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The Effectiveness of Foot SPA on the Intensity of Labor Pain in the Active Phase of First Stage at BPM Ani Karawang

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ABSTRACT

Foot SPA is a treatment for the Making Pregnancy Saver (MPS) program to nourish the skin on the feet, relieve fatigue or as a relaxation technique, and reduce swelling of the feet. The aim of this community service is to determine the effect of the effectiveness of foot SPA on the intensity of labor pain in the active phase of the first stage at BPM Midwife Ani Karawang. The method is a type of experimental community service in the form of Pre-Experimental Designs. The community service design is One Group Pretest-Posttest Design. The population in this study was 60 mothers giving birth. The sampling technique is purposive sampling. The samples in this study were 38 samples according to the criteria. Data analysis used univariate analysis and bivariate analysis with the Wilcoxon Signed Ranks Test. The results of community service from 38 respondents showed that the percentage of labor pain intensity in the first active phase before the foot SPA was carried out at BPM Midwife Ani Karawang was 78.9% (severe pain). The percentage of intensity of labor pain in the first active phase after a foot SPA was performed at BPM Midwife Ani Karawang was 71.1% (moderate pain). The Wilcoxon Asymp.Sig (2-tailed) test value is 0.000, so H0 fails to be rejected, meaning that foot SPA is effective on the intensity of labor pain during the first active phase at BPM Midwife Ani Karawang. In conclusion, foot SPA is effective for the intensity of labor pain in the active phase of the first stage at BPM Midwife Ani Karawang.

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INTRODUCTION

The birth process is a natural event that occurs throughout a woman's life cycle to expel the products of conception (fetus and placenta). However, each person interprets the process differently, making it a unique experience. This condition is caused by various factors, including labor pain. Labor pain begins in the first stage, caused by uterine contractions and cervical dilatation. The pain will get worse as the duration and frequency of uterine contractions increases (Nengsih et al., 2022).

Severe and prolonged labor pain can disrupt breathing, circulation, metabolism and uterine function. Pain during labor can cause an increase in blood pressure and interfere with the mother's concentration. Pregnancy can cause stress, worry and anxiety which can have physical and psychological impacts on both the mother and the fetus she is carrying. Anxiety can be caused by physical disabilities, decreased intelligence, emotional mental illness, and excessive pain. Excessive anxiety increases pain (Wulandari, 2018).

Labor pain appears in the first stage, namely the latent phase, namely the process of opening the cervix to 3 cm, followed by the active phase, namely the process of opening the cervix from 4 cm to 10 cm. The intensity and frequency of contractions increase in the active phase as opening progresses, resulting in a peak pain response (Solehati, 2018).

According to Azkiya and Fairuza (2023), pain that is not treated immediately can result in death for both the mother and baby because it causes the mother's breathing and heart rate to increase, disrupting the flow of blood and oxygen to the placenta. Handling and monitoring labor pain, especially during the first stage of the active phase, is very important because it determines whether a mother in labor can give birth normally or requires intervention due to complications due to severe pain.

Pain that is not treated immediately can increase maternal and infant mortality, because pain causes the mother's breathing and heart rate to increase so that blood and oxygen flow to the placenta is disrupted. Handling and monitoring labor pain, especially during the first phase, is very important, because this can determine whether the mother can give birth normally or end with an action due to complications caused by very intense pain.

The pain experienced by each person is different, and tension due to emotions, anxiety and fear can worsen the sensation of pain during the birthing process. Pain can cause fear and anxiety, which can lead to panic, fatigue, and lack of sleep, all of which can make the pain worse. As a result of the experience of labor pain, various mechanisms for managing labor pain have emerged, including pharmacological methods (giving analgesic drugs) and non-pharmacological methods (natural methods such as foot SPA) (Wagiyo and Putrono, 2022).

The aim of non-pharmacological pain relief is to reduce maternal tension, so that the mother feels comfortable and relaxed as labor approaches. This method can also increase stamina and overcome pain but has no effect on the baby being born. This non-pharmacological method is in line with the Ministry of Health's Making Pregnancy Saver (MPS) program which has a common thread with Caring for Mother's Love (Tuju et al., 2022).

Foot SPA therapy consists of foot exercises, skin cleansing, foot masks, and foot massage with warm water with temperatures ranging from 39°C to 40°C, with the aim of relaxing blood vessels in the peripheral area so that blood flows throughout the body. area. The furthest part of the body that can be reached. Foot SPA therapy can increase glutathione metabolism. Glutathione is a cellular antioxidant that prevents oxidative damage (Suyanto, 2017). Affiani and Astuti (2017) conducted community service comparing before and after foot SPA, and the results showed that after treatment, the ABI percentage value increased by 40%.

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SPA services are a type of traditional health service that uses holistic skills and ingredients to balance the body, mind and soul, as well as a water-based treatment system. Foot SPA is a series of treatments designed specifically for feet. The aim of foot SPA treatment is to nourish the skin on the feet, relieve fatigue or as a relaxation technique, and reduce swelling of the feet (Tuju et al., 2022).

The prevalence of pain during childbirth, according to the World Health Organization (WHO), estimates that 210 million pregnancies occur worldwide every year in 2019, with around 20 million mothers experiencing pain during childbirth (Gamayanti, 2022). According to Association of Southeast Asian Nations (ASEAN) pain community service data, 93.5% of people experience moderate to severe labor pain. Based on data, primiparous mothers experience 25%, while multiparous mothers only experience 9%. The pain phase also occurs in three different stages based on the opening, namely 2-4 cm, 4-7 cm, and >8 cm (Mutiah et al., 2022).

The Ministry of Health of the Republic of Indonesia in 2020 reported that the average labor pain rate in Indonesia was 85-90% of pregnant women who were about to give birth experienced severe labor pain and 7-15% were not accompanied by pain (Mayestika and Hasmira, 2021). According to data from Basic Health Community service (Riskesdas) of West Java Province, it is estimated that around 65% of 100% of mothers still experience pain during childbirth. Meanwhile, in the Karawang work area, around 60-80% of mothers experience labor pain (Isnaeni, 2021).

Based on an initial survey conducted at BPM Midwife Ani Karawang, there were 195 birth mothers who visited the BPM in 2023, with an average of 16 visits per month. After observing and interviewing ten people about the pain they experienced, seven of them reported experiencing severe circular pain in the lower abdomen to the hips, with facial expressions of severe pain and grimacing, two people reported moderate pain, and one person was still smiling. So, the community service designed a foot SPA by soaking the feet in warm water and adding coral stones, Epsom salt and lavender essential oil to relieve pain during the first stage of active phase labor, as previous community service did. Effectively reduces labor pain in the first active phase, showing that warm water foot soak therapy is an alternative non-pharmacological labor pain reliever as well as an application of maternal love.

Based on the background explanation, the community service was interested in conducting community service with the title "The Effectiveness of Foot SPA on the Intensity of Labor Pain in the First Stage of the Active Phase at BPM Midwives Ani Karawang". The aim of this community service is to determine the effect of the effectiveness of foot SPA on the intensity of labor pain in the active phase of the first stage at BPM Midwife Ani Karawang.

METHOD

This community service is a type of experimental community service in the form of Pre-Experimental Designs. The community service design is One Group Pretest-Posttest Design. This community service location also limits the scope of the community service. This community service was conducted at BPM Midwife Ani Karawang. This community service was conducted from February to April 2024. The population in this study was 60 mothers giving birth. The sampling technique uses a purposive sampling method. The inclusion criteria were: Mothers in the first active phase of labor, patients who can read and write, willing to be community service subjects and no wounds or complications on the legs. Data analysis used univariate analysis and bivariate analysis using the Wilcoxon Signed Ranks Test. The following are the stages of implementing community service at PMB Ani Karawang:

1. Preparation Stage
   Preparations will be carried out starting in February 2024 consisting of:

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- Starting from a location survey by visiting the location and partners who will be targeted at PMB Ani Karawang.
- The licensing process begins with a permission letter from the university addressed to the relevant institution or organization where services are provided to implement the program. The university also asked for help in obtaining data on the community who will take part in this socialization and training program.
- Bribery of officers, namely the division of duties and responsibilities of lecturers and students involved in this service.
- Bribery of materials and media for community service activities such as foot SPA videos for pregnant women and information brochures containing about pregnancy and foot SPA for pregnant women.
- Preparation of evaluation tools in the form of attendance lists and writing tools used to collect data for further analysis.

2. Implementation of Activities
   This activity will be carried out from February to April 2024. The activities to be carried out are as follows:

- Data collection on pregnant women who come to PMB Ani Karawang.
- Then pregnant women are given a brochure containing information about pregnancy and foot SPA for pregnant women.
- Next, the officer in charge provided education to the pregnant mother and screened and gave a foot SPA video to pregnant women and ended with a question and answer session as well as giving memento gifts.

RESULTS AND DISCUSSION

Based on community service conducted at PMB Midwife Ani Karawang, the results of univariate and bivariate analysis were obtained which are listed in tables 1, 2, 3, 4, and 5.

Univariate Analysis

Based on univariate analysis, the results obtained were the distribution of respondents based on age as shown in Table 1.

TABLE 1. Distribution of Respondents Based on Age

N	Min	Max	Mode	Mean	Std. Deviasi
38	26	48	32	34,39	5,144

Table 1 shows the characteristics of respondents aged at least 26 years and a maximum of 48 years, the maximum age is 32 years, the average age of these respondents is 34.39 years with a standard deviation of 5.144. Then the univariate analysis includes the results regarding the intensity of labor pain in the 1st stage of the active phase before the foot SPA is carried out which are listed in Table 2.

TABLE 2. Intensity of Labor Pain in the First Stage of Active Phase before Foot SPA at BPM Midwife Ani Karawang

No	Labor Pain Intensity	Total	Percentage (%)
1	0 (No pain)	0	0
2	1-4 (Mild pain)	0	0
3	5-6 (Moderate pain)	8	21,1
4	7-10 (Severe pain)	30	78,9
	Total	38	100

Table 2 shows the intensity of labor pain in the first stage of the active phase before a foot SPA was carried out at BPM Midwife Ani Karawang, most of whom experienced severe pain (7-10) with 30 respondents (78.9%). Furthermore, the results regarding the intensity of labor pain during the 1st active phase after carrying out foot SPA are listed in Table 3.

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TABLE 3. Intensity of Labor Pain in the First Stage of the Active Phase After a Foot SPA at BPM Midwife Ani Karawang

No	Labor Pain Intensity	Total	Percentage (%)
1	0 (No pain)	0	0
2	1-4 (Mild pain)	11	28,9
3	5-6 (Moderate pain)	27	71,1
4	7-10 (Severe pain)	0	0
	Total	38	100

Table 3 shows the intensity of labor pain in the first stage of the active phase after a foot SPA at BPM Midwife Ani Karawang, most of whom experienced moderate pain (5-6), as many as 27 respondents (71.1%).

Based on the community service results in Table 2, it shows that the intensity of labor pain in the first stage of the active phase before the foot SPA was carried out at BPM Midwife Ani Karawang, the majority of whom experienced severe pain (7-10), as many as 30 respondents (78.9%).

This pain level is measured using the NRS, because it can be used to measure the patient's pain level subjectively and objectively. If the patient is able to show a numerical value for the level of pain felt then it is a subjective assessment, but if the patient is not able to show a numerical value then the community service can get a figure for the level of pain through objective means, namely paying attention to the patient's reaction to the pain experienced.

The community service results are supported by (Ana Ikhsan Hidayatulloh, 2020) showing a picture of the respondents' pain levels that the cause of pain is surgery or surgery. If pain is not controlled, it prolongs the healing process by causing respiratory, excretory, circulatory, and other systemic complications. As a result, some patients die, quality of life and patient satisfaction decrease, length of hospital stay increases, and costs of care increase.

The experience of post-operative pain varies and is influenced by several factors, namely age, gender, type of surgery and culture. Pain scale assessment cannot only involve one scale but can be seen from the patient's characteristics. Giving analgesics is still less effective because the patient is not yet pain free. Non-pharmacological relaxation techniques are effective in reducing post-surgical pain. Based on the community service results in Table 3, it shows that the intensity of labor pain in the first stage of the active phase after a foot SPA at BPM Midwife Ani Karawang mostly experienced moderate pain (5-6) as many as 27 respondents (71.1%).

Pain management can be controlled using pharmacological and non-pharmacological treatments. Pharmacological treatment is by using chemical drugs, while non-pharmacological treatment is by using skin stimulation technique interventions, one of which is foot SPA (Soeparno et al., 2020). Foot SPA is the act of giving SPA to the feet using effleuarge, petrissage, friction, tapotment and vibration techniques (Petpichetchian and Chongchareon, 2013).

Giving foot SPA will cause the pain stimulus to be inhibited and reduced because the stimulus from the effects of foot SPA will reach the brain more quickly and close the gate compared to the pain felt (Masadah, 2020). According to Irani et al (2015) the effective time for administering foot SPA is 20 minutes once a day. After 20 minutes of intervention, the local temperature of the skin will increase and can increase circulation in the tissues for the body's metabolic processes so that this can reduce muscle spasms and reduce pain.

The results of the community service, which are supported by several other studies, show that there is a decrease in the level of pain before and after being given foot SPA , where when given the foot SPA the respondent feels comfortable, thereby reducing the pain they feel.

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Bivariate Analysis

Based on bivariate analysis, the community service results were analyzed using normal data, the results of which are shown in Table 4.

TABEL 4. Data Normality Test Results

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pre-Test Labor Pain	.255	38	.000	.862	38	.000
Post-Test Labor Pain	.261	38	.000	.832	38	.000

a. Lilliefors Significance Correction

Table 4 provides information that from the results of the data normality test using the Shapiro-Wilk test, the p-value for pain intensity was obtained, each p-value was 0.000<0.05, so it can be concluded that the data is not normally distributed. Then the results of the data analyzed using the Wilcoxon test are shown in Table 5.

TABEL 5. Wilcoxon test

Ranks

		N	Mean Rank	Sum of Ranks
Post Labor Pain Test - Pre Labor Pain Test	Negative Ranks	38[a]	19.50	741.00
	Positive Ranks	0[b]	.00	.00
	Ties	0[c]		
	Total	38		

a. Post-test Labor Pain < Pre-test Labor Pain
b. Post-test Labor Pain > Pre-test Labor Pain
c. Post-test Labor Pain = Pre-test Labor Pain

Test Statistics[a]

	Post-test Labor Pain – Pre-test Labor Pain
Z	-5.540[b]
Asymp. Sig. (2-tailed)	.000

a. Wilcoxon Signed Ranks Test
b. Based on positive ranks.

Based on the "Test Statistics" output above, it is known that Asymp.Sig (2-tailed) has a value of 0.000. Because the value of 0.000 is smaller than 0.05, it can be concluded that "H0 failed to be rejected (Ha was accepted)". This means that there is a difference between administering foot SPA (foot spot) for the pretest and posttest, so it can also be concluded that "foot SPA is effective on the intensity of labor pain during the first active phase at BPM Midwife Ani Karawang".

Based on the community service results, it shows that there is a decrease in the pain scale from initially severe pain from 7-10 to moderate pain from 5-6. This is because foot SPA has a very good impact on reducing labor pain during the first active phase.

Based on the community service results in Table 4, it provides information that from the results of the data normality test using the Shapiro-Wilk test, the p-value for the incidence of nausea and vomiting was obtained, each with a p-value of 0.000<0.05, so it can be concluded that the data is not normally distributed.

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The results of this study are in line with community service conducted by (Sari et al., 2020). There was a significant difference in back pain before and after being given a warm compress intervention (p=0.000). The mean value before being given a warm compress was 4.5 to 2.2 with a mean difference of 2.3. Meanwhile for acupressure (p=0.000) the mean value before acupressure intervention was 3.5 to 2.3 with a mean difference of 1.2. There was a meaningful and significant difference for respondents' lower back pain between warm compress and acupressure interventions (p=0.001) with warm compresses which is more effective in reducing lower back pain because it has a mean value of 2.2 which is greater than the mean value of acupressure, namely 1.6.

During the first stage of labor, the mother in labor experiences pain which can affect the mother's psychological condition, the birthing process and the well-being of the fetus. Most mothers begin to feel pain or labor pains in the first stage of the active phase because in this phase the mother feels severe pain because the uterus contracts more and more frequently to expel the products of conception (Bobak, 2015).

Physiologically, labor pain begins to appear in the first stage of labor, the latent phase and the active phase. However, pain is the main complaint when a mother gives birth due to contractions of the uterine muscles, stretching of the pelvic floor muscles and the mother's psychological condition. As both the volume and frequency of uterine contractions increase, the pain felt will become stronger, and the peak of pain occurs in the active phase. In labor, pain can be interpreted as a sign that you have entered the stage of the labor process. However, the level of pain experienced by each person will be different and unique to each person. Because there are several influencing factors, including culture, emotions, previous birth experiences, birth preparation and support system (Judha, M., et al, 2022).

Foot SPA therapy is a series of foot treatments that can overcome labor pain by increasing blood circulation. Foot SPA therapy is carried out starting from foot exercises, skin cleansing, foot masks, and foot massage using warm water with a temperature of 39°C to 40°C, the aim is to relax the blood vessels in the peripheral area so that blood flows to the area. The most distal part of the body can be met (Suyanto, 2017; Affiani and Astuti (2017). Foot SPA therapy can increase glutathione metabolism. Glutathione is a cell antioxidant to prevent oxidative damage (Nuttal et al., 1999 in Suyanto, 2017). Community service from Affiani and Astuti (2017) compared before and after foot SPA, the results showed that after treatment there was an increase in the percentage of ABI values of (40%).

Foot SPA can be given when the mother in labor feels pain that is very excruciating and disturbing so that she feels uncomfortable. In fact, the perception of pain is different for each individual, so emphasizing the sacrum area will help mothers to reduce the pain and anxiety felt during childbirth, especially for mothers who have a greater perception of pain (Dewie and Kaparang, 2020).

Based on the results of community service conducted by the community service themselves and other community service, the majority said that foot SPA can reduce pain, so community service assume that foot SPA can help improve disturbed blood circulation and strengthen the small muscles of the feet. Apart from that, it can also strengthen the calf muscles and thigh muscles, as well as overcome limited joint movement and prevent deformity. Foot exercises are one of the moderate intensity activities or exercises carried out by anesthesia patients to prevent injuries and help improve blood circulation in the feet.

CONCLUSION

Based on the community service results, it can be concluded that foot SPA is effective in reducing the intensity of labor pain during the first active phase, especially in BPM Midwife Ani Karawang. In the future, it is hoped that the community service and service area will be expanded so that it can strengthen the analysis of foot SPA which can reduce the intensity of labor pain during the first active phase and disseminate knowledge about pregnancy to the public.

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