

Full Length Research Paper

Evaluation of the effect of fresh ginger usage as a home remedy on pain relive for dysmenorrhea among females

*Ahmed Webb, Omar Tantawy and Muhammad El-Tayeb

Department of Community Health Nursing, Faculty of Nursing, Al-Azhar University, Cairo, Egypt. E-mail: webba2012@hotmail.com

Accepted 23 May, 2015

Dysmenorrhea is common among females which affect daily activities leading to limitations of their social, academic and recreational activities. Herbal remedy is well known since long times and the Ancient Egyptians have used peppermint, garlic, castor oil and other herbs in the treatment of illness. Moreover, a number of studies demonstrated ginger root's is effective as a painkiller / anti inflammatory action. Aim: To evaluate the effect of fresh ginger usage as a home remedy on pain relive for dysmenorrhea among females. Method: A quasi excremental design was used. A convenient sample was 120 female students. Four tools were developed for data collection namely socio-demographic characteristics sheet to collect socio-demographics characteristics of female students, menstrual assessment sheet to assess characteristics of menstruation among the female students, verbal multidimensional scoring system(VMS) sheet to identify the degree of severity for the menstrual pain, the fourth tool was visual analog scale/ score (VAS) sheet to measure score for the menstrual pain. The last two tools were administered three times once before intake of herbal ginger, then during the 1st & 2nd months after the menstrual cycle. Results: Regarding to severity of dysmenorrheal sixty percent of the sample (60%) had moderate dysmenorrhea before intervention changed into thirty one point seven of the studied sample (31.7%) had moderate dysmenorrheal post2 intervention. There were statistically significant positive improvement of pain scoring among intervention groups with mean pain score at the 2nd day of menses. Conclusion: In light of this study, importance of use of fresh ginger as a home remedy to relive primary dysmenorrhea (PD). Uses fresh ginger 3 days before and first 2 days during the menstruation was effective and succeed in relieving menstrual pain among the females with primary dysmenorrhea.

Keywords: Ginger Herbs, Home Remedy, Primary Dysmenorrhea (PD), Visual Analog Scale (VAS), Verbal Multidimensional Scoring (VMS).

INTRODUCTION

Yesterday's girl is today's adolescent and tomorrow's mother. Approximately one fifth of the world's population is in the age group of 10-19 years, as they are passing through a transitional period from childhood to adulthood, they are undergoing a lot of physical as well as psychological stress due to the changes taking place in the body (Eswi et al., 2012).

Dysmenorrhea is one of the most common gynecologic disorders affecting more than half of menstruating women. It is refers to painful menstrual cramps in the lower abdomen without evident pelvic

pathologic lesions. Dysmenorrhea is classified into two categories: Primary dysmenorrhea (PD) which is a cramping pain in the lower abdomen occurring just before or during menstruation, when pelvic examination and ovulatory function are normal; and secondary dysmenorrhea, which refers to painful menses when there is an identifiable gynecological pathology such as endometriosis (Marzouk et al., 2013).

Prevalence of PD is reported in many studies to vary between 50% and 90%. Dysmenorrhea results from the withdrawal of progesterone near the end of a menstrual

cycle this withdrawal has been shown to increase the synthesis of prostaglandins F₂ (PGF₂) and E₂ (PGE₂). Current evidences suggest that, prostaglandins are released during menstruation due to endometrial cells destruction. PGE₂ stimulates uterine contractions, cervical narrowing and increases vasopressin release, which leads to ischemia and pain (Harel, 2006; Hillen et al., 1999).

Dysmenorrhea is usually primary and is associated with normal ovulatory cycles and with no pelvic pathology. Potent prostaglandins play an important role in generating primary dysmenorrheal symptoms. Females with severe dysmenorrheal symptoms may have pelvic abnormalities, such as endometriosis or uterine anomalies (secondary dysmenorrhea) (Harel, 2012). PD may cause physical distress and result in school absenteeism and reduced physical activity. PD occurs just before or at the onset of menstrual flow. Females with PD produce excessive amounts of prostaglandins in the uterus, and these substances cause inflammation, myometrial hypercontractility, and vasoconstriction (Yeh et al., 2012; Mei-Ling et al., 2013).

Etiology of PD is not precisely understood but most symptoms can be explained by the action of uterine prostaglandins particularly PG F₂ α . It may be associated with other symptoms such as nausea, vomiting, diarrhea, back pain, fatigue, headache, dizziness and fainting. These symptoms could be very severe and severity of symptoms is usually assessed by grading of dysmenorrhoea as mild, moderate and severe according to their limitation of daily activities and work performance (Parveen et al., 2009).

Approximately 10% to 15% of dysmenorrheal women are disabled for 1 to 3 days per cycle, and dysmenorrhea is responsible for the loss of approximately 140 million working hours in the United States. The burden of dysmenorrhoea is greater than any other gynecological complaints. Thirty eight percent of women regularly use medical therapy to treat their dysmenorrheal symptoms (Mei-Ling et al., 2013).

Numerous studies have shown that non-steroidal anti-inflammatory, which inhibit the synthesis of prostaglandins, are highly effective in alleviating the symptoms of dysmenorrhea is the preferred initial treatment for dysmenorrhea in young adults. Females with symptoms that do not respond to NSAIDs for three menstrual periods should be offered hormonal treatment, such as combined estrogen and progestin oral contraceptive pills (OCPs), for three menstrual cycles. If dysmenorrhea does not improve within 6 months of NSAIDs and OCPs, a laparoscopy is indicated to look for endometriosis, which is the most common reason for secondary dysmenorrheal (Harel, 2012).

On the Multidimensional Scoring system the severity of dysmenorrhea was defined as mild, moderate and severe based on the pain, limitation of activities and medication taken. Severe dysmenorrhea was defined as

clearly inhibition of the daily activities associated with systemic symptoms and poor improvement with analgesics (Parveen et al., 2009). Herbal remedy has been practiced for thousands of years before pharmaceutical companies began. In addition, many of the pharmaceutical preparations used around the world are based on plants. Herbal remedy is well known since long times and the Ancient Egyptians have used peppermint, garlic, castor oil and other herbs in the treatment of illness (Ostrzenski, 2002; Yassin, 2012).

Moreover, a number of studies demonstrated ginger root's is effective as a painkiller / anti inflammatory action. Consequently, researchers have investigated numerous alternative/complementary treatments such as herbal and dietary therapies, behavioral interventions, acupressure and aromatherapy. Ginger, the rhizome of *Zingiber officinale*, is a traditional medicine with anti-inflammatory and anticarcinogenic properties (Ali et al., 2008). Ginger has a long history of traditional use. It contains several constituents such as gingerol, gingerdiol, and gingerdione, beta-carotene, capsaicin, caffeic acid and curcumin. Several studies have demonstrated that ginger has beneficial effects to cancer prevention, pregnancy-related nausea and vomiting, chemotherapy nausea, nausea and vomiting after surgery. It has been shown that ginger acts as an inhibitor on cyclooxygenase (COX) and lipooxygenase, resulting in an inhibition of prostaglandin synthesis (Kikuzaki and Nakatani, 1996; Chaiyakunapruk et al., 2006).

Therefore ginger has been used as an anti inflammatory acting by inhibition of prostaglandin synthesis. Ginger is therefore worthy of consideration as an analgesic in PD. Also, ginger may be an effective and safe therapy for relieving pain in women with PD if administered at the onset or during the 3 days prior to menstruation (Rahnama et al., 2012). Menstruation with severe pain affects both the quality of life and development of motherhood. Fortunately the nurse plays a very important role in pain management through offering comfort measures and reassurance to relief anxiety. Nursing role includes as well, offering alternative therapies for symptoms relief, checking safety or side effects of these therapies and refer to a physician if severe symptoms occur (Kabirian et al., 2011; Abd El-Hameed et al., 2011).

So, this study was conducted to evaluate the effect of fresh ginger usage as a home remedy on pain relive for dysmenorrhea among females in Shagra city at kingdom of Saudi Arabia.

Aim of the Study: The aim of this study was to evaluate the effect of fresh ginger usage as a home remedy on pain relive for dysmenorrhea among females.

Research Questions:

1. Are the three cups of fresh ginger herbs three

times daily sufficient to relieve dysmenorrhea?

2. Are the females primary dysmenorrheal pain decreases by use of fresh ginger herbs?

3. What is the difference between control and study group regarding dysmenorrhea?

METHODOLOGY

Research Design:

Quasi experimental research design was used to evaluate the effect of ginger herbs on pain relieve of primary dysmenorrhea among females.

Population: A convenient sample was 120 female students for the study as participants for at a period from (first of September 2012 to May 2013). Sample of female students aged 18 and over was selected for the trial. Inclusion criteria consisted of: being single, having a menstrual cycle that lasts from 21 to 35 days with 2 to 6 days of flow and average blood loss of 20 to 60 ml, with moderate to severe primary dysmenorrhea. Exclusion criteria consisted of: diagnoses of a disease, married, a history of pregnancy or taking oral contraceptives. The sample was distributed into two equal groups, control (60) and intervention group (60).

Setting: The study was carried out at shagra city at kingdom of Saudi Arabia .

Procedure for Data Collection: Data collected (**assessment phase**) for 3 days per week from 8 A.M to 2P.M, the implementation phase was done through interview with each female by the researcher individually using study tools. The aim of the study was explained to give assurance of confidentiality of information offered, and to gain their maximum cooperation. Consent was obtained. Each participant needs 20-30 minutes to complete the research questionnaires. The total number of the sample 120 female was divided into two equal groups, each group consisted of (60)female by average 20 female/ per week . The first group(control)did not instruct to intake anything during menstruation, while the intervention group (60) instructed to intake one table spoon of fresh ginger over 200 c.c warm water by average three cups daily started before menstruation by 3 days and continuo used for first two days during menstruation .

After that, the researcher collect the data during the first and second menstrual cycles before and after (around) the menstruation to emphasis on the effect of fresh ginger on dysmenorrheal of the female students' (**implementation phase**).

Data collection tools: The tools of this study were consisting of four instruments to gather the required data

for the study as the following:

1. **Socio-Demographic Characteristics Sheet:**

This sheet include socio-demographics characteristics of female student such as age, name, height, weight, body mass index, residence and socioeconomic status...etc.

2. **Menstrual Assessment Sheet:** Which includes age of menarche, duration of menstruation, interval of cycle, duration of pain, severity of pain, and associated symptoms.

3. **Verbal Multidimensional Scoring system** (Andersch and Milsom, 1982) which include four grades as follows:

-painless menstruation = 0, menstruation with pain but rare use of analgesics or limit to normal activity = 1, menstruation with moderate pain with influence on daily activity and use of analgesics for pain relief = 2, and menstruation with severe pain with significant limitation to daily activity, ineffective use of analgesics, and such symptoms as headache, tenderness, nausea, vomiting , and diarrhea = 3. Patients with moderate to severe dysmenorrhea (scores of 2 or 3) were included.

4- **Visual Analog Scale/ score (VAS)** (Moghadam and Afra Khosravi, 2012): At this scale, the classification of pain was done according to the scores of pain (Mild:1-3, Moderate:4-7, Severe:8-10).

Validity was determined by the professors and experts of the college who reviewed this instrument and judged it to measure what intended to be measured . Reliability was assessed by applying the tools on small number of students (10) who were excluded from the study.

A pilot study was conducted on 10 participants that were not used for the final study, the outcome was collected and necessary corrections was modified.

Administrative Design: An official permission was obtained then informed consent was obtained from the female students who participate in this study.

Human Rights and Ethical Considerations : The subjects were chosen according to the criteria and they were interviewed after their informed consent was obtained to participate in the study. The researchers approached each student by giving her an overview of the study, explained the procedures and reassured the subjects that their privacy would be protected, and that any obtained information would be strictly confidential.

Limitation of the study: It was difficult to follow up the chosen females and continue more especially after many cycles of menstruation in some females

Statistical Design: The collected data were coded for entry and analysis (SPSS) statistical soft ware package version 17. Data were presented using descriptive statistics in the form of frequencies and percentage.

Table 1. Socio-demographic Characteristics of The Studied Sample.

Variables	Studied sample n= 120	
	NO	%
Age: Mean± SD	21.1250 ± 2.55	
Socio-economic level :		
○ Low.		
○ Middle.	4	3.4
○ High.	91	75.8
	25	20.8
Education Level :		
○ Secondary School		
○ University Students.	4	3.4
○ Internship.	113	94.1
○ Others.	1	0.8
	2	1.7
Residence :-		
○ Rural	111	92.5
○ Urban	9	7.5

Table 2. Distribution of The Studied Sample According To Their Menstrual Characteristics.

Variables	Studied sample n= 120	
	NO	%
Menarche Age:	13.2 ± 1.3	
Amount of menstrual bleeding:		
○ scanty	8	6.7
○ Normal	102	85.0
○ Heavy	10	8.3
Duration of Menstrual bleeding:		
○ Less than 3 days	1	0.8
○ 3-6 days	81	67.4
○ More than 7 days	38	31.8
Regularity of Menstruation		
○ Yes	87	72.5
○ No	33	27.5

Quantitative variables were presented in the form of means and standard deviation. Statistical significance was considered at p- value <0.05.

RESULTS

As it was shown in Table (1), the mean age of the studied sample was 21.1250 ± 2.55. while regarding to socio-economic level; more than two thirds of the students in the studied sample (75.8%) apprehended middle socio-economic level. While (3.4%) of the studied sample held low socio-economic level. On the other hand highest percentage of the studied sample (94.1%) were university students. instead of only 0.8% were internship. Also, largest percentage of the students (92.5 %) their residence

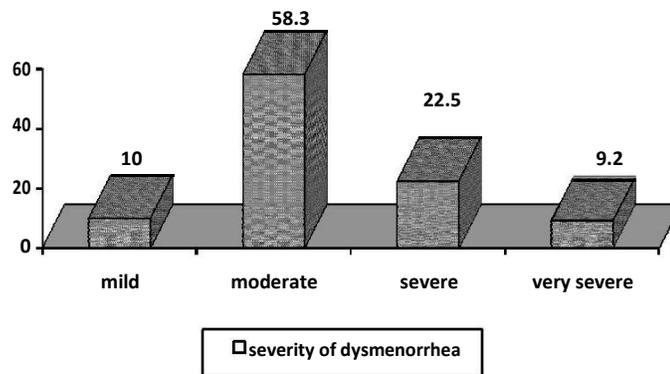
were in rural area, compared to Seven point five percent (7.5%) their residence were in urban.

Table (2) shows distribution of the studied sample according to their menstrual characteristics. Regarding to the amount of menstrual bleeding more than three quarter of the studied sample(85%) had normal amount of the menstrual bleeding. As regarding to duration of menstruation more than two third of the studied sample (67.4%) were from 3 to 6 days. seventy two point five percent of the studied sample had regular menstruation with the mean age of menarche was 13.2 ± 1.3 years.

Table (3) illustrated that, anthropometric measurements of the studied sample; The mean height of the students in the sample was(1.59 ± 11.2) cm. Also the mean weight of the students in the studied sample was(59.46 ± 11.14) KG. The BMI of the sample showed

Table 3. Anthropometric Measurements of The Studied Sample.

Variables	Studied sample n= 120
	mean \pm SD
Weight	59.46 \pm 11.14
Height	1.59 \pm 11.2
BMI	23.8 \pm 4.5
○ Underweight	15.8 %
○ Normal	55.0%
○ Overweight	21.7%
○ Obese	7.5%

Figure 1. Severity of Dysmenorrhea For The Studied Sample**Table 4.** Symptoms Associated With Dysmenorrhea:-

Variables	Studied sample n= 120	
	NO	%
Physical symptoms: -		
fatigue	25	20.8
pelvic pain	18	15.0
Headache	17	14.2
Constipation	7	5.8
Diarrhea	6	5.0
Frequency of urination	3	2.5
excessive sweat	7	5.8
Psychological symptoms :-		
Irritability and poor concentration	14	11.7
Nervousness & depressed mood	23	19.2

that more than half of the students in the sample (55%) had normal weight. While (15.8 %) of the students in the sample were under weight. also only 7.5% of the students in the sample were obese with the mean of BMI was (23.8 \pm 4.5).

Figure (1) shows severity of dysmenorrhea among the studied sample. More than half of the sample(58.3%) had moderate dysmenorrhea; Also more than one quarter of the studied sample had severe dysmenorrhea; While nine point two percent of the studied sample had very sever dysmenorrhea.

Table (4) describe Symptoms associated with dysmenorrhea: Regarding to physical symptoms associated with dysmenorrhea less than one quarter of the studied sample(20.8%) complaining from fatigue as a physical symptom for associated with dysmenorrhea. while only two point five percent complaining from frequency of urination. On the other hand, ninety point two percent of the sample complains from nervousness &depresses mood as associated with dysmenorrhea while eleven point seven percent complains from Irritability and poor concentration as associated with

Table 5. Comparison Between The Control And Intervention Group Regarding To Pre Verbal Multidimensional Scoring And Visual Analog Scale.

Variables	Control group		Intervention group		P.value
	NO	%	No	%	
Pre-Verbal Multidimensional Scoring :					
Grade 0.	3	5.0	6	10.0	p>0.05
Grade 1.	14	23.3	14	23.3	
Grade 2.	35	58.3	34	56.7	
Grade 3.	8	13.4	6	10.0	
mean ± SD					
Visual Analog Scale					
=Pain score one day before menses.	3.5±2.3		3.3±2.1		p>0.05
=Pain score at 1 st day of menses.	6.08±2.5		5.5±2.4		
=Pain score at 2 nd day of menses	3.7±2.5		3.9±2.7		

Table 6. Pre, Post 1st menses cycle And Post 2nd menses cycle of Verbal Multidimensional Scoring And Changes of Pain Score For The Ginger Group.

Variables	Intervention group n=60			P.value
	Pre	Post 1 st menses cycle	Post 2 nd menses cycle	
Verbal Multidimensional Scoring				
Grade 0.	10.0	3.3	11.7	P < 0.001
Grade 1.	23.3	46.7	58.3	
Grade 2.	56.7	43.3	28.3	
Grade 3.	10.0	6.7	1.7	
mean ± SD				
Changes of Pain Score				
=Pain score one day before menses.	3.36 ± 2.1	5.5± 2.4	3.9±2.7	P < 0.001
=Pain score at 1 st day of menses.				
=Pain score at 2 nd day of menses	3.76 ±2.7	4.1± 2.6	2.7 ±2.4	
	2.66 ±1.7	2.2 ±1.3	1.1 ±1.2	

Figure 2. Duration of Dysmenorrhea (Pre, Post 1st menses cycle And Post 2nd menses cycle)For Ginger Group.

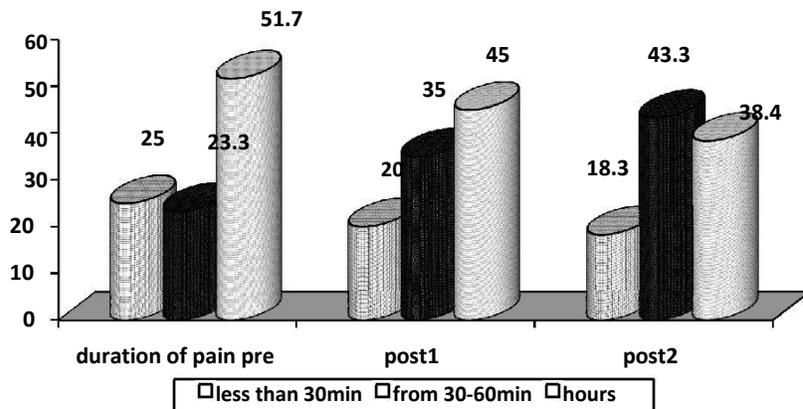
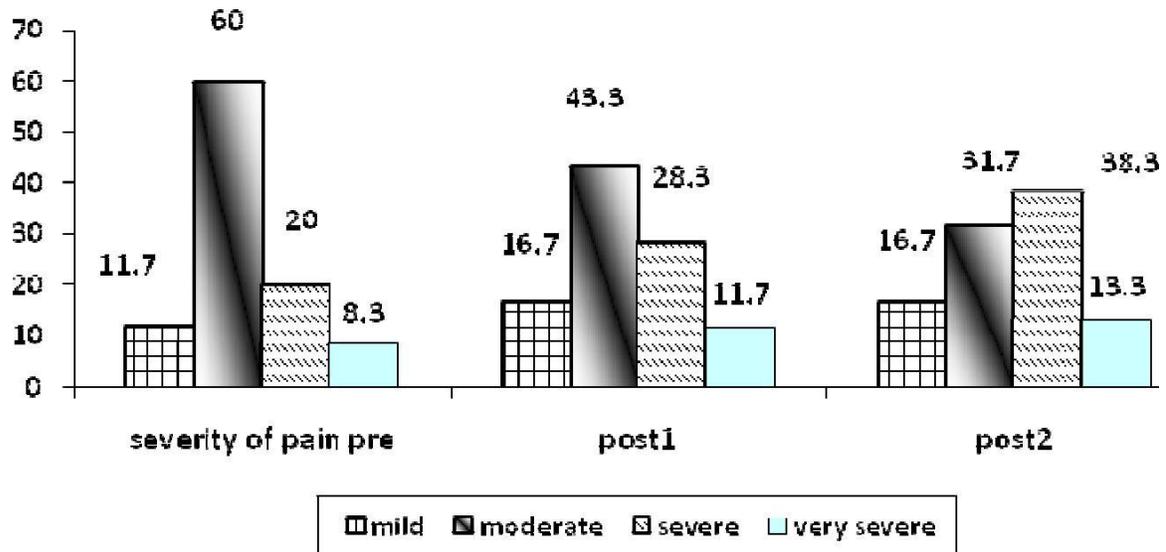


Figure 3. Severity of Dysmenorrhea (Pre, Post 1st menses cycle And Post 2nd menses cycle) For Ginger Group



dysmenorrhea.

Table (5) demonstrates comparison between the control and intervention group regarding to pre (VMS) and (VAS). There were no statistically significant correlation between the control and intervention group regarding to pre (VMS) and (VAS).

Table (6) illustrates pre, post 1st menses cycle and post 2nd menses cycles of VMS and changes of pain score for the intervention group. There were statistically significant positive improvement of pain scoring among intervention group with mean pain score at the 2nd day of menses changes from 2.66 ± 1.7 in pre intervention to become 1.1 ± 1.2 after intervention (post 2nd menses cycles).

Figure (2) shows duration of (dysmenorrheal) pre, post 1st menses cycle and post 2nd menses cycle for ginger group. There was statistically significance improvement in dysmenorrheal duration with more than half of the sample(51.7%)their dysmenorrheal duration hours before intervention changed into more than one third of the studied sample(38.4%)their dysmenorrheal duration hours post 2nd menses cycle intervention.

Figure (3) shows severity of (dysmenorrheal) pre, post 1st menses cycle and post 2nd menses cycle for ginger group. There was statistically significance improvement in severity of dysmenorrhea. Sixty percent of the sample (60%) had moderate dysmenorrhea before intervention changed into thirty one point seven of the studied sample(31.7%) had moderate dysmenorrheal post 2nd menses cycle intervention.

DISCUSSIONS

Complementary and alternative medicine (CAM) can be

described as those medical systems, practices, interventions, applications, theories, and claims that are currently not part of the dominant or conventional medical system (Chez and Jonas, 1997).

Regarding to socio-demographic characteristics' of the studied sample, The present study shows that, the mean age of the studied sample was 21.1250 ± 2.55 years old (table1), they were adult females. This results comes in agreement with (Ozgoli et al., 2009) who mentioned that, at baseline, no significant difference was found between the groups regarding age.

The results of the present study demonstrated that, the use of fresh ginger herbs as a home remedy is effective to relieve primary dysmenorrhea among adult females. Age of menarche was found in the studied sample to range from 9-17 years (table 2). The present study illustrated that, the mean age of menarche was 13.1 ± 1.3 years. These results were similar to (Fetohy, 2007) who reported that the mean age of menarche was (13.1years), this study conducted in Riyadh. This results also, comes in agreement with (Mohamed, 2012) who mentioned that, the mean age at menarche was (13.6 ± 1.3) years when studying epidemiology of dysmenorrhea among adolescent students in Assiut City, Egypt. This study also indicated that, there was no statistically significant differences regarding the menstrual characteristics of the studied samples ($P > 0.05$). This finding also was agree with (Yassin, 2012) who studying herbal remedy used by rural adolescent girls with menstrual disorders which conducted from preparatory and secondary schools in rural village in El-behira governorate, Egypt. This study found that, the majority (83.2%) of the girls had their menarche at the

age of 11 ≤13 years. Nearly one - sixth (15.5%) of them had it at 13 years or more. Also this finding was agree with (Jenabi, 2013) when studying the effect of ginger for relieving of primary dysmenorrhea illustrated that, the mean age at menarche was 13.36±1.71 years among studied sample compared to 13.66±1.32 of the control group. On the other hand, the mean BMI was 21.33±1.3 of the studied sample & 22.78±1.55 when comparing to control group (Demir et al., 2000; Cakir et al., 2007).

Although the mean age of menarche nearly in the same range of other studies by (Lu, 2001) in Taiwan females , and in a recent study conducted in Egypt and (Abd El-Hameed et al., 2011) but lowers than a study done in Nigeria (14 years) (Moronkola and Uzuegbu, 2006). This little differences may be attributed to the differences in socioeconomic status, environment and food habits in different countries. This results comes in agreement with (Ozgoli et al., 2009) who study the comparison of effects of ginger, mefenamic acid and ibuprofen on pain in women with primary dysmenorrhea. Who concluded that, no significant differences were found between the three groups in menstruation characteristics.

As regarding to duration of menstruation, more than two thirds of the studied sample(67.4%) had from 3 to 6 days of menstruation(table 2). This result was agree with (Yassin, 2012) who reported that, more than half (58.4%) of the girls had their menstrual flow for 5 or more days. While 40.8% had it for 3≤5 days .

Regarding to physical symptoms associated with dysmenorrhea, less than one third of the studied sample complaining from fatigue as a physical symptom for associated with dysmenorrhea. While only two point five percent complaining from frequency of urination. On the other hand, ninety point two percent of the sample complains from nervousness & depresses mood as associated with dysmenorrhea while eleven point seven percent complains from irritability and poor concentration as associated with dysmenorrhea(table 4). This result was agree with, (Mohamed, 2012) who demonstrated that, among participants reporting cramps during menstruation, 70.0% indicated nervousness, 38.9% fatigue, 59.4% back pain, 42.9% headache, 53.8% irritability, 39.3% dizziness, and 38.3% depression. These symptoms were significantly more frequent among adolescents suffering from dysmenorrhea than their counterparts reporting no dysmenorrhea.

PD is painful menstrual cramps without any evident pathology to account for the females, and it occurs in up to 50% of menstruating females and causes significant disruption in quality of life and absenteeism (Dawood, 2006). The present study indicated that, dysmenorrhea was very high in the studied sample, this results comes in agreement with (Ozgoli et al., 2009; Yassin, 2012) who indicated that, almost all(89.9%) of the study subjects had suffered from dysmenorrhea.

Between 50% and 70% of Americans use some form

of CAM to prevent or treat health-related problems (Astin, 1998) surveys have shown that women are more likely to be the users of unconventional therapies (Tseng et al., 2005) Clinicians also prescribe CAM. For example, more than 90% of certified nurse-midwives in North Carolina reported advising their clients to use an alternative therapy — most commonly herbs, massage, or chiropractic care (Allaire et al., 2000). There has been an increase in the use of herbal medicines in the United States over the last 15 to 20 years (Tseng et al., 2005).

Regarding to severity of dysmenorrhea for the studied sample, as showed in figure (1). More than half of the studied sample had moderate grades of dysmenorrhea. Also more than one quarter of the studied sample had severe grades of dysmenorrhea; while nine point two percent of the studied sample had very sever grades of dysmenorrhea. these results were agree with (Singh et al., 2008) who reported that, 6.32%, 30.37% and 63.29% participants were suffering from severe, moderate and mild grades of dysmenorrhea, while study (Jerry et al., 1981) showed that, 14% severe, 38% moderate and 49% subjects were mild sufferers.

Regarding to comparison between the control and intervention group for pre VMS and VAS, there were no statistically significant correlation between the control and intervention group. On the other hand, regarding to pre, post1 and post2 of pain score for the intervention group (table 6), there were statistically significant positive improvement of pain scoring among intervention group with mean pain score at the 2nd day of menses changes from 2.66 ±1.7 in pre intervention to became 1.1 ±1.2 after two months intervention.

Regarding to comparison of pre, post 1st menses cycle and post 2nd menses cycle of VMS for the ginger group, the (VMS) was used to assess the severity of pain designed by (Andersch and Milsom, 1982). The current study found that, there was statistical significant difference between pre and post results of the intervention group(table 6). There was decreased in menstrual pain after using ginger when assessed by VMS. This explained that, ginger was as effective in relieving pain in women with primary dysmenorrhea. This results comes in agreement with (Abd El-Hameed et al., 2011) who delineated that the prevalence of dysmenorrhea was detected in 94.4% of the students. About half of them (49.7%) categorized as first degree pain, about one third (33.8%) had second degree pain, while 16.6% of the students had third degree of pain during assessment of dysmenorrhea and menstrual hygiene practices among adolescent girls in some nursing schools at EL-Minia Governorate, Egypt. Also (Ozgoli et al., 2009) explained that, no significant differences were found between the three groups in relief, stability, or aggravation of symptoms.

Studies have shown that, dysmenorrhea can affect adolescents' academic performance as well as their social and sports activities (Banikarim et al., 2000). The

efficacy of medical treatment, such as non-steroidal anti-inflammatory drugs (NSAIDs) and oral contraceptive pills, is considerable; but the failure rate can still be as high as 20% to 25% (Proctor et al., 2002). In a Swedish study, 38% of women used analgesics and 22% used oral contraceptives to alleviate their dysmenorrhea (Harel, 2012). Evidence of efficacy supports use of pharmacological agents such as NSAIDs, (Wong et al., 2009) or the use of oral contraceptives to alleviate menstrual pain. However, pain relief may be inadequate for some women, or side effects may not be well tolerated.

Moreover, a number of studies demonstrated ginger root's is effective as a painkiller / anti-inflammatory action. Consequently, researchers have investigated numerous alternative/complementary treatments such as herbal and dietary therapies, behavioral interventions, acupressure and aromatherapy for relieving menstrual pain (Ali et al., 2008). Ginger roots drink succeeded in decreasing the menstrual pain in the current study where it concluded that, there was highly statistical significant differences regarding the pain score on the first day of menstruation ($P < 0.000$). Where, the mean of pain scores was 3.76 ± 2.7

but it decreased to 2.7 ± 2.4 after using ginger only after one menses (table 6). This results comes in agreement with (Ali et al., 2008; Ozgoli et al., 2009). Also these results were coincide with a study in China which showed that, pain scores after the treatment and 3 months of post-treatment in ginger group were significantly lower than those in the control group which was given a Chinese herbal patent drug Sun et al., 2009). In addition, another study compared the effects of ginger, mefenamic acid and ibuprofen on pain in women with primary dysmenorrhoea. It showed that ginger was as effective as mefenamic acid and ibuprofen in relieving pain in women with primary dysmenorrhoea (Ozgoli et al., 2009). The effect of anti-inflammation action of ginger is through inhibition of prostaglandin biosynthesis and leukotrienes.

CONCLUSION

Dysmenorrhea is common among the females which affect daily activities leading to limitations of their social, academic and recreational activities. In light of this study importance of use of fresh ginger as a home remedy to relieve PD which considered the most common gynecological problem among the female adolescent. Fresh ginger was effective in relieving menstrual pain among females with PD when drinking it on the days around the menstruation. There was highly statistical significant positive improvement regarding the pain score of menstruation among intervention group after using fresh ginger 3 days before and first 2 days during the menstruation on the dysmenorrhea.

RECOMMENDATIONS

- Establishing educational program about self-care behaviors' among the female with PD.
- Incorporating dysmenorrhea and its treatment into health education curriculum.
- Encouraging the use of fresh ginger before and during the first days of menstruation to reduce the menstrual pain.
- Applying the program of ginger using and following the females for a long period (6 months).

REFERENCES

- Eswi A, Helal H, Elarousy W (2012). Menstrual Attitude and Knowledge among Egyptian Female Adolescents. *J. American Sci.* 8(6): 555-565. (ISSN: 1545-1003). <http://www.americanscience.org>.
- Marzouk T, El-Nemer A, Hany N, Baraka H (2013). The Effect of Aromatherapy Abdominal Massage on Alleviating Menstrual Pain in Nursing Students: A Prospective Randomized Cross-Over Study. *Evidence-Based Complementary and Alt. Med. Vol.* 2013, Article ID 742421, Pp. 6. <http://dx.doi.org/10.1155/2013/742421>.
- Harel Z (2006). Dysmenorrhea in adolescents and young adults: etiology and management. *J. Pediatr. Adolescent Gynecol.* 19: 363–371.
- Friederich MA (1983). Dysmenorrhea. *Women and Health* 8, 91–106.
- Tolman et al. 1985 Tolman EL, Fuller BL and Rosenthale ME (1985) Potent and selective effects of suprofen on uterine prostaglandin synthesis. *Prostaglandins, Leukotrienes, and Med.* 18: 367–377.
- Lethaby A, Augood C, Duckitt K, Farquhar C (2007). Nonsteroidal anti-inflammatory drugs for heavy menstrual bleeding. *Cochrane Database Syst Rev* 2007: CD000400.
- Nahid K, Fariborz M, Ataolah G, Solokian S. (1999): The effect of an Iranian herbal drug on primary dysmenorrhea: A clinical controlled trial. *J. Midwifery Womens Health.* 2009(54): 401-4.
- Hillen TI, Grbavac SL, Johnston PJ, Straton JA, Keogh JM (1999). Primary dysmenorrhea in young Western Australian women: prevalence, impact, and knowledge of treatment. *J. Adolescents Health.* 25: 40-45.
- Harel Z (2012). Dysmenorrhea in adolescents and young adults: an update on pharmacol. treatments and management strategies. *Expert Opin Pharmacother.* 13(15): 2157-70. doi: 10.1517/14656566.2012.725045.
- Yeh ML, Hung YL, Chen HH, Wang YJ (2012). Auricular Acupressure for Pain Relief in Adolescents with Dysmenorrhea: A Placebo-Controlled Study. *J. Altern. Complement Med.* 2012: Nov. Pp. 6.
- Liu P, Duan J, Wang P, Qian D, Guo J, Shang E, Su S, Tang Y, Tang Z (2013). Biomarkers of primary dysmenorrhea and herbal formula intervention: an exploratory metabolomics study of blood plasma and urine. *Mol Biosyst.* Jan, 27. 9(1): 77-87. doi: 10.1039/c2mb25238d. Epub 2012 Oct 30.
- Mei-Ling Yeh, Yu-Ling Hung, Hsing-Hsia Chen, Jaung-Geng Lin, Yu-Jen Wang (2013). Evid Based Complement Altern. Med. 316212. Published online 2013 April 3. doi: 10.1155/2013/316212PMCID: PMC3638620 Auricular Acupressure Combined with an Internet-Based Intervention or Alone for Primary Dysmenorrhea: A Control Study.
- Parveen N, Majeed R, Zehra N, Rajar U, Munir AA (2009). Attitude And Knowledge Of Medical Students Of Isra University About Dysmenorrhoea And Its Treatment *J. Ayub Med. Coll. Abbottabad,* 2009: 21(3). http://www.ayubmed.edu.pk/JAMC/PAST/160_21-3/Naheed.pdf.
- Mei-Ling Yeh, Yu-Ling Hung, Hsing-Hsia Chen, Jaung-Geng Lin, Yu-Jen Wang (2013). Evid Based Complement Altern. Med. 316212. Published online 2013 April 3. doi: 10.1155/2013/316212PMCID: PMC3638620 Auricular Acupressure Combined with an Internet-Based Intervention or Alone for Primary Dysmenorrhea: A Control

- Study. *Parveen N., Majeed R., Zehra N., Rajar U., Munir A. A.(2009): Attitude And Knowledge Of Medical Students Of Isra University About Dysmenorrhoea And Its Treatment J. Ayub. Med. Coll. Abbottabad. 2009: 21(3). [http://www.ayubmed.edu.pk/JAMC/PAST/160 21-3/Naheed.pdf](http://www.ayubmed.edu.pk/JAMC/PAST/160%201-3/Naheed.pdf)*
- Ostrzenski A. (2002): Integrating Conventional, Complementary and Natural Alternative Therapies, Fallopian Tube Disorders, Philadelphia, Lippincott Williams & Wilkins.*
- Yassin S A. (2012): Herbal Remedy used by Rural Adolescent girls with Menstrual Disorders. Journal of American Science; 8(1):467-473.*
- Ali BH, Blunden G, Tanira MO, Nemmar A(2008). Some phytochemical, pharmacol. Toxicol. properties of ginger (Zingiber officinale Roscoe): a review of recent Res. Food Chem. Toxicol. 46: 409–420.*
- Kikuzaki H, Nakatani N(1996). Cyclic diarylheptanoids from rhizomes of Zingiber officinale phytochemistry. 43: 273–277.*
- Lee SH, Cekanova M, Baek SJ(2008). Multiple mechanisms are involved in 6-gingerol-induced cell growth arrest and apoptosis in human colorectal cancer cells. Mol Carcinog. 47: 197–208.*
- Pongrojapaw D, Somprasit C, Chanthasenanont A(2007). A randomized comparison of ginger and dimenhydrinate in the treatment of nausea and vomiting in pregnancy J. Med. Assoc. Thai. 90: 1703–1709.*
- Ryan JL, Heckler CE, Roscoe JA, Dakhil SR, Kirshner J, Flynn PJ, Hickok JT, Morrow GR(2011). Ginger (Zingiber officinale) reduces acute chemotherapy-induced nausea: a URCC CCOP study of 576 patients. Support Care Cancer. 20: 1479–1489.*
- Chaiyakunapruk N, Kitikannakorn N, Nathisuwan S, Leeprakobboon K, Leelasettagool C(2006). The efficacy of ginger for the prevention of postoperative nausea and vomiting: a meta-analysis. America J. Obstetr. Gynecol. 194: 95–99.*
- Rahnama P, Montazeri Ali, Huseini HF, kianbakhht S, Naseri M(2012). Effect of Zingiber officinale R. rhizomes (ginger) on pain relief in primary dysmenorrhea: a placebo randomized trial. BMC Complementary and Alternative Med. 12(92): 1-7. doi:10.1186/1472-6882-12-92.*
- Kabirian M, Abedian Z, Mazlom SR, Mahram B(2011). Self-management in Primary Dysmenorrhea: Toward Evidence-based Edu. Life Sci. J. 8(2): 13-18. (ISSN:1097–8135). <http://www.lifesciencesite.com>.*
- Abd El-Hameed NA, Mohamed MS, Ahmed Nadia H, Ahmed ER(2011). Assessment of Dysmenorrhea and Menstrual Hygiene Practices among Adolescent Girls in Some Nursing Schools at EL-Minia Governorate, Egypt. J. American Sci. 7(9) [.http://www.americanscience.org](http://www.americanscience.org).*
- Andersch B, Milsom I(1982). An epidemiologic study of young women with dysmenorrheal. American J. Obstetr. Gynecol. 144: 655–660.*
- Moghadam AD, Afra Khosravi A(2012). The Impact of A Novel Herbal Shirazi Thymus Vulgaris on Primary Dysmenorrhea In Comparison to The Classical Chemical Ibuprofen. J. Res. Med. Sci. 17(7): 668–670. PMID: PMC3685784.*
- Chez RA, Jonas WB(1997). Complementary and altern. med. II. Clinical studies gynecol. Obstetr. Gynecol. Survery. 1997(52): 709-16.*
- OZgoli G, Goli M, Moattar F(2009). Comparison of effects of ginger, Mefenamic Acid and Ibuprofen on pain in women with primary dysmenorrhoeal. J. Altern. Complement Med. 15: 129-32.*
- Fetohy EM(2007). Impact of a health education program for secondary school saudi girls about menstruation at Riyadh city. J. Egypt Public Health Assoc. 82(1): 105-124.*
- Mohamed ME(2012). Epidemiol. Dysmenorrhea among Adolescent Students in Assiut City, Egypt Life Sci. J. 9(1).*
- Jenabi E(2013). The effect of ginger for relieving of primary dysmenorrhea. J. Pak. Med. Assoc. 63 (1).*
- Demir SC, Kadayıfçı TO, Vardar MA, Atay Y(2000). Dysfunctional uterine bleeding and other menstrual problems of secondary school students in Adana, Turkey J. Pediatr. Adol. Gynecol. 13(4): 171–175.*
- Cakir M, Mungan I, Karakas T, Giriskan I, Okten A(2007). Menstrual pattern and common menstrual disorders among university students in Turkey Pediatr. Int. 49(6): 938–942.*
- Lu ZJ(2001). The relationship between menstrual attitudes and menstrual symptoms among Taiwanese women. J. Advanced Nursing. 33(6): 1-8.*
- Moronkola OA, Uzuegbu VU(2006). Menstruation: Symptoms, Management and attitude of female nursing students in Ibadan, Nigeria. RevAfr Sante Reprod.; 10(3): 84-89.*
- Dawood MY(2006). Primary dysmenorrhea: advances in pathogenesis and management. Obstetr. Gynecol. 108: 428–441.*
- Astin JA(1998). Why patients use alternative medicine Results of a national study; JAMA. 279: 1548-53.*
- Tseng YF, Chen CH, Yang YH(2005). Rose tea for relief of primary Dysmenorrhoea in adolescents: A randomized controlled trial in Taiwan. J. Midwifery Women Health. 50: 51-7.*
- Allaire Ad, Moos MK, Wells SR(2000). Complementary and alternative medicine in pregnancy a survey of North Carolina certified nurse midwives Obstetr. Gynecol. 95: 19-23.*
- Singh M, Kiran D, Singh H, Nel B(2008). Prevalence and severity of dysmenorrhea : a problem related to menstruation, among first and second Indian Year Female Med. Students. J. Physiol. Pharmacol. 52 (4): 389–397.*
- Jerry R, Klein MD, Iris F, Litt MD(1981). Epidemiol. Adol. Dysmenorrhea. Pediatr. 68: 661–664.*
- Andersch B, Milsom I(1982). An epidemiol. study of young women with dysmenorrheal. American J. Obstetr. Gynecol. 144: 655–660.*
- Banikarim C, Chacko MR, Kelder SH(2000). Prevalence and impact of dysmenorrhoea on Hispanic female adol. Arch Pediatr. Adolescent Med. 2000(154): 1226-9.*
- Proctor ML, Smith CA, Farquhar CM, Stones RW(2002). Transcutaneous electrical nerve stimulation and acupuncture for primary dysmenorrhoea (Cochrane Review). In: The Cochrane Library, Issue 1, 2002. Oxford: Update Software.*
- Wong CL, Farquhar C, Roberts H, Proctor M(2009). Oral contraceptive pill as treatment for primary dysmenorrhoea. Cochrane Database of Systematic Reviews. 2: CD002120.*
- Sun LH, Ge JJ, Yang JJ, She YF, Li WL, Yuan J(2009). Randomized controlled clinical study on ginger-partitioned moxibustion for patients with cold-damp stagnation type primary dysmenorrhoeal. Zhen Ci Yan Jiu. 34: 398-402.*