Effect of Vitex Agnus Custus (VAC) on Premenstrual Syndromes among Nursing Students

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Abstract: Background: Premenstrual syndrome (PMS) is particularly common problem in the younger age groups. PMS has occasional extreme negative effect on quality of life. **An intervention study** had been done to evaluate the effect of Vitex *Agnus Castus* on nursing students' premenstrual syndromes and health related quality of life. The study conducted at Faculty of Nursing Ain Shams University. It started at beginning of January 2011 and completed by January 2012. **One hundred twelve** students at different academic level were recruited on the study using **systematic random sample technique**. **Three tools** were used for data collection named structured interviewing questionnaire sheet, Prospective Record of the Impact and Severity of Menstrual Symptoms (PRISM calendar), and 36-item Short Form Health Survey (SF-36). Results of the current study revealed that student s' age ranged between 18 to 24 years with mean age (20.59 ± 1.42years). Students from urban area were represented 63.4%. Mean duration of menstrual bleeding (5.23 ± 1.2 days), previous different method were used by 79.5% of students to relieve PMS. In addition, 36.6%, 33.9%, and 29.5% of students had sever, moderate, and mild degree of PMS, respectively at initial assessment. Meanwhile, 69.6% of students their PMS were completely relieved at final assessment, while, 8.1%, 13.4% and 8.9% of students had sever, moderate, and mild degree of PMS, respectively which indicates highly statistically significant difference between them before and after using VAC. Furthermore, a highly statistically significant difference was found between PMS before and after use of VAC. Also, students' HRQOL was significant improved after use of VAC. **In Conclusion** the present study concluded that VAC is effective for treatment of PMS that reflected upon improve nursing students' health related quality of life, the effects being confirmed by physician and students. The effects are detected in most main symptoms of the syndrome, the study **recommended** that considering VAC herbal remedy as one of most effective therapeutic option for women suffering from PMS.

1. Introduction

Premenstrual syndrome (PMS) is characterized by one or a number of a set of physical, behavioral, and psychological symptoms that happen repetitively and in a cyclic pattern in association with the luteal phase of the menstrual cycle and the patient is symptom-free between two luteal phases (**Gul*et al.,* 2011**).

Premenstrual syndrome (PMS) is particularly common problem in the younger age groups and, therefore represents a significant public health problem (**Anamika*et al.,* 2008**).Almost 70%–90% of women of reproductive age suffer from at least one of the symptoms of PMS, which is severe and incapacitating in at least 3%–10% of the cases (**Ozgoli*et al.,* 2009**).

Various biosocial and psychological causes have been proposed as the cause of the syndrome, including abnormal serotonin function, presence of progesterone, altered endorphin modulation of gonadotrophin secretion, exercise habits, smoking, use of alcohol, altered transcapillary fluid balance and a diet rich in beef or caffeine containing beverages (**Yonkers *et al.,* 2008**).

PMS is the condition in which one or more of the various symptoms affect a person's life style, job and daily life is seen and disappears after the menstruation. The symptoms ranging from affective symptoms such as depression, angry outbursts, irritability, crying spells, anxiety, confusion, social withdrawal, poor concentration, sleep disturbance, and thirst and appetite changes, to somatic symptoms including breast tenderness, bloating and weight gain, headache, swelling of the hands or feet, and aches or pains (**Yamamoto *et al.,* 2009**).Moreover, American College of Obstetrics and Gynecology (ACOG) published the diagnostic ten criteria for PMS. It was considered if at least one of the 6 affective and one of the 4 somatic symptoms was reported five days prior to the onset of menses in the three prior menstrual cycles and ceased within 4 days of onset of menses (**ACOG, 2009**).

In addition, various degrees of PMS affect women on their reproductive age. That varies from **mild PMS** that does not interfere with personal/social and professional life, **moderate PMS** that interferes with personal/social and professional life but still able to function and interact although may be sub-optimally, **severe PMS** on which women unable to interact personally/socially/professionally- withdraws from social and professional activities and finally **PMDD**:

Premenstrual dysphoric disorder that characterize by severe symptoms that cause severe impairment **(Daniel, 2005).**

Health Related Quality of Life (HRQOL) is a comprehensive multidimensional concept including at least physical, emotional, and social dimensions of functioning and well-being. Therefore, the aggregate measure of HRQOL may provide important information related to impact of PMS. Only a few investigations performed standardized HRQOL evaluations for female with PMS **(Solveig*et al.,* 2009).**

The morbidity of PMS results from the severity of symptoms, the chronicity of the disorder and the resulting impairment in domestic and work settings, in social and professional relationships and in activities. The use of HRQOL measures to assess burden of illness can provide extensive information on patients' everyday lives and overall well being, as well as help to evaluate therapies and everyday clinical practice. Thus, HRQOL is an important aspect of assessing the burden of PMS/PMDD, yet it is difficult to measure since it incorporates subjective views as well as ratings of physical and mental health, interpersonal and work functioning and a sense of well-being. Beyond the home and workplace, even young women who are still students are impacted **(Rapaport*et al.,* 2005 and Solveig*et al.,* 2009).**

PMS is often treated with conventional drugs including anti-inflammatory agents and psychotropic drugs, or hormonal interventions. Many women seek alternative therapies, including herbs, botanical dietary supplements, vitamins and minerals because conventional therapies do not help them, or they do not want to risk the side effects of hormonal or psychotropic drugs **(Webster *et al.,* 2006** and **Kimberly and Lori, 2009).**

Herbal medicine becomes more prevalent, a review of 300 nonmedical sources of advice about herbal remedies in PMS (books, magazines, and Web sites) found that Vitex *Agnus castus* "VAC" has been used since ancient Greek times also called Chaste Tree Berryas. It used as treatment for menstrual problems, treat pain, swelling, inflammation, headaches, rheumatism, and sexual dysfunction. The last decade has provided several successful clinical trials supporting the use of 20 mg native extract of VAC for treatment of PMS **(Kimberly and Lori, 2009).**

The mechanism for the actions of VAC in PMS is not entirely clear. The most thoroughly studied mechanism is through dopamine receptors in the anterior pituitary. Several studies have indicated that VAC acts on dopamine D2 receptors to decrease prolactin levels. This mechanism is most likely responsible for alleviating symptoms of hyperprolactinemia. Also another mechanism were found through which VAC may work is the opiate system, which decrease the amount of gonadotropic releasing hormone (GnRH) acting on the pituitary lead to decreases the release of luteinizing hormone (LH) and follicle stimulating hormone (FSH). LH and FSH, released from the pituitary, then enter into a complex feedback loop with progesterone and estrogen to regulate the menstrual cycle. Levels of β - endorphin decrease along with estrogen in the late luteal phase of the menstrual cycle, which correlates with the appearance of symptoms of PMS **(Wuttke*et al.,* 2003).**

Maternity nurses and other health professionals have a responsibility to provide women's holistic health care. PMS management is a very important aspect of holistic health care, which needs to be promoted. The specialized nurse in particular can play a crucial role as educator and counselor especially regard complementary and alternative medicine regards PMS management. So nurses must play a key role in informing women about premenstrual symptoms and providing consultations on how to improve their quality of life, as well as encouraging the recognition of this common condition and in helping women cope with these symptoms through using safe herbal method instead of medical chemical drugs **(Oncel& Pinar, 2006).**

Aim:

To study the effectiveness of Vitex *Agnus Castus* as one of herbal therapy on relieving PMS through:

1. Identifying premenstrual syndromes among nursing students' using PRISM calendar.
2. Evaluating the effectiveness of using Vitex *Agnus Castus* on relieving PMS
3. Study the effect of using Vitex *Agnus Castus* on nursing students' PMS health related quality of life.

Study Questions:

1. Is Vitex *Agnus Castus* effective on relieving PMS?
2. Is using Vitex *Agnus Castus* properly improve nursing students' HRQOL?

Justification of the Problem:

Premenstrual syndromes are a serious problem that affect majority of women in reproductive age, nearly 85–97% of women experience various somatic and affective disorders prior to menstruation that reflected upon women's health related quality of life **(Milewicz and Jedrzejuk, 2006).** The use of herbs is a time-honored approach to strengthening the body and treating disease, therefore using herbal medicine is most common safe for management of PMS. Vitex *Agnus Castus* is a new herbal medicine used for the treatment of premenstrual syndrome. So the researchers conducted this study to study effect of Vitex *Agnus Castus* on relieving this disorder as one of the cheapest herb useful, pleasant, appear to be without side-effect and present in the Egyptian community and easily used from our society.

2. Subject and Methods:

Study Design, Site, and Timing:

An intervention study design was conducted in Faculty of Nursing Ain Shams University. It started and completed through academic year 2011 – 2012.

Sampling type and technique:

A systematic random sample technique was used to select students in different academic levels based on the study criteria at academic years 2011-2012. The researcher selected the nursing students due to their awareness regard natural herbal medicine for PMS as part from their studies in medical field, also to control follow up of them for three months. Technique was used as following:

§ At first stage the researcher met each academic year students separately and explained to them the right method for using PRISM calendar after that the researcher gave each students calendar to fill it and determined time for next meeting with them. Total number of female students accepted was 467.

§ At second stage the researcher collected the filled calendar from each academic year students and determined students suffered from PMS. Nearly 80% of (467) students were affected by PMS (374 students).

§ At third stage the researcher prepared list with students suffered from PMS (374).

§ At fourth stage the researcher selection of students based on systematic technique "every third" (125) of students suffering from PMS at different academic year randomly using computer based on the selected criteria.

Inclusion criteria:

§ Unmarried students had regular menstrual cycles of 21–35 days. Suffer from different degree of PMS

Exclusion criteria:

§ Students had irregular menstrual cycles, affected by known physical or psychological disorders (e.g., hypothyroidism, mood disorders), and taking special medications (e.g., warfarin, antidepressants, oral contraceptives) or other herbal medicines.

Sampling size:

The final subject selected from the computer was (125) of students suffering from PMS at different academic year divided into:

§ **One hundred and twelve actually recruited in the study** (From first academic level was 18 students; second academic level was 28 students; third academic level was 30 students; and fourth academic level were 36 students).

§ **Thirteen** Students were excluded from the study due to irregular use of VAC for three months continuously.

Tools for Data Collection:

Three types of tools were used for data collection. These consisted of students' structured interviewing questionnaire sheet regard PMS, Prospective Record of the Impact and Severity of Menstrual Symptoms (PRISM calendar) and the 36-item Short Form Health Survey (SF-36). They were used twice "pre/post using of VAC".

I. Structured interviewing questionnaire sheet:
Arabic structured interviewing questionnaire sheet was designed by the researcher after reviewing the relative literature. The questionnaire sheet was consisted of (16) questions; students had 10-15 minutes to fill it. It divided into 2 parts as follow:

1st part: covered the socio-demographic data including: age, place of residence, and telephone number. **2nd part:** consisted with menstrual history such as duration of menses, type of treatment of PMS if used, effect of treatment on PMS, side effect of treatment and treatment advisor.

II. Prospective Record of the Impact and Severity of Menstrual Symptoms (PRISM calendar) (Gene *et al.*, 2008):

It is a standard self administered valid calendar used to evaluate symptoms, life style impact, life events, and medication .It used at first stage of data collection by students' themselves after explaining it by researcher. This tool of PRISM calendar was reliable (Cronbach's Alpha coefficient $r = 0.87$). It allows rapid visual confirmation of the nature, timing, and severity of menstrual cycle- related symptomatology and at the same time provides information on life stressors and current use of PMS therapies. Although symptoms are rated in severity on a scale from 1-3 the actual interpretation of the calendar requires no mathematical calculations. An arms length assessment of the month-long calendar usually allows a rapid distinction to be made between PMS and other more chronic conditions. Based on analysis of this calendar the severity of PMS was determined at initial assessment before intervention for study subject then at final assessment after using VAC.

Instructions Given to Students for Completing This Calendar:

§ On the first day of menstruation prepare the calendar: Considering the first day of bleeding as day 1 of your menstrual cycle enter the corresponding calendar date for each day in the space provided below

§ Each Morning: Take weight after emptying bladder and before breakfast Record WEIGHT CHANGE from baseline

§ Each Evening: At about the same time complete the column for that day as described below

§ BLEEDING: Indicate if have had bleeding by shading the box above that days date; for spotting use an "X".

§ SYMPTOMS: If do not experience any symptoms

leave the corresponding square blank If present indicate severity

MILD: 1 (noticeable but not troublesome)
MODERATE: 2 (interferes with normal activity)
SEVERE: 3 (temporarily incapacitating)

§ LIFESTYLE IMPACT: If the listed phrase applies to you that day enter an "X".

§ LIFE EVENTS: If you experienced one of these events that day enter an "X".

§ Experiences. For positive (happy) or negative (sad or disappointing) experiences unrelated to your symptoms

§ Specify the nature of the events on the reverse side of this form

§ Social Activities imply events such as a special dinner, show or party etc involving family or friends

§ Vigorous Exercise implies participation in a sporting event or exercise program lasting more than 30 minutes

§ MEDICATION: In the bottom 3 rows list medications if any and indicate days when taken by entering an"X".

III. The 36-item Short Form Health Survey (SF-36) adopted from *(Ware et al, 2002)* was used to assess students' HRQOL. It a brief self-administered questionnaire that generates scores across eight dimensions of health: physical functioning (PF), role limitations due to physical problems (RP), bodily pain (BP), general health (GH), vitality (VT), social functioning (SF), role limitations due to emotional problems (RE), mental health (MH), and one single item scale on health transition. This tool of the SF 36-Items Health Survey was reliable (Cronbach's Alpha coefficient r = 0.70).

The Scoring system for SF 36-Items Health Survey was done based on the following process:

First step; pre-coded numeric values are recorded per the scoring key. Note that all items are scored so that a high score defines a more favorable health state. In addition, each item is scored on a 0 to 100 range so that the lowest and highest possible scores are set at 0 and 100, respectively. Scores represent the percentage of total possible score achieved.

Step two; item in the same scale are averaged together to create the 8 scale scores. Items that are left blank (missing data) are not taken into account when calculating the scale scores. Hence, scale scores represent the average for all items in the scale that the respondent answered.

Ethical consideration:

An official approval was obtained from maternal & neonatal nursing department counsels and scientific research ethical committee at Faculty of Nursing, Ain Shams University to conduct the study. Also an official written letter clarifying the purpose of the study was directed to Dean of Faculty of Nursing Ain Shams University as an approval for data collection. A verbal informed consent was obtained from each student after explaining the purpose of the study to gain confidence and trust. The study maneuver don't entail and harmful effects on students. Students' informed about the rights to refuse or withdraw from the study at any time without given a reason. Confidentiality of the data was ascertained. License agreement for SF 36 and PRISM was obtained through electronic mail.

Pilot study:

It was conducted on 10 students those were randomly selected by academic levels and were excluded from the main study sample. Its aim was to evaluate the simplicity, and clarity of the tools. It also helped in the estimation of the time needed to fill in the forms. According to the results of the pilot study, simple modifications were done as rephrasing questions or cancelling some questions.

Field work:

The study consumed 12 months, three months out of them for obtaining the official permission and preparing tools for data collection and materials, next six months for implementation, three months for data entry and. The study started at beginning of September 2010 and completed by September 2011.

At first step of data collection the researcher interviewed head of each scientific department and explained the purpose of research then arranged with them the suitable meeting time with students. The researcher conducted a first meeting with students of each academic level separately for explaining PRISM calendar tool of data collection and determined time for second meeting. *At second step* the researcher revised PRISM calendar filled by students at each academic level for identifying students suffer from PMS. *At third step* researchers made a coding list of students had PMS then through computerized technique first one was selected randomly then systematic technique "every third students" was followed to complete process of selection. *At fourth step* researcher conducted third meeting with selected students only aim of this meeting was filling SF- 36 survey "base line assessment" then supplement students with one packet/ day contains 20 mg native extract of VAC inform of powder (VAC powder packets was prepared by special pharmacist in plants, this dose was determined and approved by FDA), every day the students dilutes one packet in one cup of water and take it on the morning for 3 months continuously starting at end of bleeding. Students instructed to fill calendar while using VAC for three months and keep in contact with researcher if has any problem arise. *At fifth step* researcher conduct final meeting with selected students for collecting PRISM calendar used

through 3 months and fill SF-36 survey "final assessment".

Statistical analysis:

Data entry & statistical analysis were done using Statistical Packages for Social Science (SPSS) version 18.0. Quality control was done at the stages of coding and data entry. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables, means and standard deviations for quantitative variables. Qualitative variables were compared using chi-square test, while quantitative variables were compared using paired T test that used to compare mean scores of quantitative variables. Statistical significance was considered at p-value <0.05, highly significant difference obtained at P < 0.0l and non-significant difference obtained at P > 0.05.

3. Results:

Table (1) revealed that student s' age ranged between 18 to 24 years with mean age (20.59 ± 1.42years). Students from urban area were represented 63.4%.

Table (2) showed that duration of menstrual bleeding ranged from 3–7 days with mean duration (5.23 ± 1.2days). In addition 79.5% of students use previous different method to relieve PMS. While, most common methods used were analgesic with music, antispasmotic with light therapy, and light therapy with calcium by 28.1%, 21.3%, and 19.2% respectively. Furthermore, methods used relieve PMS by 41.7%, main method advisor were family, friends and physician representing 49.3%, 27.8%, and 22.9% respectively.

Figure (1) indicated that 36.6%, 33.9%, and 29.5% of students had sever, moderate, and mild degree of PMS, respectively at initial assessment.

Meanwhile, 69.6% of students their PMS were completely relieved at final assessment, while, 8.1%, 13.4% and 8.9% of students had sever, moderate, and mild degree of PMS, respectively which indicates highly statistically significant difference between them before and after using VAC.

Figure (2) revealed that most sever somatic symptoms were menstrual cramp, edema, and bowel changes, while most sever affective symptoms were irritability, ↓ concentration, ↓ self-image, and ↓ social activity at initial assessment.

Figure (3) showed that impairment "sever degree" of somatic symptoms completely loss with treatment (headache, breast tenderness, abdominal balloting, and edema of extremities) also, impairment "sever degree" of affective symptoms completely loss with treatment (↓ social activity, anger, anxiety, depressed mood and ↓concentration) at final assessment. Concerning comparison between (Figures 2 & 3) Symptoms of PMS before and after using VAC a highly statistically significant difference between them (X^2 = 8.95 at p< 0.000) which indicate marked improvement in symptoms after using VAC.

Table (3) indicated that mean score of eight subscales of HRQOL were decreased on students affected by different degree of PMS especially role limitation due to physical health and vitality at initial assessment.

Table (4) revealed that mean score of eight subscales of HRQOL were improved after use of VAC especially (RP, PF, RE and MH) subscales of HRQOL at final assessment.

Table (5) revealed that there is a highly significant improvement on mean score of students' HRQOL after use of VAC.
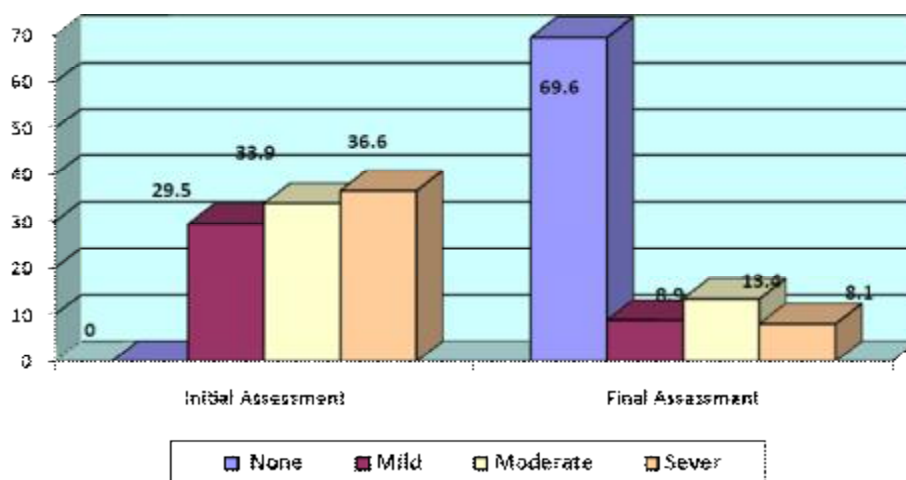

Fig. (1): Degree of PMS at initial and final assessment (before and after using VAC) (n= 112)
N.B.: X^2 = 7.900 at *P*< 0.000   ** Highly significant difference obtained at *P*< 0.0l
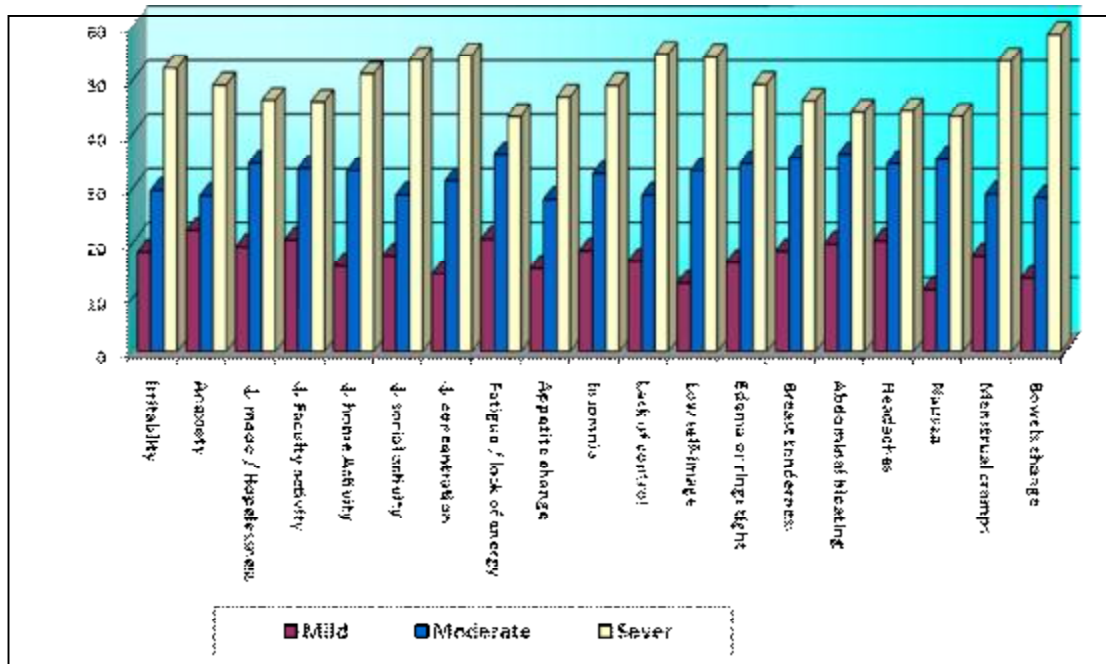
Fig. (2): Symptoms of PMS at initial assessment (before using VAC) (n= 112)
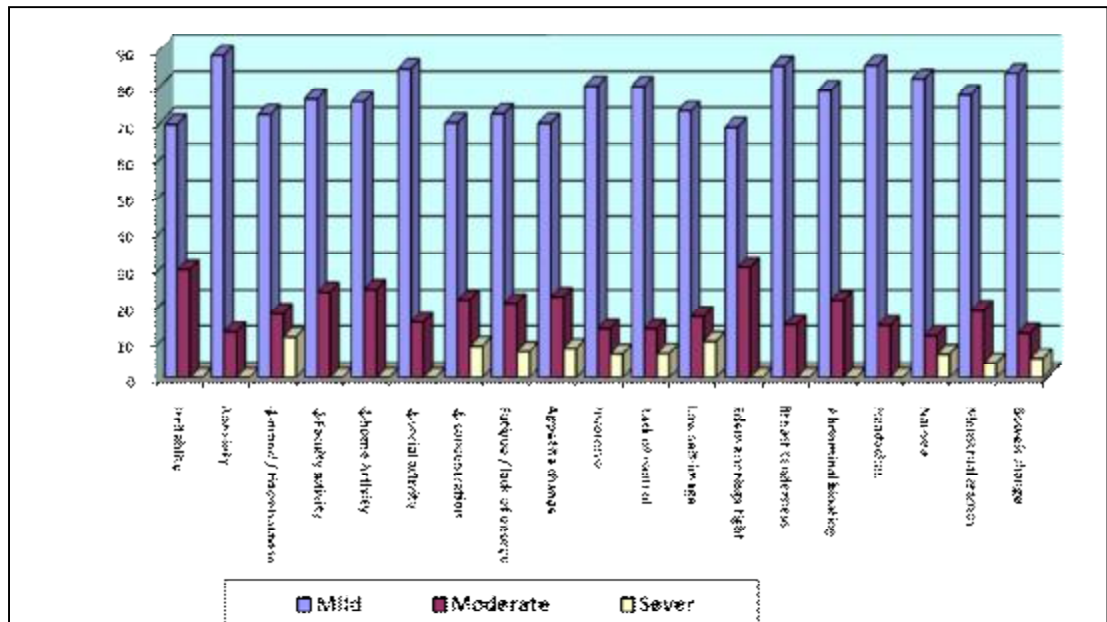

Fig. (3): Symptoms of PMS at final assessment (after using VAC) (n= 112)
N.B.: $X^2 = 8.95$ at $P < 0.000$ ** Highly significant difference obtained at $P < 0.01$

Table (1): Characteristics of the studied students (n= 112)

Items	No	%
Student's age		
18-20	54	48.2
21-24	58	51.8
Mean ± SD	20.59 ± 1.42	
Place of residence:		
Urban	71	63.4
Rural	41	36.6

Table (2): Menstrual history and PMS (n= 112)

Items	No	%
Duration of menstrual bleeding (days):		
3 – 5	65	58.0
6-7	47	42.0
Mean ± SD	5.23 ± 1.2	
Use previous different methods to relieve PMS:		
Yes	89	79.5
No	23	20.5
Type of previous methods used:		
Antispasmotic & light therapy	19	21.3
Analgesic & music	25	28.1
Vitamins & calcium	14	15.7
Analgesic & relaxation exercises	14	15.7
Light therapy & calcium	17	19.2
Effectiveness for previous method selected to relieve PMS:		
Yes	33	41.7
No	46	58.3
Side effect of previous method:		
None	33	41.7
Somatic symptoms	28	35.4
Affective symptoms	18	22.9
Method advisor:		
Family	39	49.3
Friends	22	27.8
Physician	18	22.9

Table (3): HRQOL score for students' atinitial assessment (n= 112)

Items	Mildly affected (n=33)	Moderately affected (n=48)	Severely affected (n=41)
Physical functioning (PF)103, 4, 5, 6, 7, 8, 9, 10, 11, 12	65.35 ± 11.60	57.30 ± 14.36	41.93 ± 12.39
Role limitations due to physical health (RP)	47.94 ± 24.81	35.74 ± 19.13	28.52 ± 11.98
Role limitations due to emotional problems (RE)	59.60 ± 26.50	53.99 ± 20.99	44.60 ± 15.70
Energy/ fatigue "vitality" (VT)	55.05 ± 5.01	48.49 ± 17.63	31.78 ± 11.21
Emotional well -being "mental health" (MH)	59.18 ± 11.89	49.62 ± 12.07	37.81 ± 16.53
Social functioning (SF)	61.52 ± 10.24	54.65 ± 5.04	48.12 ± 13.45
Bodily Pain(BP)	59.71 ± 21.58	48.35 ± 15.01	41.43 ± 11.68
General health (GH) 1, 33, 34, 35, 36	57.35 ± 9.37	51.61 ± 10.10	46.63 ± 5.09

Table (4): HRQOL score for students' at final assessment (n= 112)

Items	Relived PMS (n = 78)	Mildly affected (n = 10)	Moderately affected(n = 15)	Severely affected (n = 9)
Physical functioning (PF)103, 4, 5, 6, 7, 8, 9, 10, 11, 12	93.07 ± 6.60	88.67 ± 14.36	80.54 ± 15.89	78.14 ± 17.82
Role limitations due to physical health (RP)	96.24 ± 8.30	95.14 ± 12.10	92.22 ± 17.17	89.72 ± 16.10
Role limitations due to emotional problems (RE)	88.41 ± 16.20	83.09 ± 20.19	80.33 ± 22.50	77.06 ± 20.13
Energy/ fatigue "vitality" (VT)	77.65 ± 15.66	74.78 ± 16.03	70.68 ± 10.48	67.60 ± 13.16
Emotional well -being "mental health" (MH)	87.18 ± 11.09	84.71 ± 12.07	80.42 ± 13.53	78.12 ± 15.07
Social functioning (SF)	83.57 ± 14.25	80.25 ± 17.04	78.92 ± 16.76	74.22 ± 13.80
Bodily Pain(BP)	77.07 ± 19.26	74.95 ± 18.07	70.40 ± 18.62	68.56 ± 16.69
General health (GH) 51, 33, 34, 35, 36	76.35 ± 15.37	73.77 ± 17.17	71.55 ± 13.67	70.09 ± 15.61

Table (5): Comparison of students' HRQOL score at initial and final assessment

Items	Initial Assessment	Final Assessment	Paired T – test	P value
Physical functioning (PF)103, 4, 5, 6, 7, 8, 9, 10, 11, 12	68.07 ± 8.39	90.03 ± 14.45	16.49	0.001**
Role limitations due to physical health (RP)	46.15 ± 16.75	94.07 ± 13.05	9.36	0.005**
Role limitations due to emotional problems (RE)	65.81 ± 25.91	80.23 ± 23.05	11.63	0.003**
Energy/ fatigue "vitality" (VT)	58.58 ± 9.45	76.98 ± 22.34	14.06	0.002**
Emotional well- being "mental health" (MH)	60.71 ± 10.13	87.52 ± 14.03	13.70	0.002**
Social functioning (SF)	70.74 ± 12.91	84.64 ± 17.15	23.42	0.001**
Bodily Pain(BP)	58.58 ± 20.22	78.07 ± 21.03	9.67	0.005**
General health (GH) 51, 33, 34, 35, 36	54.10 ± 10.12	76.72 ± 16.42	10.26	0.004**

** Highly significant at ($P \leq 0.001$)

4. Discussion:

Premenstrual Syndrome (PMS) is a common psychosomatic disorder that affect most of women in the childbearing age, as more than 30-50% of women suffer from mild to moderate form of this disorder and 3%-8% suffer from its sever form. The symptoms of this disorder are related to the specific biological characteristics of women's reproductive age that can start from teen years. The symptoms' devastating effect on these crucial years of life can result in a sense of dissatisfaction and inadequacy (**Ziba*et al.,* 2008**).So, research team conducted to study the effectiveness of Vitex *Agnus Castus* as one of herbal therapy on relieving PMS.

The result of the current study revealed that students' age ranged between 20 to 21 years with mean age (20.59±1.42years). Students from urban area were represented 63.4%. While, duration of menstrual bleeding ranged from 3–7 days with mean duration (5.23 ± 1.2 days).

Concerning previous methods used for reliving PMS the finding of the present study indicated that more than two third of students use different method of treatment meanwhile main method advisor were family, friends and physician respectively. This finding was in the same line with **Gu*let al.* (2011)** who studied PMS among 316 students at Faculty of Medical Sciences on Baskent University and its effects on their life quality and reported that 25.7% of participated in the study saw a doctor for the premenstrual symptoms. This finding was also, in accordance with **Demir*et al.* (2006)**who conduct study to analysis of premenstrual syndrome incidence in medical staff and reported that 28% of the young people were applied to the healthcare organization because of severity of symptoms.

The previous study finding was in converse with **Wong (2011)** who studied menstrual-related attitudes and symptoms among multi-racial Asian adolescent females through cross-sectional study included 1,092 adolescent females from 94 schools in the Federal Territory of Kuala Lumpur, Malaysia and reported that only 10.3% of adolescent girls consulted doctors for PMS symptoms. Also, **Murat *et al.* (2007)** who

studied menstrual pattern and common menstrual disorders among university students in Turkey mentioned that only 18% of all girls with PMS had consulted a doctor due to pain. This could be explained by in traditional culture there is a restriction in discussing menstrual problems for young girls with physicians, especially in rural areas.

Furthermore, the result of the current study indicated that the most previous method used to relive PMS were analgesic with music, antispasmotic with light therapy, and light therapy with calcium by 28.1%, 21.3%, and 19.2%, respectively. This finding was in the same line with **Rizk*et al.*(2006)** who studied prevalence and impact of premenstrual syndrome in adolescent girls aged 12-18 years from five private and five public schools (700 schoolgirls) in the United Arab Emirates and found that only 52 affected subjects (45.2%) were currently taking treatment for premenstrual syndrome and the majority (60%) used pharmacological therapy.

The previous study finding was in converse with **Anamika*et al.*(2008)** who studied problems related to menstruation and their effect on daily routine of students at Medical College in Delhi, India and reported that 60% of the study subjects were taking allopathic treatment for their menstrual problems, 3% were taking ayurvedic or homeopathic treatment, and 40% were taking home remedies for the relief of menstrual problems. This could be explained by different in nature of Indian community culture and tradition.

As regard degree of PMS our study finding revealed that, 29.5%, 33.9%, and 36.6% of students had mild, moderate, and sever degree of PMS respectively at initial assessment this was in accordance with **Ziba*et al.* (2008)**who studied the effect of PMS on Quality of Life of 360 adolescent girls studying in the second year of high school in south of Tehran and found that severity of PMS in most of the participants (62.22%) was moderate, 8.89% was mild and in 28.89% was sever. Also, this finding was also in the same line with **Tabassum *et al.* (2005)** who studied premenstrual syndrome: frequency and severity in 384 young college girls and mentioned that

degree of PMS among which 42% was mild, 18.3% moderate and 39.7% severe.

It was interesting to notice that the frequency of severe PMS was high in our research in contrary to what had been reported by **Nisar***et al.* **(2008)** who studied frequency, intensity and impact of premenstrual syndrome in unmarried medical students aged 18-25 years with regular menstrual period and mentioned that 59.5% had mild PMS, 29.2% had moderate and 11.2% had severe PMS. The difference could be due to our sample criteria as they study at the relevant department associated with health that reflected upon their level of knowledge and awareness regarding PMS.

Meanwhile, the result of the current study showed that PMS were completely relieved for more than two third of students "69.6% " at final assessment "after use of VAC for three months continually" while, 8.1%, 13.4% and 8.9% of students had sever, moderate, and mild degree of PMS respectively. This finding was in agreement with **Zhong** *et al.* **(2009)**who investigates the efficacy and safety of VAC extract in Chinese women suffering from moderate to severe premenstrual syndrome (PMS) and reported that the mean total PMS score decreased from 29.23 at baseline (0 cycle) to 6.41 at the termination (3rd cycle) for the treatment group "VAC". However, the total PMS score of 3rd cycle was significantly lower than the baseline in both groups "treatment & placebo" ($p < 0.0001$) as the score was decreased from 26.17 ± 4.79 to 9.92 ± 9.01 for the treatment group. This finding also supported with **Linlin** *et al.* **(2010)** whocompare the efficacy and tolerability of *Agnus Castus* fruit (Vitex *Agnus-castus*) with placebo in women with premenstrual syndrome (PMS) over three menstrual cycles and found that 50% reduction in symptoms.

Furthermore, the result of the current study showed that most sever somatic symptoms were menstrual cramp, edema, and bowel changes, while most sever affective symptoms were irritability, ↓ concentration, ↓ self-image, and ↓ social activity at initial assessment. This finding was in the same line with **Antai***et al.* **(2004)**who showed that somatic symptoms were the predominated among group with mild - moderate symptoms while mood-related symptoms were predominant in severe conditions. This finding also supported with **Wong (2011)** who found that 80.7% and 83.6% of the participants experienced one or more affective and somatic symptoms respectively in the premenstrual phase.

The previous study finding was in contrary with **Magdy***et al.* **(2010)** who studied the phenomenology of premenstrual syndrome in female medical students: a cross sectional study for 288 young female and mentioned that the most frequent symptoms in mild and moderate cases were somatic. Whereas, the most frequent symptoms in severe cases included both somatic and psychological symptoms. This could be explained by varied methods of data collection, sampling technique and the type of study population.

Meanwhile, the result of present study revealed that impairment "sever degree" of somatic symptoms completely loss with treatment (headache, breast tenderness, abdominal balloting, and edema of extremities) also, impairment "sever degree" of affective symptoms completely loss with treatment (↓ social activity, anger, anxiety, depressed mood and ↓concentration) at final assessment (after using of VAC). The previous study finding was in agreement with **Linlin** *et al.* **(2010)** whocompare the efficacy and tolerability of Agnus Castus fruit (Vitex *Agnus-castus*) with placebo in women with premenstrual syndrome (PMS) over three menstrual cycles and mentioned that the main efficacy variable was change from baseline to endpoint (end of third cycle) in women's self-assessment of irritability, mood alteration, anger, headache, breast fullness, and other menstrual symptoms including bloating.

Regarding HRQOL score the result of the current study indicated that there were decline in all dimensions of health related quality of life as degree of PMS worsen among students at initial assessment. This finding was in the same line with **Nisar***et al.***(2008)** who conducted study aimed at finding the relationship between PMS and QOL in a sample of medical students and indicated that the quality of life score in the mental and physical component in this sample was lower than the healthy population (P<0.001); where the most affected scales had the following order: role limitation due to emotional problems, role limitation due to physical problems, general health, vitality, social function, bodily pain, mental health and physical performance. Comparing the results of this study with our own, our study showed some similarities: role limitation due to physical problems, general health, and vitality.

The previous study finding also supported with **Gu***et al.* **(2011)** who reported that the lower score average of dimensions of the life quality was found as 815.71 ± 4.74 for physical health, 76.63 ± 6.35 for psychological health, 73.12 ± 6.73 for social relations and 68.85 ± 9.34 for environmental area respectively

Furthermore, current study finding concerning HRQOL indicates that there was a highly significant improvement in all the dimensions of HRQOL after using of VAC. This finding was on contrary with **Nisar***et al.* **(2008)** who compared quality of life in a sample of the second year high schoolgirls with and without PMS and found that there were only significant differences between those who suffered from severe PMS and healthy adolescents on mental health and vitality. The differences among healthy adolescents and those who suffered from mild and moderate PMS and for other measures on the SF-36 were not

significant. It is argued that female adolescents with severe PMS might experience more stress and thus report poorer conditions.

Conclusion and Recommendations:

The present study concluded that VAC is effective for treatment of PMS that reflected upon nursing students' health related quality of life, the effects being confirmed by physician and students. The effects are detected in most main symptoms of the syndrome. Only 2 students suffer from VAC side effect "acne" that relived spontaneously without any treatment.

The study recommended that considering VAC herbal remedy as one of most effective therapeutic option for women suffering from PMS. Further study is still needed to study the effect of VAC versus other therapeutic option on reliving PMS.

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