



# **EFFECTIVENESS OF EDUCATIONAL LIFE STYLE INTERVENTION FOR MANAGEMENT OF PREMENSTRUAL TENSION SYNDROME AMONG ADOLESCENT STUDENT**

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## **ABSTRACT**

*Premenstrual syndrome (PMS) is one of commonly health problems which affected on 30% to 40% of female adolescents. Our target was evaluating the effects of educational life style intervention for management of premenstrual tension syndrome between adolescent student. The current study hypothesized that: Life style intervention will be effective for management of PMS symptoms between adolescent students. Design: Aquasi design utilized to fulfill our aims. Investigation was conducted on 170 adolescent students have PMS at time of collecting data at Nursing Institute in Benha Teaching Hospital and Health Insurance Hospital on Three tools used: structured interviewing questionnaire, premenstrual assessment scale and life style assessment tool. Significant differences in mean score of PMS symptoms were observed of sample at pre /post intervention. Also there was highly positive correlation among PMS and life style in students either pre or post intervention. Our conclusion, research hypothesis was supported and life style intervention was effective for management of PMS among adolescent students. The study recommended nursing curriculum most updated for contain comprehensive information regarding PMS and effect of life style modification for managing it.*

**Key words:** Life style intervention, Management, Premenstrual syndrome, Adolescent student.

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## 1. INTRODUCTION

Adolescence is most rapidly phases of human developing where transform from childhood to adulthood and include many physiological, hormonal changing, and sudden developing in sex characteristics [1]. Its a time for developing knowledge and skills, acquire attributes and abilities which would very important for enjoying adolescent years. Minimizing the complications in adolescent throughout increase awareness regarding healthy lifestyles was necessary [2].

Premenstrual tension syndrome (PMS) is commonly gynecological disorders among female adolescent. It's a cyclical phenomenon of somatic and affective symptoms that emerged in the days before menstruation and interfering by lifestyles follow by several symptom-free intervals [3].

Premenstrual tension syndrome causes many physical and psychological symptoms which arise about week to 10 days pre menstruation and its symptoms relieve or ease once menstruation starts. While it may be continue for first period days. If problem really is PMS, it would go away and then came back in next cycle [4].

The prevalence of PMS was about 30-40% in adolescent female and 36.4% between nursing students. PMS prevalence rates could vary depending on culture characteristics, samples difference, and diagnostic methods. The prevalence of PMS was found to be 80.2%, in Egypt [5].

The physical signs of PMS including, bloated tummy, cramps, tender breasts, hunger, headache, muscle aches, joint pain, swollen hands and feet, pimples, weight gain and constipation or diarrhea. The PMS behavioral have many different sign includes forgetting many things, lost of mental focus and tired. The exact cause of PMS is unknown, although several different biological factors have been suggested of these, hormones like estrogen, progesterone, certain neurotransmitter, nutrition inadequacy and improper diet, lifestyle are some of the factors [6].

PMS considered if at least 1 of 6 affective and 1 of 4 somatic symptoms were noted in 5 days prior to the start of menstruation in the previous three cycles and cease within four days of beginning of menstruation according to ACOG [7]

For about seven days every month, female affected by syndrome suffer distress and impaired interpersonal or occupational functioning. Which led to at least 2 days /month of absenteeism at works and increased in using medical appointments. PMS is risk factor for increased incidence of hypertension by 40% [8].

The first step towards managing PMS is a healthy lifestyle. Approaches to lifestyle are adequate to control symptoms. Lifestyle modifications for PMS focused on eat balanced diet, regular exercise and excess fluid intake could reduce severities of PMS symptoms [9].

Premenstrual tension syndrome management often frustrating for adolescent. PMS females might offer non-pharmacological therapy. These non- pharmacological interventions including education, supportive therapy and behavioral changes. PMS adolescent treatments

are confined to reducing symptoms and improving social and occupational functions to increasing individual qualities of life [10].

However, it is common for girls to avoid seeking treatment for menstrual problems. Nurses will assist adolescent females emotionally by showing that adolescent worries about PMS are taken seriously. Nurse should always educate adolescent that the appropriate treatment approach for PMS is lifestyle modification which rather than drug therapy [11].

## **1.2. Significance of the Study**

PMS symptoms affected up to 85% of menstruating females and might affect some aspect of life [12]. PMS is not life-threatening, but can also significantly alter the quality of life and affect mental wellbeing and production. Women seeking medication for premenstrual symptoms are on the rise [13].

Females are already under academics-related stress, and need to explore PMS problems and more stress could impact them which might jeopardize her quality of life negatively. Few studies have been done in relation to PMS experience in women of any age and effect of life style modification for managing PMS. So, in our study, investigate effect of life style modification for managing PMS between adolescent. in Benha University, Egypt,

## **1.2. Aim of the Study**

Assessing the impact of life style intervention for management of PMS among adolescent student.

## **1.3. Hypothesis**

For achieve to our aim hypothesis was be formulated:

Life style intervention would be effective for management of PMS symptoms among adolescent students.

## **2. MATERIAL AND METHODS:**

### **2.1. Material**

#### **2.1.1. Design**

Quasi experimental study design (pre/post-test), one group utilized to meet our aim.

#### **2.1.2. Research Setting**

Study performed at the Benha Teaching Hospital Nursing Institute and health insurance because they have large numbers students attending for learning .Also they cover a wide range of population with different socio-demographic and obstetrical characteristics. Also nurse's students are in great needs for continuous education.

#### **2.1.3. Subject**

A purposive sampling technique was utilized in gathering the required data. *Sample size:* (170) adolescent female complain of PMS symptoms (98) adolescent students in first, second and third years in Benha teaching hospital and (72) adolescent students in first, second and third years in health insurance hospital. Samples selecting according to following criteria; Adolescent female with PMS symptoms, not married, without medial or gynecological disorders and not having any treatment for PMS symptoms and agree to participate in the study.

#### **2.1.4. Tools for collecting data**

**Tool I: A structured Interviewing questionnaire:** It was done after review related literature consisted of 2 sections:

**Section (1)** Concerned with socio demographic data of students as (age, residence, educational level of mother, occupation of mother).

**Section (2):** Concerned with students' menstrual characteristics such as (age of menarche, days of menstrual bleeding ,regularity of menstruation, bleeding between menstrual cycles).

**Tool II:** PMS scale assessment (PMSS): was adopted from [14] to measure the severity of PMS among nursing student. Consisted of 40 questions with 3 subscales (physiological, psychological and behavioral symptoms). Physiological symptoms as (tenderness of breast, headache, weight gain, abdominal swelling). Psychological symptoms as (irritability, tension, mood swings, sleep changes). behavioral symptoms as (social withdrawal, be more sense, fatigue, guilty).

#### **Scoring system of PMS scale**

Each items of the attitudes was assigned as score (3) was given for very severe and (2) used for severe score and (1) for moderately and (0) used for not found score.

**The total score of PMS was classified into:**

- sever: >75%
- moderate :50%-75%
- mild: < 50%

**Tool III:** Life style assessment tool: Adopted from [15]used to evaluate health life style of adolescent female during premenstrual period at pre and post intervention phases as (healthy nutrition, daily activities, comfort and sleep, personal hygiene).scored according to likert scale . Each item of the attitude was assigned as score (3) was given for usually and (2) used for sometimes and score (1) for never.

**The total score of life style was classified into:**

- High satisfied: >75%
- Satisfied :50%-75%
- Unsatisfied: < 50%

#### **Supportive material :- ( Arabic Leaflet booklet)**

An informational booklet developed after reviewing the related literature regarding the PMS and its management through life style modification to help the adolescent to have a better understanding of disease condition, and improves the symptoms and modified lifestyle as; maintain appropriate weight and balanced diet, healthy nutrition, daily activities, comfort and sleep, personal hygiene. Also the booklet associated with colorful pictures to clarify and explicably the information. Booklet validated by five experts in the field of maternity nursing and Obstetrics and Gynecological medicine. The booklet was initially written in English and later on translated into simple Arabic language.

### **3. METHOD**

Investigation was done under approval from Nursing Ethical Faculty Committee, Benha University (nursing institute of Benha teaching hospital and health insurance hospital.

### 3.1. Pilot Study

A pilot study was carried out on 10 % of 17 students after the development of instruments to test the clarities and applicability's tools and estimating time which we needed for our Questionnaire.

### 3.2. Validities

Contents validity were conducted to assure of utilizing tools measures which supposed to measure and developed by our investigators to examine by 5 experts panel for determining general whether and include many clearly and adequately items which covered our content addressed.

### 3.3. Reliabilities

Reliabilities were conducted by Cronbach's Alpha Coefficient Test to reveal every individual item of our tools consisted relatively homogeneous items where reliabilities for PMS scale was 0.86. Reliability for life style assessment tool is 0.67.

### 3.4. Ethical Considerations

Firstly we introduce ourselves to adolescent woman's and meet inclusion criteria's and tell them about our targets to obtain their acceptance, and informed them our study has no risk or hazards to their health. Females willing participating meet inclusion criteria were approached by investigators and ask about consent to confirm acceptance, and all events and data collection considered confidential. Ethics, values, culture and beliefs respected.

### 3.5. Field Work

Preparatory, assessment phase, planning phase, implementation and evaluation phase done starting at December 2019 to first of June 2020, (6 months). Visiting done was 2 days/week (Monday and Wednesday) from 9.00 am to 2.00 pm.

### 3.6. Initial assessment it consist of two parts

**A. Preparatory phase:** we carried out through reviewing about many various aspects. Which support to get to know the magnitude and severity of the problem. Tools were distributed to 3 experts in field, as 2 maternity nursing professors and 1 obstetrician.

**Assessment phase:** In this phase, the researchers met the students, explaining to them, the study purpose and explain for each student the proper way to fill the tools accurately after obtaining their acceptance to share. Data tools collection required approximately 15 to 20 minutes from the participants to complete the data collection forms.

**Planning phase:** Depending on previous findings from adolescent girls throughout the evaluation, instructional guideline regard to PMS was designed included gynecologist, physician. Based on PMS symptom managing, and design in printed Arabic booklet form.

**Implementation phase:** Adolescent students were provided with two educational sessions about 45-90 min. / session. The 1<sup>st</sup> session contents include structure and function of female anatomy and physiology of reproductive organs, the physiology of menstruation, Introduce PMS, and discuss how it affects physical and psychological and behavioral states of adolescence , Discuss the causes of PMS. While the 2<sup>nd</sup> session concerned with discuss life style modification related to PMS, dietary habit of schoolgirl, harmful effects of smoking.

**Evaluation phase:** Evaluation phase was done to assessment interventions effects for PMS managing by use the same format of tools in program implementation.

**Limitation of the study:** It was hard to organize and coordinate the time for adolescent sessions among students, lecture time and practical training.

### 3.7. Statistical Analysis

Data analyzed by SPSS version 20.0 chi-square used for evaluating homogeneity of outcome variables among different groups and our hypothesis.  $P \leq 0.05$ .

## 4. RESULTS

**Table (1):** Represented the distribution of personal characteristics of studied sample the result illustrated that, (77.5%) of the studied sample age was ranged from 16 - <17 years old with mean age of  $16.10 \pm 0.60$ . Also (76.5%) of them lived at urban settings. Additionally (65.9%) of their mothers had a secondary education and (71.0%) of their mothers were house wives.

**Table (2):** Elaborated the distribution of menstrual history of studied sample the result showed that (59.0%) of the studied sample had a menarche at age from 11-13 years in addition (78.8%) of them had a menstrual blood flow from 3-5 days. Moreover (81.0%) of them had a regular menstruation and only 19.4% of them had a bleeding between menstrual cycles.

**Table (3):** The result clarified that, there was a highly statistical significant disparity among total life style among studied sample at pre and post intervention ( $p < 0.001^{**}$ ).

**Table (4):** The result suggested that there was highly negative association among effect of age, and PMS among studied sample at pre intervention phase. While positive correlation between effect of body mass index and PMS among studied students at pre intervention phase.

**Table (5):** showed that, there was highly positive correlation between PMS and life style among studied sample at pre intervention.

**Figure (1):** percentage distribution of body mass index of the studied sample showed that, more than half of studied sample (56.7%) within normal body mass index.

**Figure (2):** Represented that, there was highly statistically significant difference in mean score of PMS symptoms of the studied sample pre and post intervention.

**Figure (3):** Showed that, there was improvement in total level of PMS symptoms among studied sample from moderate (81%) at pre intervention to mild (43%) symptoms post intervention phases.

**Figure (4):** Pointed to that total level of life style among studied sample were improved from unsatisfied level (62.3%) before intervention to high satisfied (82.3%) after intervention .

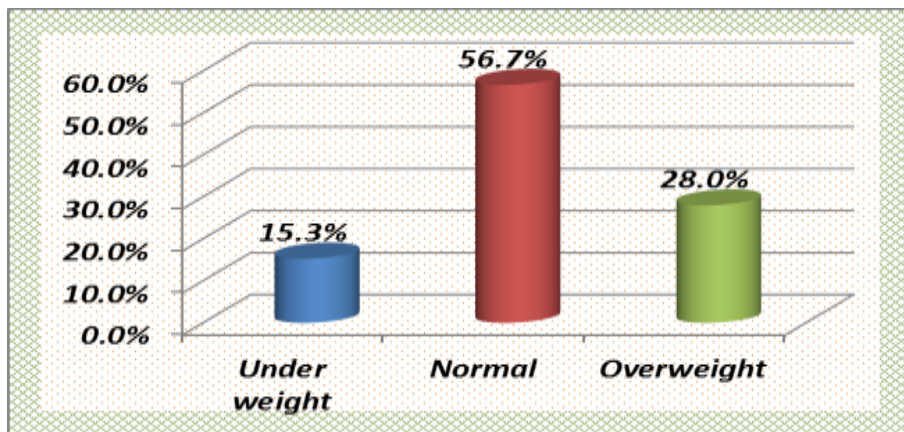
**Table 1** Frequency distribution of personal characteristics of studied sample (N=170).

personal characteristics	Frequency	%
Age In years		
15- <16 years	17	10
16 - <17 years	130	76.5
17 - <18 years	23	13.5
Mean $\pm$ SD	16.10 $\pm$ 0.60	
Residence		
Urban	130	76.5
Rural	40	23.5
Mother educational level		
Illiterate	20	11.7
Read and write	12	7.1

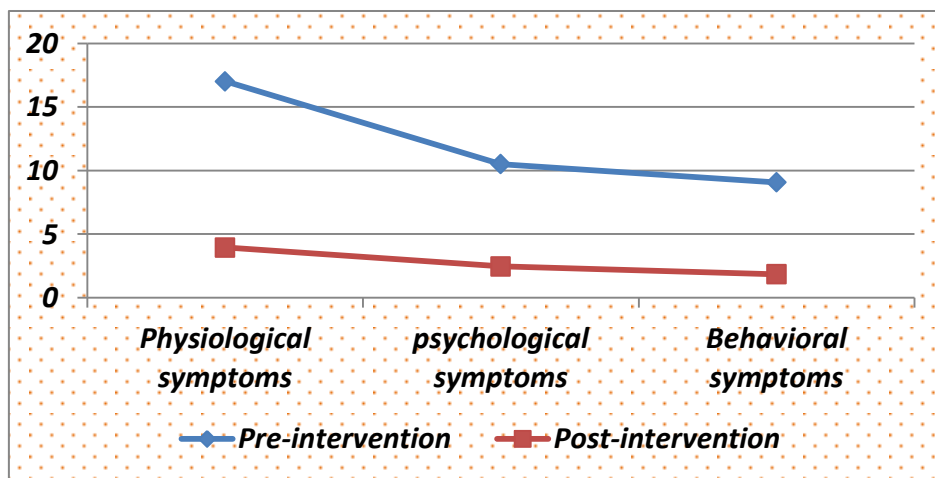
Secondary	112	65.9
University	26	15.3
Occupation of mother		
House wife	121	71.2
Working	49	28.2

**Table 2** Frequency distribution of menstrual history of studied sample (N =170).

Variable	Frequency	%
Age of menarche (in years)		
11-13	177	59.0
>13	123	41.0
Mean ±SD	11.86±1.94	
Days of the menstrual cycle		
Less than 3 days	30	17.6
3-5 days	134	78.8
More than 5 days	6	3.5
Regular menstruation		
Yes	139	81.8
No	31	18.2
Bleeding between menstrual cycles		
Yes	33	19.4
No	137	80.6



**Figure 1** Percentage distribution of body mass index of the studied students



**Figure 2** Mean score of PMS symptoms of the studied sample pre and post intervention.

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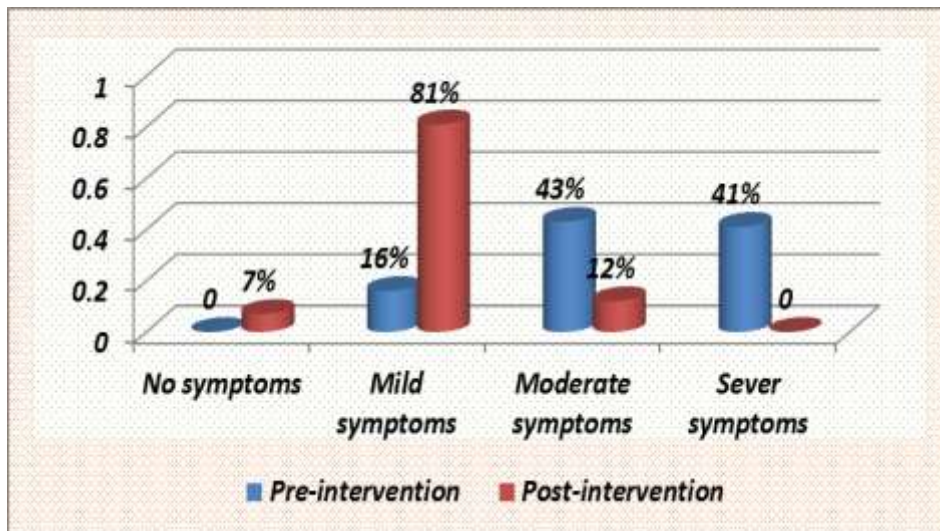


Figure 3 Total level of PMS symptoms among studied students at pre and post intervention phases.

Table 3 Mean score of life style among studied students at pre and post intervention phases.

life style	Pre-intervention	Post-intervention	Paired t test	P value
	Mean ±SD	Mean ±SD		
Nutritional life style	3.86±1.843	17.14±1.307	-101.745	<0.001**
Daily activities	2.4533±1.25422	6.6700±1.11591	-46.086	<0.001**
rest and sleep	.9400±1.21159	7.7367±.66493	-89.560	<0.001**
Personal hygiene	.8200±.95427	7.6067±.80047	-99.140	<0.001**
Total	8.0733±3.27777	39.1567±2.0752	-143.496	<0.001**

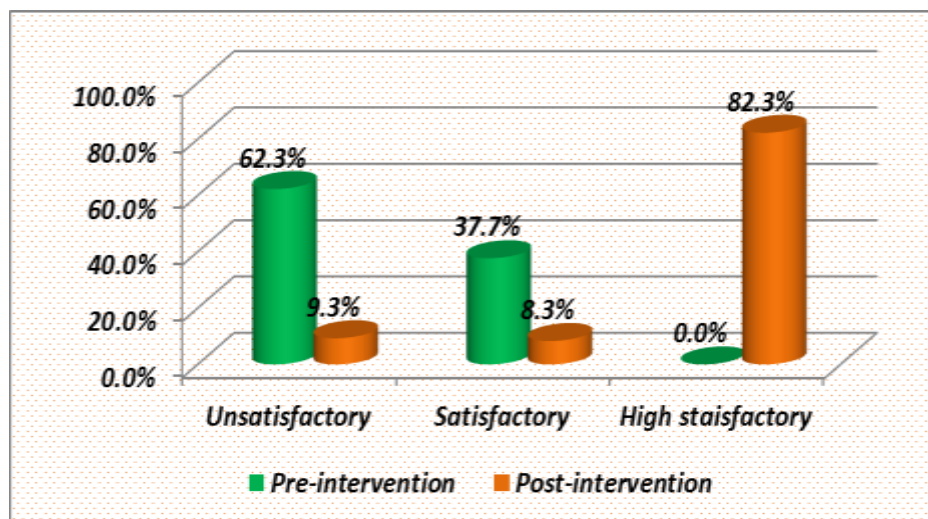


Figure 4 Total level of life style among studied students at pre and post intervention phases.



**Table 4** Correlation between age, body mass index and PMS among studied students at pre and post intervention phase.

Variable	Premenstrual symptoms			
	Pre-intervention		Post-intervention	
	r	P value	r	P value
Age	-0.187	>0.05	-0.414	<0.001**
Body mass index	0.206	<0.05*	0.098	>0.05

**Table 5** Correlation between PMS and life style among studied students at pre intervention phase.

Life style	Premenstrual symptoms			
	Pre-intervention		Post-intervention	
	r	P value	r	P value
	0.026	>0.05	0.472	<0.001**

## 5. DISCUSSION

PMS is among the commonest gynecological problems among adolescent female. Also incorrect beliefs regard to menstrual complaints don't warrant health care providers attention that lead the adolescent female suffer in salient. The nursing knowledge about associated factors that affects the PMS severities and the effect of life style modification in PMS among students is important for improving quality of life among this population; it is essential the development of appropriate polices plans and intervention programs for the management and treatment of PMS [16].

Our aim was evaluating effect of life style intervention for management of PMS among adolescent student.

Concerning the personal characteristic for samples to illustrate the follow, more than three quarters of sample ages from 16 - <17 years and lived at urban settings. This may be due to the sample age in this study is familiar in our culture adolescence age. Additionally near than two thirds of their mothers had a secondary education and more than two third of them were house wives.

This results were agree with [17] found majority of the students in age from 15 to 25 years in a study of Premenstrual dysphoric disorder and associated factors among female health science students in Wollo University, Ethiopia Also, [18] who conducted study to assess Life style factors associated with premenstrual syndrome among El-Minia University Students, Egypt and reported that nearly two third were urban and one third of subjects from rural areas.

On other hand This findings were disagree with [19] noted above half of students age between 20 to 25 years and above three quarters live in rural regions. Also, [20] for assessment quality of life between university students with premenstrual syndrome, in Brazil and found that most students were between 18 and 24 years old.

Regarding menstrual history of studied sample the findings revealed above half of student have menarche at age from 11-13 years in addition more than three quarters of them had a menstrual blood flow from 3-5 days. Moreover majority of them had a regular menstruation and only less than one fifth of them had a bleeding between menstrual cycles. From the researcher point of view this might be due to the inclusion criteria of the studied student in this study without medical or gynecological disorder, the first menstrual period typically occurs among Egyptian females among the ages of 11 and 13 years, and the usual menstrual cycle length is 3-5 days.

The results of present study were consistence with [21] found the most of girls attained menarche pre 14 years, and higher ratio had scanty flow of menstruation and lower ratio heavy menstrual flow, this results were in agreement with [22], in Taiwan and found more

than two third of subjects were 11 to 15 years old at menarche; and regular menstruation, and three quarters reported moderate menstrual flow. Also, [19] *they* reported more than half attained first menstruation (menarche) within range 12-13 years.

On other hand, this result was contraindicated with [23] they conducted study to assess Menstrual bleeding patterns: in Southern Brazil and revealed that majority of adolescent girls at community have heavy menstrual flow. Also [19] half of them have heavy in menstrual flow.

Concerning the PMS symptoms among studied sample the finding of the present study reported that, there was a highly statistical significant difference between total physiological, Psychological and behavioural symptoms of PMS among studied students at pre and post intervention ( $p < 0.001^{**}$ ) from researcher view point this may be due to the positive effect of application instructional guidelines of life style modification for management of premenstrual syndrome.

This findings of the present study was supported by [24] and [25], whose found decreasing in mean score regarding negative affect related psychological symptoms at Follow up phase than Post-test phase.

Regarding life style on PMS symptoms among studied students, our findings clarified that, significant difference among nutritional life style effects on PMS symptoms either pre or post intervention.

This findings was in similar to the study by [26] reported the structured teaching programs were effectively improve unhealthy nutritional habit, and encouraging to preserve & utilize the teaching programs throughout educating appropriate method Also, [19] they found that most of girls didn't practice healthy diets habit pre intervention. However after intervention.

In the same line, this finding was in agree with [27] reported that significant effects on dietary improving throughout complete life style modification which could help to prevent PMD.

Regarding daily activities the finding illustrated there was statistical significant difference among total effects of daily activities on PMS symptoms in studied students at pre and post intervention.

This result was consistent with [28] reported that regular exercise had significant effected in alleviating symptoms of premenstrual syndrome. Also, [29] found positive correlation between decrease PMS risks and followed regular exercises & healthy physical activity for adolescent girls.

On another hand, this finding was contraindicated with [30] they conducted study to assess the effect of educational program on adolescents with PMS and indicated that frequency exercise per week had no significance group differences with case and experimental group.

This finding of the present study was supported by [24] they found improved significantly healthy nutrition, exercise and general health with reduction in severity of PMS symptoms after intervention. In the same line, this finding of the present study was supported by [19] and found that before the educational training program; most of the students did not follow a healthy lifestyle.

With regard to correlation between the study variables, the finding of the present study revealed that there was negative correlation between effect of age and PMS among studied students at pre and post intervention phase.

Conversely, this findings was disagreement with [17] they reported that PMS associate with older age, average length for cycle of menstruation and academic performance

impairment, rural residence, lower age at menarche, regularity of menses and family history. Also, [31] found significant relationship among PMS and hip circumference, and body mass index.

In relation to the correlation between PMS and life style proved positive correlation among PMS and life at pre intervention phase.

This finding of the present study was supported by [22] they reported that yoga exercise intervention was significantly correlated with decreased prevalence of physical symptoms of PMS. This result is consistent with [29] they conducted study to assess Factors predisposing women to chronic pelvic pain and reported that there was a positive correlation between decreased the risk of dysmenorrhea and followed regular exercises & healthy physical activities for adolescent girls.

Success of lifestyle modification in obese adolescent girls should be associating with supporting management and health education this result was supported by [32]. Also [33] found physically activity, regular exercises and swimming during menstruation helping adolescent girls to relieve symptoms of premenstrual syndrome.

## 5. CONCLUSION

Significant improving in total life style among studied sample post intervention comparing to pre intervention. There was improving in total level of PMS symptoms among studied sample from moderate at pre intervention to mild symptoms post intervention phases. Therefore, the study research hypothesis was supported.

## 6. RECOMMENDATIONS

Nursing curriculum might be updated to contain comprehensive information regarding PMS and the effect of life style modification for managing it.

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