Novelty Journals

ISSN 2394-7330

International Journal of Novel Research in Healthcare and Nursing
Vol. 4, Issue 3, pp: (35-49), Month: September - December 2017, Available at: www.noveltyjournals.com

Acupressure in Reducing Primary Dysmenorrhea among Adolescent Girls in Ismailia Governorate

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Abstract: **Primary dysmenorrhea is the most common gynecological symptom reported by women and constitutes a high health, social, and economic burden. Complementary and alternative therapies may be adopted as nursing interventions to reduce primary dysmenorrhea and improve productivity, creativity, work performance, and quality of life. Aim of study: To evaluate the effect of acupressure in reducing of primary dysmenorrhea among adolescents girls in Ismailia governorate. Design: Quasi experimental design (pre-posttest design) was adopted. Setting: Technical secondary nursing schools that spread all over Ismailia governorate (AL-Amiry hospital at Ismailia city, Fayed, AL-Mostakbal town, EL-Tallelkabeer, and the west Kantara). Sample: Purposive sample of nursing students having primary dysmenorrhea (congestive and spasmodic) were recruited in this study then assigned into study(intervention) and control group (80 nursing students each). Tools of data collection: Included structured interviewing questionnaire, Faces pain rating scale , The short-form McGill Pain Questionnaire and Flacc pain scales. Results: through three menstrual periods the mean score of menstrual pain was significant in both groups. The mean score of pain was lower in intervention group than control group through three menstrual periods. According to FLACC pain scale, the mean score of pain was 0.11±0.356 in the intervention group versus 6.53 ±1.706in control group in third menstrual cycle after one hour of intervention. All differences after intervention were significant. Conclusion: acupressure was effective in reducing primary dysmenorrhea comparing to hot compression. Recommendation: acupressure should be incorporated in nursing practice as a pain relieving measures for adolescent girls suffering from primary dysmenorrhea.**

Keywords: **Adolescence - Dysmenorrhea –Acupressure.**

1. INTRODUCTION

Dysmenorrhea, the occurrence of painful menstrual cramping of the uterus, is a major cause of activity restriction and absences from school and work among young women. It is a common complaint, affecting as many as 85% of women; up to 20% of them experience severe pain and may be incapacitated from 1 to 3 days each menstrual cycle. Primary dysmenorrhea, defined as menstrual pain not caused by any specific disease pathology, typically begins from 6 to 12 months following menarche, after ovulatory cycles are established. **(Chao et al., 2014)** Prevalence of dysmenorrhea is estimated at 25% of women and up to 90% of adolescents**. (Ali et al., 2011)** but according to **Mohamed. 2012** the prevalence of primary dysmenorrhea is the highest in adolescent women in Egypt. The prevalence of dysmenorrhea was 76.1% (mild 26.6%, moderate 32.0%, and severe 41.4%)

Gorge et al., 2014 described the prevalence of dysmenorrhea in India among adolescent girl's ranges from 60 to 83 percent and many adolescence reported limitation on daily activities and was found to be 146 (62.70%). Out of 233 samples 28(12%) had mild pain, 77(33%) had moderate pain and 41(17.6%) had severe pain during menstruation. Tiredness 110(75.34%), back pain 106(72.60%) and irritability 97(66.43%) were the most common symptoms associated with dysmenorrhea.

Dysmenorrhea is classified as either primary, in the absence of underlying organic disease, or secondary to a specific abnormality. Potential causal abnormalities for secondary dysmenorrhea include endometriosis (and adenomyosis), uterine fibroids (myomas), congenital uterine anomalies, endometrial polyps, use of an intrauterine contraceptive device, ectopic pregnancy, pelvic adhesions, pelvic abscess, pelvic inflammatory disease, ovarian cysts, ectopic pregnancy, and, rarely, uterine or ovarian neoplasm.**(Berkley KJ., 2013)** Primary dysmenorrhea can be manifested in two forms, namely spasmodic and congestive. In fact, these two types of dysmenorrhea are different from the time of manifestation in menstrual cycle in terms of pain quality and other symptoms **(Ali et al., 2011).** Spasmodic dysmenorrhea is an acute spasmodic or cramping pain in the lower abdomen which occurs in the first 2-3 days of menstruation & is often associated with gastrointestinal symptoms such as nausea, vomiting, loose bowel movement, or dizziness. Apart from physical symptoms, some adolescent girls may experience bad mood, mild depression, and an inability to concentrate in class when primary dysmenorrhea occurs **(Wong et al., 2010).** Congestive type is a kind of premenstrual syndrome which is felt as mild and uncertain pains a few days before menstruation also is associated with other physical and temperamental symptoms **(Ali et al., 2011).**

Menstrual cramps are dull, throbbing or cramping pains in the lower abdomen and are often experienced just before and during a period. For some women, it is merely an annoying discomfort but for others, it can be severe enough to interfere with everyday activities for a few days every month. Dysmenorrhea can be accompanied by other symptoms such as nausea and vomiting, loose stools, sweating, and dizziness. (**Jennifer,2013)** Primary dysmenorrhea has been managed with several approaches over the years including pharmacologic and non- pharmacologic measures. Non-pharmacologic approaches have been used with some degree of efficacy for dysmenorrhea management. The uses of exercise, warm compress, massage and rest and red bean pillow have been reported. Music has also been found to reduce pain and could be useful. Transcutaneous electrical nerve stimulation, acupuncture, and acupressure have also been reported. **(Aziato et al., 2014).** Complementary and alternative interventions for dysmenorrhea that include the use of muscle relaxation therapy, magnetic therapy, reflexology, hand acupuncture, moxibustion heat therapy, aroma therapy, acupuncture and acupressure. Acupuncture and acupressure are based on traditional Chinese medicine and share the main principle of opening and harmonizing an obstructed meridian by stimulating surrounding acupuncture points.**(Sharma et al., 2014)** while ***(*Kannan & Claydon, 2014)** added Transcutaneous electrical nerve stimulation, hot compression, biofeedback.

Topical heat could be used in different forms such as a hot bag, towel(dry heat) , or bottle has traditionally been used to ease pain in many cultures, its utilization is currently limited because of the lack of interest among youth in traditional remedies and because of the limited research undertaken to evaluate its effectiveness**. (Navvabi Rigi et al.,2012)** Heat therapy works by relaxing the muscles of the uterus, thereby easing pain and other dysmenorrhea symptoms **(Kim, Jeung-Im 2013).** The use of heat in different forms (such as a hot bag, a towel, or a bottle), has traditionally been used to ease menstrual pain in many cultures, and has a long history in common use and folklore. Heat increases the blood flow in the area of application via vasodilatation, leading to relaxation of smooth muscle and decrease in the perception of menstrual pain. **(Potur and Komurcu.,2014)**

Acupressure is an ancient healing art and branch of Chinese medicine that uses pressure on key points on the surface of the skin to stimulate the body's natural self-curative abilities. Acupressure stimulates the same points as acupuncture, but instead of needles, it uses the gentle but firm pressure of the hands **(Gach, 2011).** When pressing, these points release muscular tension and endorphins, the body's natural pain killers. The gentle pressure also promotes the circulation of blood and the body's life force (Chi) to aid healing. Acupressure can also help restore emotional balance by releasing accumulated tension caused by repressed feelings.**(Sherman T,2014)** .Nursing intervention is an integral component of nursing practice and a major concern with most nurses. The nurse plays an important role in pain management through offering comfort measurements and reassurance to relieve anxiety. Her role includes, as well as ,offering alternative therapies, checking safety or side effects of these therapies ,and refers the patients to the physician if sever symptoms occurs. **(Castrance, 2001)**

Significance of the Study:

Dysmenorrhea, the occurrence of painful menstrual cramping of the uterus, is a major cause of activity restriction and absences from school and work among young women. It is a common complaint, affecting as many as 85% of women; up to 20% of them experience severe pain and may be incapacitated from 1 to 3 days each menstrual cycle.**(Chao et al.,2014)**. The managing of this pain is the one big roles of nurses that it is important to improve the pain and make girls feel with comfort. Thus, the present study will be conducted to evaluate the available evidence about the impact of acupressure on menstrual pain.

Aim of the Study:

The aim of the study is to evaluate the effect of acupressure in reducing of primary dysmenorrhea among adolescents girls in Ismailia Governorate.

Study hypothesis:

The use of acupressure at the sanyinjiao point (sp6) can reduce the primary dysmenorrhea among adolescent girls.

2. SUBJECT AND METHODS

Research design:

A quasi-experimental design (pre-posttest design). Was adopted in this study to investigate the effect of acupressure in reducing primary dysmenorrhea among adolescent girls in Ismailia Governorate.

Study setting:

This study was conducted from technical secondary nursing schools that spread all over Ismailia Governorate. (AL-Amiry hospital at Ismailia city, Fayed, AL-Mostakbal town, EL-Tall Elkabeer, and the west Kantara).

Target population:

The population of this study was student girls having primary dysmenorrhea. (spasmodic or congestive).

Tools of data collection

Three tools were used in this study:

Tool (1) Structured interviewing schedule

It was used by the investigator to collect the following data.

Part (1):

Socio-demographic data as this part included name, age, social status, telephone number, educational level, economic status, family income, greed level, and residence. **(6 questions)**

Part (2):

It is included menstrual data as age of menarche, rhythm, interval and duration of menstruation, amount of blood loss (the number of pads/day such as mild =one towel per day, moderate =2-3towel per day, sever= from 4 and more towel per day), premenstrual symptoms (before period by one week), onset of pain (with the onset of period or before period with a few days),place of pain(lower of the abdomen, lower of the back and lower limbs.**(10 questions)**

Tool (2) Wong-Baker Faces Pain Rating Scale :(Hockenberry MJ et al., 2005)

This scale consists of 5 different faces arranged from smiled face that expressed that there is no pain (scored by 0) to very anger face that expressed that there is severe pain (scored by 5). Adolescent girls were asked to choose the face that best describes the severity of pain as she feels. (Face 1 hurts just a little bit, face 2 hurts a little more, face 3 hurts even more, face 4 hurts a whole lot and face 5 hurts as much as you can image)Although you don't have to be crying to feel this bad.

Novelty Journals

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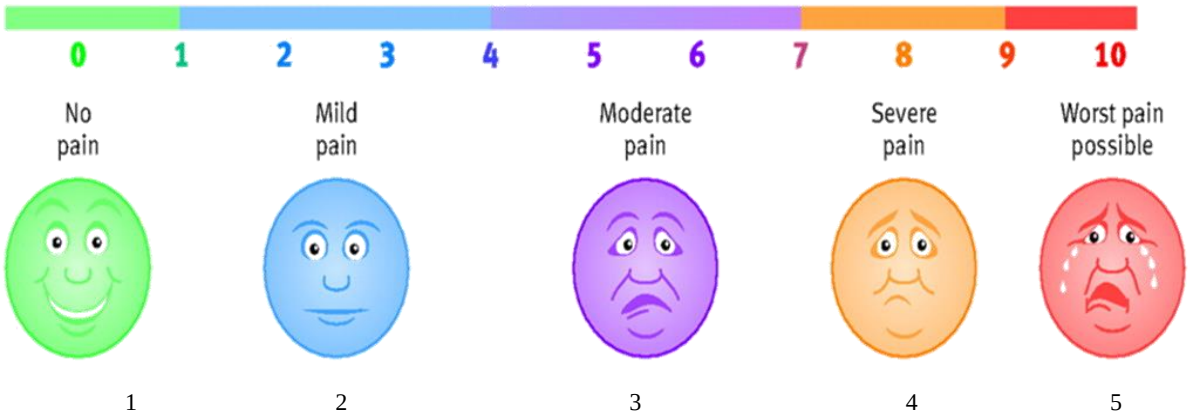

Tool (3) The short-form McGill Pain Questionnaire :(Melzak., 1987)

A short form of the McGill Pain Questionnaire (SF-MPQ) used to evaluate a girl's experience significant pain. It can be used to monitor the pain over time and to determine the effectiveness of any intervention. It consists of three parts; the first part (quality of pain) contains a total of 15 descriptors (11 sensory; 4 affective) which are rated on an intensity scale as 0 = none, 1 = mild, 2 = moderate or 3 = severe. In total, three pain scores are derived the intensity rank values of the words chosen for sensory that equal 33, the sum of the intensity rank values for the effective words chosen which equal 12 and the total of descriptors values is 45.

Tool (4) Flacc pain scale:

Flacc pain scale assess the patients pain and include 5 categories using to assess the patients at anywhere each word had scored from 0-2 which result in total score between zero and ten . the five categories was (face ,leg ,activity, crying and consolability**) (Merkel S. et al., 1997) .**

Preparatory phase:

The preparatory phase was the first phase in the study. The investigator was reviewed local and international related literature about the various aspects of the research problem. Then the investigator was prepared the required data collection tools. Before conducting the study, the investigator received a training course under supervision of specialized physiotherapist to apply acupressure procedure on the SP6 point accurately.

Pilot study:

A pilot study was carried out on 10% of the sample. It was conducted to test the applicability of the tools and techniques. According to the results of the pilot study, items was corrected, modified, omitted or added. The pilot study also helped to determine the time needed for interview and evaluate the suitable setting to perform the interview and intervention.

Administrative design:

An official letter was taken from the Faculty of Nursing, Suez Canal University to the directors and heads of secondary nursing schools in Ismailia governorate to obtain their permission to conduct the study.

Ethical considerations:

Written or oral approval was obtained from the adolescent girls after informing them about the nature, process, and expected outcomes of the study. Also the investigator was reassured them that the study is safe, information obtained was confidential and was used only for the purpose of the study, and they have a right to withdraw from the study at any time she wanted throughout the study.

Statistical design:

The collected data was organized, tabulated and analyzed using statistical package of social science (SPSS) 17.0 programs. the data was presented in numbers and percentage .Mean and stander deviation were calculated for quantitative

data . Qualitative variables were compared using Pearson Chi-Square test and Fisher's Exact Test. Whenever the expected values in one or more of the cells in a 2x2 tables was less than 5, Mann-Whitney Test, Friedman Test were used instead. In larger than 2x2 cross-tables, no test could be applied whenever the expected value in 10% or more of the cells was less than 5. Statistical significance was considered at p-value <0.05.

Field work:

The investigator introduce herself to students in each school classes and explain the aim and nature of the study {acupressure procedure, methods of assessment, follow up }and clarify the inclusion and exclusion criteria of the study sample .The students were accepted to participate in the study could contact with the investigator on her telephone or go to school health clinic during the break time or after duty.

*** Interviewing phase:**

The investigator introduced herself to adolescent girls then explained the purpose of the study in order to obtain their cooperation. The investigator was receipted the adolescent girls at the school health clinic, where the interview and intervention was done. Before the time of initial menstruation by 3 to 7 days the structured interviewing schedule was used to collect the needed data. Adolescent girls were trained by the investigator to find the Sanyinjiao point and to perform the acupressure protocol. They were received comprehensive explanation and demonstrate the acupressure procedure until the investigator was sure that they can apply it correctly. Acupressure procedure was done by the investigator during the first cycle then the adolescent girls were done the procedure during the second and third cycle.

A**cupressure procedure:**

The SP6 acupoint is located on the inside of the lower leg, one hand width (four fingers) above the tip of the ankle bone, on the back of the shin bone. Acupressure protocol included a slow, firm pressure on the acupoint at a 90 degree angle from the surface of the skin. The pressure should be consciously and gradually directed into the center of the part of the body. It's important to apply and release finger pressure gradually. Sanyinjiao point (sp6) should be pressed with the thumb for 1-3 minutes(6 seconds pressure and 2 rest)as far as pain is tolerable. This procedure should have been repeated for the other leg. Then the whole routine must have been repeated on both legs for another 6 minutes(each leg from two to 3-minutes of time).

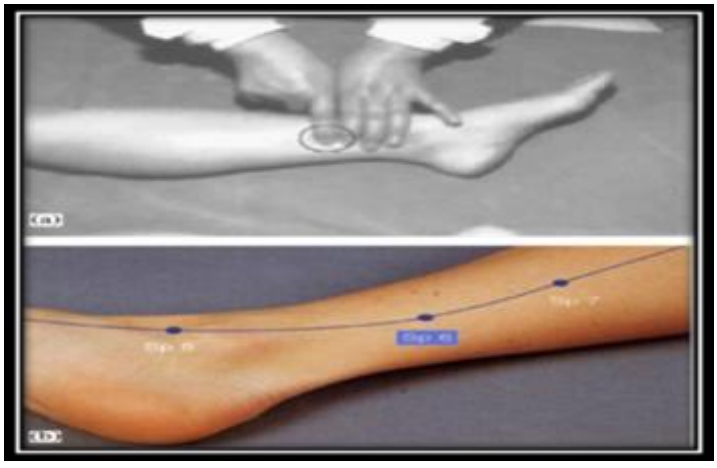

Fig. 1. Sp6 Acupoint E.-M. Jun et al. / International Journal of Nursing Studies 44 (2007) 973–981.

The accuracy of the acupoint was confirmed if the participant felt a slight ache, dull pain, tingling and/or an electrical sensation. Before performing acupressure protocol, girls will sit in the school health clinic for 10 minutes to adjust to the temperature, windows and the door will keep closed and no one will be allowed to enter the room to prevent any external stimuli. Acupressure procedure was done by the investigator during the first cycle then the adolescent girls were done the procedure during the second and third cycle. The Adolescent girls were instructed to perform the procedure at the time of

menstrual pain (for spasmodic cases during the two first days of menstruation and for congestive group during the two days before menstruation).

For control group, the girls were allowed to rest in the school health clinic during the break with application of heating pad ,towel with dry heat by using iron or (hot compression) as hot water bottle according available supplements with suitable temperature degree that girls can tolerate it and apply them on lower abdomen , lower back or inner thigh regarding the place of the pain until pain relive with no acupressure intervention . During their next three menstrual cycles, the adolescent girls were used the same interventions as necessary.

Evaluation and follow up:

The severity of pain was estimated using Faces Scale , Short form McGill Pain Questionnaire and Flacc pain scale. The evaluations were performed immediately after intervention and then after 30 and 60 min of intervention for both group. The assessment of pain severity was repeated by the adolescent girls within the second menses and the third menses. Follow up was done by the investigator through visits or telephone. The investigator was available daily at the nursing school after duty to assess and manage adolescent girls under study.

3. RESULTS

Table (1) presents that more than one fifth of the intervention group (23.1%) and more than one fourth of the control group(26.3%)have menarche at age 13-years. Less than one third (28.8%)of intervention group and (29.4%)of control group had duration of interval of the cycles from 27 to 30 days . One quarter (20%) of intervention group and less than one third of control group (28.1%) had from 5-7 days duration of period. Meanwhile, more than one fifth of the both studied group have regular menarche.

Table (2) illustrates that more than half (52.6%) of the intervention group and(62.6%) of the control group started feeling of pain with first period. Regarding duration of pain, more than two fifth of the intervention group (46.2%) felt pain at 48 hours, while the same percentage (46.2%) of the control group felt pain at 72 hours with statistically significant between the two studied groups and duration of pain. more than half of the intervention group (51.2%) and(53.8%) of the control group have congestive pain (pain start before menstrual flow). Meanwhile, more than four fifth of the intervention group (90%) and(88.8%) of the control group felt pain at lower abdomen and back with lower limb.

Table (3) shows that there were statistically significant between short- form McGill Pain Questionnaire, FLACC pain scale and both studied groups. Regarding FACES pain ratting scale, there were no statistically significant between FLACC pain scale before intervention and both studied group.

Table (4) presents that there were statistically significant between the both studied group and all scales of the second menstrual periods.

Table (5) illustrates that there were statistically significant between the both studied group and all scales of the third menstrual period.

Table (6) shows mean score of pain before and after intervention through three menstrual period among intervention group (n=80) using three scales to assess pain and it was notice decreasing the mean of pain intensity score among intervention group with statistically significant differences ($p<0.05$) regarding three menstrual period.

Table (7) Indicates that mean score of pain before and after intervention through three menstrual period among control group (n=80) using three scales to assess pain and it was notice decreasing the mean of pain intensity score among control group with statistically significant differences ($p<0.05$) regarding three menstrual period.

Figure (8) clarifies that there was no statistically significant difference between the both studied groups during the 1st, 2nd menstrual cycle, while during the 3rd menstrual cycle there was statistically significant differences between the both studied groups before the intervention. **Figure (9)** shows that there was statistically significant difference between the both studied groups during three cycles of the menstruation after one hour of the intervention ($p>0.05$).

Novelty Journals

ISSN 2394-7330

International Journal of Novel Research in Healthcare and Nursing
Vol. 4, Issue 3, pp: (35-49), Month: September - December 2017, Available at: www.noveltyjournals.com

Table (1) Comparison between studied groups regarding menstrual history.# Pearson Chi-Square

Title		Intervention (80)		Control (80)		P-value#
		No.	%	No.	%	
Age of menarche (years)	9-	2	1.3	2	1.3	0.883
	11-	29	18.1	25	15.6	
	13-	37	23.1	42	26.3	
	15-16	12	7.5	11	6.9	
Duration of Interval (days)	21-	1	0.6	0	0.0	0.477
	24-	8	5.0	5	3.1	
	27-	46	28.8	47	29.4	
	30-	24	15.0	24	15.0	
	33-35	1	0.6	4	2.5	
Duration of period (days)	3-	27	16.9	18	11.3	0.072
	5-	32	20.0	45	28.1	
	7-	21	13.1	15	9.4	
	9-10	0	0.0	2	1.3	
Regularity of period	regular	24	15.0	29	18.1	0.084
	somewhat	51	31.9	39	24.4	
	irregular	5	3.1	12	7.5	

Table (2) Comparison between studied groups regarding start of pain, site of pain and duration of pain through three periods.

Title		Intervention group (80)		Control group (80)		P-value#
		No.	*%*	*No.*	*%*	
Start feeling of pain for first time	With menarche	42	52.6	50	62.6	0.311
	After menarche by 6 months	23	28.8	18	22.6	
	After menarche by one year	11	13.8	6	7.6	
	After menarche by 2 years	3	3.8	6	7.6	
	0thers	1	1.2	0	0.0	
Duration of Pain	24 hours	9	11.2	15	18.8	0.006*
	48 hours	37	46.2	18	22.6	
	72 hours	31	38.8	37	46.2	
	Others	3	3.8	10	12.6	
The site of pain	Lower abdomen and back with lower limb	72	90.0	71	88.8	0.500ǂ
	Others	8	10.0	9	11.2	
Types of primary dysmenorrhea	Spasmodic	39	48.8	37	46.2	0.874ǂ
	Congestive	41	51.2	43	53.8	

Pearson Chi-Square ǂFisher's Exact Test *Statistically significant at 95% level of confidence.

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ISSN 2394-7330

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Table (3): Comparison between the studied groups regarding mean score of pain in the first period.

Scales		Intervention (n=80)		Control (n=80)		P-value#
		Mean	*SD*	*Mean*	*SD*	
Faces pain ratting scale	Before	5.00	0.000	5.00	0.000	1.000
	After immediately	4.00	0.219	5.00	0.191	0.000*
	After 30 min	3.00	0.244	4.00	0.157	0.000*
	After 1 hour	2.00	0.484	4.00	0.551	0.000*
Short MCGIL pain Questionnaire	Before	15.00	1.073	15.00	1.240	0.556
	After immediately	13.00	1.170	15.00	0.813	0.000*
	After 30 min	10.00	1.331	15.00	0.924	0.000*
	After 1 hour	7.00	1.440	14.00	1.559	0.000*
FLACC pain scale	Before	10.00	0.112	10.00	0.000	0.317
	After immediately	7.00	0.750	10.00	0.191	0.000*
	After 30 min	4.00	1.208	9.00	0.528	0.000*
	After 1 hour	1.00	0.703	7.00	1.873	0.000*

Mann-Whitney Test

*Statistically significant at 95% level of confidence.

Table (4): Comparison between the studied groups regarding mean score of pain in the second period

Scales		Intervention(n=80)		Control(n=80)		P-value#
		Mean	*SD*	*Mean*	*SD*	
Faces pain ratting scale	Before	4.56	0.524	5.00	0.000	0.000*
	After immediately	3.58	0.546	4.96	0.191	0.000*
	After 30 min	2.71	0.455	4.00	0.000	0.000*
	After 1 hour	1.91	0.427	3.46	0.550	0.797
Short MCGIL pain Questionnaire	Before	14.99	1.164	14.99	0.665	0.000*
	After immediately	11.81	1.829	14.99	0.665	0.000*
	After 30 min	9.50	1.676	15.20	0.833	0.000*
	After 1 hour	6.69	1.514	14.19	1.616	0.000*
FLACC pain scale	Before	9.61	0.755	10.00	0.000	0.000*
	After immediately	6.18	1.549	9.98	0.157	0.000*
	After 30 min	3.33	1.329	9.03	0.420	0.000*
	After 1 hour	.51	.636	6.70	1.746	0.000*

Mann-Whitney Test

*Statistically significant at 95% level of confidence.

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Table (5): Comparison between the studied groups regarding mean score of pain in the third period

Scales		Intervention(n=80)		Control(n=80)		P-value#
		Mean	*SD*	*Mean*	*SD*	
Faces pain ratting scale	Before	3.56	0.524	5.00	0.000	0.000*
	After immediately	2.84	0.404	4.96	0.191	0.000*
	After 30 min	2.35	0.480	4.00	0.000	0.000*
	After 1 hour	1.70	0.488	3.48	0.551	0.004*
Short MCGIL pain Question-naire	Before	14.40	1.239	14.86	0.545	0.000*
	After immediately	10.83	1.806	14.80	0.582	0.000*
	After 30 min	8.89	1.630	15.05	0.825	0.000*
	After 1 hour	6.08	1.339	14.03	1.691	0.000*
FLACC pain scale	Before	8.06	1.521	10.00	0.000	0.000*
	After immediately	4.81	1.917	9.98	0.224	0.000*
	After 30 min	2.75	1.383	8.98	0.449	0.000*
	After 1 hour	0.11	0.356	6.53	1.706	0.000*

Mann-Whitney Test*Statistically significant at 95% level of confidence.

Table (6): Comparison between mean score of pain before and after intervention through three menstrual period among intervention group (n=80)

Scales		Before		immediately After		After 30 min		After 1 hour		P-value#
		Mean	*SD*	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*	
First period	FACES pain ratting scale	5.000	0.000	3.950	0.219	2.940	.244	2.240	0.484	0.00*
	short-form McGill Pain Questionnaire	15.250	1.073	12.650	1.170	9.780	1.331	7.050	1.440	0.00*
	FLACC pain scale	9.990	0.112	7.360	0.750	4.100	1.208	1.250	0.703	0.00*
Second period	FFACES pain ratting scale	4.560	0.524	3.580	.546	2.710	0.455	1.910	0.427	0.00*
	short-form McGill Pain Questionnaire	14.990	1.164	11.810	1.829	9.500	1.676	6.690	1.514	0.00*
	FLACC pain scale	9.610	0.755	6.170	1.549	3.330	1.329	.510	0.636	0.00*
Third period	FACES pain ratting scale	3.560	0.524	2.840	0.404	2.350	0.480	1.700	0.488	0.00*
	short-form McGill Pain Questionnaire	14.400	1.239	10.820	1.806	8.890	1.630	6.080	1.339	0.00*
	FLACC pain scale	8.060	1.521	4.810	1.917	2.750	1.383	0.110	0.356	0.00*

Friedman Test*Statistically significant at 95% level of confidence.

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ISSN 2394-7330

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Table (7): Comparison between mean score of pain before and after intervention through three menstrual period among control group (n=80)

Scales		Before		immediately After		After 30 min		After 1 hour		P-value#
		Mean	*SD*	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*	
First period	FACES pain ratting scale	5.000	0.000	4.960	0.191	3.970	0.157	3.480	0.551	0.00*
	short-form McGill Pain Questionnaire	15.330	1.240	15.150	0.813	15.140	0.924	14.030	1.559	0.00*
	FLACC pain scale	10.000	0.000	9.960	0.191	8.890	0.528	6.690	1.873	0.00*
Second period	Faces pain ratting scale	5.000	0.000	4.960	0.191	4.000	0.000	3.460	0.550	0.00*
	short-form McGill Pain Questionnaire	14.990	0.665	14.990	0.665	15.200	0.833	14.190	1.616	0.00*
	FLACC pain scale	10.000	0.000	9.980	0.157	9.020	0.420	6.700	1.746	0.00*
Third period	Faces pain ratting scale	5.000	0.000	4.960	0.191	4.000	0.000	3.480	0.551	0.00*
	short-form McGill Pain Questionnaire	14.860	0.545	14.800	0.582	15.050	0.825	14.030	1.691	0.00*
	FLACC pain scale	10.000	0.000	9.980	0.224	8.980	0.449	6.530	1.706	0.00*

Friedman Test*Statistically significant at 95% level of confidence

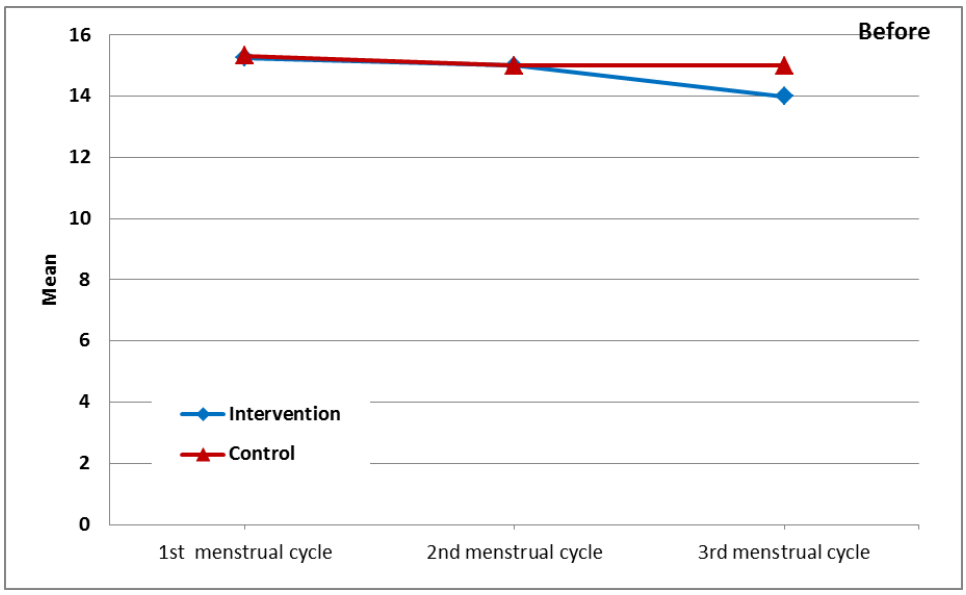

Fig. (2): Comparison between studied groups regarding short short-form McGill Pain Questionnaire (before) the intervention in three successive periods

Novelty Journals

ISSN 2394-7330

International Journal of Novel Research in Healthcare and Nursing
Vol. 4, Issue 3, pp: (35-49), Month: September - December 2017, Available at: www.noveltyjournals.com

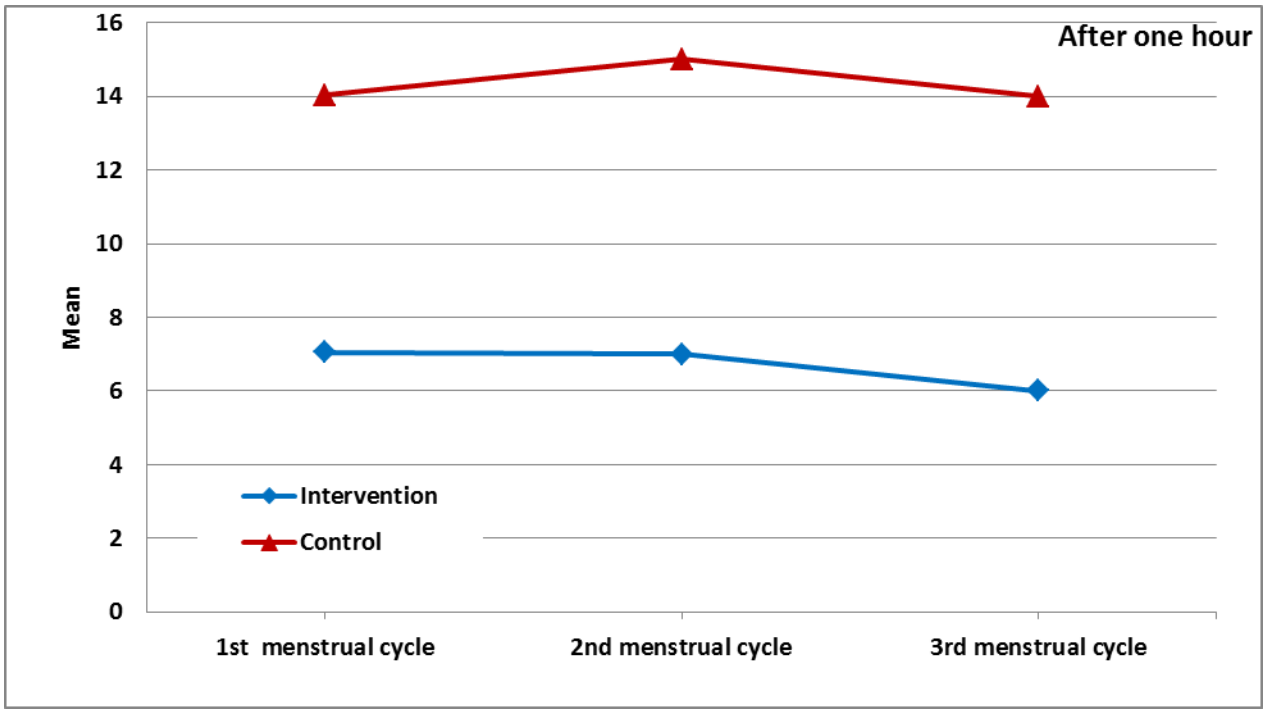

Figure (3) Comparison between studied groups regarding short short-form McGill Pain Questionnaire after the intervention by (one hour) in three successive periods.

4. DISCUSSION

Dysmenorrhea is painful cramps that occur with menstruation, is the most common gynecologic problem in women of all ages and races .It is one of the most common causes of pelvic pain.**(Osayande and Mehulic.,2014)** It is the main cause of recurrent short –term school absenteeism among adolescent females.**(Mohamed,E.M.,2012)**

The present study was conducted to assess the effect of acupressure in reducing primary dysmenorrhea among adolescent girls at Ismailia Governorate. In which research hypothesis that used acupressure on SP6 point had alleviate pain of primary dysmenorrhea intensity comparing of hot compression with rest only.

Acupressure is alternative medicine techniques that it is based on the theory of holistic self-healing using solely physical pressure. The pressure applied at specific points helps in increasing the flow of life energy through the meridians and clears the blockages. Acupressure therapy can be used to treat the pain and symptoms of Primary dysmenorrhea quite successfully. **(Mukherjee., 2015)**

The result of this study showed that about less than one third of intervention group and one third of control group respectively had range of menarche age start from 13-15 years and these results agreed with **(EL-Gilany et al.,2005)** who found the mean and median ages at menarche were 12.9 years and 13.0 years respectively.

The results of present study showed The initial onset of primary dysmenorrhea usually occurred within six months after menarche as more than one quarter from intervention group and about less than one quarter from control group. This result agreed with **(LATTHE,P. et al.,2012)** who found The initial onset of primary dysmenorrhea usually occurred within six to 12 months after menarche, when ovulatory cycles are established. And **(Berkley,K.J.,2013)** who provide primary dysmenorrhea was begins from six to 12 months after menarche.

In the current study demonstrated that primary dysmenorrhea divided into two types spasmodic and congestive, the result shows less than half of intervention group was spasmodic while still remaining more than half for congestive type . Also the result shows less than half of control group was spasmodic and everlasting more than half was congestive type respectively. This result agreed with **(Kashani et al., 2015)**who reported Pain usually begins with 1 or 2 days before (congestive), or when menstrual bleeding starts(spasmodic), and was felt in the lower abdomen, back, or thighs.

The result of this study shows pain duration is commonly from 48 to 72 hours such as about one half of intervention group were suffering from pain for 48 hours and less than one quarter of control group were suffering from pain for the same period of time while less than half of intervention group and about one half of control group had pain extended for 72 hours. **(LATTHE,P. et al.,2012)** agreed with this result who found The Pain duration was commonly from eight to 72 hours and **(Berkley,K.J.,2013)** agreed with this result who explained the pain usually has gradually extended over from two to three days. Also **(Kashani et al.,2015)** found Pain can range from mild to severe, can typically last from 12 to 72 hours. Although there is discrepancies between the previous researches due to differences in the setting of the study and living condition of the study subject.

On the other hand the presented study disagree with **(Shaban.,2011)** who reported that time of the occurrence of dysmenorrhea was with menses and continued for 24 hours. Also the current study disagrees with **(Abd El-Hameed et al., 2011)** who found that almost half of the students have the pain with the beginning of the menstruation and continues for 24 hours.

The result of this study showed the majority of intervention group and more than half of control group they had experienced dysmenorrheal pain in lower abdomen, lower back and thigh(lower limbs) and this agreed with**(Eryilmaz.G.,2006)** who found the pain was mostly initiated a day before or at the beginning of menstrual flow and it was felt in multiple location but most commonly in the lower abdomen , lumber region and thigh.**(Jiang et al.,2013)**agreed with this result and he found the pain radiating to lower abdomen, lower back and anterior thigh.

In the current study the pain of primary dysmenorrhea was assessed (pre and post intervention) during three menstrual cycle. The main findings before intervention found that the total score of McGill pain questionnaire decreased in third menstrual cycle before using acupressure comparing to control group that used hot compressions with rest only to relieve primary dysmenorrhea while the total finding after intervention found that the total score of McGill pain questionnaire decreased in first , second and third menstrual cycle ; also there were decreases of primary dysmenorrhea measured by FACES pain ratting scale and FLACC pain scale before and after intervention in the first, second and third menstrual cycle, where the acupressure is effective on reducing pain of primary dysmenorrhea .

This result was agreed with (**Karthika et al., 2011)** who studied the efficacy of acupressure at SP6 point in reducing dysmenorrhea among (60) adolescent girl and concluded that acupressure was applied in both SP6 point of the leg for about 20 minutes and assessed the pain perception immediately after acupressure ,after half an hour,1hour,1 and half hours and 2hours . The mean score of pre-test pain and post- test pain perception of the control group and the experimental group revealed that the experimental group had less pain perception with acupressure application than the control group . This result agree with current study in using the SP6 acupressure point, evaluation time and result of effective acupressure.

The result of this study showed that the mean score of pain was significantly decreased in third menstrual period before starting intervention (acupressure) during follow up of 3 cycles indicated that acupressure is suitable method to relieve the dysmenorrheal pain and associated with symptoms and this results supported by **(El-Gendy,S.R.,2015)** she found indicates of a significant decrease in the occurrence of menstrual pain after one and two months of application of acupressure (x^2 =35.2 & 38.2) respectively. It also represents a significant improvement in pain location after the application (x^2= 36.2 & 36.8). Forty students (40%) out of 100 had no pain after two months of acupressure. In addition, there is a significant decrease in the pain severity (x^2 =57.3 & 69.9 respectively). Acupressure was effective in reducing pain and distressing symptoms associated with dysmenorrhea .

(Ezadi H, et al.,2016) who investigated in the effects of acupressure on the tenth spleen point on the pain severity in the primary dysmenorrhea**.** The sample was divided into control (n=50) and intervention (n=50) groups based on the randomization program. Data was collected by a demographic questionnaire, the pain ruler, and the visual scale. The pressure medicine and its application, the tenth spleen point, way to find the point, and its massage method was trained in intervention group. There was no intervention in control group. The pain severity was measured before the intervention and one, two and three months after it. He founded there was no significant difference between control and intervention groups in mean pain severity (p=0.143). Therefore, the groups were the same in the pain severity. There were significant differences in the first, the second, and the third months after the intervention between the groups. In addition, there was a reduction in pain severity after 3 months in intervention group (p<0.001).

(Taek, Y.,2014) who examined in effects of San-Yin-Jiao (SP6) acupressure on Primary Dysmenorrhea**.** San-Yin-Jiao (SP6) acupressure should be applied with the thumb for 10 minutes(8 seconds pressure and 2 seconds rest) on the SP6 acupoint. This procedure should be repeated for the other foot. Dysmenorrheal pain measured two pain assessment tools (VAS, DPT) pre-treatment; immediate post-treatment; 30minutes, 1, 2hours; and 3, 4, 5, 6, 24 hours after the VAS test was added. The results of his study showed significant differences in pain assessments (VAS, DPT) after treatment. So his resulted supports the idea that using acupressure method could be effective in pain reduction among students who suffered from primary dysmenorrhea.

The finding of the current study agreed with **(Abaraogu ,U.O. and Ochuogu,C.S.T.,2015)** whose studied pain relief by acupressure and acupuncture among women with primary dysmenorrhea using systematic review with Meta-Analysis, they found that acupuncture and acupressure are preferred to pharmacological treatment or herbal medicine. Also indicated that acupressure significantly reduced the pain associated with primary dysmenorrhea while acupuncture improved both the physical and the mental components of quality of life.

5. CONCLUSION

Based on the finding of the present study, it can be concluded that acupressure was more effective in reducing primary dysmenorrheal pain comparing to hot compression.

6. RECOMMENDATION

1-Complementary therapy especially acupressure should be incorporated in nursing practice as a pain relieving measures for adolescent girls suffering of primary dysmenorrhea.

2-Further researches are needed to investigate the efficacy of acupressure on reducing primary dysmenorrhea among adolescent girls by using large sample size and double blinded trial.

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