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## HAND OR FOOT REFLEXOLOGY TO RELIEVE PAIN POSTPARTUM: A SYSTEMATIC REVIEW

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### Abstract

Many previous studies have discussed hand and foot reflexology which is useful for reducing postpartum pain. However, previous studies presented different results related to foot massage, time and pain changes, so that in this systematic review aimed at supporting non-pharmacological nursing interventions of the hands and feet reflexology associated with postpartum enhancement by looking at these three types namely : duration of massage, time of massage and changes in pain. This study aims to analyze the duration, time, and results of hand or foot reflexology in reducing maternal postpartum pain. The method used is a systematic review through maternity nursing articles to analyze the effects of hand or foot reflexology in reducing postpartum pain. Search articles using electronic databases namely Sciene Direct, Pubmed, PMC, Google Scholar and Scopus. Articles that meet the inclusion criteria will be collected and analyzed systematically. In a systematic review it is explained that hand or foot reflexology can reduce postpartum maternal pain but in the duration and timing of the intervention still need consideration from further researchers. Based on the results of the study, hand or foot reflexology is recommended to reduce pain, specifically postpartum pain

**Keywords:** Foot Reflexology; Hand Reflexology; Pain; Postpartum

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### 1. Introduction

Pain is one of the most common problems in mothers in the early postpartum period. Mothers who give birth sectio caesarea or spontaneously will still feel pain, pain can interfere with a woman's ability to care for herself and her baby. Pain after childbirth if not treated immediately can create a greater risk of using opioids, postpartum depression, and persistent pain that will affect the bonding between mother and baby so that the mother is not optimally in the care of her baby (Michelle, 2010).

Management of pain felt by the mother can be reduced using pharmacological management such as paracetamol, NSAIDs, and opioids but can cause constipation, stomach irritation, dizziness, nausea and even prolonged uterine inflammation and the effects can be transferred to the baby through breast milk (Souza et al., 2015). Other management that is an option that is non-pharmacological methods, is easy, without drugs, non-invasive, does not require a lot of costs and can choose and make their own decisions for the therapy used (Senol DK, 2017). Based on Deepshikha (2016) 60 minute foot reflexology interventions in post sectio caesarean mothers can

significantly reduce pain intensity in the intervention group compared to the control group.

Based on the research of (Rahimi et al, 2016) the average score of intensity decreased in all groups but was higher in the intervention group after 24 hours given 10 minutes of foot reflexion measures ie,  $(1.1 \pm 90.06)$  compared to the placebo group  $(3, 30 \pm 1.64)$  and the control group  $(3.80 \pm 2.02)$  ( $P < 0.001$ ). The foot reflexology method is caused by nerve stimulation on the soles of the feet which are stressed at the reflex points resulting in the release of endorphins which will prevent displacement and produce relaxation, numbness, wasted, strengthened, stressed, and treated (Samuel CA, 2013). In line with the above study, the study of Shayesteh (2015) at Imam Reza Hospital, Kermanshah, Iran reported foot reflexology interventions on foot trials for 2.5 minutes on each foot twice on the first day and can be adjusted to the needs of caesarean delivery. On the physiological index of the pulse and temperature. Many previous studies have discussed hand and foot reflection which is useful for reducing postpartum pain. However, previous studios presented different results related to foot massage, time and pain

changes, so that in this systematic review aimed at supporting non-pharmacological nursing interventions of the hands and feet reflexology associated with postpartum enhancement by looking at these three types namely: duration of massage, time of massage and changes in pain.

## 2. Method

### Search Strategy

Systematic review through nursing articles related to hand and foot reflexology for postpartum pain relief. Articles obtained from retrieving via the

internet are provided with a database. Electronic databases used are Sciene Direct, Pubmed, PMC, Google Scholar and Scopus. Search for articles using the keywords "foot reflexology", "hand reflexology", "pain", and "postpartum". Restrictions on articles are carried out using articles published after 2010.

This systematic protocol uses the PICO keyword to improve the accuracy and completeness of the intervention study agreement. PICO used are: P (postpartum pain), I (hand and foot reflexology) and O (pain scale).

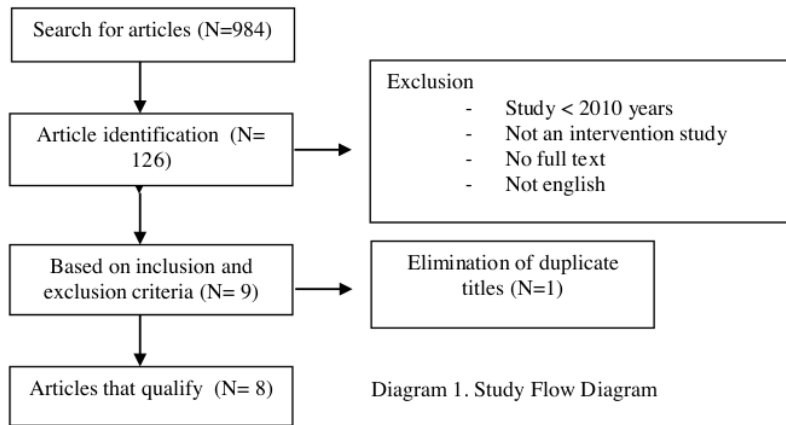


Diagram 1. Study Flow Diagram

### Inclusion Criteria and Exclusion Criteria

Article inclusion criteria used are: 1) related articles about the reflexology of the hand or foot. 2) Articles that Support Interventions Used in Reducing Postpartum Pain. 3) Articles use English in implementation. 4) Articles published after 2010. 5) Articles published have a complete section. Criteria for exclusion of articles used are: 1) Articles published less than 2010. 2) Use of non-English languages. 3) Article published is incomplete.

The search was performed using the Sciene Direct, Pubmed, PMC, Scopus and Proquest databases using the keywords: "foot reflexology", "hand reflexology", "pain", and "postpartum". Articles that appear are then sorted so that no articles with the same title are found. Then the articles are sorted based on inclusion and exclusion criteria. Articles that only display abstracts will be eliminated, so articles will be analyzed.

### Article Extraction

The articles obtained are then extracted. Article extraction is based on the author's article, the year the article was published, the number of samples used, the duration of the massage, the time that the massage was compiled, the results of the research carried out, and the article database.

### Search Result

In diagram 1 show a systematic search flow chart. The search obtained 984 articles from a database that was approved to become 126 articles

and those who met the inclusion and exclusion criteria were 9 articles, then duplicate titles could obtain 8 articles suitable for systematic review.

Data synthesis was carried out qualitatively by the author and 2 co-authors of the co-author by discussing to analyze the selected studio. All coverage to replace discretion in postpartum mothers. Synthesis of completion results in table 1.

## 3. Results

### Characteristics of the Synthesized Study

An overview of 8 articles summarized in the characteristics related to foot reflexology interventions with the aim of assessing postpartum pain reduction. The synthesis of the results of the 8 articles grouped according to the design of the study.

Author	Desaign
Basyouni et al (2018) Deepshikha & Vibha (2016)	Quasi experiment
Hassani Shayesteh & hassani Kayvan, (2015) Padmavathi P (2014) Varghese et al (2014)	Randomized control trial
Dorosti et al (2019) Ashabiya JM & Solomon RJ (2018)	True experiment
Dante Renante (2014)	Pre and posttest control group with qualitative data

Table 1. Syntetic Grid

No	Author/Year	Lite Reseach	Purpose	Method / sample	Results
1	Ashabiya JM & Solomon RJ, 2018	Effectiveness of foot reflexology on post caesarean pain among mothers who had caesarean section	To assess the Effectiveness of foot reflexology on post caesarean pain among mothers who had caesarean section	True experimental pre test post test control design/ 30 control and 30 experimental group.  Provision of intervention carried out at 20 minutes for both legs at 0 hours, 30 minutes and 5 hours after surgery then correction was carried out at 0.6,1.2,1.8,2.4 hours after surgery.	There was a significant reduction in mean post test scores of post caesarean pain at 24 hours (MD=2.18., t=5.88., p<0.05) in experimental group was lesser than that of control group at 24 hours (MD=0.96., t=2.43., p<0.05). In pre test most of mothers (80%) in experimental group had moderate pain and in control group more than half of them had severe pain. After reflexology it was surprising that (100%) of them had mild pain in experimental group and (70%) of them had moderate level of pain in control group.
2	Basyouni et al, 2018	Effect of Foot Reflexology on Post-Cesarean Pain	Knowing the effects of foot reflexology on post caesarean pain	Quasi experimental / 35 control groups and 35 intervention groups.  Giving was carried out for 5 minutes at each point, carried out on the first day of postpartum and assessment carried out 4-6 hours after surgery, immediately after the intervention and 1 hour after the intervention.	Foot reflexology after cesarean sectio surgery has a significant effect on pain quality as measured by JPOMS ie affective and sensory pain responses are significantly reduced after intervention. The decrease in pain intensity was also reduced by CPPRS.
3	Dante Renante, 2014	Hand Reflexology's Effect on Level of Pain among Postpartum Mothers	Knowing the effect of Hand Reflexology on maternal pain in postpartum	pretest and posttest control group design with qualitative data / 10 control samples and 10 intervention samples  Assessment at 24 hours postpartum, the intervention group received a 10 minute massage	Pain was significantly reduced before and after in the intervention group (p = 0.01) but not in the control group (p = 0.21). Hand reflexology can significantly reduce pain in postpartum mothers.
4	Deepshikha & Vibha, 2016	Effect of Foot Reflexology on Post Operative Pain and Sleep among Post Caesarean Mothers	Knowing the effect of foot reflexology on pain and sleep quality in post sectio caesarea	Quantitative, Quasi Experimental / 30 intervention samples and 30 control samples  Massage is done once for 3 consecutive days from post-surgery for 15 minutes. Assessment was performed on day 4 after surgery.	The level of post-intervention pain was found to be significantly lower in the experimental group (p, 0.001) than in the control group. Significant results were also obtained between groups in terms of pain and sleep (p <0.001).
5	Dorosti et al, 2019	Effects of Foot Reflexology on Post-Cesarean Pain: A Randomized Clinical Trial	Knowing foot reflexology interventions for post sectio caesarean pain	Randomized clinical trials / 30 intervention samples and 30 control samples  Massage is done for 10 minutes at 6 hours after post sectio caesarea.	The results showed that the level of pain was significantly reduced in the intervention group on the third day after the intervention (p≤0.003)

No	Author/Year	Litte Reseach	Purpose	Method / sample	Results
6	Hassani Shayesteh & hassani 5 Kayvan, 2015	The Effect of Foot Reflexology on Physiologic Indices and Pain Severity Following Caesarean Delivery	Knowing the effects of foot reflexology on psychological and cesarean sectio pain	Quasi experimental / 10 intervention groups and 10 control groups  Massage is done in 5 and 2.5 minutes for each foot in the ankle area.	The assessment was carried out on the first and second days after the intervention. The results showed that foot reflexology can be used and is effective as a nonpharmacological method that can reduce pain and psychological indications (breathing, temperature, and blood pressure) in post sectio caesarean mothers
7	6 Padmavathi P, 2014	A study to assess the Effectiveness of Foot Reflexology on Pain among Post Caesarean Mothers in Selected Hospitals at Namakkal District	Assess the effectiveness of foot reflexology in post sectio caesarean maternal pain.	Quasi Experimental Non equivalent pre test and post test design / 30 post caesarean mothers for the intervention group  The pre assessment was done on the first day then immediately performed massage once for 5 days and the post test was carried out on the sixth day.	5 The average score in the control group was 5.9 (SD = 0.67) and the average score of the experimental group was 4.1 (SD = 0.24). The results show statistically that foot reflexology is effective in reducing post sectio caesarean maternal pain
8	Varghese et al, 2014	A Randomized Control Trial to Determine the Effect of Foot Reflexology on Intensity of Pain and Quality of Sleep in Post Caesarean Mothers	Knowing the effectiveness of foot reflexology on pain intensity and sleep quality in mothers with post sectio caesarea	Randomized control trial / 30 experimental groups and 30 control groups  Giving a massage done for 15 minutes at the same time every night for 5 consecutive days. Pain assessment is carried out on the first and fifth days of the intervention.	1 Results showed PSQI scores were significantly lower in the intervention group (p <0.001) than in the control group. The mean pain score in the experimental group was significantly lower than in the control group (X = 4.75, X = 7.65, t = -10.627, p <0.001). Means showing significantly reduced pain and increased sleep quality

The following is the synthesis of the results of 8 articles that explain the duration of the intervention given, the time and results obtained:

a. The duration of hand or foot reflexology intervention

Author	Duration
Ashabiya JM & Solomon RJ (2018)	20 minutes
Dante Renante (2014)	10 minutes
Forosti et Al (2019)	15 minutes
Deepshikha & Vibha (2016)	15 minutes
Basyouni et al (2018)	
Padmavathi P (2014)	
Varghese et al (2014)	
Hassani Shayesteh & hassani Kayvan (2015)	2.5 until 5 minutes

b. Time of massage foot reflexology

Author	Time
Ashabiya JM & Solomon RJ (2018)	0 hours, 30 minutes dan 5 hours
Dante Renante (2014)	24 hours
Deepshikha & Vibha (2016)	3 days in a row
Basyouni et al (2018)	6 hours
Dorosti et al (2019)	
Hassani Shayesteh & hassani Kayvan (2015)	1 time
Padmavathi P (2014)	5 days in a row
Varghese et al, (2014)	

c. Changes in pain scale

Author	Result
Ashabiya JM & Solomon RJ (2018)	Assessment after 24 hours post sectio caesarea was obtained (MD = 2.18., T = 5.88., P <0.05) in the experimental group and in the control group (MD = 0.96., T = 2.43., P <0.05)
Basyouni et al (2018)	The study explained a significant effect on pain quality as measured by JPOMS, namely affective and sensory pain responses were significantly reduced
Dante Renante (2014)	Pain studies were significantly reduced before and after the intervention group (p = 0.01) but not in the control group (p = 0.21)
Deepshikha & Vibha (2016)	The study obtained the same results p <0.001 which means that the intervention carried out significantly influences the reduction in post sectio caesarean pain.
Varghese et al (2014)	
Dorosti et al (2019)	Foot reflexology interventions carried out for 10 minutes get (p ≤ 0.003)
Padmavathi P (2014)	Research by the average score in the control group 5.9 (SD = 0.67) and the average score of the experimental group was 4.1 (SD = 0.24)

4. Discussion

a. Duration of foot reflexology intervention

Foot reflexology intervention is one of the non-pharmacological nursing interventions included in the reflection therapy in reducing pain. Four articles selected in a systematic review explain the duration of administration for 15 minutes effective in reducing post sectio caesarean pain (Deepshikha, 2016); (Basyouni et al, 2018); (Padmavathi, 2014) and (Varghese et al, 2014). Foot reflexology massage for 5 minutes at one point can effectively cure the disease (Ministry of education and culture, 2015). While one article describes a different thing that massage is done 10 minutes can also reduce postpartum pain (Dorosti et al, 2019).

b. Time of massage foot reflexology

Massage time also needs to be considered so that it can provide accurate measurement and intervention results both before or after foot reflexology interventions. This review explains three different times of intervention, interventions carried out 6 hours after the birth of the baby, this is because the dose of the drug given when labor has disappeared so that the mother can feel pain without the influence of drugs ((Basyouni et al, 2018);(Dorosti et al., 2019)). Ashabiya, Reeta, & Solomon (2018) discusses that the intervention was given in three different times at 0 hours, 30 minutes and 5 hours after the intervention, it is intended that the time the pain lasts and immediately treated. However, (Dante Renante, 2015) disagrees because giving interventions is done 24 hours after delivery because the mother's condition is normal.

c. Changes in pain scale

A useful foot reflexology in this systematic review is the reduction in pain scale of postpartum mothers. The eight articles that discuss all of them explain the same results with this hand or foot reflexology technique that can reduce pain after an intervention. This foot reflection on the body will release neurotransmitters involved in the special analgesic system of enkephalin and endorphins which inhibit impulses by blocking the transmission of these impulses in the cerebral system and the spinal cord.

The pain that is felt by the body is regulated by two nervous system fibers, which are A-Delta myelinated fibers and C-unfiltered fibers require very little and slow processing of signals before they are sent to the central nervous system or cerebral system. Stimulation that enters the nervous system of A-delta fibers has a pain-blocking effect that leads to C nerve fibers, C nerve fibers work to fight barriers. Meanwhile, signals from the brain will increase. Any person who is sick when the stimulus comes in excess of the pain threshold, the reflex person will wipe the injured part or human organs related to the compressed part. A-Delta stops the path from pain signals leading to C fibers to the brain, affecting the

pain received by the brain can reduce or not even feel at all (Mathew AM FF, 2016)

## 5. Conclusion

After hand or foot reflexology intervention was given to the experimental group, there was a significant decrease in pain, but from the time and duration of hand or foot reflexology administration it was necessary for further researchers to consider more closely related to it.

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