
THE EFFECT OF CINNAMON ON PHYSICAL SYMPTOMS OF PREMENSTRUAL SYNDROME AMONG ADOLESCENT GIRLS

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Abstract:

Background: Menstruation is a landmark in every female's life. Premenstrual syndrome is a particularly commonest gynecological complains in adolescent stage, in Egypt the prevalence of PMS was found to be (89.6 %) among medical students of Ain Shams University. **The aim** of this study was to assess the effect of cinnamon on physical symptoms of premenstrual syndrome among adolescent girls at Mansoura University. A quasi-experimental research design was utilized. **The study setting** was conducted at nursing School of Mansoura University. A purposive sample of 150 students complains from premenstrual syndrome from September 2012 to May 2013 study that served as a one arm intervention. **Three tools** were used to collect data, the first tool; was structured questionnaire sheet, the 2nd tool was the present assessments tool to assess severity of physical symptoms of PMS and the third tool was satisfaction Likerts scale for measure the level of student's satisfaction from using cinnamon as a way of relieving physical symptoms. **The Results:** More than half (52%) of nursing school students had menarche at age 10, also around half 41.3% of students were sever general body discomfort while more than half of them 56% have moderate abdominal pain pre-intervention. After intervention by using cinnamon there were highly significant positive effects to decrease symptoms from baseline to post dairy one and post dairy two. It's clearly the association that highly significantly positive relationship between the reductions of severity of physical symptoms and regularity of taking cinnamon, also approximately three quarter of the student were satisfied from the positive effect of cinnamon. **Conclusion:** There were highly significant positive effect in reduction of severity of PMS physical symptoms after regular taking cinnamon packet supplementation and most of students were satisfied from the effect of the cinnamon. **Recommendation:** Raising the awareness of adolescent girl about the safety and efficacy of a herbal therapy especially cinnamon

Key Words: Adolescent, Premenstrual syndrome, Cinnamon

Introduction:

Menstruation is a landmark in every female's life. It is a normal physiological event happen during reproductive age, most girls may experience cyclical changes in their physical and psychological status during their childbearing years these changes may initiate from (2-8) days prior to the menstrual cycle that used the term luteal phase occasionally preceded by a variable degree of

physical disabilities were coined the term "premenstrual syndrome" PMS [1].

Premenstrual syndrome (PMS) is a set of physical and psychological symptoms that occur a week before menstruation in most cycles.

Nearly 90% of women complain and experienced at least one of premenstrual syndrome symptoms as defined by ICD-10 criteria [2].

[3] were described the timing of symptoms as the key characteristic of PMS, symptoms is caused by an increase in the synthesis and release of prostaglandins which is an inflammatory substances particularly from the uterine endometrium which produced in the areas where symptoms originate namely breast, brain, and gastrointestinal tract that causes contraction of smooth muscles cause colicky pain, spasmodic and labor-like pain in the lower abdomen and lower back pain. Gastro Intestinal tract that can lead to nausea, constipation, vomiting and diarrhea, although symptoms vary from girl to girl, reproductive hormones, genetic factors, and neurotransmitters are play a central role in the etiology of PMS symptoms but the precise etiology of PMS remains unknown [4].

The physical symptoms are: general body discomfort, water retention, swelling, weight gain, diarrhea, constipation abdominal bloating, and the most common complain of physical symptoms consider pain in different types (headache, breast tenderness, aching muscle and back pain), sever painful menstruation leads to high rates of absence from school and non-participation in activities[5].

Medical treatments for PMS include: Non-steroidal anti-inflammatory drugs (NSAIDs), Contraceptives, such as the combined contraceptive pill, Selective serotonin reuptake inhibitors (SSRIs) and

Gonadotrophin-releasing hormone (GnRH) analogues[6].

Complementary and alternative therapies (CATs) are popular with women who have PMS. A systematic review designed by Stevinson, and Ernst (2010) to determine whether the use of such therapies is supported by evidence of effectiveness from rigorous clinical trials. These randomized controlled trials investigating a complementary and alternative therapy in women with PMS including twenty-seven trials to investigate; herbal medicine. In Egypt, 72.7% of rural adolescent girls with menstrual disorders used herbal remedies for treatment [7].

Also it was observed that warm drinks, warm bathing, sports and activities, comfortable / rest period and medications are practiced by girls to overcome symptoms of PMS, despite some positive findings, the evidence was complementary and alternative therapies can be recommended as a treatment[8].

The management of PMS is often frustrating for both woman and physicians, many women seek alternative therapies, vitamins and minerals to avoid the side effects of hormonal or drugs [9]. National Center for Complementary and Alternative Medicine (NCCAM) stated that, "complementary and alternative medicine is a group of diverse medical and health care systems, practices, and products that are not presently considered to be part of conventional medicine" [10], herbal remedy are growing very fast

since long times and the Ancient Egyptians have used cinnamon, peppermint, garlic and other herbs in the treatment of illness [11].

Nowadays, the usage of CAM to manage PMS is remarkable among Saudi women, however one of the major reasons cited for the current revival of CAM is the growing awareness of occurrence of side effects due to women misconceptions that these medicines are inherently safer and more healthful, National Center for Complementary and Alternative Medicine (NCCAM) stated that, "complementary and alternative medicine is a group of diverse medical and health care systems, practices, and products that are not presently considered to be part of conventional medicine" [12].

Recently research in vitro and in vivo studies in animals and humans, have shown numerous beneficial effects of cinnamon on physical symptoms such as diarrhea as an astringent for dyspeptic complaints, treating loss of appetite, antimicrobial, germicide, insecticidal antiseptic, antioxidant for chronic bronchitis, treatment of impotence, frigidity, dyspnea, inflammation of the eye, antimicrobial properties, leukorrhea, vaginitis, rheumatism, neuralgia, as well as wounds and toothaches, anti-inflammatory and analgesic as antispasmodic [13].

Significance of the study:

WHO reported that 1.2 billion adolescent girls in the year

2009 which forms 18% of the world's population [14]. Premenstrual syndrome (PMS) is a particularly commonest gynecological complains among adolescent girls [15], also in Egypt the prevalence of premenstrual symptoms was found to be (89.6 %) among medical students of Ain Shams University, Egypt [16], 80.2% among El-Minia University students, Egypt [17]. In addition it was found that, more than three quarter (77.7%) of rural adolescent girls had experienced PMS [7].

[18] and many recent studies results elaborate that cinnamon as a herbal treatment, used as a pain killer and reduces the severity of menstrual problem moreover the most safe and non-pharmacological treatment for PMS so the researcher decided to assess the effect of cinnamon on physical symptoms of premenstrual syndrome among adolescent girls at Mansoura University

Aim of the study:

This study aims to assess the effect of cinnamon on physical symptoms of premenstrual syndrome among adolescent girls at Mansoura University.

Research hypothesis:

By using cinnamon as a warm drink it have a positive effect on relieving the physical symptoms of premenstrual syndrome among adolescent girls.

Subjects and Method

Study Design:

Quasi-experimental design was utilized in this study.

Study setting:

This study was conducted at nursing school in Mansoura University from September 2012 to May 2013.

Subjects of the study:

Purposive sample of 150 students complain from physical symptoms of premenstrual syndrome from nursing School of Mansoura University during one academic year 2012-2013 according to the following criteria.

1. Menstruating girls
2. Complaining from any physical symptoms of premenstrual syndrome
3. Not medicated.
4. All subjects that free from other medical and psychological problems that might give signs or symptoms judged as premenstrual syndrome
5. Those willing to participate in the study.

Exclusion criteria

1. Any subjects have any medical, physical and psychological problems that might give signs or symptoms that judged as premenstrual syndrome.
2. Those willing to excluded in the study.

Tools of data collection:

Three tools were used in data collection

Tool 1: Structured questionnaire sheet (12Q): This tool was developed by the researcher after reviewing the relevant literature; this tool consisted of:

- 1-Sociodemographic characteristics of the students such as (age,

residence, income, educational and occupation of mother) **4Q.**

- 2- Menstrual history such as (age of menarche, menstrual rate, rhythm, duration, suffering days before and during, how to reduce PMS symptoms) **8Q.**

Tool 2: The present assessment tool (12Q): This tool was adopted from [19] it used by the girls to register her physical symptoms of PMS and severity level, the researcher distributed three dairy to assess severity of physical symptoms of PMS that document before and after drinking hotly cinnamon two times daily before a week to her next menstrual cycle, it consisted of:

- 1- Daily record of severity of PMS symptoms in the first month for baseline assessment.
- 2- Follow up card in the second and third month after drinking cinnamon.
- 3- Regularity and compliance of drinking the prescribed cinnamon and consequently its effect on PMS symptoms.

Tool 3: Satisfaction Likerts scale (5Q):This tool was adopted from [20] to measure the level of student's satisfaction from using cinnamon as a way of relieving physical symptoms that using scoring system for measure the level of student's satisfaction, (1) for satisfied, (2) for uncertain and(3) dissatisfied.

Pilot Study:

A pilot study was carried out on (15) student these represented 10% of the predesigned sample size, to test the clarity and applicability of

the tool and estimate the time required to fill the sheet and necessary modification were done ,these students were excluded from the study sample.

Field work:

Data collection of this study starting from September 2012 ending in May 2013, the researcher visited nursing school at Mansoura University twice per week from 8:30Am to 3:00Pm, all the students of nursing school at Mansoura University who complain from physical symptoms of premenstrual syndrome were included in the study, the aim of the study was explained and oral consent obtained from the students, the researcher using structured questionnaire sheet to assessed the socio-demographic characteristics as (age, residence, income, educational and occupation of mother), Menstrual history such as (age of menarche, menstrual rate, rhythm, duration, suffering days before and during, how to reduce PMS symptoms). Also assessment of physical symptoms of PMS and severity level, that document before and after drinking hotly cinnamon two times daily before a week to her next menstrual cycle, daily record of severity of PMS symptoms in the first month for baseline assessment. Follow up card in the second and third month after drinking cinnamon, regularity and compliance of drinking the prescribed cinnamon and consequently its effect on PMS symptoms also satisfaction Likerts scale to measure the level of

student's satisfaction from using cinnamon as a way of relieving physical symptoms.

Intervention:

Cinnamon packet(2 gram of cinnamon) that was officially allowed in the market for the public distributed for the girls to be dranked in hotly two times daily for a week before her next menstrual cycle, the researcher gave the girl an idea about cinnamon effect and benefits in reliving or limiting the physical symptoms of premenstrual syndrome and how to take, brochure which include (definition , important of cinnamon and its effect on physical symptoms and the follow up diary distributed after the end of the second girl's menstrual cycle her diary was taken back for data analysis.

Ethical Consideration:

Ethical approval was obtained from research ethics committee faculty of nursing Mansoura University, this research did not interfere with culture and traditions, there are no physical or psychological hazards, data was confidential and used only for research's purpose, oral informed consent from participant's was obtained before filling sheet, they informed about their rights to refuse participation or withdraw at any time ,and an explanation of the aim of the study was given to every eligible student before asking him to participate in this study.

Statistical Analysis:

Data were sorted, organized, categorized and they transferred into

especially designed formats as for the measurement of level of PMS, the researchers using scoring system for measure the effect of cinnamon on the girls. Statistical analysis was done by SPSS (Statistical Package for Social Sciences) version 16. Qualitative data was presented as number and percent of student has PMS, by using descriptive statistical inform, percentages, mean & standard deviation, correlation between regulation of taking cinnamon and its effect.

Results

Table (1):Frequency distribution of study sample according to their general characteristics.

Items	N=150	Percentage%
Age (years)		
<15	1	0.7
16-17	145	96.7
>17	4	2.6
Residence		
Rural	102	68
Urban	48	32
Mother education		
Primary	64	42.7
Secondary	32	21.3
University	54	36
Mother occupation		
Work	82	54.7
Not work	68	45.3
Monthly income		
Enough	66	44
Not enough	84	56
Total	150	100%

Table 1 shows that most 96.7% of students were (16-17 years old), more than two thirds 68% of students were from rural area. More than half (56%) had not enough income.

Table (2) : Frequency distribution of study sample according to their menstrual history.

Items	N	%
Age at menarche (years)		
<10	42	28
10	78	52
11	15	10
>11	15	10
Regularity		
Regular	89	59.3
Irregular	61	40.7
Menstrual duration (days)		
1 – 3	54	36
3 – 5	79	52.7
5 – 7	10	6.7
>7	7	4.6
Total	150	100%

Table 2 shows the frequency distribution of study group according to their menstrual history. It revealed that more than half (52%) of the students had menarche at age 10, about (59.3%) were regular menstruation and around half 52.7% of them were menstruating 3-5 days.

Table 3: Frequency distribution of the study sample according to physical symptoms of premenstrual symptoms at baseline before taking cinnamon.

Physical symptoms	N	Mild		Moderate		Severe	
		N	%	N	%	N	%
General body discomfort	N=150	9	6	79	52.7	62	41.3
Water retentions	N=148	58	38.7	68	45.3	22	14.7
Acne	N=143	57	38	71	47.3	15	10
Fatigue	N=150	55	36.7	65	43.3	30	20
G I T disturbance (Diarrhea)	N=147	50	33.3	73	48.7	24	16
Constipation	N=144	52	34.7	78	52	14	9.3
Abdominal bloating	N=146	47	31.3	71	47.3	28	18.7
Different Types of Pain Headache	N=150	68	45.3	71	47.3	11	7.4
Abdominal pain	N=150	52	34.7	84	56.0	14	9.3
Back pain	N=139	71	47.3	55	36.7	13	8.7
Breast tenderness	N=141	62	41.3	65	43.3	14	9.3
Muscles aching	N=150	68	45.3	65	43.3	17	11.4

Table 3 shows frequency distribution of the study sample according to Physical symptoms of premenstrual symptoms at baseline before taking cinnamon, around half 41.3% of the students were sever general body discomfort .Also around half of them (45.3%, 47.3%, 48.7%, 52%, 47.3% 43.3% 47.3%, 43.3% and 43.3%) respectively have moderate (water

retention, acne, diarrhea, constipation, abdominal bloating, ,Fatigue ,headache, , breast tenderness, and aching muscle). While more than half of them 56% have moderate abdominal pain.

N.B: All students haven't all physical symptoms, therefore the symptoms that absent in certain participant will not be analyzed throughout the study.

Table 4: Comparison of study sample according to physical symptoms at baseline and intervention after one month of taking cinnamon.

Physical symptoms	Pre			Post diary 1			Pre vs. Post1
	Mild	Moderate	Severe	Mild	Moderate	Severe	
	%	%	%	%	%	%	
General body discomfort	6.0	52.7	41.3	47.3	40	10	<0.001*
Retention	38.7	45.3	14.7	55.3	30	6.7	<0.001*
Acne	38.0	47.3	10	38.0	43.3	9.3	0.452
Diarrhea	33.3	48.7	16.0	54.7	32.7	10.7	0.003*
Constipation	34.7	52.0	9.3	59.3	28.7	8.0	<0.001*
Bloating	31.3	47.3	18.7	52.7	32.0	10.7	<0.001*
Fainting, Fatigue	36.7	43.3	20	47.3	36.7	10.7	0.002*
Headache	45.3	47.3	7.4	51.3	40	4.0	0.009*
Abdominal pain	34.7	56.0	9.3	34.7	44.7	9.3	<0.001*
Back pain	47.3	36.7	8.7	59.3	38.7	1.3	<0.001*
Breast tenderness	41.3	43.3	9.3	42.7	48.7	8.7	0.023
Muscles aching	45.3	43.3	11.4	52.7	42.0	2.6	0.005*

* Significant P < 0.05

Table 4: Highlights that after intervention by using cinnamon there were highly significantly positive effect to decrease physical symptoms among the study sample from severe (General body discomfort & water retention & aching muscle & breast tenderness & back pain & headache) (41.3,14.7,11.4%,9.3%, 8.7%,7.4%) respectively at baseline to (10,6.7%,2.6%,8.7%,1.3%,4.0%) to the post dairy one.

Table 5: Comparison of study sample according to physical symptoms at baseline and intervention after two month of taking cinnamon.

Physical symptoms	Pre			Post diary 2			Pre vs. Post1
	Mild %	Moderate %	Severe %	Mild %	Moderate %	Severe %	
General body discomfort	6.0	52.7	41.3	43.3	42.7	5.3	<0.001*
Retention	38.7	45.3	14.7	53.3	38.7	2.7	<0.001*
Acne	38.0	47.3	10	36.0	46.0	6.7	0.153
Diarrhea	33.3	48.7	16.0	46.0	42.0	8.0	0.003*
Constipation	34.7	52.0	9.3	34.0	46.7	6.7	0.049*
Bloating	31.3	47.3	18.7	44.0	43.3	9.3	0.041*
Fainting, Fatigue	36.7	43.3	20	54.7	38.0	2.7	<0.001*
Headache	45.3	47.3	7.3	44.0	42.7	1.3	<0.001*
Abdominal Pain	34.7	56.0	9.3	46.0	44.0	4.7	0.002*
Back pain	47.3	36.7	8.7	42.0	44.7	1.3	0.009*
Breast tenderness	41.3	43.3	9.3	43.3	47.3	0	0.014
Muscles aching	45.3	43.3	11.4	44.7	45.3	0	<0.001*

* Significant P < 0.05

Table 5: Elaborate that after intervention by using cinnamon there were highly significantly positive effect to decrease physical symptoms among the study sample from severe (General body discomfort ,water retention ,aching muscle, breast tenderness ,back pain and headache) (41.3%,14.7%,11.4%,9.3%,8.7%,7.4) respectively at baseline to (5.3%,2.7%,0%,0%& 1.3%,1.3%) to the post dairy two.

Table 6: Association between physical symptoms of PMS and regularity of taking cinnamon after intervention.

Physical symptoms	Regular (n=112)						Irregular (n=38)						P Value	Chi-Square
	Mild		Moderate		Severe		Mild		Moderate		Severe			
	N	%	N	%	N	%	N	%	N	%	N	%		
General discomfort	46	41.1	52	46.4	3	2.7	19	50	12	31.6	5	13.2	8.511	0.037
Retention	58	51.8	47	42	0	0	22	57.9	11	28.9	4	10.5	13.928	0.003
Acne	39	34.8	55	49.1	6	5.4	15	39.5	14	36.8	4	10.5	2.385	0.496
Diarrhea	46	41.1	55	49.1	6	5.4	23	60.5	8	21.1	6	15.8	11.75	0.008
Constipation	35	31.3	61	54.5	1	0.9	16	42.1	9	23.7	9	23.7	29.035	<0.001
Bloating	48	42.9	54	48.2	5	4.7	18	47.4	11	28.9	9	23.7	13.598	0.004
Fatigue	63	56.3	42	37.5	0	0	19	50	15	39.5	4	10.5	14.396	0.002
headache	49	43.8	47	42	0	0	17	44.7	17	44.7	2	5.3	7.877	0.048
Abdominal pain	51	45.5	54	48.2	0	0.9	18	47.4	12	31.6	7	18.4	23.133	<0.001
Back pain	44	39.3	52	46.4	0	0	19	50	15	39.5	2	1.8	8.902	0.031
breast tenderness	55	49.1	46	41.1	0	0	10	26.3	25	65.8	0	0	7.176	0.028
Muscles aching	57	50.9	42	37.5	0	0	10	26.3	26	68.4	0	0	10.963	0.004

Table 6: clearly the association between physical symptoms and regularity of taking cinnamon after intervention, by using cinnamon regularly, there were highly significantly positive relationship between the reduction of severity of physical symptoms (General body discomfort & constipation and abdominal pain) respectively regularly (2.7%, 0.9%, 0.9%) comparing to irregular (13.2%, 23.7% & 18.4%).

Figure 1: Frequency distribution of study group according to their regularity of taking cinnamon.

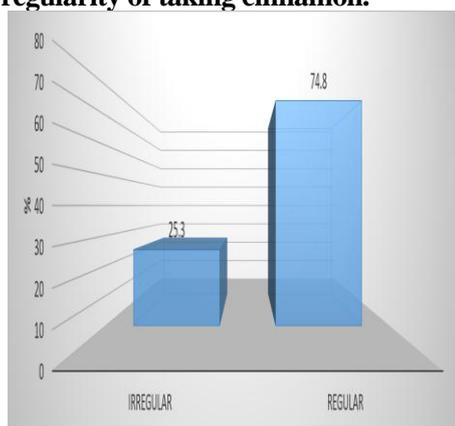


Figure 1: Frequency distribution of study sample according to regularity of taking cinnamon.

Figure 1: Illustrate three quarter 74.8% of the student were regular of taking cinnamon while the minority 25.2% of the student were irregular of taking cinnamon.

Figure 2: Frequency distribution of study group according to their satisfaction level.

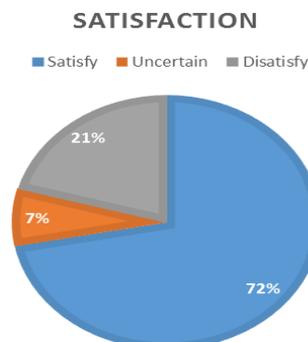


Figure 2: Frequency distribution of the study sample according to satisfaction

Figure 2: Illustrates that the most of students 72% were satisfy after intervention from the effect of cinnamon but 7% of them were uncertain while the minority 21% were dissatisfied.

Discussion

Premenstrual syndrome is a particularly commonest gynecological complains among adolescent girls present to physicians therefore it is represents a significant public health problem affected adolescent girls, it characterized by physical, psychological, and behavioral symptoms that affecting adolescent's health [21]. PMS symptoms is caused by release of prostaglandins which is an inflammatory substances particularly PGF2 from the uterine endometrium which produced in the areas where symptoms originate namely breast, brain, and gastrointestinal tract that causes contraction that cause colicky pain, spasmodic and labor-like pain in the lower abdomen and lower back pain, additionally other symptoms [18] results elaborate that cinnamon as a herbal treatment, it used as a pain killer and reduces the severity of PMS physical symptoms moreover the most

safe and non-pharmacological treatment for PMS.

The main present findings of this study showed that the most of the nursing students participated in the study reported that after the interventions of taking cinnamon there were reduction of severity of the physical symptoms of premenstrual syndrome, these findings achieved the aim of the present study and support the research hypothesis by using cinnamon packet supplementation it will have a positive effect on relieving physical symptoms of premenstrual syndrome among adolescent girls at Mansoura University

Regarding to sociodemographic characteristics of students the present study findings showed that the most of students were (16-17) years old. These findings were in agreement with [7] who reported that more than three quarter of the study subjects were (16-17years old), this may be due to the subjects of the study included all adolescent nursing secondary school.

Also the present study results in the same line with [22] who study Premenstrual syndrome in a sample of Egyptians adolescent and reported that mean age of study subjects were 15.6 years. Moreover the present study results were in agreement with [23] who evaluate the effect of introducing awareness raising educational program on nursing students with premenstrual syndrome and premenstrual syndrome symptomatology and showed that the majority of the students were less than or equal twenty years old also more than half of students .

In relation to students menstrual history, the present study results showed that more than half of the students had menarche at the age of 10 , menstrual duration from 3-5 days ,these results were in agreement with [7] who reported that majority of the students had menarche at 10, also the

present study findings were similar to [24] who study knowledge regarding menstrual hygiene among adolescent girls in selected school ,Mangalore and reported that more than half of the students had menarche at age 10, also the present study findings were in agreement with [23] study that around half of the students had menarche at age (9-11).

Furthermore, in relation to students' menstrual regularity, the present study findings showed that more than half of the students had regular menstruation; the present study results were in agreement with [25] who study menstrual problems and associated factors among students of Bahir Dar University in Ethiopia and reported that more than half of students had regular menstruation.

Regarding to occurrence of physical symptoms of premenstrual syndrome at baseline before taking cinnamon, the present study findings revealed that around half of the students were sever general body discomfort, the present study results were in the same line with [26] who study premenstrual syndrome: frequency and severity in young college girls in Khyber medical college Peshawar and reported that around half of the students had sever general body discomfort.

Also the present study results showed that around half of them have moderate (retention, edema, acne, diarrhea, constipation and abdominal bloating) these findings were in the same line with [27] who study prevalence of premenstrual syndrome and its impact on quality of life among university medical students, Al Qassim University KSA and reported that around half of students had moderate physical signs and symptoms of PMS. Moreover the present study findings were in the same line with [28] who reported that around half of their study

subjects had moderate physical signs and symptoms of PMS.

The current study findings showed that one third of the students had mild fatigue these results were supported by [29] who study self-care measures regarding premenstrual syndrome among female nursing students in faculty of nursing and applied medical sciences in Tabukcity at kingdom of Saudi Arabia and reported that one third of the student had mild fatigue, also this results supported by [22] who found that one third of the student had mild fatigue.

Moreover the study findings showed that the minority of the students had severe headache and around half of the student had back pain these results were supported by [30] who study self-care measures regarding premenstrual syndrome among female nursing students in faculty of nursing and applied medical sciences in Tabukcity at kingdom of Saudi Arabia and reported that the minority of the students had severe headache and around half of the student had back pain , also this results supported by [23] who found that the minority of the student had severe headache and around half of the student had back pain.

The present study findings reveled that cinnamon significantly reduce PMS symptoms the findings were supported by [8] who study knowledge and practice of female employee about premenstrual syndrome and its effect on daily life activities in El-Minia University and reported the most common measures used by the studied sample to overcome the PMS physical symptoms were a herbal warm drinks and more than half using cinnamon.

Moreover, the results of current study were in the same line with the findings of [30] who observed that the most common reported practice by the

studied sample to overcome the symptoms of premenstrual syndrome was cinnamon and it is the most common herbal remedy used.

In addition, [31] that conducted in Alexandria who study uses of complementary and alternative therapy in management of menstrual disorders among adolescent girls in an Egyptian Village and stated that all of their study subjects, who did use CATs for management of their menstrual disorders, a highly percentage (97.5%) had used herbal therapy was used among those who suffered from PMS.

Additionally, the current study results supported by [16] that conducted in Ain Shams University who study prevalence of premenstrual syndrome and the effect of its severity on the quality of life among medical students and mentioned the commonly used herbal remedy were hot drinks especially cinnamon which were reported by the studied female participants, In addition to a case – control study conducted by [32] discussing the dietary B vitamin intake and incident premenstrual syndrome they observed a significantly lower risk of PMS in women with high intakes of riboflavin and cinnamon

The main study findings elaborate that the using cinnamons have appositive effect by major reduction to severity of PMS symptoms. These results were supported by [18] that conducted in Ilam University of Medical Sciences who study comparative effect of cinnamon and ibuprofen for treatment of primary dysmenorrhea and report that the using cinnamon compared with placebo significantly reduced the severity and duration of pain before and during menstruation and regarded as a safe and effective treatment for PMS. Furthermore, the present results were supported by [7] study in

2012 who reported that cinnamon had a positive effect on physical, psychological and behavioral premenstrual signs and symptoms. Also [18] reported that the main findings was cinnamon significantly reduced the severity of PMS physical symptoms therefore cinnamon improve the general health.

Conclusion:

Overall, the findings of the present study were highlighted that there were highly significant positive effect to decrease severity of PMS physical symptoms after regular taking cinnamon packet supplementation and most of students were highly satisfied from the effect of the cinnamon.

Recommendations:

Raising the awareness of adolescent girls about the safety and efficacy of a herbal therapy especially cinnamon.

Longitudinal studies of PMS treatments especially cinnamon as a herbal therapy progression on a larger probability with a larger statistical population as well as studies where follow up is reported every 6-9 months would be beneficial to more measures long term results to be generalized.

A future research to investigate another effect and efficacy of cinnamon.

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