

The Effectiveness of Perineal Massage in Preventing Perineal Tears in Third Trimester Pregnant Women in the Village of Tondomulyo, Pati

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ABSTRACT

Perineal tears are one of the causes of postpartum hemorrhage. There were 162 cases (58.69%) of perineal tears in the Tondomulyo area of Pati district out of a total of 276 (100%) mothers who gave birth in 2022. Perineal tears can cause deeper tears in the perineum, from the perineal muscles to the anal sphincter muscles, increasing the risk of bleeding and pain in the early postpartum period and causing infection, which delays wound healing. Perineal massage is recommended as a preventive measure against perineal tears and to reduce the need for episiotomy. The research method used was a quasi-experiment using a non-equivalent control group design. The sample in this study used total sampling of 40 respondents, divided into 20 respondents who received perineal massage and 20 respondents who did not receive the treatment. Data analysis used an independent t-test. The results showed that in the intervention group of 20 respondents, 12 had first-degree birth canal tears. There was a difference in perineal massage on birth canal tears in pregnant women in their third trimester between the intervention group and the control group with a p-value of 0.003 ($p < 0.05$). The conclusion of the study is that perineal massage is effective in preventing birth canal tears in pregnant women in their third trimester in the village of Tondomulyo.

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1. INTRODUCTION

The Maternal Mortality Rate (MMR) and Infant Mortality Rate (IMR) are indicators of public health. The health status of a country is reflected in the increase in maternal and infant mortality rates. In Indonesia, the maternal mortality rate (MMR) was recorded at 189 deaths per 100,000 live births in 2023. This change represents an improvement in the Indonesian government's success in reducing maternal mortality rates, which are now lower than a decade ago, when they reached more than 200 deaths per 100,000 live births. However, Indonesia still has the third highest maternal mortality rate in Southeast Asia. (1)

One cause of MMR is postpartum hemorrhage and birth canal tears. The incidence of perineal tears in women giving birth vaginally in Indonesia reaches 75%. The survey results found

that of a total of 1,951 women who gave birth vaginally spontaneously in 2020, 57% required perineal sutures, 28% due to episiotomy and 29% due to spontaneous tears. (2)

In Central Java Province, there were 416 maternal deaths in 2020, with 64.18% occurring during the postpartum period, 25.72% during pregnancy, and 10.10% during childbirth. The incidence of birth canal tears in the village of Tondomulyo, Pati District, was 178 people (45.99%) out of a total of 387 people (100%) of mothers who gave birth in 2021.

Childbirth can cause lacerations around the vagina, leading to bleeding. Infection of the perineal suture wound, which can spread to the urinary tract and even the uterus, is caused by a laceration of the perineum and has adverse effects on the mother. The risk of postpartum infection on the first day after birth is another consequence of more severe perineal tears that affect the perineal muscles and the anal sphincter. This condition can increase pain in the mother and prolong the healing of lacerations (3)

Efforts to prevent complications during childbirth, one of which is bleeding due to perineal tears, include maintaining the elasticity of the muscles and skin of the perineum and surrounding vaginal area so that vasodilation of the blood vessels in the perineal tissue and surrounding areas occurs. One action that can be taken is perineal massage. One of the preparations for childbirth that can be done is perineal massage during pregnancy, specifically in the third trimester at 34 weeks of gestation or more, or 1-6 weeks before delivery.. Perineal massage techniques are very safe and harmless, so they can be performed daily for 5-10 minutes. However, perineal massage is not recommended for mothers with urinary tract infections or sexually transmitted infections such as herpes and fungal infections (4)

Research conducted by Goh, R et al state that 50.9% of women who received perineal massage had a significantly intact perineum after giving birth (p value = 0.02) and a lower incidence of episiotomy, which was around 58.2% in women who received perineal massage (p value = 0.03). According to Rahayu et al (2015) in Kurniawan, et al, 77.8% of the group of mothers who underwent perineal massage experienced first-degree birth canal tears, while the rest experienced second- and third-degree lacerations (5)

2. METHOD

This study uses a quasi-experimental design.. In quasi-experiments, unequal control groups (pre-test and post-test) are often used, and the selection of control and experimental groups is not random, so that only the experimental group is given treatment with pre-tests and post-tests.. The treatment given was perineal massage to pregnant women in their third trimester.

The population in this study was estimated to be 40 pregnant women in Tondomulyo Village, Pati, from March to May 2024. The research sample was collected using total sampling technique or the entire population, That is, the 40 research subjects were divided into two groups, consisting of 20 subjects who received perineal massage and 20 subjects who did not receive perineal massage, referred to as the control group. The measuring instruments in this study used SOP (Standard Operating Procedures) on perineal massage and observation sheets on the degree of birth canal tears.

The difference in the effects of perineal massage between the control and intervention groups was determined using an independent t-test. To test the normality of the data, a Shapiro-Wilk test was performed before the independent t-test. The normality test for data to determine homogeneity or variance uses the F test or Lavene test. The same variance was found in both data groups, so the T test value was read in that variance.

3. RESULTS AND DISCUSSION

3.1. Analysis Univariat

3.1.1 Frequency Distribution of Respondents based on characteristics

No	Characteristics	Intervention group		Control Group	
		Frequency (N)	Percentage (%)	Frequency (N)	Percentage (%)
1	Age				
	< 20	8	40	5	25
	20-35	12	60	15	75
	Total	20	100	15	100
2	Education				
	junior high school	8	40	10	50
	high school	8	40	6	30
	Diploma	3	15	3	15
	Bachelor	1	5	1	5
	Total	20	100	20	100
3	Work				
	Housewife	12	60	10	50
	Civil servant	3	15	5	25
	Private employee	5	25	5	25
	Total	20	100	10	100

Based on Table 1 in the intervention group, most respondents were aged 20-35 years, totaling 12 people (60%). Based on educational level, 8 pregnant women (40%) had junior high school education and 8 (40%) had high school education. Based on occupation, 12 pregnant women (60%) were housewives. In the control group, most of the pregnant women were primigravida aged 20-35 years, totaling 15 people (75%). Based on education, most had a junior high school education, totaling 10 people (50%). And based on occupation, most were housewives, totaling 10 people (50%).

She rarely exercises and rarely has intercourse, she will be prone to perineal rupture. The flexibility of the birth canal can decrease if the mother-to-be does not exercise enough and her genitals are frequently infected. The high level of education among mothers was one factor influencing their willingness to perform perineal massage to prevent birth canal tears. A higher education will broaden a person's knowledge and understanding. In addition, there are other factors that can increase perineal elasticity through exercise. Based on research by Halimahi, which states that floor exercise programs also have an effect on perineal trauma (6).

Research conducted by Turiyani found that a significant relationship was observed between maternal age and perineal tears ($P = 0.000 < \alpha 0.05$). (7)

The results showed that the respondents' prior knowledge was low before receiving health education on perineal massage, consisting of 27 respondents (58.7%) out of a total of 46 respondents. After being educated, the respondents' knowledge increased, with 33 respondents (71.7%) having good knowledge. Based on research by Andriani et al., conducted on women who gave birth spontaneously, parity and the incidence of perineal tears were found to have a significant relationship through the Kendall-Tau test with a p-value of $0.001 < 0.05$. (8). Supported by another study also conducted on women with spontaneous deliveries at the Tegalrejo Community Health Center in Yogyakarta, it was found that perineal tears are closely related to parity and maternal age. (9).

Research on the relationship between age and the incidence of perineal tears yielded significant results based on the chi-square test with a p value of $0.038 < 0.05$. (10)

Research involving nulliparous, primiparous, and multiparous women, with an average maternal age of 20-35 years, and third trimester pregnancies. Perineal rupture can be influenced by parity and maternal age. In nulliparous and primiparous women, the incidence of birth canal tears is higher because the perineum is not yet elastic and has not stretched compared to multiparous women (11)

3.1.2 Frequency Distribution of Respondents based on Birth Tears in Groups that Received Perineal Massage and those that did not receive Perineal Massage

Table 2. Frequency Distribution of Respondents Based on Birth Canal Tears

Birth Canal Tears	Intervention group		Control Group	
	Frequency (N)	Percentage (%)	Frequency (N)	Percentage (%)
Grade I	12	60	7	35
Grade II	8	40	10	50
Grade III	0	0	3	15
Grade IV	0	0	0	0
Total	20	100%	20	100%

Table 2 shows the intervention group consisting of 20 respondents, most of the mothers who underwent perineal massage experienced first-degree perineal tears, totaling 12 people (60%). In the control group, most mothers experienced second-degree perineal tears, totaling 10 people (50%).

Perineal rupture is closely related to the degree of laceration or tear that occurs in the mother's perineum during childbirth. The results of a study by Claudia & Adam state that of the 17 people who received perineal massage, 10 experienced grade 1 lacerations, 5 experienced grade 2 lacerations, and 2 experienced grade 3 lacerations. The analysis revealed a significant difference between the massage group and the control group in terms of the degree of perineal laceration, with an Independent T-Test statistical test yielding a P-value of 0.000 (< 0.05) (12).

Based on this study, primigravida women in both the control and intervention groups only experienced first- and second-degree perineal tears because they had undergone perineal massage during the third trimester of pregnancy. This occurs because the elasticity of the elastic connective tissue and collagen in the perineum that is massaged will increase blood flow in the perineal area so that the perineum will be softer and more flexible when the baby passes through. Perineal tears can be prevented and the perineum can remain intact during childbirth if its flexibility, softness, and elasticity are maintained despite extensive stretching during the delivery process. This will not happen if the perineum is stiff and thick with low elasticity, resulting in perineal tears that can even extend to the anal sphincter muscle (11).

The results of research on factors affecting perineal rupture show that statistical testing using chi-square revealed a significant relationship between parity and birth canal tears (p value = 0.006), no relationship between birth interval and birth canal tears (p value = 0.1000), there was a significant relationship between birth weight and the incidence of birth canal tears (p value = 0.008) (13).

Based on the results of the data analysis from this study, it was shown that the degree of perineal tearing was 100% for respondents who did not receive perineal massage, while 75% of those who did receive perineal massage had no tears or an intact perineum. Prevention of birth canal tears in primigravida women can be done through perineal massage, and this was proven to be significant ($p = 0.008 < 0.05$) (14).

The study was conducted on pregnant women in their third trimester, with the analysis results showing an OR value of 6.72, which means that primiparous pregnant women who did not undergo perineal massage were 6.72 times more likely to experience perineal rupture compared to primiparous pregnant women who underwent perineal massage (15).

The results of research using a literature review of 12 articles show that morbidity and mortality rates among pregnant women, including bleeding and infection, can be prevented if the perineal muscles have high elasticity and feel soft, indicating that the perineum is relaxed. This can be achieved through perineal massage. The 12 articles reviewed prove that perineal massage has an effect on preventing perineal tears using several techniques. Eight articles only describe perineal massage, three articles describe a combination of perineal massage and Kegel exercises, as well as risk factors for perineal tears and the midwife's work experience in performing perineal massage. However, one other article showed that perineal massage was not effective in preventing tears, but the massage was safe to perform both during pregnancy and childbirth (16).

The other research that one of the factors causing perineal tears, namely parity, showed insignificant results on the incidence of perineal tears at the Kassi-Kassi Community Health Center, Makassar City. Most respondents experienced perineal tears (76.7%), with 26.7% and 50% experiencing grade 1 and 2 tears, respectively. while only a small portion of respondents did not experience perineal tears, namely 23.3% with a p-value of $0.071 > 0.05$ and the strength of the relationship between variables was relatively low, with a Phi coefficient (μ) value of 0.488 or 48.8% (17).

The degree of perineal tear in pregnant women in the third trimester who undergo perineal massage will reduce the risk of 3-4 degree tears by up to 21% and the risk of episiotomy by up to 13%. In addition to dynamic perineal massage, daily perineal massage has also been shown to significantly reduce the risk of first-degree tears by 416%, although perineal massage is generally performed 3-4 times a week (18).

Research conducted by Januarti on two groups of pregnant women in their third trimester (control and intervention) who underwent perineal massage found a P value of $0.000 (<0.05)$, The number of cases of tearing of the birth canal between pregnant women who received perineal massage and those who did not receive massage had a significant difference (19).

3.3. Analysis Bivariate

3.2.1 Data Normality Test

One of the requirements for performing a T-test is that the data must be normally distributed. Therefore, the Shapiro Wilk test is used to determine whether the data is normally distributed or not. The Shapiro Wilk test was chosen because the sample size in this study is classified as small.

Tabel 3. Data Normality Test with Shapiro Wilk

Perineal tear	Statistik	df	Asymp.Sig
Intervention group	0,951	20	0,449
Control group	0,952	20	0,463

Based on Table 3, it appears that the Shapiro Wilk test results for perineal massage data obtained an Asymp.sig value of $0.499 > 0.05$, so H_0 is accepted, meaning that the perineal tear data is normally distributed. For the control group data, the result obtained was an Asymp.sig value of $0.463 > 0.05$, so H_0 was accepted, meaning that the perineal tear data was normally distributed. Because both data groups were normally distributed, a statistical test could be performed using the compared mean Independent sample T-test or a test of difference between.

3.2.2 Analysis of the Effectiveness of Perineal Massage on Birth Canal Tears in Pregnant Women in Their Third Trimester

Tabel 4. Analysis of the Effectiveness of Perineal Massage on Birth Canal Tears in Pregnant Women in Their Third Trimester

Independent Sample Test		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig.(2-tailed)
Perineal massage - Birth Canal Tears	Equal variances assumed	.910	.347	3.666	40	.003
	Equal variances not assumed			3.666	40	.003

Analysis of research results based on table 4, the results of the Compared Mean Independent Sample t-test or the test of the difference between two unrelated samples show that the Levene's Test for Equality of Variances for both data groups, This means that respondents who received perineal massage and those who did not have a massage had the same variance with an asymp.sig value of $0.347 > 0.05$.

The t-test value ($df = 40$) is $3.666 > t$ table 1.6909 , meaning that there is a difference in birth canal tears between the intervention group and the control group. The p -value = $0.003 < 0.05$, meaning that the result is significant. This means that perineal massage has a significant effect on birth canal tears in pregnant women in their third trimester in the village of Tondomulyo.

Several factors that cause perineal rupture based on the results of research by Hukubun et al. show that younger maternal age, low parity, and higher birth weight are associated with the degree of perineal rupture experienced by mothers, while the multivariate results obtained show that the baby's birth weight has a more dominant influence on the degree of perineal rupture. This is because the greater the birth weight, the more the perineum will stretch, making it thinner and increasing the risk of rupture. (20)

This research is supported by a study by Syamsiah & Malinda, The Mann Whitney statistical test was used to analyze it so that a significance value of $p = 0.001$ was obtained, The meaning that H_0 is not accepted means that perineal massage does not affect the occurrence of birth canal tears in primigravida women in the working area of the Jagir Surabaya Health Center. (9)

Astuti's research results distinguishing between perineal massage and yoga exercises on perineal tears showed a p -value of 0.002 ($p < 0.05$) which is highly significant in distinguishing the effectiveness of perineal massage and yoga exercises, namely that pregnant women in their third trimester who do yoga exercises will experience perineal tears with a risk of 19.50 greater than pregnant women in their third trimester who do perineal massage with a risk of 11.50 . (21). In line with Siregar's research on pregnant women in their third trimester who underwent perineal massage in a prenatal class, the results showed a correlation between the application of perineal massage to reduce perineal rupture during childbirth, as seen in the research results with a p -value of 0.002 ($p < 0.05$) (22).

Perineal massage is a massage performed on the perineum, which is the organ located between the vagina and anus. Perineal massage can be performed daily for 5-10 minutes during the last 5-6 weeks of pregnancy. Perineal massage during pregnancy helps the tissues around the perineum become more elastic. In line with the results of this study, which proved that in the intervention group that underwent perineal massage, there were 21.4% fewer perineal ruptures compared to the control group that did not undergo perineal massage, which had 71.4% perineal ruptures (4).

A study by Anggraeni et al. showed that prevention of perineal rupture in mothers giving birth at the Nelis Anggraeni Klari-Karawang Maternity Hospital can be done by perineal massage in the third trimester of pregnancy ($p = 0.025 < 0.05$) (23).

Based on Biju, S.A., et al research, prenatal perineal massage has beneficial the effect of reducing the duration of dilation and birth of the baby. Based on other studies, the results obtained from the two groups of respondents showed that in the first group there was a decrease in the risk of birth canal tears and episiotomy, as well as postpartum pain, and the degree of tearing was at Level 1 and 2 ($p < 0.05$). Due to the low incidence of postpartum pain in the first group, the use of analgesic injections during hospital care was reduced ($p < 0.001$). In the second group, respondents experienced a higher risk of perineal tears, namely $> \text{Grade } 2$, and greater use of analgesics. Based on these findings, it can be concluded that complications resulting from perineal tears can be managed through the administration of PMFT and perineal massage education during the antenatal period (24).

Research conducted by Sari found that mothers who underwent perineal massage had a 59% higher rate of intact perineum after giving birth matched to women who did not undergo birth canal massage, which was 29.1% , resulting in a significantly lower incidence of episiotomy in perineal massage. The reduction in episiotomy procedures can reduce pain and the incidence of flatus incontinence in postpartum mothers, thereby reducing the need for postpartum analgesia (25).

Based on a literature review of 10 articles, the results showed that gentle perineal massage was more effective than pelvic floor muscle tightening and supercrowning alone. Perineal massage is recommended to prevent tearing of the birth canal starting in the 8th month of pregnancy when relaxation hormones are increased, and continuing until 1-2 weeks before delivery.(11).

4. CONCLUSION

This study shows that perineal massage is effective in reducing the incidence of birth canal tears significantly in TM-3 pregnant women in Tondomulyo village. With these research results, it can be used as an educational method for pregnant women in their third trimester through interactive media about complementary care through perineal massage to prevent an increase in birth canal tears. For further research development, the intervention can be grouped according to respondent characteristics so that the obstacles to performing perineal massage and the evaluation of birth canal tears can be identified.

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