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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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. The true prevalence of PMS is difficult to determine because of self-treatment, differences in availability and access to health services, definition & diagnostic criteria and cultural practices. 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. 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) is among the most prevalent and distressing conditions associated with reproductive health. Among women of childbearing age, PMS affects approximately 69.6% of females, with symptoms ranging from irritability, anxiety, depression, mood swings, headache, pelvic pain, and discomfort, breast tenderness, joint aches, appetite/food cravings, cramps, and decreased interest in activities. These symptoms may last for an average of 6 days per month for the majority of the reproductive years and reappear monthly. The onset of symptoms starts 5 days prior to the onset of menses in the three prior menstrual cycles and must cease within 4 days of the onset of menses and not recur until after day 12 of the cycle.

The most significant somatic symptoms include feeling overwhelmed, food craving, insomnia or hypersomnia, headache, pelvic pain, and discomfort, breast tenderness, joint pain, bloating, and more. Of these, six symptoms identified as core symptoms for clinical diagnosis of PMS include anxiety/tension, mood swings, headache, pelvic pain and discomfort, breast tenderness, and joint aches. These symptoms are often accompanied by increased sensitivity to smells and tastes, bloating, and decreased interest in activities.

There are no specific laboratory tests or physical findings that can be utilized to diagnose PMS. However, the Practice Bulletin published in the year 2000 by the American college of obstetricians and gynecologists (ACOG) provides a diagnostic criterion for PMS. According to ACOG, 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 the 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.

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

Until recently, the focus on single, usually pharmacologic therapy has dominated the treatment of PMS. However, recent research suggests that combination 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, and herbal medications have been developed over the years to treat PMS. The results showed that the use of a combination therapy is more beneficial than the use of a single treatment.

1.1. Significance of the Study

As the reviewed literature indicates, significant group of women of childbearing 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, the management of PMS continues to be poorly understood, and in many cases, inadequately managed. The current study conducted a 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 Maternal and Child Health centers in Menoufia governorate, Egypt and Hodidha governorate, Yemen which will promote quality 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 childbearing 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
performing daily activities. Premenstrual syndrome, psychiatric disorders, or currently using a hormonal method for contraception. The prevalence rates of premenstrual symptoms in previous studies were 75% of women at reproductive age. 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 group 1: 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:
- Basic data of studied clients including age, education, occupation, residence, income.
- Menstrual history
- Data about premenstrual symptoms
- 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.

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 1 medical 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 administered 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) (23).
  • 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) (23).
  • 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) |
|-----------------------------|------------------|-------------------|-----------------|
| 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       | 1.08   |
| Illiterate                  | 256              | 25.6              | 236             | 23.6       | 0.30   |
| Educated Residence          | 744              | 74.4              | 764             | 75.4       | .97    |
| urban                       | 501              | 50.1              | 523             | 52.3       | 0.33   |
| Rural                       | 499              | 49.9              | 477             | 47.7       |        |

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) |
|---------------------------|------------------|-------------------|-----------------|
| 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   |                  |                   |                 |
| Regular                   | 683              | 68.3              | 650             | 65.0       | 2.45   |
| Irregular                 | 317              | 31.7              | 350             | 35.0       | 0.12   |

Table 3. Comparison of pre menstrual symptoms (syndrome) among women in the two study groups.

| Premenstrual symptoms      | Hodidha (n=1000) | Menoufia (n=1000) | X2 test (p-vale) |
|----------------------------|------------------|-------------------|-----------------|
| Before Menstruation        |                  |                   |                 |
| Joint pain                 | 250              | 61.8              | 262             | 51.5       | 683    |
| Feeling tired              | 231              | 61.7              | 152             | 51.5       | 718    |
| Headache                   | 292              | 55.2              | 170             | 55.2       | 533    |
| Abdominal cramps           | 112              | 54.5              | 183             | 54.5       | 618    |
| Anxiety / depression       | 114              | 48.6              | 101             | 48.6       | 375    |
| Breast tenderness          | 171              | 46.2              | 173             | 46.2       | 441    |
| Severe mood change         | 91               | 37.5              | 97              | 37.5       | 298    |
| Difficult concentration    | 92               | 28.1              | 77              | 28.1       | 178    |
| Sleep disturbance          | 102              | 27.4              | 120             | 27.4       | 392    |
| During menstruation        |                  |                   |                 |
| Backache and joint pain    | 222              | 81.3              | 225             | 81.3       | 783    |
| abdominal pain / cramps    | 85               | 66.2              | 111             | 66.2       | 801    |
| Breast tenderness          | 152              | 47.3              | 201             | 47.3       | 563    |
| Anorexia or excessive eating | 186            | 46.7              | 191             | 46.7       | 459    |
| Tension / discomfort       | 172              | 45.3              | 112             | 45.3       | 345    |
| Nausea / vomiting          | 99               | 42.7              | 183             | 42.7       | 583    |
| Headache / dizziness       | 102              | 35.3              | 197             | 35.3       | 431    |
| Bleeding over 7 days       | 78               | 43.8              | 198             | 43.8       | 532    |
| Hostility                  | 104              | 28.1              | 53              | 28.1       | 125    |
### Table 4. Self-care practice for premenstrual symptoms (syndrome) among women in the two study groups.

| Self-care practice               | Hodidha (n=1000) | Menoufya (n=1000) | X2 test | (p-vale) |
|----------------------------------|------------------|-------------------|---------|----------|
| Personal hygiene                 | 962               | 899               | 30.69   | <0.001   |
| Increase intake of vegetables/ fruits | 516               | 231               | 173.56  | <0.001   |
| Exercise and warm shower         | 428               | 143               | 199.09  | <0.001   |
| Avoid caffeine                   | 417               | 800               | 307.88  | <0.001   |
| Avoid spicy food                 | 411               | 600               | 71.45   | <0.001   |
| Increase fluids                  |                   |                   |         |          |
| Hot                              | 468               | 668               | 274.94  | <0.001   |
| Cold                             | 427               | 105               |         |          |
| Both hot and cold                | 105               | 227               |         |          |

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

| Management of premenstrual symptoms | Hodidha (n=1000) | Menoufya (n=1000) | X2 test | (p-vale) |
|-------------------------------------|------------------|-------------------|---------|----------|
| Use non-prescribed medications      |                   |                   |         |          |
| No                                  | 567               | 205               | 278.12  | <0.001   |
| Yes                                 | 433               | 795               |         |          |
| Medication used                     |                   |                   |         |          |
| Non-steroidal anti-inflammatory     | 386               | 757               | 15.28   | <0.001   |
| Others                              | 47                | 39                |         |          |
| Use herbs                           |                   |                   |         |          |
| No                                  | 827               | 798               | 2.60    | 0.11     |
| Yes                                 | 173               | 202               |         |          |
| Seek medical advice                 |                   |                   |         |          |
| No                                  | 853               | 832               | 1.66    | 0.20     |
| Yes                                 | 147               | 168               |         |          |

**Figure (1).** Comparison of knowledge about premenstrual syndrome among women in the two study groups (pretest).
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 are 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 the 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 studied PMS 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 (24) 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.

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