



Knowledge Analysis of Pregnant Mothers About Newborn Treatment
(Diah Nurhidayati, Tuti Yanuarti)

The Relationship Between Nurse Supervision With Compliance Toward Handover During The Pandemic COVID-19 in Indonesia
(Dudi Mauludin, Lia Idealistiana)

The Effect of Father's Education on Increasing Knowledge, Attitudes, and Practice of Health Protocols in Preventing COVID-19 in Nursing Students
(Sarma Eko Natalia Sinaga)

Behavior Prevention Modification of Non-Communicable Diseases During the COVID-19 Pandemic Using Android-Based Telenursing Application "SI-TELUR PETIS"
(Mei Rianita Elfrida Sinaga, Indrayanti, Muhammad Irfan)

The Effect of Touch Less Spiritual Therapy and Yin Yoga Toward Student's Perceived Stress During Covid-19 Pandemic
(Oda Debora, Sulistyono)

Mix Method Impact of Exposure of Inhalants Exposure "Glueing" on Street Children Community in Kendari City
(Asbath Said, Mikawati, Wa Ode Rahmadania, Sartini Risky)

Experiences of Aggressive Behavior Patient after Physical Restraint in Mental Hospital, A Qualitative Study
(Iyus Yosep, Ai Mardhiyah)

The Relationship of Brith Ball Therapy on Primigravida Mothers With A Fair Delivery Process
(Novianti, Feva Tridiyawati)

The Effect of Three Good Things Technique on Self-Leadership to Nursing Students
(Diwa Agus Sudrajat, Andalis Munawaroh Aisyah, Suci Noor Hayati, Tria Firza Kumala)

The Effectiveness of Soaking the Feet in Salt Water to Reduce the Degree of Edema in Pregnant Women Trimester III
(Arlinda Patola, Feva Tridiyawati)

The Effectiveness of Fingerhold Relaxation Techniques and Lemon Aromatherapy Towards Reducing Pain Intensity in Post Section Caesarian Patients
(Fenty Ika Wardani, Elfira Sri Fitriani)

Diabetes Distress: Assessment and Screening of Stress Levels Among People with Diabetes Mellitus
(Asbath Said, Mikawati, Waode Rahmadania, Ahmad Mudatsir)

Telerehabilitation In Monitoring Treatment of Heart Disease Patients: Literature Review
(Wahyuni Arni, Yuliana Syam, Syahrul)

Communication Therapy in Stroke Patients with Aphasia: A Narrative Review
(Sally Syamima, Urip Rahayu, Nur Oktavia Hidayati)

Combination of Music and Guided Imagery on Relaxation Therapy to Relief Pain Scale of Post-Operative Patients
(Nur Hidayat, Rudi Kurniawan, Yudisa Diaz Lutfi Sandi, Esti Andarini, Fidya Anisa Firdaus, Heri Ariyanto, Reffi Nantia Khaerunnisa, Henri Setiawan)

Telerehabilitation In Monitoring Treatment of Heart Disease Patients: Literature Review
(Erma Wahyu Mashfufa, Ranti Kurnia Sari, Navy Sealsi Adinda Prisca Marina, Nur Aini, Lilis Setyowati, Ollyvia Freeska Dwi Marta)

The Effect of Tai Chi Exercise on Reduction the Risk of Falls in the Elderly: A Literature Review
(Novya Ashlahatul Mar'ah)

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Research Article

The Effectiveness of Soaking the Feet in Salt Water to Reduce the Degree of Edema in Pregnant Women Trimester III

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Abstract

Aims : Non-pharmacological management of foot edema in pregnant women is using foot soak therapy in salt warm water mixed with. This study aimed to determined the effect of soaking the feet in salt water to reduce the degree of edema among trimester III pregnant woman.

Design : This research method used pre-experimental design with one group pretest - posttest design. Data collection was carried out using primary data, namely data obtained from observations. The data collection instrument used was an observation sheet

Methodos : The sample in this study were all pregnant women in the third trimester who experienced edema as many as 20 people, the sampling technique was purposive sampling.

Results : There was a decrease in the degree of edema before and after soaking the feet in salt water, from the third degree of edema to the second degree of edema (p value 0.000).

Conclusions : There is an effectiveness of soaking the feet in salt water to reduce the degree of edema in third trimester pregnant women. It is expected that health workers will provide nursing care to reduce edema non-pharmacologically.

Keywords

Edema, foot soak, pregnancy, salt water

INTRODUCTION

World Health Organization (WHO) noted that Indonesia was in the third highest MMR in 2017 with 177 deaths per 100 thousand births. The worst performance occurred in Myanmar with 250 deaths, then Laos with 185 deaths per 100,000 population. Meanwhile, neighboring countries, Malaysia and Singapore, only 29 and 8 deaths per 100,000 live births, respectively. Of the 10 ASEAN countries, only half have exceeded the target for the 2030 Sustainable Development Goals (SDGs), less than 70 per 100 thousand births. With an average decline of around 3

percent per year, Indonesia must work harder to approach this target (1).

The number of pregnant women in Bogor City and Regency reached 47,055 people. This amount is an accumulation in the period January-April 2020 (2). Pregnancy undergoes physiological and psychological changes. Physiological changes include changes in the reproductive organs, cardiovascular, respiratory, kidney, integumentary, musculoskeletal, neurological, digestive and endocrine systems. Psychological changes are emotional responses that occur due to changes in body organs and increased responsibility for dealing with pregnancy and child care. Changes

that occur during pregnancy require an adaptation process, both physically and psychologically that cause discomfort during pregnancy, including nausea, vomiting, excessive salivation, fatigue, upper back pain, leukorrhea, increased frequency of urination, heartburn, flatulence, lower back pain, hyperventilation, tingling and swollen feet (3).

Edema in pregnancy is triggered by changes in the hormone estrogen so that it can increase fluid retention. This increase in fluid retention is related to the physical changes that occur in the last trimester of pregnancy, namely the increasing size of the uterus along with the increase in fetal weight and gestational age. In addition, increasing body weight will increase the burden on the legs to support the mother's body. This will trigger circulation disorders in the veins in the legs which have an impact on the appearance of edema (4).

Edema that occurs in pregnancy is generally leg edema. Leg edema is found in about 80% of pregnant women in the third trimester, it occurs as a result of uterine compression which inhibits venous return and the pull of gravity causes greater fluid retention. Edema can be an early symptom that leads to pathological conditions and even as an indicator of chronic diseases in pregnancy such as anemia, intrauterine growth restriction (IUGR), preterm labor, high blood pressure, preeclampsia, eclampsia, placental abruption, placenta previa hydramnios (4).

The impact that will occur if leg edema is not treated can cause discomfort for some pregnant women. Discomfort that is often felt by pregnant women is pain in the edema area, heavy

feeling in the edema area, cramps at night, aches, tingling, shortness of breath, thickening of the skin, changes in skin color, and unsightly. The discomforts of third trimester pregnancy include frequent urination about 50%, vaginal discharge 15%, constipation 40%, flatulence 30%, leg edema 25%, leg cramps 10%, headache 20%, striae gravidarum 50%, hemorrhoids 60%, shortness of breath 60% and back pain 70% (5).

Non-pharmacological management of foot edema in pregnant women is using foot soak therapy. This therapy was easier and cheaper than the other method. Soak feet in warm water is very easy to do by everyone, does not require expensive costs and has no harmful side effects. In addition, warm water soak therapy can be combined with salt (6).

Foot soak therapy is a natural therapy by soaking the feet in warm water as deep as 10-15 cm above the ankles. This therapy aims to increase blood flow to the legs. Warm water itself has a physiological impact on the body so that this therapy is very suitable for recovery of stiff joint muscles (7)

The management given by the midwife is to advise the mother to sleep with her feet higher than her head, reduce excessive salt consumption, reduce sitting with her legs hanging for a long time and get enough rest. Interviews of 4 pregnant women with leg edema in the third trimester. All pregnant women interviewed felt uncomfortable with their condition, such as heavy legs, frequent cramps and fatigue due to leg edema. Based on the mother's experience, the thing that is often done at home is to elevate the legs rather than the head. Based on the above phenomenon, the researcher is

interested in conducting a study entitled "Effectiveness of soaking feet in salt water to reduce the degree of edema in third trimester pregnant women".

METHODS

The research method used pre-experimental design with one group pretest - posttest design. Data collection was carried out using primary data,

namely data obtained from observations. The data collection instrument used was an observation sheet. The population in this study were all pregnant women in the third trimester who experienced edema as many as 20 people (purposive sampling). The analytical method used is univariate analysis and bivariate analysis with t test.

RESULTS

Table 1.
Frequency Distribution of Edema Degrees Before Soak Feet Intervention

Number	Edema Degree	Frequency	Percentage
1.	Degree II	6	30,0
2.	Degree III	12	60,0
3.	Degree IV	2	10,0
Total		20	100,0

Table 1 shows that of the 20 respondents before the foot soak, most of the respondents with grade III edema were 12 (60.0%), respondents who had grade II edema were 6 respondents (30.0%) and respondents with grade IV edema were as many as 2 people (10.0%), while respondents with a degree of edema I were not found (0).

Table 2.
Frequency Distribution of Edema Degrees After Intervention Soak Feet in Salt Water

Number	Edema Degree	Frequency	Percentage
1.	Degree I	7	35,0
2.	Degree II	12	60,0
3.	Degree III	1	5,0
Total		20	100,0

Table 2 shows that of the 20 respondents after soaking the feet, most of the respondents with edema degree II were 12 people (60.0%), respondents with edema degree I were 7 respondents (35.0) and respondents who had edema degree III were 1 respondents (5.0%).

Table 3.
Analysis of Changes in Degree of Edema Before and After
Soak Feet in Salt Water for Third Trimester Pregnant Women

Variable	Edema Category	Frequency		Mean		SD		P value
		Pre	Post	Pre	Post	Pre	Post	
Edema	Degree I	0	7	2,80	1,70	0,616	0,571	0,000
	Degree II	6	12					
	Degree III	12	1					
	Degree IV	2	0					

Table 3 shows that of the 20 respondents before soaking their feet in salt water, most of the respondents experienced edema with grade III as many as 12 people and after soaking their feet in salt water, most of the respondents experienced edema with grade II edema as many as 12 people. The average degree of edema before soaking in salt water is 2.80 and the standard deviation is 0.616 and the average degree of edema before soaking the feet in salt water is 1.70 and the standard deviation is 0.571. The statistical test results obtained a p value of 0.000, so it can be said that there is an effect of foot soak on reducing edema, because there is a significant decrease in the degree of edema before and before treatment, in other words soaking in salt water is effective in reducing the degree of edema.

DISCUSSION

Degree of Edema Before Soaking Feet in Salt Water

Based on the data above, it was found that before the foot soak, most of the respondents with edema degree III were 12 people (60.0%), respondents who had edema degree II were 6 respondents (30.0%) and respondents with a degree of edema IV as many as 2 people (10.0%).

Foot soak using warm water is part of water therapy (hydrotherapy), previously known as hydropathy, which is a treatment method using water to treat or relieve painful conditions and is a low-tech approach that relies on the body's responses to water (8)

Research conducted by Sawitry (9) with the title Benefits of Warm Water and Salt Baths in Reducing the Degree of Foot Edema in Third Trimester Pregnant Women. Based on research from 16 third trimester pregnant women, the average level of edema in pregnant women before the warm water and salt bath was obtained, the highest degree of edema was grade 4 and the lowest was grade 3. Mothers with leg edema previously had complaints of leg cramps, tingling sensations, and the legs feel heavy. The degree of edema can be seen from the length of the basin to be able to return to its original state after pressing the edematous area.

According to the researcher's assumptions on the results of research, most of the third trimester pregnant women experience leg edema with a degree of edema III, this is because the edema that occurs in pregnant women is due to the gestational age factor, not due to other factors such as

hypertension, because the blood pressure of all respondents normal average. Physiologically, leg edema in pregnant women occurs as a result of uterine compression which inhibits venous return and the pull of gravity causes greater fluid retention. From the results of this study, researchers can conclude that leg edema that occurs in third trimester pregnant women in this study is a lack of physical movement (10).

Degree of Edema After Soaking Feet in Salt Water

Based on the data above, the results showed that of the 20 respondents after soaking most of the respondents with edema degree II were 12 people (60.0%), respondents with edema degree I were 7 respondents (35.0) and respondents who had edema degree III were as many as 1 respondent (5.0%).

Foot soak therapy using warm air that enters one type of natural therapy with the aim of increasing blood circulation, reducing edema or more swelling, reducing pressure on muscles that make muscles feel tight, making muscles feel more relaxed, reducing pressure reducing muscle pain, reduce pain, increase capillary permeability, body temperature feels warmer and more comfortable so it is very useful for lowering blood pressure and reducing the degree of edema in third trimester pregnant women (11).

Research conducted by Sawitry (2020) with the title Benefits of Warm Water and Salt Baths in Reducing the Degree of Foot Edema in Third Trimester Pregnant Women. Based on research from 16 third trimester pregnant women, the average level of edema in pregnant women before the warm

water and salt bath was obtained, the highest degree of edema was grade 1 and the lowest was grade 0.

According to the researcher's assumption, pregnant women in the third trimester at Mary Cileungsi Hospital, edema experienced by pregnant women in the third trimester is physiological edema that often occurs in third trimester pregnant women, and most of the respondents in this study had normal blood pressure. With the action of soaking the feet in salt water the edema rapidly decreased from the previous highest degree of edema with a degree of edema 4 (6 mm deep) and the lowest degree of edema 2 (4 mm deep) after soaking the feet in salt water decreased to the highest degree of edema 3 (3 mm depth) and the lowest degree of edema is 1 (2 mm deep).

Analysis of Changes in Degree of Edema Before and After Soaking Feet in Salt Water in Third Trimester Pregnant Women

Based on the data above, it can be seen that from the 20 respondents before soaking the feet in salt water, most of the respondents experienced edema with grade III as many as 12 people and after soaking the feet in salt water, most of the respondents experienced edema with edema grade II as many as 12 people. The average degree of edema before soaking in salt water is 2.80 and the standard deviation is 0.616 and the average degree of edema after soaking the feet in salt water is 1.70 and the standard deviation is 0.571. Statistical test results obtained p value of 0.000, it can be concluded that there is an effect of soaking feet in salt water on reducing edema, because there is a significant difference in decreasing the degree of

edema before and after treatment, in other words soaking feet in salt water is effective in reducing the degree of edema.

The results of this study are in line with the theory that edema in pregnancy is triggered by changes in the hormone estrogen, which can increase fluid retention. This increase in fluid retention is related to the physical changes that occur in the last trimester of pregnancy, namely the increasing size of the uterus along with the increase in fetal weight and gestational age. In addition, increasing body weight will increase the burden on the legs to support the mother's body. This will trigger circulation disorders in the veins in the legs which have an impact on the appearance of edema (12).

The results of this study are also in line with the results of Sawitry's (9) study which said that the Wilcoxon test results obtained value 0.000 0.05 then H_0 was rejected, so it was concluded that there was an effect of warm water and salt immersion on edema in third trimester pregnant women in Indonesia. RB Citra Insani Semarang City.

The results showed that the degree of edema in pregnant women after the warm water and salt bath underwent a change, namely the highest degree of edema was grade 3 and the lowest was 1. After soaking in warm water and salt the mother felt very comfortable and the mother no longer felt tingling as usual. The results of the study, according to the researcher, with the presence of leg edema in these 20 respondents, urgent treatment was needed. One of the efforts made is by soaking in warm water and salt. In this study, the management of leg edema

was carried out by soaking the feet up to 10-15 cm above the ankles with warm water at 38-39°C mixed with 5 tsp Epsom salt and soaking for 15-20 minutes for 7 days.

The results of this study are in line with the theory that feet soaked in warm water and salt will transfer heat from warm water to the body, causing blood vessels to widen and muscle tension to decrease so blood circulation is smooth. With the dilation of blood vessels, blood flow will be smooth so that it is easy to push blood into the heart. This situation causes the blood flow to be smoother and the body will draw the fluid that is in the extra cellular thereby reducing leg edema (13).

Scientifically, this warm water and salt foot bath therapy has a physiological impact on the body. The first affects the blood vessels where the warm air makes blood circulation smooth, the second is the loading factor in the air that benefits the ligamentous muscles that affect the joints of the body. Warm water has a physiological impact on the body in the form of increasing blood circulation by widening blood vessels so that more oxygen is supplied to the tissues as well as strengthening muscles and ligaments and increasing blood circulation back to the heart thereby reducing leg edema.

According to researchers, the effect of foot therapy in warm air and salt on edema of the lower limbs of pregnant women is due to the feet soaked in warm water, heat will occur from warm air to the body, causing blood vessels to widen and muscles to decrease so blood circulation is smooth. With the dilation of blood vessels, blood flow will be smooth so that it pushes blood into the heart. This situation causes blood flow

to be smoother, so the end result is blood circulation back to the heart, making it easier for the body to return fluids that are in the extra cellular and will reduce leg edema. The treatment carried out in the afternoon is so that after being given foot soak therapy they are more relaxed at bedtime. Sleep time is the time when the body's activities are resting where the heart rhythm, pulse and blood flow are more stable and this is the right time for the absorption of fluid that has accumulated in the extravascular. In addition, the problem position is also good for venous return from the lower extremities to the heart. So it can be said that foot soak therapy in warm water with salt is an action that is very easy to do and at a low cost to reduce edema in pregnant women and does not pose a risk.

CONCLUSION

The distribution of the frequency of the degree of edema in third trimester pregnant women before soaking the feet in salt water was mostly with edema degree III, and after soaking the feet in salt water mostly with edema degree II. There is an effectiveness of soaking the feet in salt water to reduce the degree of edema in third trimester pregnant women. The findings of this study can be used to enhance maternity nursing practices regarding the use of foot soak therapy as a teaching material as well as discharge planning for pregnant women in their third trimester.

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