



EFFECTIVENESS OF PEER GROUP SUPPORT IN THE APPLICATION OF ACUPRESSURE ON MENSTRUAL PAIN

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Original Research

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ABSTRACT

Introduction: One of the various techniques in reducing menstrual pain is using relaxation techniques, namely acupressure. Group methods and peer group support are used to help teenagers overcome pain. The purpose of this study was to review Peer Group Support in the application of acupressure to menstrual pain in adolescent girls using the Self Determination model approach. **Methods:** This study used a quasi-experimental design with a pre-test and post-test design, of one group without a control group. The sampling technique used was simple random sampling. The inclusion criteria were respondents who had menstruated, experienced menstrual pain, age at menarche between ≤ 12 years to ≥ 14 years, and menstrual duration < 3 Days to > 7 days, as well as being cooperative and willing to be a respondent. The sample size was 35 adolescent girls. **Results:** The study with the Paired t-test showed that the Acupressure group experienced changes with a p-value = 0.03. The average increase in managing menstrual pain in the t-count was 2.45. **Conclusions:** The pain level was measured at the beginning of menstruation, followed by the acupressure technique independently, then the pain level was measured again and showed a significant increase after the intervention in the group that did not experience acupressure. There were 2 respondents (5.7%) with pain, 26 respondents (74.3%) were at the mild pain level, and 7 respondents (20%) were at the moderate pain level.

ARTICLE INFO

Received September 29, 2024
Accepted November 19, 2024
Online May 31, 2025

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Keywords:
Acupressure, Menstrual Pain, Peer
Group Support

INTRODUCTION

Adolescence is a transition period from childhood to adulthood marked by accelerated physical, mental, emotional, and social development. The earliest changes that appear are biological developments, one of the signs of which is the start of menstruation in adolescents. A person's menstruation occurs during puberty and the beginning of a woman's capability to conceive a child, or the reproductive period. Menstruation usually begins between the ages of 10 - 16, depending on various factors, including women's health, nutritional status, and body weight relative to height. During menstruation, it is usually accompanied by symptoms such as sweating, headaches, diarrhea, and vomiting (Tsamara et al., 2020). Menstruation is a physiological change in the body in women that occurs periodically and is influenced by reproductive hormones. Menstruation is often accompanied by dysmenorrhea (pain during menstruation) because during menstruation pain there is an increase in prostaglandins (substances that cause the uterine

muscles to contract). In the past, dysmenorrhea was considered a psychological problem or an unavoidable aspect of femininity, but now doctors are aware that dysmenorrhea is a real medical condition (Ardiani & Sani, 2020). Before and during menstruation, women often experience discomfort in the lower abdomen. The presence of uterine contractions during menstruation causes pain during the menstrual cycle because the tightening of the uterus will prevent blood from flowing smoothly to the uterine wall. The nature and level of pain during menstruation vary, from mild to severe. This condition is called dysmenorrhea, which is a symptomatic phenomenon that includes abdominal cramps, back pain, and gastrointestinal symptoms such as nausea and diarrhea can occur as symptoms of menstrual pain (Fatmawati et al., 2021).

Based on data from the World Health Organization (WHO) in 2020, the incidence of dysmenorrhea was 1,769,425 (90%) women who suffered from dysmenorrhea, with 10-16%



suffering from severe dysmenorrhea (Syaiful & Naftalin, et al., 2018). From the Riskesdes data from the Indonesian Ministry of Health in 2018, it was shown that the prevalence of reproductive adolescent girls in Indonesia, namely those aged 10-24 years, was 256,598 people who experienced menstrual pain or dysmenorrhea, indicating that sufferers of menstrual pain or dysmenorrhea were around 50 - 60% consisting of 50.48% primary dysmenorrhea and 9.36% secondary dysmenorrhea. In East Java, the number of reproductive adolescent girls aged 10-24 years is 156,598, while those experiencing dysmenorrhea are 100,024 (59.89%) and those coming to the obstetrics department are 56,565 (41.31%) (Retno Gumelar, et al., 2022). The highest prevalence of menstrual pain is often found in adolescent girls, which is estimated to be between 20-90% (Salsabila Putri, et al., 2023).

Menstrual pain can have an impact on the activities of women, especially teenagers. Menstrual pain makes women unable to carry out normal activities and requires prescription drugs. This condition causes a decrease in the quality of life of women. For example, students who experience primary menstrual pain cannot concentrate on studying, and their motivation to study decreases because of the pain they feel. There are two ways to reduce menstrual pain, namely, pharmacological and non-pharmacological. Pharmacological methods, by taking medication, and non-pharmacological methods, can be done with warm compresses or warm baths, massage, physical exercise, adequate sleep, distractions such as listening to music, and relaxation such as yoga (Rusmiyati et al., 2019).

Acupressure is known as one of the traditional Chinese therapy methods as an alternative to curing menstrual pain by using the technique of massaging the meridian points at points L 14 and ST 36, effectively reducing menstrual pain. Fingers can stimulate the release of endorphins, which relax muscles and reduce pain. Determining the right meridian points is also needed so that therapy is more effective (Sari & Usman, 2021). Acupressure therapy is a complementary therapy whose methods and benefits are not widely known, so socialization and training are needed. The purpose of this exercise is to increase muscle strength, endurance, and flexibility, it is expected to reduce menstrual pain.

According to research by Arini Purnama (Sari & Usman, 2021), acupressure therapy was performed at the LI 4 (hegu) and ST 36 bilateral pressure points 30 times for 3 consecutive days during menstruation. Data analysis using the Wilcoxon test. The results of the study showed a

decrease in the quality of dysmenorrhea pain, namely before therapy, it was 2.67 and SD 0.687, while after acupressure therapy for 3 consecutive days, the average intensity of dysmenorrhea pain was 1.19 and SD 0.552. The results of the Wilcoxon test obtained a decrease in the average intensity of dysmenorrhea pain on day 1, namely 0.22, on day 2, namely 0.43, and on day 3, namely 0.83 with a P value = 0.00, which means that acupressure therapy at points LI 4 (Hegu) and ST 36 bilaterally is effective in reducing dysmenorrhea in adolescents (Sari & Usman, 2021).

Peer group support or peers can influence a person's motivation, even though someone has a low education (Khamida et al., 2019). Research in developmental psychology has shown that peer groups serve as the primary medium for socialization during adolescence. Within these groups, adolescents interact and communicate about sexual changes and reproductive processes, fostering communicative interactions that contribute to shaping their knowledge and attitudes regarding reproductive and gender health issues more so when compared to communication with parents, family, teachers, or health workers (Maringga & Ivantarina, 2023). Peer groups can help adolescents to interact gradually and help adolescents to express their feelings; in this case, it refers to those adolescents who experience menstrual pain. By seeing the complexity of menstrual pain problems experienced by adolescent girls, the use of non-pharmacological techniques is considered safe, so that they can be done independently. These paper researchers are therefore interested in studying the Effectiveness of Peer Group Support in Applying Acupressure to Menstrual Pain in Adolescent Girls with a Self-Determination Model.

MATERIALS AND METHODS

This study used a quasi-experimental design with a pre-test and post-test design, of one group without a control group. The sampling technique used was simple random sampling. The inclusion criteria in this study were female adolescents living in Ujung RT 02 RW 10 Village, Semampir District who had menstruated, experienced menstrual pain, menarche age ranging from ≤ 12 years to ≥ 14 years, and had a menstrual duration between < 3 Days to > 7 days, and were cooperative and willing to be studied. Female adolescents were invited randomly and were willing to attend the initial meeting with the researcher. The sample size that met the researcher's criteria was 35 female adolescent respondents.

Before carrying out the research, the researcher carried out initial permission by sending

a letter or asking for a recommendation from the Surabaya City Investment and One Stop Integrated Services Service (DPMPSTSP) with number: 500.16.7.4 / 2727 / S / RPM / 436.7.15 / 2024, and the research was carried out. This study was conducted from 5 to 16 August 2024. The instrument in this study was a questionnaire (demographic data) to measure menstrual pain in female adolescents who had become respondents. The instruments used included demographic data and information about menstruation. From the demographic data, the information obtained was education, duration of menstruation, and age of menarche. Other variables are:

1. Acupressure Technique

Massage the Sanyinjiao Point (SP6) on the 4 fingers above the internal malleolus or right at the end of the shin, the Hegu Point (Li4) between the base of the thumb and index

finger, right in the muscle area, and the Taichong Point (LR3) is in the soft part between the big toe and the second toe on the foot. The massage is done for 3-5 minutes by rotating counterclockwise 30 times. This technique is done to suppress the production of endorphins in the body so that it can control the activity of the endocrine glands that stimulate the nervous system and can suppress pain and external stimuli.

2. Visual Analogue Scale (VAS)

Assessment of menstrual pain using a universal instrument used in pain assessment, namely the Visual Analogue Scale (VAS). The VAS consists of ten scales that indicate the degree of pain, where the number 0 indicates no pain and a scale of 10 indicates very severe and unbearable pain.

RESULTS

Table 1. Characteristics of respondents based on age of menarche, education, and menstrual duration at Ujung - Semampir – Surabaya, August 2024.

Age of Menarche	Frequency (f)	Percentage (%)
≥14 years	3	8.6
≤ 12 years	18	51.4
12-14 years	14	40
Education	Frequency (f)	Percentage (%)
Elementary School/Equivalent	13	37.1
Junior High School/Equivalent	14	40
High School/Equivalent	8	22.9
Menstrual Duration	Frequency (f)	Percentage (%)
> 7 days	12	34.3
< 3 days	8	22.8
3-7 days	15	42.9
Total	35	100

Table 1 shows the age at menarche of the Acupressure group. Most respondents in this study were in the menarche age group of 12-14 years, with as many as 14 respondents (40%) in the Acupressure group. Most respondents in this study, 14 respondents (40%), had a final education level of junior high school/equivalent. The duration of menstruation of 15 respondents (42.9%) was 3-7 days.

Table 2. Data from the Results of Calculating Menstrual Pain Scale Values Before and After Intervention at Ujung - Semampir - Surabaya, August 2024.

Pain Level	Acupressure Group			
	Pre		Post	
	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
No Pain	0	0	2	5.7
Mild Pain	18	51.5	26	74.3
Moderate Pain	13	37.1	7	20
Severe Pain	4	11.4	0	0
Total	35	100	35	100
Wilcoxon Test Results				
p=0.000				

Table 2 shows the results of pre- and post-respondents after being given intervention. There was a significant increase after the intervention in the Acupressure group. The respondents who experienced no pain, mild pain, and moderate pain level were 2 respondents (5.7%), 26 respondents (74.3%), and 7 respondents (20%), respectively. The results of P-Value = 0.000. It can be concluded that H_0 is rejected and H_1 is accepted, so there is an effect of the intervention given by the researcher.

Table 3. Data on the Results of Calculating Peer Group Support Values Before and After the Intervention was Given at Ujung - Semampir - Surabaya, August 2024.

Peer Group Support	Acupressure Group			
	Pre		Post	
	Frequency	Percentage	Frequency	Percentage
Always	10	28.6	20	57.1
Often	10	28.6	12	34.3
Sometimes	12	34.3	3	8.6
Never	3	8.5	0	0
Total	35	100	35	100
Wilcoxon Test Results p=0.000				

Table 3 shows the results of Peer Group Support on pre- and post-respondents after being given the intervention; there was a significant increase after the intervention in the Acupressure group. The results showed that 20 respondents (57.1%) were in the always value, 12 respondents (34.2%) were in the often value, and 3 respondents (8.6%) were in the sometimes value. The results of P-Value = 0.000. It can be concluded that H_0 is rejected and H_1 is accepted, so there is an effect of the intervention given by the researcher.

Table 4. Data on the Results of Calculating the Motivation Values of Adolescent Girls Before and After Being Given Intervention in Peer Group Support at Ujung - Semampir - Surabaya, August 2024.

Motivation	Acupressure Group			
	Pre		Post	
	Frequency	Percentage	Frequency	Percentage
Yes	14	40	16	45.7
No.	21	60	19	54.3
Total	35	100	35	100
Wilcoxon Test Results p=0.000				

Table 4 shows the results of motivation in female adolescents in pre- and post-respondents after being given intervention in the Acupressure group. After the intervention in the Acupressure group, the results showed that 16 respondents (45.7%) were in the yes value, and 19 respondents (54.3%) were in the no value. The P-value result = 0.000. It can be concluded that H_0 is rejected and H_1 is accepted, so there is an effect of giving intervention to the group that the researcher gave.

Table 5. Test Statistic Data Per Research Variable

Test Statistics			
	Post Test Acupressure – Pre Test Acupressure	Post-Test Acupressure Peer Group Support – Pre-Test Acupressure Peer Group Support	Post-Test Acupressure Motivation – Pre-Test Acupressure Motivation
Z	-3.771	-5,000	-3.414
Asymp. Sig. (2-tailed)	.000	.000	.000

Wilcoxon Signed Ranks Test
Based on negative ratings

Table 5 shows the previous data analysis. Before the normality test is carried out, the data is normally distributed if the significance count (z) is greater than the significance value of 0.05. The data above shows an Asymp Sig value (2-tailed) of 0.00 or <0.05, so then H_1 is accepted.

Table 6. Peer Group Support before and after intervention in the Acupressure Group for Menstrual Pain with the Self-Determination Model

Respondent Group	Peer Group Support		95%CI	T	p*
	Pre (Mean±SD)	Post (Mean±SD)			
Acupressure Group	28.1± 10.45	31.25± 10.04	-6.62± -0.28	2.45	0.03

*p<0.5 Based on t-test

Table 6 shows based on the results of the Paired T-Test statistical test, it was found that the Acupressure Group experienced a change, namely $p = 0.03$ ($p < 0.05$) in the Acupressure Group, so it can be concluded that there was a significant change in respondent compliance before and after being given intervention in both groups. This is also evidenced by the average value of the 95% CI in the group that does not involve the number 0, so the results are declared significant.

Table 7. Difference in Peer Group Support Values before and after intervention in the Acupressure Group for Menstrual Pain with the Self-Determination Model

Peer Group Support	Acupressure Group (Mean±SD)	Mean Difference	95% CI	p*
Difference Value	31.65±10.03	15.95	-23.71:-10.95	0,000

* $p < 0.5$ Based on t-test

Table 7 shows the difference in the average change in Peer Group Support before and after being given intervention in the Acupressure Group for Menstrual Pain with the Self Determination Model, which is 15.95 points. The results of the independent sample t-test statistical test obtained a value of $p = 0.00$ ($p < 0.05$), so it can be concluded that there is a significant difference in the change in the Acupressure Group for Menstrual Pain.

DISCUSSION

Identification of Pain Scale in Adolescents Experiencing Menstrual Pain Before and After Applying Acupressure in Peer Group Support with Self-Determination Model

The results of the study of respondents who underwent acupressure intervention showed that during the pre-test, there were 4 respondents (11.4%) who experienced severe pain; after being given the intervention, no respondents experienced severe pain. This is in line with Sari & Usman's opinion about acupressure, showing that there was a decrease in the quality of menstrual pain before and after being given acupressure intervention for 10 consecutive days; the average result of menstrual pain intensity was 1.60 and SD 0.695 (Sari & Usman, 2021). The results of the researcher's analysis of the acupressure intervention can be proven using the Wilcoxon matched pairs test, and the results of the Z count were $3.771 > t$ table and asymp sig. (2-tailed) 0.000 $< \alpha = 0.05$, so it can be concluded that there is a significant effect of providing acupressure intervention on reducing menstrual pain.

The results of the Wilcoxon test obtained a decrease in the average intensity of menstrual pain per day with a P value = 0.00, which means that acupressure therapy at the LI 4 (Hegu) and ST 36 bilateral points is effective in reducing menstrual pain in adolescents. The difference in the scale of menstrual pain is due to the effect of pressure on the acupressure points related to its impact on the production of endorphin hormones in the body. Endorphins are painkillers produced by the body itself. When acupressure points are stimulated, tension in the muscles is released, blood circulation increases, and the body's energy life force helps the

healing process. The effect of pressure on acupressure points can relieve spasms, muscle tension, and stiffness, can free blocked energy, and can relieve anxiety, depression, irritability, and premenstrual syndrome. Based on general data, the age of menarche of the majority of respondents was ≤ 12 years old, namely 18 respondents (51.4%) who experienced menstrual pain. The age of women greatly influences the occurrence of menstrual pain. The pain felt before and during menstruation is usually due to increased secretion of the hormone prostaglandin. Menstrual pain will disappear with the decline in uterine nerve function due to aging. The age limit of menarche is an early sign of normal functioning or maturity of female reproductive organs.

The research data shows that there is an influence of Peer Group Support on the intervention in the Acupressure group in overcoming menstrual pain in adolescent girls. This is evidenced by the significant difference in the pre and post results, the post-intervention results obtained were 20 respondents (57.1%) in the always value, 12 respondents (34.3%) in the often value, and there was an increase in the sometimes value from 12 respondents to 3 respondents (8.6%). This is in line with the results of research in developmental psychology which has shown that peer group support groups are the main groups as a medium for socialization during adolescence, interacting in peer groups, communication media that discuss sexual changes and reproductive processes that occur so that they cause communicative interactions that contribute to forming knowledge and attitudes regarding reproductive health issues and gender compared

to having to communicate to parents, family, teachers or health (Khamida, et al., 2019). The results of the researcher's analysis of the acupressure intervention can be proven using the Wilcoxon matched pairs test, and the results obtained were $Z \text{ count} > t \text{ table}$ and asymp sig. (2-tailed) $0.000 < \alpha = 0.05$, so it can be concluded that there is a significant influence of Peer Group Support in providing acupressure intervention on reducing menstrual pain.

The Self Determination Model is one of the models that motivates individuals to be better so that they can overcome the problems that arise. In the Acupressure intervention group, the pre- and post-test results showed changes. The results of the researcher's analysis of the acupressure intervention can be proven using the Wilcoxon matched pairs test, and the results of the Z count were $---3.414 > t \text{ table}$ and asymp sig. (2-tailed) $0.000 < \alpha = 0.05$, so it can be concluded that there is an influence. The above follows the research conducted that peer support group interventions can reduce depression and improve psychosocial aspects; in addition, Peer Group Support can also increase the motivation of each individual (Bond et al., 2019). Based on the observed facts, Peer Group Support, adolescent girls who experience menstrual pain can feel togetherness with people who have the same conditions as themselves and know the solutions to the problems experienced, so that they can share the experiences of respondents (Novianti & Rusady, 2023).

Analyzing the Effectiveness of Peer Group Support in Applying Acupressure to Pain Levels in Adolescent Girls Using the Self-Determination Model.

The results of the variable measurements showed that all respondents experienced an increase in overcoming menstrual pain in adolescent girls when given group intervention through Peer Group Support with the Self Determination model. The results of the Paired t-test showed that the Acupressure group experienced a change with a $p\text{-value} = 0.03$ in the Acupressure group. On average, there was an increase in overcoming menstrual pain, but in the Acupressure group, there was only a slight increase in the t count, which was 2.45. The intervention group was formed as a Peer Group Support group with the Self Determination Model for 10 days, which means that Peer Group Support in adolescent girls with the Self Determination Model affects menstrual pain. The results of data analysis using the independent sample t-test obtained a $p\text{-value} = 0.00$ ($p < 0.05$), so it can be concluded that there is a significant difference in changes in

menstrual pain in adolescent girls when given group intervention through Peer Group Support with the Self Determination model.

Intervention in the acupressure group does not 100% guarantee that it can eliminate menstrual pain in adolescents, the positive impact for respondents is only to provide a relaxing effect, reduce pain, and provide comfort, while the negative impact for respondents if the technique is carried out but does not reduce the pain at all because each respondent is different.

Acupressure intervention is a massage or pressure technique on certain meridian points. The effect of pressure on this point can relieve spasms, tension, and muscle stiffness, can release blocked energy, and can relieve anxiety, depression, irritability, and premenstrual syndrome. One hypothesis states that acupressure points have electrical properties that, when stimulated can change the levels of chemical neurotransmitters in the body. Another hypothesis states that the activity of certain points along the meridian system, which is transmitted through large nerve fibers to the reticular formation, thalamus, and limbic system, will release endorphins in the body. Endorphins are painkillers naturally produced in the body that trigger a calming and uplifting response in the body, have a positive effect on emotions, and can cause relaxation and normalization of body functions.

Researchers argue that acupressure is one of the complementary therapies that can be applied to adolescents with menstrual pain complaints. This therapy can certainly reduce pain after a massage because it can provide a sense of comfort to the body naturally. Before the acupressure intervention was carried out, researchers selected respondents who met the criteria, namely respondents who experienced menstrual pain, respondents who had menstruated, and were cooperative and willing to be studied. Respondents were given the Standard Operating Procedure (SOP) for acupressure intervention and Peer Group Support, and each respondent received an observation sheet. Based on the analysis, theory, and previous research that support this study, it can be concluded that acupressure intervention can be an alternative management for adolescents who complain of menstrual pain.

In line with the theory, peer Group Support can reduce health behavior problems and improve psychosocial aspects. With the formation of a large Peer Group Support from fellow respondents at the problem clarification stage, various proposals and action plans for overcoming problems (Ikakah, 2019) were developed. The current study follows

the previous conducted research that peer support group interventions can reduce depression and improve psychosocial aspects, in addition, Peer Group Support can also increase the motivation of each individual (Bond et al., 2019). Following the facts above, Peer Group Support, adolescent girls who experience menstrual pain can feel togetherness with people who have the same conditions as themselves and know the solution to the problems experienced, so that they can share the experiences of respondents (Novianti & Rusady, 2023).

Researchers argue that Peer Group Support can change health behavior. This is because by carrying out Peer Group Support on respondents who experience menstrual pain, they get support from fellow respondents, so that their confidence in their ability to manage it increases. This can be proven after being given Peer Group Support for 10 days. A post-test was carried out, and it was found that respondents experienced a decrease in overcoming menstrual pain. In addition, researchers assume that Peer Group Support can be used as a support system obtained from a group of people with the same problems to help minimize health behavior problems, improve psychosocial aspects, and increase motivation for change. Togetherness when carrying out this activity can increase motivation and foster interest and an attitude of compliance with disease management (Maringga & Ivantarina, 2023). The group is more directed towards the Peer Group Support group that was intervened (Dewi, 2021). Researchers stated that providing mutual support to each other will have a positive impact on each respondent.

CONCLUSIONS

In research in Ujung Village, Semampir District, the research respondents were 35 respondents who experienced menstrual pain during menstruation every month. Some respondents were first taught about acupressure techniques. After that, measuring the level of pain at the beginning of menstruation, then continuing by doing the acupressure technique independently 10 times in a row, then remeasuring the level of pain afterwards. The pre- and post-respondents' test results on a significant increase after the intervention in the Acupressure group, who did not experience pain, There were 2 respondents (5.7%), 26 respondents (74.3%) were at a mild pain level and 7 respondents (20%) were at a moderate pain level. The results of P-Value = 0.000 so it can be concluded that H_0 is rejected and H_1 is accepted. Therefore, there is an effect of the intervention given by the researcher. The results of the variable measurements showed

that all respondents experienced an increase in overcoming menstrual pain in adolescent girls when given group intervention through Peer Group Support with the Self Determination model. The results of the Paired t-test showed that the Acupressure group experienced a change with a p-value = 0.03. On average, there was an increase in overcoming menstrual pain. Yet, in the Acupressure group, there was only a slight increase in the t count, which was 2.45.

ACKNOWLEDGEMENTS

All authors would like to express their deepest gratitude to the Vocational Nursing Journal (JoViN) for giving us the opportunity to join; STIKES Adi Husada for its support so that this research was successful and completed well; Semampir District as the research area; the research team and all parties who have prayed that this research can run smoothly.

AUTHORS' CONTRIBUTIONS

ROM as the main author, conceptualization, methodology, analysis, and sources. DA produced ideas, conceptualization, formal analysis, and data curation. DYP validated, analyzed formally, and curated the data.

CONFLICT OF INTEREST

There is no personal interest or other interests that conflict with the implementation of research or publication.

FUNDING

Research funding from the research team.

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