

## Effect of Self-acupressure on Sanyinjiao acupoint(SP6) on dysmenorrhea among Faculty of Nursing Students

Heba Atef Osman<sup>1</sup>, Mona R Ahmed<sup>2</sup>, Fatma Ahmed Mohammed Sabry<sup>3</sup>, Randa Hamdi Abdelfattah<sup>4</sup>, Heba Ahmed Galal Atia<sup>5</sup>

1 lecturer of Women Health and Obstetrics Nursing ,Faculty of Nursing, ,Minia University, Egypt.

2 lecturer of Maternity& Newborn Health Nursing, Faculty of Nursing, Assiut University, Egypt.

3lecturer of Obstetric and Gynecological Nursing Department, Faculty of Nursing, Sohag University, Egypt.

4 Lecturer of Community Health Nursing, Faculty of Nursing, Cairo University, Egypt.

5 Lecturer of Maternity, Obstetric and Gynecological Nursing Department, Faculty of Nursing, Suez Canal University, Egypt

### Abstract

**Background:** Dysmenorrhea continues to be a significant issue that worries adolescent and young adult women. The occurrence of this condition is common and often not adequately addressed. **Aim:** assess effect of self-acupressure on SP6 point on primary dysmenorrhea among Faculty of Nursing Students. **Design:** Quasi-experimental research design. **Setting:** Faculty of Nursing at Sohag University. **Sample:** A purposive sample of 100 female students. **Tools: Tool I:** Structured interviewing questionnaire **Tool II:** Visual Analog Scale (VAS) **Tool III:** Modified McGill Pain Questionnaire Short form (MPQ-SF). **Results:** There is highly statistical significance difference between pre & posttest regarding pain level with p-value .001. **Conclusion:** Self-acupressure on SP6 point was effective in relieving the severity of menstrual pain among nursing female students with primary dysmenorrhea. **Recommendations:** Use of self SP6 acupressure should be advocated as a non-pharmacological approach for management of menstrual pain.

**Keywords:** Dysmenorrhea, Faculty of Nursing Students Self-acupressure.

### Introduction

Dysmenorrhea continues to be a significant issue that worries adolescent and young adult women. The occurrence of this condition is common and often not adequately addressed. It refers to the pain experienced during menstruation caused by contractions in the uterus. From a clinical perspective, it is categorized into two types: primary dysmenorrhea (PD) and secondary dysmenorrhea (Gutman et al., 2022).

Primary dysmenorrhea is a medical condition that causes painful menstrual cramps that occur right before or during the menstrual period in women with normal pelvic structure; this condition is mostly linked to the overproduction of uterine prostaglandins, resulting in an elevated uterine tone. Alternatively, secondary dysmenorrhea is the term used to describe menstrual pain that occurs alongside pelvic issues ( Dahlawi et al.,2021).

Pain in women with primary Dysmenorrhea is at its worst during first and second days of menstruation and typically lasts for a period of 8 to 72 hours. Typically, individuals with dysmenorrhea experience pelvic pain along with discomfort in the lower back. They may also have symptoms such as nausea, vomiting, diarrhea, dizziness, migraines, difficulty sleeping, tiredness, and infrequently fainting and elevated body temperature. The symptoms persist and happen repeatedly with every menstrual cycle. (Duman et al.,2022)

Factors such as starting menstruation at a young age, having relatives with a history of dysmenorrhea, having either a higher or lower body mass index (BMI), not having given birth, smoking, and experiencing psychological issues like depression and anxiety, all increase the risk of developing dysmenorrhea. Typical signs of dysmenorrhea often include intense, sporadic spasms of pain, mostly felt in the area above the pubic bone. Typically, it is linked to additional systemic symptoms such as back pain, feeling

sick, throwing up, having loose stools, sweating, fainting, rapid heart rate, general discomfort, fatigue, and a headache (Unnisa et al.,2022).

Dysmenorrhea has been linked to significant effects on adolescents and woman's daily life that needs collaboration from all community organizations. This can be seen in the rates of absence from school or work, demonstrating its significant effect. Dysmenorrhea might also restrict women's involvement in sports or social activities. Moreover, dysmenorrhea comes with additional emotional stressors. Dysmenorrhea is a concern for public health and has significant economic consequences (Nagy & Khan ,2023). It also has an impact on students' academic performance and daily routines. The main reason for recurring school absences, lack of focus in class, lack of participation, inability to complete homework (21%), failure in exams, and limited involvement in activities. (Mesele et al., 2022).

The term CAM refers to a collection of various medical and healthcare methods, systems, and products that are currently not accepted as part of mainstream or conventional medicine. Women commonly utilize various complementary and alternative medicines (CAMs) to alleviate dysmenorrhea. These include applying heat, receiving massages, utilizing herbal remedies, taking vitamin-mineral supplements, and practicing mind-body techniques. Additionally, menstrual pain can be eased through pharmaceutical drugs or non-pharmacological methods like relaxation techniques, such as acupressure ( Rahmi et al.,2022).

Acupressure is a subspecialty of acupuncture use touch techniques which can be applied by doctors, nurses, and even the patients themselves to balance the energy flow in the body (Batvani et al, 2018). Applying self-acupressure is an easy, non-invasive, cost-effective, and safe method that can be learned by patient or used by a specialist. (Ayca and Derya, 2022)

Community health and gynecological nurses are frequently the first point of contact for adolescent students experiencing

dysmenorrhea. They have a unique chance and responsibility to actively work on menstruation-related issues in an attempt to enhance the well-being and health of students (National Board of Health and Welfare, 2018). The nurse plays an important role in carrying out school programs and educating adolescent girls about various non-medical measures and their effectiveness in controlling menstrual pain perception. (Ali et al., 2023).

Community health and gynecological nurses should provide adolescents students with appropriate guidance for the rapid management of menstrual cramps and encourage them to use safe complementary therapy methods (Angelhoff& Grundström, 2023).

### Significance

Worldwide, Dysmenorrhea can affect up to 91% of the world's population, and 10-20% of them have severe dysmenorrhea. It is the most common cause of recurrent school absence (80%), lost class concentration (66%), lack of active participation (47%), inability to complete homework (21%), failure in a test (15.4%) and limited activities (29.9%) ( Mesele et al.,2022).

There is an urgent need for effective non-pharmacological treatments for primary dysmenorrhea, such as bed rest, exercise and heat packs, as well as alternative treatments such as acupressure. Acupressure is a one of the standard Chinese management approaches used in pain relief, treatment of diseases and injuries that involves applying physical pressure on various points on the body surface by suggesting that of energy circulation (Othman et al.,2019).

### Research aim:

To assess effect of self-acupressure on SP6 point on dysmenorrhea among Faculty of Nursing Students through:

- 1.Assessing the severity of dysmenorrhea among Nursing female students.
- 2.Applying a self- acupressure on SP6 point.
- 3.Assess effect of self- acupressure on SP6 point on severity of dysmenorrhea among

nursing female students with dysmenorrhea.

### Research Hypothesis:

The post test-mean scores of menstrual pain among the female nursing students with dysmenorrhea who are exposed to Self-acupressure on SP6 point program will be lower than pretest –mean scores.

### Subjects and methods:

#### Research design:

To assess the unproductive relationship between intervention and outcome, this study has espoused the Quasi experimental design with one group pre and post-test. It's a way of evaluating the impact of an intervention before and after it has been enforced, by comparing scores on different variables (Thomas, 2022).

#### Operational definition

**Self-acupressure on SP6 point** in the context of the study is to apply pressure firmly using thumb, index, or middle finger on both sides of the SP6 point by female students themselves for 10 minutes.

#### Setting:

The research was done in the Faculty of nursing at Sohag University. It was established by Democratic Decree No. 129 of 2006 as one of the faculties of Sohag University with the aim of supplying the labor request with nursing specialists and it includes eight scientific departments.

#### Sample type:

A purposive sample was used in this study.

#### Sample size calculation:

Half of the students enrolled in the first academic time 2023 of the Faculty of Nursing, Sohag University (400 students) were surveyed to pinpoint those who suffered from dysmenorrhea. It is found that 70% of them (280 students) suffered from dysmenorrhea. According to the results of the check, a non-

probability slice fashion was used to select a purposive sample of 100 students to implement self-acupressure protocol according to the following criteria.

#### Inclusion criteria

Single female with regular menstruation (22-35 days in the previous 12 months)

- With no gynaecological diseases
- Suffering from dysmenorrheal pain
- Willing to participate in the study

**Tools of data collection** three tools were used as follows:

#### Tool I: personal and menstrual history structured interview questionnaire

It was designed by the researcher to collect the following

**Part 1: personal data** included age, height, weight, body mass index Telephone number, and E-mail

**Part 2: Menstrual history** included age at menarche, menstrual interval, duration of blood flow, amount of menstrual bleeding by counting number of saturated pads per day.

**Part 3: Dysmenorrhea pain characteristics** included time of onset in association with menstruation, site, Aggravated factors of menstrual pain and any methods or measures used to relieve dysmenorrhea.

#### Tool II: Visual Analog Scale (VAS)

The Visual Analogue Scale was developed by Johanson et al in 1988 and is used by researchers to assess the intensity of pain. It consisted of a vertical line in centimeters ranging from 0 to 10, with two opposing axes at each end, indicating "no pain" and "worst possible pain" separately. The student was instructed to make a mark on the line indicating the intensity of her pain. This mark was also measured in centimeters from no pain to extreme pain to determine the student's score. Descriptive terms, as no pain was assigned a

score of 0, mild pain was assigned a score of 1-3, moderate pain was assigned a score of 4-6, and severe pain was assigned a score of 7-10.

### **Tool III: Modified McGill Pain Questionnaire Short form (MPQ-SF):**

The McGill Pain Questionnaire has been modified. The abbreviation was taken from (Abdelhaleem,2013). It was used to assess Pain intensity. This tool was made up of two parts.

**Part I: Sensory pain dimensions** included from 1 to 11 descriptor and described the sensory pain experience as cramping, throbbing, sharp, shooting, stabbing, gnawing, aching, hot/burning, heavy tenderness, and splitting.

**Part II: Affective pain dimensions** included from 12 to 15 descriptor and described the affective pain as tiring, exhausting, cruel, punishing, sickening and fearful

Each descriptor was rated on a scale of 0 (none), 1 (mild), 2 (moderate), and 3 (severe). The total score was the sum of the scores from the sensory and affective domains, with a maximum score of 45 indicating severe pain and a minimum score of 15 indicating mild pain. The overall score was 15 score which indicated mild pain. The total score was sub classified as follow 0 = no pain, 1: 15= mild pain, 16: 30= moderate pain, 31: 45= severe pain.

#### **Content validity:**

The study tools were reviewed by three staff members with expertise in maternity and newborn health nursing and community health nursing, and changes were made as needed.

#### **Content reliability:**

Cronbach's alpha reliability test  $\alpha=92\%$  was used and it was .86 for Tool II and .89 for Tool III.

**Ethical and legal considerations:** This study's proposal was approved by the Ethics and Research Committee at Sohag University's Faculty of Nursing. The dean of the nursing

faculty at Sohag University granted official permission. Prior to intervention, a written consent was obtained from the participants after a thorough explanation of the nature and purpose of the study, and they were informed that their participation in the study was entirely voluntary, that they had the right to withdraw at any time, and that anonymity and confidentiality were guaranteed.

#### **Pilot study:**

It was performed on 10% of the total sample to evaluate the tools' clarity and applicability. It was included in the total sample because the tools had not been altered.

#### **Procedure:**

The actual fieldwork was done from September 2023 to December 2023 included development, implementation, and evaluation of the self-acupressure protocol.

#### **The implementation phase:**

##### **Preparatory phase**

Researcher reviewed both national and international literature to identify the most efficient acupressure point for relieving dysmenorrhea. After studying the findings, they concluded that the acupressure point SP6 was the most efficient point for relieving dysmenorrhea.

Researcher received proper instruction and training on how to apply acupressure technique from a Physiotherapy specialist to be more competent to apply it.

An educational material was prepared to assist the participants in practicing self-acupressure in their own homes. It contained overall details about dysmenorrhea, the meaning and impacts of acupressure, a technique for self-acupressure, safety measures, and visuals demonstrating the position of acupressure point Sp6.

**Assessment phase:** Firstly, half of students in first year (400 students) were interviewed by the researcher. At the start of the interview, the researcher welcomed the

students, introduced herself to them, and explained the essence and objective of the research. Next, the researcher dispersed a questionnaire on the students to assess personal data and the menstrual history of them. Then, only a sample of 100 students were enrolled in self-acupressure protocol. The exact pain level of the selected participants in self-acupressure protocol was assessed using Pain Rating scales including the Visual Analog Scale (VAS) and the McGill Pain Questionnaire, before they began the self-acupressure protocol. The students took approximately 20 to 30 minutes to fill the questionnaire.

### **Intervention phase (Self- acupressure on SP6)**

Based on acupressure method used in a previous study by ( **Othman et al.,2019**) The intervention involved applying acupressure through finding the most tender point on the leg then using either thumb, index, or middle finger to press firmly on both sides of the SP6 point for a duration of 20 min(10 min for each leg) twice per day for the first three days of menstruation of the next menstruations.

### **Acupressure Point SP6 ( Sanyinjiao acupoint)**

**Location:** SP6 was located on the medial side of the lower leg, three proportional inches (four fingers) superior to the prominence of the medial malleolus, in a depression, which is close to the medial crest of the tibia .



### **TRAINING SESSIONS**

Training sessions were conducted in the faculty class room and skill lab. The study group was divided into sub groups (25) by the research team. Each training session included around 20 to 25 adolescent students. Each group

had two sessions in total. Each session lasted from 60-90 minutes. To better understand the training, video and educational materials about self-acupressure technique were used by the researchers to demonstrate the technique to the participants.

Teaching strategies such as group discussion, demonstrations and re-demonstration, models, and images were all employed. During the implementation, the researchers instructed the adolescent students to do each phase on their own after demonstrating the technique to them. The researchers then instructed the adolescent students to repeat each step three to four times until they were competent. The adolescent students were told to practice the technique twice a day, in the morning and afternoon.

The researchers developed a brusher about the technique. The brusher summarizes the key components of each training session, such as the general information on dysmenorrhea & definition, effects of a acupressure, self-acupressure methods, precautions, and images of the location of SP6 acupressure point. Following the implementation of the program, the adolescent students were given a brusher with the main information as a reference.

The researcher made phone calls in the first 3 days of next menstruation to encourage and check whether the participants comply with the program and evaluate effect of self-acupressure on SP6 point on relieving dysmenorrhea.

### **Evaluation phase**

To assess effect of self-acupressure on SP6 point on relieving severity of pain in dysmenorrhea, a post-test was done using the same tool (**VAS and McGill Pain Questionnaire**) through phone calls on the next menstruation.

### **Statistical analysis**

The statistical package for social science (SPSS, version 22) was used for data entry and statistical analysis. Numbers and percentages were used to represent qualitative variables. A quantitative variable was presented as mean +

standard deviation. The chi-square test was used to compare qualitative variables. The student t-test was used to compare quantitative variables.

## Results

**Table (1)** Shows personal data of Nursing adolescent students and reports that a mean age of  $17.2 \pm 0.63$ . About 58% lives in urban areas. Also 56% of them have a normal weight.

**Table (2)** Illustrates menstrual history of Nursing adolescent students and clarifies that age of menarche was less than 14 yrs. in 80% of them and 60% of them their menstrual duration between 3-6 days, and 80% have moderate blood flow and have a family history of dysmenorrhea.

**Figure (1):** Demonstrates distribution of dysmenorrhea among Nursing adolescent students and reports 70% of students are complaining of dysmenorrhea.

**Table(3):** Demonstrates dysmenorrhea characteristics of Nursing adolescent students and shows that menstrual pain started in first day of menstruation in 85% of them, The site of menstrual pain was in lower abdomen only in 70% of them, low back pain was the most

common associated symptom in 85% and 95% used measures to relieve dysmenorrhea mostly analgesics(45%).

**Figure (2):** Demonstrates Aggravated factors of menstrual pain among Nursing adolescent students and reports that the most common aggravated factors are study burden and anxiety & stress 34.3%, 31.4% respectively

**Table (4):** Shows pre & posttest total pain scores of Visual Analog pain Scale among Nursing adolescent students and reports highly statistical significant difference between pre & posttest total pain scores with p-value .001.

**Table (5):** Shows pre & posttest total pain scores of Modified McGill Pain Questionnaire Short form among Nursing adolescent students and reports highly statistical significant difference between pre & posttest total pain scores with p-value .001.

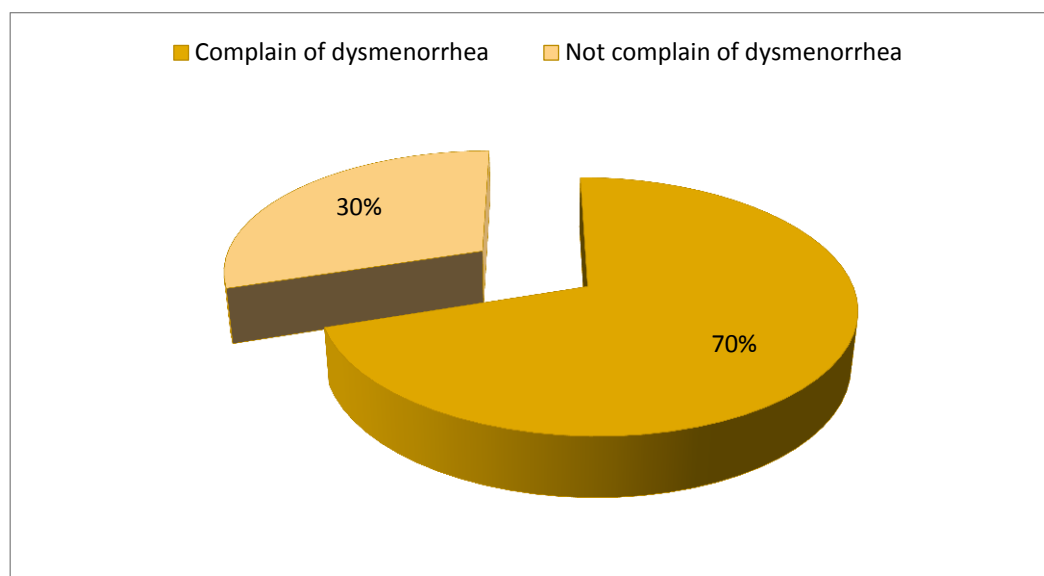
**Table (6):** Shows the mean and standard deviation of total pain scores of Visual Analog pain Scale and Modified McGill Pain Questionnaire Short form scale pre & posttest and reports highly statistical significant difference between pre & posttest mean pain scores with p-value .001.

**Table (1):** Distributions of personal data of Nursing adolescent students (n=400).

Personal data	No.	%
Age in years:	Mean $\pm$ SD 17.2 $\pm$ 0.63	
Residence:		
• Urban	232	58
• Rural	168	42
Body mass index		
• Normal	224	56
• Underweight	56	14
• Over weight	72	18
• Obese	48	12

**Table (2):** Distribution of Nursing adolescent students' menstrual history (n=400)

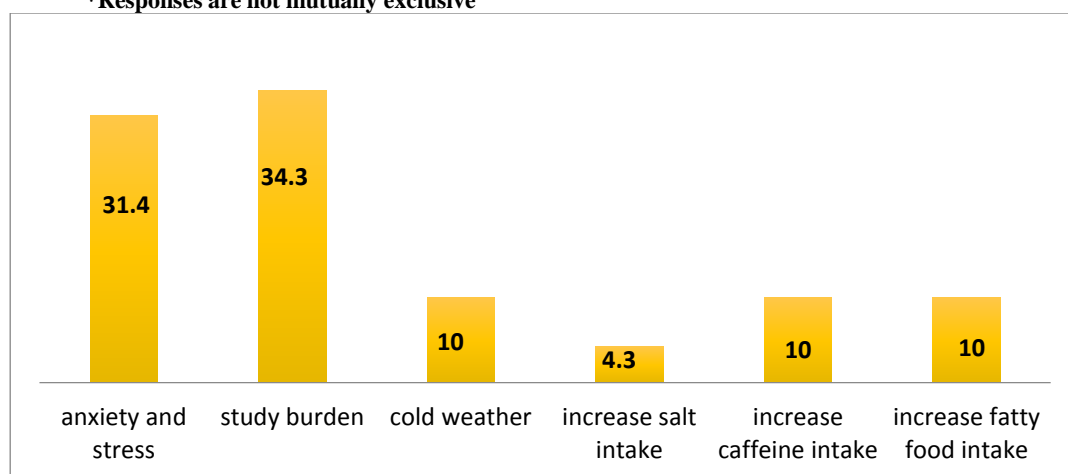
Menstrual History	No(400)	%
<b>Age of menarche:</b>		
• Less than 14 years	<b>320</b>	<b>80</b>
• 14-16 years	80	20
<b>Duration of menstrual flow:</b>		
• Less than 3 days.	80	20
• 3-6 days.	<b>240</b>	<b>60</b>
• More than 6 days	80	20
<b>The menstrual interval / days</b>		
• < 28	80	20
• ≥28	<b>320</b>	<b>80</b>
<b>Amount of menstrual bleeding (No. of pads /day):</b>		
• Mild (One)	60	15
• Moderate (2-3)	<b>320</b>	<b>80</b>
• Sever (≥4)	20	5
<b>Family history of menstrual pain</b>		
• Yes	<b>320</b>	<b>80</b>
• No	80	20
<b>Complaining from dysmenorrhea</b>		
• Yes	<b>280</b>	<b>70</b>
• No	120	30

**Figure (1):** Distributions of dysmenorrhea among Nursing adolescent students (n=400).

**Table (3):** Distributions of dysmenorrhea characteristics among Nursing adolescent students (n=280).

Dysmenorrhea characteristics	No.	%
<b>The onset of pain:</b>		
• Before first day.	30	10.7
• First day.	<b>238</b>	<b>85</b>
• After first day(2ND DAY -3RD DAY)	12	4.3
<b>The Site of pain:</b>		
• Lower abdomen radiate to back and thigh	48	17.2
• lower abdomen only	<b>196</b>	<b>70</b>
• back and abdomen	42	12.8
<b>Associated symptoms with Menstrual pain:</b>		
• Low back pain	<b>238</b>	<b>85</b>
• Pain radiating down the legs	196	70
• Nausea	196	70
• Vomiting	140	50
• Fatigue	210	75
• Weakness	168	60
• Headaches	84	30
<b>Aggravated factors of Menstrual pain</b>		
• Anxiety& stress	<b>88</b>	<b>31.4</b>
• Study burden	<b>96</b>	<b>34.3</b>
• Cold weather	28	10
• Increase salt intake	12	4.3
• Increase caffeine intake	28	10
• Increase fatty food intake	28	10
<b>Measures to relieve dysmenorrhea?</b>		
• Yes	<b>266</b>	<b>95</b>
• No	14	5
<b>Specify (n = 266)</b>		
Pharmacological as analgesic	<b>120</b>	<b>45.1</b>
Non-Pharmacological as warm fluids, warm shower applying heat, Abdominal massage	93	34.9
Both	53	20

\*Responses are not mutually exclusive



**Figure (2):** Aggravated factors of menstrual pain among Nursing adolescent students.



**Table (4):** Distributions of pre-posttest total pain scores of Visual Analog pain Scale among Nursing adolescent students(n=100).

Pain level	Pre		post		P- value
	No.	%	No	%	
Mild pain (1-3)	8	8	40	40	.001**
Moderate pain (4-6)	30	30	48	48	
Severe pain (7-10)	62	62	12	12	

\*\*Highly statistically significant level at  $P < .001$ .

**Table (5):** Distributions of pre-posttest total pain scores of Modified McGill Pain Questionnaire Short form among Nursing adolescent students(n=100).

Pain level	pre		post		P- value
	No.	%	No	%	
Mild pain (1-15)	6	6	55	55	.001**
Moderate pain (16-30)	22	22	35	35	
Severe pain (31-45)	72	72	10	10	

\*\*Highly statistically significant level at  $P < .001$ .

**Table (6):** The mean and standard deviation of total pain scores of Visual Analog pain Scale and Modified McGill Pain Questionnaire Short form scale pre- and post- SP6 acupressure technique among Nursing adolescent students (n=100).

Variable	pre	post	P-value
	Mean $\pm$ SD	Mean $\pm$ SD	
Mean of VAS scores	8.5 $\pm$ 0.9	5.4 $\pm$ 1.3	.001 **
Mean of MPQ-SF scores	32.5 $\pm$ 3.5	18.9 $\pm$ 2.0	.001**

\*\*Highly statistically significant level at  $P < .001$

## Discussion

Dysmenorrhea is one of the most common gynecological complaints, affecting a large proportion of the community's females, whether adolescent or adult. It has been linked to short-term school absenteeism and has a negative impact on academic and daily activities. (Molla et al, 2022) So this study aimed to assess effect of self-acupressure on SP6 point on dysmenorrhea among Faculty of Nursing Students.

The current study discovered that the vast majority of the studied sample started menarche before the age of 14 yrs., had 3-6 duration of menstruation, a moderate blood flow & a family history of dysmenorrhea. This is in the same line with (Pooja et al.,2022) who did their research in India to assess the effectiveness of acupuncture in relieving pain in students, and found more than half of the studied sample had 3-6 days duration of menstruation , a moderate blood flow & a family history of dysmenorrhea but there is difference between the current study

and (Pooja et al.,2022) in age of menarche where (Pooja et al.,2022) reported more than half of the sample started their menarche after age of 14yrs.This difference may be due to different study subjects. Also this findings is in agreement with the results of (El-Hosary, 2022) that conducted his study in Egypt, Menuofia to investigate the efficacy of self-care strategies in the treatment of primary dysmenorrhea and monthly hormonal concentrations. These congruent results may be due to presence of common characteristics and shared variables in Egyptian community.

In terms of the onset of dysmenorrhea among Nursing adolescent students, the majority reported that the onset of it was associated with the start of menstruation, Concerning associated symptoms, the majority of the adolescent students reported the site of the pain in lower abdomen and low back pain, pain radiating down the legs, nausea & fatigue as associated symptoms. This findings are the same findings of (Elsawy et al.,2023) who did their research to determine the effect of

progressive muscle relaxation technique on menstrual cramps in Egyptian adolescent students, Sohag.

Concerning the severity of dysmenorrhea in the studied sample before acupressure, the current study clarifies that the majority of the studied sample had severe dysmenorrhea in pre intervention, while after intervention, the majority of them had mild and moderate dysmenorrhea with highly statistically significant difference in total pain score of VAS and MPQ-SF among Nursing adolescent students in pre and post intervention with p-value.001. This finding is somewhat similar to the results of several other researches as (Awad et al.,2022) who studied the effect of SP6 point acupressure on pain intensity among late adolescents nursing students with primary dysmenorrhea in Alexandria university and found a statistically significant difference (p=0.001) in pain intensity between female students before and after intervention in nursing adolescent students who received Spleen 6-point acupressure during dysmenorrhea.

Furthermore, this finding is consistent with the findings of (Othman et al., 2019) who investigated the effect of acupressure on (Sanyinjiao Acupoint(SP6) on primary dysmenorrhea in adolescents and discovered a highly statistically significant difference between the two studied groups. Also (Khayati et al.,2022) who did their research to determine the effectiveness of acupressure on the level of menstrual pain in college students and discovered that applying acupressure over the Sp6 point is effective in significantly reducing menstrual pain.

Also (Rahmi et al., 2022) who investigated whether acupressure techniques have an effect on menstrual pain and discovered a statistically significant difference (p<0.002) in pain intensity between nursing students before and after intervention.

In addition, (Solt& Dolgun, 2022) who conducted a research to evaluate the effectiveness of acupressure in reducing dysmenorrhea pain and found that acupressure is a very effective method of reducing dysmenorrhea pain.

This finding suggests that the self-acupressure protocol is effective in reducing the severity of primary dysmenorrhea.

## Conclusion

Self-acupressure on the SP6 point proved to be successful in relieving the intensity of dysmenorrhea in Nursing adolescent students suffering from dysmenorrhea as reported by visual analogue scale (VAS) and McGill Pain Questionnaire Short form scores. Using self-applied acupressure on the SP6 point is a straight forward and noninvasive technique that effectively relieves the severity and intensity of menstrual pain. This method can be easily used by teenage girls experiencing dysmenorrhea as a means of self-care.

## Recommendations

1. Use of self-acupressure on Sp6 should be advocated as a non-pharmacological approach for management of menstrual pain among adolescents
2. Incorporating dysmenorrhea and its non-pharmacological management into the curriculum of the faculty of nursing students.
3. Community health nurse should disseminate the positive effect of self-acupressure on Sp6 in management of dysmenorrhea among adolescents and young females.
4. Further research should be conducted to explore effect of acupressure on other gynecological symptoms and also to compare the effect of other acupressure points with the effect of SP6 acupressure point on menstrual pain.

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