporosis; therefore, it is recommended as first-line treatment for PMS [22] .

Several descriptive studies indicate that women who exercise regularly have fewer PMS symptoms than sedentary women [39,40] . The cumulative evidence suggests that exercise is likely to reduce PMS symptoms. Given the associated benefits of exercise, it seems reasonable to recommend an exercise program to help alleviate PMS symptoms [21].

Various trials suggest that relaxation technique help alleviate PMS symptoms. In one trial, women were randomized to a group instructed to practice a relaxation technique for 20 minutes a day or to 20 minutes in a "quiet time" group. The women in the relaxation response group reported fewer PMS symptoms than women in the "quiet time" group[24] .

Also , the findings of the present study were consistent with findings of Janita [41] who studied effects of an educational program on adolescents with PMS, and reported a significant reduction in total PMS scores three months following the education program,

5. Conclusion

The following were concluded from this study:

- Clients at Hodidha governorate, Yemen had higher percentages of psychological premenstrual syndrome e.g anxiety / depression, severe mood changes, and difficulty in concentration more than clients at Menoufia governorate, Egypt.
- Clients at Menoufia governorate, Egypt had higher percentages of physical premenstrual syndrome e.g joint pain, feeling tired, and abdominal cramps than clients at Hodidha governorate, Yemen.
- Statistically significant differences are revealed in all areas of self – care ($P<0.001$) between clients at Menoufia governorate, Egypt and Hodidha governorate, Yemen. Yemeni (Hodidha) clients had better personal hygiene and had higher intake of vegetables and fruits, and more practice of exercise and warm shower. Meanwhile, significantly more Egyptian clients avoided caffeine and spicy food.
- Clients at Menoufia governorate, Egypt used non prescribed medications for relieving premenstrual syndrome more than clients at Hodidha governorate, Yemen.
- Egyptian (Menoufia) clients had satisfactory knowledge about premenstrual syndrome (75.4%), compared to Yemeni (Hodidha) ones (70.8%).
- Clients at Menoufia governorate, Egypt and Hodidha governorate, Yemen experienced decrease severity of premenstrual syndrome after administration of evidence based nursing management for 3 months (3 menstrual cycle) therefore the hypothesis is accepted.

Recommendations

- Effective evidence based program about premenstrual syndrome, care of gynecological problems should be included into educational program of Maternal and Child Health (MCH) centers in rural Menoufia governorate , Egypt and Hodidha governorate, Yemen.
- More research is needed to expand the evidence base on effective interventions for premenstrual syndrome and to translate knowledge into practices.
- Future studies are needed to be performed about prevalence, consequences, and management methods of premenstrual syndrome in different settings in Egypt and Yemen and other Arabic countries.

Acknowledgement

The authors are grateful to the Head of Maternal and Child health Centers (MCH) at Menoufia Governorate, Egypt and Head of Maternal and Child health Centers (MCH) at Hodidha governorate, Yemen for providing help for data collection and cooperation to accomplish this study.

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