

Effect of Evidence-based Program among Adolescent Nursing Student's Regarding Premenstrual Tension Syndrome

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Abstract Background: Premenstrual tension syndrome is one of the most common disorders in adolescent girls that could significantly interfere with activities of daily life. It refers to a group of expectable mood, behavioral, and physical symptoms that occurs 7-14 days before the onset of menstruation. The studies indicated that high proportion of adolescence suffering from PMS. So it is very important for these girls to determine efficacy of evidence-based program for increasing knowledge and decreasing the severity of PMS. **Aim:** Was to evaluate effect of evidence based program among adolescent nursing student's regarding PMS. Quasi-experimental **design:** (pre and post intervention) was conducted. A total **sample** of (100) girls (All female students in the first and second grades) aged between 17 and 19 years, who suffered from PMS. **Setting:** The study was conducted at the Faculty of Nursing, Benha University. Data were collected through two main. **Tools:** A structured self-administered questionnaire, and self-practices daily activities toward PMS. **Results:** showed that, there was highly statistically significant difference in all items of knowledge & practices after application of the evidence-based program as compared with that before applying it. Meanwhile, after training program, there was a significant improvement in the student's body weight after applying program compared with that before applying it, the mean weight pre-program was 77.4 +5. 8Kg, while the mean weight post-program was 68.89+6.332 Kg. **Conclusion:** Overall, the findings revealed that, the evidence-based program had a possible positive beneficial effect on increasing knowledge and decreasing PMS signs and symptoms severity. Also, the evidence based program has decreased the effect of PMS S & S on study group life. Thus, the study **recommended** that continuing health education program about PMS that aimed at understanding signs & symptoms of PMS which emphasize on self-care measures and life style modifications.

Keywords: *premenstrual syndromes, evidence-based, adolescent girls, student's knowledge and practices*

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1. Introduction

Cyclical nature of women's reproductive functions is a natural part of their lives and produces some behavioral, physical and psychological functions. The one of these cyclical changes is menstruation. It is a physiological phenomenon experienced, many of whom report PMS such as breast tenderness, abdominal bloating, nausea, and headache. These symptoms are usually mild and do not require special management in most cases; however, 20-40% of women experience severe premenstrual symptoms. One of the psychosomatic problems that are associated with female reproductive function is premenstrual syndrome. [1]

Premenstrual tension syndrome is a common disorder in menstruating females. It can affect menstruating women

of any age and the effect is different for each woman [2]. Common symptoms of premenstrual tension syndrome is consisting of, behavioral symptoms, psychological symptoms, and physical symptoms. Behavioral symptoms such as fatigue, insomnia, dizziness, and changes in sexual interest, food cravings or overeating, Psychological symptoms include irritability, anger, depressed mood, crying and tearfulness, anxiety, tension, mood swings, lack of concentration, confusion, forgetfulness, restlessness, loneliness, decreased self-esteem, tension and Physical symptoms as headaches, breast tenderness and swelling, back pain, abdominal pain and bloating, weight gain, swelling of extremities, water retention, nausea, muscle and joint pain .Premenstrual symptoms are considered to be affected by increased intensity of menstrual cramps, neurotic personality, increased body mass index, general self-perceived health and cultural differences [3].

Premenstrual tension disorders include premenstrual tension syndrome, premenstrual dysphonic disorder, and premenstrual worsening of another medical condition. A careful medical history and daily symptom monitoring across two menstrual cycles is important in establishing a diagnosis. Premenstrual tension syndrome is a collection of mood, behavioral, and physical symptoms that occurs 7–14 days before the onset of menstruation and subsides with the commencement of menstrual flow, this cycle continues repeatedly. This disorder is characterized by the cyclic recurrence of symptoms during the luteal phase of the menstrual cycle. [4].

While PMS is linked to the luteal phase, the causes of PMS are not clear, but several factors may be involved. Changes in hormones during the menstrual cycle seem to be an important factor; changing hormone levels affect some women more than others. Chemical changes in the brain, stress, and emotional problems, such as depression, do not seem to cause PMS but they may make it worse. Low levels of vitamins and minerals, high sodium, alcohol, and caffeine can exacerbate symptoms such as water retention and bloating [5]. A variety of symptoms may be worsened by a high-salt diet, alcohol, or caffeine. The underlying mechanism is believed to involve changes in hormone levels. Reducing salt, caffeine, and stress along with increasing exercise is typically all that is recommended in those with mild symptoms. Calcium and vitamin D supplementation may be useful in some [6].

Conversely, a lack of knowledge can contribute to a variety of responses including anxiety and self-care deficit [7]. It was chosen as one of the outcome measures for the evidence-based program in this study in order to determine whether there is a link between knowledge and health outcomes [8]. Adolescent girls should, therefore, have a greater knowledge of PMS and its impact on vital personal, interpersonal, and family relationships [9].

Even though the etiology of PMS is still unknown; several management modalities have been shown to be effective for adolescents as evidence based program should empathize with and support the girl and her family, provide counseling and education, and facilitate family members' involvement in care [10]. Evidence based program was therefore developed in this study, and was evaluated in terms of increasing adolescent girls' PMS knowledge, and decreasing the incidence and severity of premenstrual and -menstrual symptoms. Gaining knowledge has been regarded as an important goal towards improving an individual's health status. It also helps to gain a means of controlling feelings of powerlessness [11].

It is essential to make treatment available for these girls because many girls may feel shy and may be reluctant to report PMS and, consequently, do not seek medical advice which may in turn negatively impact both academic life and educational achievements and quality of life and activities of daily living. It is one of the roles of health care providers in the respective institutions to ask about and screen for PMS offer treatment if necessary [12].

1.2. Significant of the research study

Premenstrual tension syndrome (PMS) is a common disorder among women of reproductive age. Nearly 20-40% of women report problems with their menstrual

cycles. It is obvious that the PMS is complex in nature and is considered to be sufficient importance to warrant ongoing investigation. It is important for nursing students to understand the premenstrual tension syndrome for two reasons: 1) so they can counsel and advise them who has symptoms that there are forms of treatment that will alleviate discomforts; 2) so they are aware that decreased mental efficiency occurs, This is a difficult problem in adolescence as the psychological changes that are occurring during this time of a woman's life are often complex and stressful. Premenstrual tension syndrome affects millions of women, has been recognized as a major disruption, this is because 40 million women in the world suffer from the symptoms of this syndrome and more than 5 million of them are going on treatment for mental and behavioral changes associated with this syndrome [13]. So, this study aimed to investigate effect of the evidence based program which was developed and designed to determine its efficacy in increasing knowledge and decreasing the severity of symptoms of premenstrual tension syndrome in adolescent girls suffering from premenstrual tension symptoms.

1.3. Aim of the research study

This research study was undertaken to investigate the efficacy of evidence-based program among adolescent girls suffering from premenstrual tension symptoms.

This aim was conducted and achieved in accordance with the principles outlined through:

1. Assessing undergraduate female nursing student's knowledge and self-care practices regarding premenstrual syndrome.
2. Developing and designing evidence based program according to undergraduate female nursing students suffering from premenstrual symptoms.
3. Evaluating the effect of undergraduate female nursing student's knowledge, self-care practices to decreasing the severity of symptoms of premenstrual syndrome.

1.4. Research Hypothesis

In order to fulfill the purposes of the research study, the following hypothesis were formulated and tested.

The researchers hypothesized that; the undergraduate female nursing students who will receive the evidence-based program will expect to improve knowledge and self-care practices regarding premenstrual tension symptoms including physical and psychological well-being & to promote better health than before program.

2. Subjects and Method

2.1. Research Design

Quasi-experimental design (pre and post intervention) was utilized to fulfil the aim of this research study.

2.2. Research Setting

This study was conducted at the Faculty of Nursing Benha University.

2.3. Sample Type

Multistage sampling was used in the research study.

• Size and technique of sampling:

- All female nursing adolescent students in the first and second grades of the faculty (300 students) included to determine the students who suffered from PMS
- All female nursing adolescent students who suffered from signs & symptoms of premenstrual tension syndrome determined by the researchers. Total number were (100) student out of total of 120 students have PMS signs and symptoms, 12 of the student were participated in the pilot study, (8) of the student did not wish to participate in the study.
- **Inclusion criteria included:** From the same Faculty, age from 17 to 19 years, not married and absence of self-reported genital diseases and history of abdominal pelvic surgery.

2.4. Tools of Data Collection

Two tools were developed to collect data for this research study as follows:

1. Structured Self-administered Questionnaire Sheet:

It was designed by the researchers after reviewing the related national and international literatures; its purpose was to collect the necessary data which covers the aim of the research study. It will be designed in Arabic form; it was divided into three main parts:

Part one:

This part was used to assess the personal & general characteristics of the studied sample, e.g. (age, residence, grade, father's & mother's educational level, father's and mother's employment). Height and weight (Anthropometric measurements) was also measured by using the formula: $BMI (kg/m^2) = Weight (kg) / Height^2 (m^2)$.

Part two:

This part included details of premenstrual physical symptoms for studied sample such as (back ache, breast tenderness, headache, fatigue, nausea, vomiting, weight gain and abdominal distension) and psychological symptoms such as (anxiety, stress, crying, depression, loneliness, mood swings, insomnia and avoid socialization).

Part three:

This part included general knowledge regarding premenstrual symptoms, it consisted of (4) items (definition, causes, signs & symptoms and complications of PMS).

- The student's total score of knowledge was classified as the following:

Poor knowledge answer <50%

Average knowledge answer 50% - <75%

Good knowledge answer 75% - <100%

2. Self-practices daily activities:

This tool was developed by the researchers after reviewing related literatures to assess students self-practices daily activities regarding premenstrual symptoms. It consisted of (4) items: -

- Diet included taking delivery food, healthy food and drinking caffeine.

- Exercises which included types of practiced exercises and duration of practicing exercises.

- Self-general hygiene included doing tooth brush, washing perineum from front to back and drying after clean.

- Rest and sleep which included times of comfort and duration of sleep time.).

- The students' total score of practices was classified as the following:

- Satisfactory: $\geq 60\%$ of total score.

- Un satisfactory: < 60% of total score.

2.5. Ethical Considerations

Research proposal was approved from ethical committee in the Faculty of Nursing, there was no risk for study subjects during application of the research, the study followed common ethical principles in clinical research, and written & oral consent was obtained from students who were willing to participate in the study, after explaining the nature and purpose of the study, confidentiality and anonymity were assured, study subject had the right to refuse to participate and withdraw from the study without any rational at any time, and study subject privacy was considered during collection of data

2.6. The Pilot Study

After preparing the tools, a pilot study was carried out on 10 % undergraduate nursing female students) of the total sample size, were (12 students) to evaluate the efficiency and relevance of study tools of data collection. The necessary modifications used according to the analysis of the pilot study. Required modifications were done in the form of adding or omission of some questions and change types of some questions from open ended questions to closed ended questions`. The nursing students involved in the pilot study were excluded from the study.

Tools Validity: The tools used were reviewed for validity by three juries specialized in obstetrics and gynecological nursing and their notices were considered.

Tools Reliability: Reliability of undergraduate female students in knowledge tool was measured by using Cronbach's alpha test, and it was equal 0.867, so it founded highly reliable.

2.7. Procedure

The following phases were adopted to fulfil the aim of the current research study; assessment, planning, implementation, and evaluation phases. These phases were carried out from the beginning of September 2018 to the end of February 2019 covering six months. Official approvals and letters to conduct this research were obtained from Dean of the Faculty of Nursing

Assessment phase:

This phase encompassed interviewing the students to collect baseline data, at the beginning of interview the researchers greeted each student, explained the purpose, duration, and activities of the study. Pre-test was done to identify signs and symptoms of PMS, assess students' knowledge such as definition, etiology, symptoms, different risk factor, screening methods,

treatment and prevention, healthy diet and physical activities regarding premenstrual symptoms. The data obtained during this phase constituted the base line for further comparison to evaluate the effect of the evidence based program. Average time for the completion of each student interview was around (30-40 minutes).

Planning phase

Based on baseline data obtained from pre-test assessment and relevant review of literature, the evidence based program was developed by the researchers in a form of printed Arabic booklet to satisfy the studied students regarding premenstrual syndrome.

General objective of the evidence based program: was to relieve student’s physical and psychological symptoms of PMS.

Specific objectives of the evidence based program: after completion of the educational program, each student should be able to:

- Identify PMS.
- Explain clinical manifestation of PMS.
- Enumerate causes of PMS.
- Discuss pattern of prevention of PMS.
- Recognize short term & long-term complication of PMS.
- Identify healthy habits & practices to cope with it.

Implementation phase

Implementation of the evidence based program took (24) weeks period. Data were collected 3days /week by the researchers. The girls gathered in class room after finishing the lectures or after ending of clinical area's day. Informed written consent was obtained from the girls prior to data collection. The evidence based program involved (5) scheduled sessions. These sessions were repeated to each subgroup of (3-5) girls. The duration of each session lasted from half an hour to one hour including periods of discussion according to their achievement, progress and feedback. At the beginning of the first session an orientation to the evidence based program and its aims took place. Different methods of teaching were used such as modified lecture, group discussion and brainstorming. Suitable teaching media were included an educational booklet that distributed to students who suffered from premenstrual syndrome in the first day of the evidence based program.

Evaluation phase

After implementation of the evidence based program, the post test for improving students’ knowledge and daily self-care practices, were done by the same format of the pre-test to evaluate the effect of the implemented evidence based program.

2.8. Statistical Analysis

Data were verified prior to computerized entry. The Statistical Package for Social Sciences (SPSS version 22.0) was used. Descriptive statistics were applied (e.g., mean, standard deviation, frequency and percentages). Test of significance (chi square(X^2) and paired t test (t) was applied to test the study hypothesis. Spearman test of correlation coefficient (R) was calculated between knowledge, and self-care practices scores. A statistically significant difference was considered at p-value $p \leq 0.05$, and a highly statistically significant difference was considered at p-value $p \leq 0.001$.

3. Results

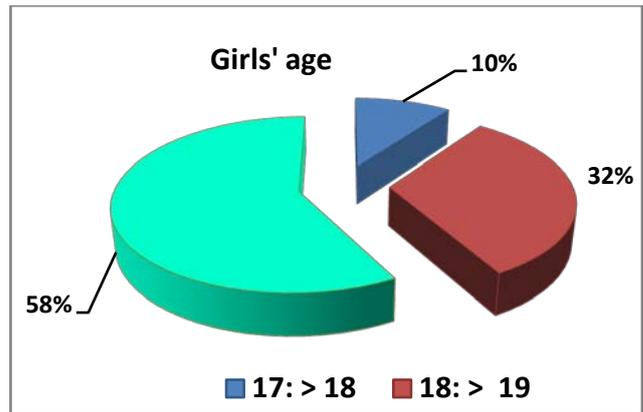


Figure 1: Frequencies distribution of girls’ age (n= 100)

Figure 1 shows that more than half of the students were the age 19 year (58%) and only 10% were 17:> 18 year

Table 1. Distribution of mean scores of anthropometrics measures of the studied girls (n= 100)

Items	Minimum	Maximum	Mean ± SD
Age	17years	19years	18.48±0.674 years
Height	150cm	165Cm	157.57±4.3. cm
Weight pre -program	67Kg	90Kg	77.4 ± 5. 8Kg
Weight post program	58 Kg	87 Kg	68.89±6.332 Kg
T test	Weight pre -program VS. Weight post program		t= 12.07 P = <0.001***

Table 1 displays there was highly statistically significant difference before and after implementing educational training program in relation to Physical characteristics of students with PMS, regarding mean age was 18.48±0.674 years, the mean Height were 157.57±4.3. cm, the mean Weight pre –program was 77.4 ± 5. 8Kg, while the mean Weight post –program was 68.89 ± 6.332 Kg.

Figure 2 represents that relation between BMI among girls pre and post program. Most of the students (64.0%) were BMI is 25.0 to <30, it falls within the overweight range post program and 23% of them were BMI is 30.0 or higher; it falls within the obese range.

Demographic are summarized in Table 2, Shows that socio demographic characteristics of the studied students. It was found that most of students 82.0 % of girls were lived in rural area, as far as more than half of them were in the second grade. Regarding educational level, secondary educational father’s level is the education level of the large proportion of them 38.0%, while 26.0 % of mother education read & write. 74.0 % of father’s girls were employee and 68.0% of mothers were house wives.

Table 3: The results of the relation between physical symptoms of premenstrual syndrome among girls pre and post program are illustrated that there was statistically significant difference before, and after implementing evidence-based program in relation to studied girl’s physical symptoms of premenstrual syndrome regarding fatigue, nausea & vomiting ($p < 0.05$) while there was a highly significant difference regarding back ache, breast tenderness and headache ($p < 0.001$)

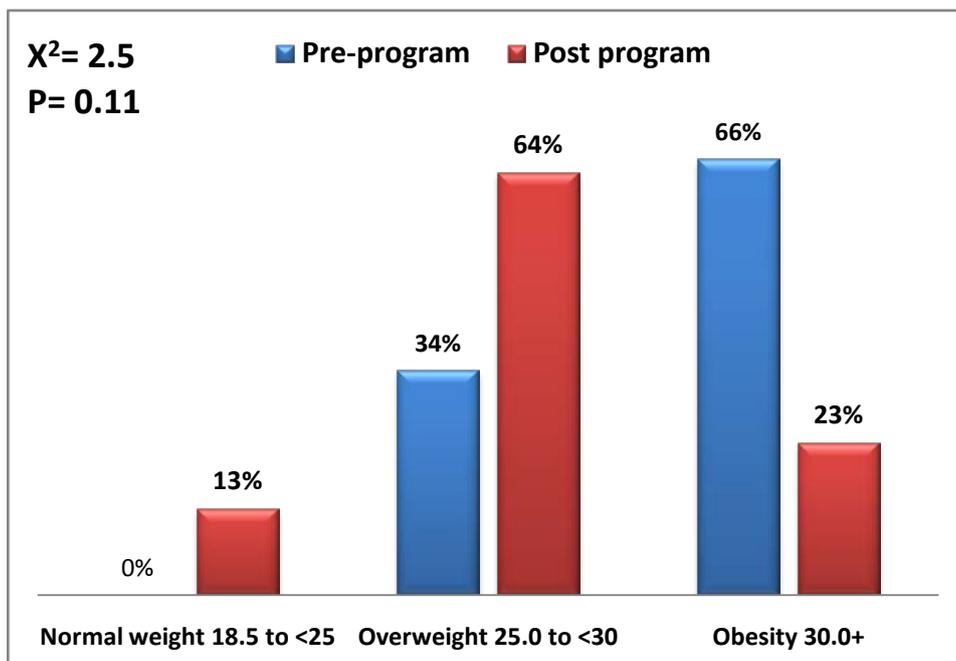


Figure 2. The relation between BMI among girls pre and post program (n= 100)

Table 2. Distribution of socio demographic characteristics of the studied sample (n= 100)

Items	Frequencies	%
Residence		
Urban	18	18.0
Rural	82	82.0
Grade		
First	40	40.0
Second	60	60.0
Father's educational level		
Illiterate	9	9.0
Read write	7	7.0
Preparatory	18	18.0
Primary	20	20.0
Secondary	38	38.0
University	8	8.0
Father's employment		
Professional	26	26.0
Employee	74	74.0
Mother's educational level		
Illiterate	11	11.0
Read write	26	26.0
Preparatory	23	23.0
Primary	15	15.0
Secondary	25	25.0
University	11	11.0
Mother's job		
Housewife	68	68.0
Employee	32	32.0

Table 3. The relation between physical symptoms of premenstrual syndrome among studied sample pre and post evidence based program (n= 100)

Items	Pre- program				Post program				X ² P value
	yes	%	No	%	yes	%	No	%	
Back ache	72	72.0	28	28.0	24	24.0	76	76.0	12.2 <0.001***
Breast tenderness	50	50.0	50	50.0	20	20.0	80	80.0	25.0 <0.001***
Headache	66	66.0	34	34.0	20	20.0	80	80.0	12.9 <0.001***
Fatigue	77	77.0	23	23.0	15	15.0	85	85.0	5.3 0.01**
Nausea & vomiting	20	20.0	80	80.0	9	9.0	91	91.0	0.59 0.4**
Weight gain	63	63.0	37	37.0	20	20.0	80	80.0	3.5 0.6*
Abdominal distension	46	46.0	54	54.0	15	15.0	85	85.0	3.0 0.7*

* Not significant ** Significant *** Highly.

Table 4. The relation between psychological health problems of premenstrual syndrome among studied sample pre and post evidence based program (n= 100)

Items	Pre- program				Post program				X ² P value
	Yes	%	No	%	yes	%	No	%	
Anxiety	69	69.0	31	31.0	15	15.0	85	85.0	0.155 0.4**
Stress	36	36.0	64	64.0	15	15.0	85	85.0	31.3 <0.001***
Crying	39	39.0	61	61.0	19	19.0	81	81.0	36.6 <0.001***
Depression	45	45.0	55	55.0	9	9.0	91	91.0	12.1 <0.001***
Loneliness	40	40.0	60	60.0	16	16.0	84	84.0	28.5 <0.001***
Mood swings	38	38.0	62	62.0	11	11.0	89	89.0	20.1 <0.001***
Insomnia	54	54.0	46	46.0	13	13.0	87	87.0	12.7 <0.001***
Avoid socialization	46	46.0	54	54.0	18	18.0	82	82.0	25.7 <0.001***

Table 5. Distribution of the studied sample according to their knowledge about premenstrual syndrome pre and post evidence based program (n=100)

Items	Preprogram						Post program						T Test	Significance
	Good knowledge		Average knowledge		Poor knowledge		Good knowledge		Average knowledge		Poor knowledge			
	No	%	No	%	No	%	No	%	No	%	No	%		
Definition of PMS	10	10.0	36	36.0	54	54.0	90	90.0	7	7.0	3	3.0	15.42	<0.001***
Causes of PMS	4	4.0	27	27.0	69	69.0	99	99.0	0	0.0	1	1.0	28.10	<0.001***
Symptoms of PMS	9	9.0	40	40.0	51	51.0	51	51.0	46	46.0	3	3.0	9.82	<0.001***
complications of PMS	10	10.0	57	57.0	33	33.0	100	100.0	0	0.0	0	0.0	22.51	<0.001***

Table 4 displays that, there was statistically significant difference before, and after implementing evidence based program in relation to studied girl's psychological health problems of premenstrual syndrome regarding anxiety (p < 0.05) while there was a highly significant difference regarding stress, crying, depression, loneliness, mood swings, insomnia and avoid socialization (p < 0.001).

Table 5 shows Distribution of the studied sample according to their knowledge about premenstrual syndrome pre and post evidence based program, were shown to be significant predictors, reflected that, there was highly statistically significant difference at p- values (p<0.001) in all items of knowledge after application of

the evidence-based program as compared with before application of this program.

Table 6 shows that, there was highly statistically significant difference at p- values (p<0.001) in all items of girls' daily self-practices after application of the evidence-based program as compared with before application of the program.

Table 7 shows that, there was highly statistically significant difference at p- values (p<0.001) in all items of girls' daily self-practices sample according to exercises, sleep and rest during premenstrual syndrome after application of the evidence based program as compared with before application of the program.

Table 6. Distribution of the studied sample according to their girls' practices during premenstrual syndrome pre and post evidence based program (n=100)

Items	Preprogram				Post program				T Test	Significance
	Adequate practices		Inadequate practices		Adequate Practices		Inadequate Practices			
	No	%	No	%	No	%	No	%		
Taking a healthy diet	55	55.0	45	45.0	73	73.0	27	27.0	6.20	<0.001***
Taking delivery food	55	55.0	45	45.0	72	72.0	28	28.0	6.05	<0.001***
Drinking caffeine	74	74.0	26	26.0	72	72.0	28	28.0	9.18	<0.001***
Tooth Bruch	38	38.0	62	62.0	75	75.0	25	25.0	5.87	<0.001***
Washing perineum from front to back	21	21.0	79	79.0	96	96.0	4	4.0	16.38	<0.001***
Drying after clean	16	16.0	84	84.0	89	89.0	11	11.0	14.91	<0.001***

Table 7. Distribution of the studied sample according to exercise, sleep and rest during premenstrual syndrome pre and post evidence based program (n=100)

Items	Preprogram				Post program				T test	Significance
	Adequate practices		Inadequate Practices		Adequate practices		Inadequate practices			
	No	%	No	%	No	%	No	%		
Regular practices of physical exercises.										
Yes	10	10.0	6	6.0	73	73.0	12	12.0	13.12	<0.001***
No	7	7.0	77	77.0	11	11.0	4	4.0		
Duration										
Every 2 weeks	7	7.0	77	77.0	0	0.0	0	0.0	26.15	<0.001***
Every week	10	10.0	6	6.0	11	11.0	12	12.0		
Less than 3 days	0	0.0	0	0.0	73	73.0	4	4.0		
Types of practiced exercises										
Running	3	3.0	33	33.0	0	0.0	0	0.0	17.93	<0.001***
Walking	14	14.0	44	44.0	8	8.0	7	7.0		
Aerobic	0	0.0	6	6.0	76	76.0	9	9.0		
Rest & sleep										
Yes	11	11.0	19	19.0	84	84.0	16	16.0	15.22	<0.001***
No	6	6.0	64	64.0	0	0	0	0.0		
How many sleeping periods										
Less than 8 hours daily	11	11.0	45	45.0	0	0.0	0	0.0	6.55	<0.001***
8 hours daily	5	5.0	28	28.0	84	84.0	16	16.0		
More than 8hours daily	1	1.0	10	10.0	0	0.0	0	0.0		

Table 8. The correlation between the duration of suffering from psychological health problems of premenstrual syndrome among girls and their knowledge/practices pre and post evidence based program (n= 100)

Items	The duration of suffering from psychological health problems			
	Pre- program		Post program	
	Pearson Correlation (r)	Significant (p value)	Pearson Correlation (r)	Significant (p value)
Total knowledge	0.218	0.030**	-0.129*	0.200
Total practices	0.164	0.104	0.350	0.000***

* Negative correlation ** Correlation is significant at the 0.05 level (1-tailed). *** Highly significant.

Table 8 illustrates that, there was a positive highly statistically significant correlation between the duration of suffering from psychological health problems regarding total knowledge and total practices scores before and after implementation of the evidence based program

4. Discussion

In this research the researchers attempted to investigate the efficacy of evidence based program among adolescent students suffering from premenstrual symptoms. The

findings of this research study were approved the research hypothesis which is the undergraduate female nursing students who will receive the evidence-based program will expect to improve knowledge and self-care practices regarding premenstrual tension symptoms including physical and psychological well-being & to promote better health than before program.

As regard characteristics of the studied sample, the current research study found that more than half of the students were the age 19 years and only ten percent were 17:> 18 year with a mean age 18.48 ± 0.674 years. Most of students of girls were lived in rural area, as far as more than half of them were in the second grade. Regarding educational level, secondary educational father's level is the education level of the large proportion of them 38.0%, while 26.0 % of mother education read & write. Also more than three quarter of father's girls was employees and two third of mothers were house wives. These findings matched with [14] who studied influence of body mass index on menstrual irregularities in adolescent girls and reported that, the mean age of the girls was 19.96, and most of their fathers in the public sector.

Additionally [15] who studied improving life style among nursing students regarding menstrual disorders through an educational training program was found that more than three quarters of these girls live in rural area. On the contrary, [16] who studied relationship between premenstrual syndrome and basic personality traits and reported that the mean age of the participants was 20.20 ± 1.65 years; 26.3% of them lived in rural areas; 48% of their mothers and 33.1% of their fathers were primary school graduates

The present research study indicated that, there was highly statistically significant difference before and after implementing evidence based program regarding weight and BMI among girls pre and post evidence based program. These results are in the same with [17], who studied the relationship between body mass index and menstrual irregularities among the adolescents and showed that body mass index play a very important role for regulating menstrual cycle. So, adolescents have to take balance diet in order to maintain the normal BMI and regulate their menstrual cycle which is a determinant of women's health.

Also [18], who studied the association of body mass index with menstrual cycle irregularities in women between 16 – 40-year age and concluded that menstrual irregularities are more common in obese women. Although other factors may be involved, obesity is one of the important causes of irregular menstrual cycles. Hence there is a role for lifestyle modifications such as exercises and diet in maintaining the normal body weight and ideal BMI in order to prevent menstrual irregularities as well as metabolic syndrome in women. This results in contrast with [19] who studied effect of two intensity of aerobic exercise on clinical symptoms of premenstrual syndrome in fertile women, and showed that there was no relation was observed between body mass index and premenstrual syndrome symptoms.

Moreover [20], who studied the prevalence of premenstrual syndrome and premenstrual dysphonic disorder among college students, concluded that premenstrual syndrome was associated with menstrual

cramps, positive family history, and symptom onset since menarche, and relatively higher body mass index. The most common symptoms are "fatigue/lack of energy," "decrease interest in work" followed by "anger/irritability."

As regard to physical symptoms of premenstrual syndrome among girls pre and post evidence based program, the results revealed that, there was statistically significant difference before, and after implementing evidence based program in relation to studied girl's physical symptoms of premenstrual syndrome regarding fatigue, nausea & vomiting while there was a highly significant difference regarding back ache, breast tenderness and headache. These findings are at the same line with [21] who studied the effect of educational program on premenstrual syndrome in adolescent school girls in India, founded that a highly significant improvement in the severity of premenstrual symptoms after educational program. In addition to [11] who studied the efficacy of educational program in increasing the knowledge and decreasing the severity of symptoms of PMS among secondary school going students in Hong Kong and found that, there is significant improvement in PMS symptoms in the study group when compared to the control group.

Also studied girl's psychological health problems of premenstrual syndrome, these results revealed that there was statistically and a highly statistically significant difference before, and after implementing evidence based program. These findings in congruent with a recent study reported that personality is a concept that can be improved through factors such as better education and a better environment. The following support measures can be suggested: participation in social groups for students who are introverts or have low levels of anger control and socialization; improvement of personality structure through using education; organizing of educational programs relating to coping with stress; and directing students to exercise programs and sportive activities [16].

Moreover [22], who studied the relationship between premenstrual syndrome and depression of female college students in Korea, founded that PMS is influenced by the psychological factors such as depression. This reflected that, the education program including PMS and depression is needed to promote health for female university students.

The current research results indicated that, there was highly statistically significant difference in all items of knowledge after application of the evidence based program as compared with before application of the evidence based program. These findings are at the same line with [7] who showed that, the program was significantly increased the students' knowledge about PMS a similar finding was observed in research study which reported that the experimental group had significantly increased knowledge scores in post-test of premenstrual syndrome knowledge questionnaire compared with pre-test scores [23]. This may be due to knowledge regarding PMS; the education program has been of value in helping them to obtain a better understanding of health-related issues and PMS self-care measures. This information may also be necessary to develop a positive self-concept and positive self-practices towards menstruation-related symptoms, which are necessary for the subsequent adoption of self-care measures to improve general well-being

The present research results indicated that there was highly statistically significant difference in all items of girls' practices during premenstrual syndrome after application of the educational training program as compared with before application of the educational training program. These findings matched with [24] who studied the effects of health education programme on teenagers with premenstrual syndrome and suggested that the short-term effects of a PMS nutritional education programme for teenagers was proven useful and the program should be applied to PMS nutrition education for PMS clients as well as health professionals.

Also, these findings were supported by [25] who showed that aerobic exercise training to patients suffering from PMS can reduce symptoms, resulting in better job and social performance and can be used as a treatment, this may be due to self-care measures relating to lifestyle modifications, most particularly nutrition and exercise can be helpful in preventing, alleviating the number and severity of symptoms more over [26] who studied premenstrual syndrome, associated symptoms and evidence based nursing management and revealed decrease severity of premenstrual symptoms after administration of evidence-based nursing management for 3 months (3 menstrual cycles), this may be due to exercises is likely to reduce and help alleviate PMS symptoms. From point of the researchers view early identification, exploration during adolescence through health education about dietary improvements & regular exercises, and supporting measures, may be helpful for enhancement of overall health status especially reproductive health to prevent many of premenstrual disorders.

The present research results indicated that, there was a positive highly statistically significant correlation between the duration of suffering from psychological health problems regarding total knowledge and total practices scores before and after implementation of evidence based program. This finding is congruent with [7] who studied the effects of an educational program in increasing knowledge and reducing premenstrual syndrome signs, symptoms and severity among nursing college students, who concluded that, the educational program had a positive effect on increasing knowledge and decreasing PMS signs and symptoms severity, and also added that the program has decrease the effect of PMS signs and symptoms on study group life.

These findings were supported the researches findings which suggesting that the evidence based program could have been the source of the reduction in PMS symptoms of the experimental group of young adolescents' girls [27]. This may be due to the benefits of the PMS evidence based program employed in this study provide support for the use of a multifactorial approach to interventions where biological and psychosocial factors were addressed within the program. As well as a decrease in the total PMS scores there was also a reduction in the experimental group's premenstrual symptoms of anxiety.

In summary, in this research study generally lacked basic knowledge regarding PMS; the evidence based program has been of value in helping them to obtain a better understanding of health-related issues and PMS self-care measures. This information may also be

necessary to develop a positive self-concept and self-practices towards menstruation-related symptoms. Which are necessary for the subsequent adoption of self-care measures to improve general health and well-being of the adolescent students. Thus, incorporating information on menstruation, PMS and self-care measures as a regular subject and starting the education early in junior secondary schools would be helpful. Through adequate education, young schoolgirls could learn more effective means to manage their physical and psychological changes associated with puberty.

5. Limitation of the Study

The current research study has few limitations, as follow:

Difficulties to distinguish between premenstrual symptoms and stress associated symptoms for drawing a causal link between premenstrual symptoms and stress.

Some difficulties in persuading the students for the research subject because of misconception, traditional and insufficient health awareness for them.

Difficulties in gathering the study groups for the educational sessions at the same time because of the difference in their lectures time tables which add a lot of time to finish.

6. Conclusion

Hence, from the research study results we can conclude that, Most of nursing students with PMS didn't follow self-care practices that related healthy diet and exercises before applying evidence based program. The evidence based program had a positive effect on increasing knowledge and decreasing PMS signs and symptoms severity. Also, the evidence based program has decreased the effect of PMS S&S on study group life. The implementation of the evidence-based program was effective and significantly improved nursing student's life activities toward PMS. Furthermore, the above-mentioned findings proved and supported the research hypothesis.

7. Recommendations

- This study can be replicated with larger subjects in different faculties for generalizing the findings
- Continuing health education program about PMS that aimed at understanding sign and symptoms of PMS and emphasize on self-care measures and life style modifications are needed.

8. Further Researches

- Nutritional patterns to determine the newer strategies need to be employed among all nursing students for effective management of PMS
- Health care providers in any institutions should screen for pre-menstrual tension syndrome sufferers and offer treatment if necessary.

- It important to combine premenstrual education courses with schools and college level.

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Conflicts of Interest

The authors declare no conflict of interest.

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