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THE EFFECTIVENESS OF COMBINED PERINEAL MASSAGE AND KEGEL EXERCISES ON THE DEGREE OF PERINEAL LACERATION IN PRIMIGRAVIDA MOTHERS AT PRATAMA S CLINIC, BOJONEGORO

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ABSTRACT

Perineal lacerations are a common issue among women giving birth, particularly during vaginal deliveries. Survey data from *Klinik Pratama S* indicates that among the total deliveries recorded, 40% of mothers experienced spontaneous perineal lacerations. Measures to reduce the risk of perineal laceration include preparing the pelvic floor muscles and perineal tissues during pregnancy through a combination of Kegel exercises and perineal massage. This study aimed to compare two methods of perineal management during childbirth: perineal massage combined with Kegel exercises versus perineal massage without Kegel exercises. The study was conducted at *Klinik Pratama S* in Bojonegoro using a static-group comparison pre-experimental design. The study population consisted of primigravida women with a gestational age of ≥36 weeks. The results showed a significant difference between the perineal massage group, the perineal massage with Kegel exercises group, and the control group, with a significance value (p) of 0.001 ($p < 0.05$). The group combining perineal massage with Kegel exercises proved more effective than the group performing massage without Kegel exercises or the control group p=0.0001. These findings suggest that healthcare professionals can improve the management and quality of midwifery services—specifically by providing comprehensive antenatal care (ANC) and encouraging pregnant women to practice perineal massage and Kegel exercises. Additionally, families and husbands are encouraged to provide support for these practices to help prevent or reduce the severity of perineal lacerations.

Keywords : Kegel exercises, Perineal massage, Perineal laceration

INTRODUCTION

According to (WHO 2023) labor is the expulsion of the product of conception (fetus or placenta) that has reached term (37-42 weeks) or is viable outside the uterus through the birth canal or other means, with or without assistance, in a posterior presentation that occurs within 18 hours without complications for the mother or fetus.

These problems are more common in primigravidas than in multigravidas. Another problem found is stiffness in the perineum; this stiffness is caused by tension because the delivery experienced by primigravidas is their first delivery. Problems are more common in primigravidas than in multigravidas. Another problem found is stiffness in the perineum, this stiffness is caused by tension because the delivery experienced by primigravidas is their first delivery. Lack of perineal elasticity also plays a crucial role in a smooth delivery. If the perineum is inelastic in primigravida, the birth attendant may resort to incision of the birth canal, which can result in perineal lacerations (Fatmawati Sinuhaji, Bima Suryantara 2024)

The results of the 2025 Intercensal Population Survey (SUPAS) on maternal mortality rates (MMR) showed 144 deaths per 100,000 women (Fatmawati Sinuhaji, Bima Suryantara

2024)The number of MMR cases in East Java Province in 2025 was 5 live births (Bojonegoro 2026). Based on survey data, the incidence of spontaneous perineal rupture among primigravida mothers at the Primary Clinic remains high, with 30 cases occurring in 50 normal deliveries. Efforts have not been optimal, so special measures are needed to prevent tearing.

Perineal laceration is a tear in the perineal tissue that occurs during childbirth, either spontaneously or as a result of an episiotomy. The incidence of perineal laceration remains quite high in Indonesia and is a major cause of postpartum discomfort and pain, and can lead to complications such as infection and pelvic floor dysfunction (Lindayani 2026). The primary preventive measure to prevent extensive tearing of the birth canal is an episiotomy. However, episiotomy still often leads to complications during childbirth. Perineal massage and warm Kegel exercises are solutions to prevent or reduce tearing of the birth canal.

Perineal massage is a massage technique applied to the perineal area during pregnancy or in the weeks leading up to delivery to stimulate hormonal changes that soften the connective tissue, making the perineal tissue more elastic and more easily stretched. Increasing perineal elasticity will prevent perineal tears and episiotomies. This technique can be performed once daily during the last few weeks of pregnancy in the perineal area, between the vagina and anus (Lindayani 2026)

Perineal massage takes approximately 5-10 minutes daily, starting at 36 weeks or older, 3-4 times per week. Perineal massage is performed using virgin coconut oil (VCO), vitamin E-rich wheat germ oil, or K-Y jelly. Perineal massage can be performed by the mother herself with the aid of a mirror or with the assistance of her husband. Perineal massage can also be performed by a health worker during an antenatal care (ANC) examination. Important precautions before performing perineal massage include trimming long nails and thoroughly washing hands. If the mother is performing the massage herself, use your thumbs. If the massage is performed by a husband or health worker, use your index fingers. The thumbs should be inserted into the perineum about 3-4 cm (maximum 7 cm), with the thumbs bent, while the other fingers remain outside the perineum. Perineal massage should not be too forceful, as this can cause swelling of the perineal tissue. Initially, the mother will feel tight muscles in this area, but with time and increased intensity of practice, this tissue will relax (Hariani et al. 2025)

Kegel exercises are a movement performed during yoga and are a form of exercise that can be done during pregnancy to optimize the pubococcigeal muscles in the perianal area, strengthening the pelvic floor muscles and making the perineal tissue more flexible. Combining other techniques is even more effective (Mengurangi, Rupture, and Pada 2023)

Based on the description, the author is interested in conducting research with the title "Effectiveness of Kegel exercises combined with perineal massage on the degree of perineal laceration in primigravida mothers giving birth at the Pratama S Clinic in Bojonegoro".

METHODS

This study employs a pre-experimental research design, specifically the Static Group Comparison design. The study population consisted of all primigravida women in their third trimester (gestational age ≥36 weeks) at Pratama S Clinic, totaling 53 individuals. The sample comprised 42 respondents divided into three groups of 14: a massage group, a group combining massage and Kegel exercises, and a control group. Purposive sampling was used as the sampling technique. Inclusion criteria were: primigravida women in the third trimester with a gestational age of ≥36 weeks, normal pregnancy with cephalic presentation, estimated fetal weight of 2500–4000 grams, and no history of vaginal abrasions, genital herpes, vaginitis, or sexually transmitted diseases. Assessment was conducted using an observation sheet to record the degree of perineal laceration across the massage group, the combined massage and Kegel

exercise group, and the control group. Data analysis involved the non-parametric Kruskal-Wallis test followed by a post-hoc Mann-Whitney test to compare the groups; the decision rule was that if the p-value (asymptotic significance) > 0.05, the alternative hypothesis (Ha) would be accepted.

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RESULTS

The respondents selected for the sample were 42 primigravid women with a gestational age of ≥36 weeks, aged between >20 and <35 years; they were divided into three groups of 14 respondents each: a massage group, a group receiving a combination of kegel exercise , and a control group.

Table 1. Distribution of respondent characteristics

Variable		Kelompok		
		Intervention 1 n(%)	Intervention 2 n(%)	Intervention 3 n(%)
level of education	elementary school	0 (0)	0 (0)	0 (0)
	Junior high school	2 (14.3)	4 (28.6)	3 (21.4)
	Senior High School	11 (78.6)	7 (50.0)	10 (71.4)
	College	1 (7.1)	3 (21.4)	1 (7.1)
work	Housewife	6 (42.9)	8 (57.1)	8 (57.1)
	private sector	8 (57.1)	5 (35.7)	6 (42.9)
	Teacher	0 (0)	1 (7.1)	0 (0)
Degree of Perineal Laceration	no laceration	10 (71.4)	11 (78.6)	0 (0)
	first-degree laceration	4 (28.6)	3 (21.4)	1 (7.1)
	second-degree laceration	0 (0)	0 (0)	13 (92.9)
	third-degree laceration	0 (0)	0 (0)	0 (0)
	fourth-degree laceration	0 (0)	0 (0)	0 (0)

Description
Intervention Group 1 : Given perineal massage
Intervention Group 2 : Given perineal massage combined with Kegel exercises
Control Group : Given standard pregnancy services according to the Ministry of Health

Table 1 shows the characteristics of respondents in Intervention Group 1 (massage): regarding education, the majority (11 individuals or 78.6%) had a high school education; regarding occupation, the majority (8 individuals or 57.1%) worked in the private sector; and the majority (10 individuals or 71.4%) did not experience a birth canal tear. In Intervention Group 2 (combination of massage and Kegel exercises): regarding education, half (7 individuals or 50%) had a high school education; regarding occupation, the majority (8 individuals or 57.1%) were housewives; and the majority (11 individuals or 78.6%) did not experience a birth canal tear. In the control group: regarding education, the majority (10 individuals or 71.4%) had a high school education; regarding occupation, the majority (8 individuals or 57.1%) were housewives; and the majority (13 individuals or 92.9%) experienced a second-degree birth canal tear.

Table 2. Distribution of obstetric data

Variabel		Group		
		Intervention 1 n(%)	Intervention 2 n(%)	Intervention 3 n(%)
Gestational age	Early Term (37-38 weeks)	3 (21,4%)	4 (28,6%)	3 (21,4%)
	Full Term (39-40 weeks)	9 (64,3%)	10 (71,4%)	7 (50,0%.4)
	Late Term (41 weeks)	2 (14,3%)	0 (0.0%)	4 (28.6%)
Birth weight	low (<2500 gram)	0 (0,0%)	0 (0,0 %)	1 (7%)
	Normal (2500-4000 gram)	13 (92,9%)	14 (100,0%)	12 (86,7%)
	Macrosomia (>4000 gram)	1 (7,1%)	0 (0,0%)	1 (7,1 %)
Maternal Birthing Position	Litotomy/ semirecumbent	5 (35,7%)	3 (21,4%)	11 (78,6%)
	Lateral	6 (42,9%)	5 (35,7%)	2 (14,3%)
	Upright	3 (21,4%)	6 (42,9%)	1 (7,1%)
characteristics of the birth attendant	Junior Midwife (experience < 5 th)	4 (28,6%)	3 (28,6%)	3 (21,4%)
	Senior middwife (experience ≥ 5 th)	9 (64,3%)	11 (64,3%)	7 (50,0%)
	Doctor Sp.OG	1 (7,1%)	1 (7,1%)	4 (28,6%)

Table 2 presents obstetric data characteristics. In the control group, the majority of pregnancies (64.3%) were full-term (39–40 weeks). In Intervention Group 2 (the combination group: Kegel exercises), 71.4% of pregnancies were full-term, while in Intervention Group 3 (massage only), 50.0% were full-term. Regarding birth weight, the majority of cases were within the normal range: 92.9% in the control group, 100% in the combination group, and 86.7% in the massage group. Data on maternal birthing positions show that 42.9% of the combination group used the hands-and-knees or squatting position, whereas 78.6% of the massage group used the lithotomy position. Data on birth attendants indicate that senior

midwives assisted the majority of births in both the combination group (64.3%) and the control group (64.3%).

Table 3. Statistical test results regarding the relationship between the intervention group and gestational age at delivery.

Output variable	Chi-Square Value (X^2)	degrees of freedom (df)	p- value	Information
Gestational age at birth	4,738	4	0,315	Tidak Signifkan (p > 0, 0,5

Based on the statistical analysis using the Chi-Square Contingency Test (Table 3), a value of 4.738 was obtained with a p-value of 0.315 ($p > 0.05$). This indicates that there is no statistically significant difference in proportions or significant association between the interventions—perineal massage, the combination of Kegel exercises, and the Ministry of Health's standard care—regarding gestational age at delivery. All interventions were equally safe and maintained the pregnancy within the term range.

Table 4. Statistical Test Results on the Relationship between the Intervention Group and Birthing Position

Output Variable	Fisher's Exact Test Value	p- value	Information
maternal birthing position	1,526	0.841	not significant (P >0,05)

Based on Table 4, the analysis using Fisher's Exact Test yielded a p-value of 0.841 ($p > 0.05$). This indicates that there is no significant association or effect of the prenatal intervention methods (perineal massage or Kegel exercises) on infant birth weight. Newborn birth weights were homogeneously distributed across the three study groups and were not directly influenced by the maternal pelvic muscle exercises.

Table 5. Statistical test results regarding the relationship between the intervention group and the characteristics of the birth attendant.

Output Variable	Fisher Exact Test Value	p- value	Information
Characteristics of a helper	4,264	0,0358	No Significant (p< 0, 0,5

Table 5 presents the results of the inferential analysis using Fisher's Exact Test, showing a p-value of 0.358 ($p > 0.05$). This indicates that there is no significant association or influence between the allocation of antenatal intervention groups and the characteristics of the birth attendants. The distribution of birth attendants across the three study groups is homogeneous and not biased by the dominance of any specific type of attendant.

Table 6. Kruskal-Wallis test results

Intervention	Sig.
Control	0.001
Massage Group	
Kegel exercise combination massage group	

Based on Table 6, the p-value is 0.001 ($p < 0.005$); therefore, it can be concluded that

there is a difference in the degree of laceration among the control group, intervention group 1 (perineal massage), and intervention group 2 (perineal massage combined with Kegel exercises).

Table 7. Kruskal-Wallis Test Results

Intervention	Mean Rank	Sig.
Control	15.00	0.001
Kegel exercise combination massage group	14.00	

Based on Table 7, the Sig. value is 0.001; since this value is greater than 0.005, it can be concluded that there is a difference between perineal massage and combined perineal massage**.** kelompok kombinasi (kegel + pjat) memiliki mean Rank yang lebih rendah 14.00 yang mengidentifikasikan tingkat laserasi yang lebih ringan dibandingkan kelompok kontrol.

Table 8. Mann-Whitney Post-Hoc Test Results: Massage Group vs. Control Group

Intervention	Mean Rank	Sig.
Control	21.36	0.668
Kegel exercise combination massage group	7.64	

Based on table 8, it can be seen that the asymp sig value = 0.001, the sig value <0.005, so it can be concluded that there is a difference in the degree of perineal laceration between the massage group and the control group.

Table 9. Results of the Mann-Whitney Post-Hoc Test: Combined Massage and Kegel Exercise Group vs. Control Group

Intervention	Mean Rank	Sig.
Control	21.39	0.000
Kegel exercise combination massage group	7.61	1

Based on Table 9, the Mann-Whitney post-hoc test result shows an asymptotic significance value of less than 0.005 (specifically, sig. = 0.001), indicating a difference between the group receiving perineal massage combined with Kegel exercises and the control group.

Table 10 Mean Rank Results of the Kruskal-Wallis Test

Intervention	Mean Rank
Control	35.25
Massage Group	14.11
Kegel exercise combination massage group	15.14

Based on Table 10, the mean ranks for the degree of laceration were 35.25 for the control group, 15.14 for intervention group 1 (perineal massage), and 14.11 for intervention group 2 (perineal massage combined with Kegel exercises). Since a lower mean rank indicates greater intervention effectiveness, it can be concluded that intervention group 2—which received the combined perineal massage and Kegel exercise regimen—demonstrated the most significant difference and was therefore the most effective.

DISCUSSION

A. Respondent Characteristics

Based on the frequency distribution of the data obtained regarding maternal education levels, the average level was high school (SMA). For rural communities, performing perineal massage is considered taboo due to a lack of knowledge and information about the practice. Education and knowledge levels impact a mother's attitude toward perineal massage, as education influences how one receives information; individuals with higher levels of education generally find it easier to assimilate information than those with lower levels. The second characteristic concerns occupation; the majority of the mothers in the study were housewives. Research indicates that employed mothers engage in more physical activity than those who are not employed. Pregnant women who are more physically active benefit from relaxed pelvic floor muscles, which facilitates an easier delivery process and accelerates the recovery of tissues and muscles surrounding the birth canal.

B. Difference in Laceration Severity: Perineal Massage vs. Perineal Massage Combined with Kegel Exercises

Table 3 shows a significance value (Sig.) of 0.668. Since this value exceeds 0.05, there is no statistically significant difference in the degree of laceration between the perineal massage group and the group combining perineal massage with Kegel exercises. Massage exerts a mechanical effect: when muscles are pulled and elongated, the stretch is transmitted to muscle fibers via surrounding connective tissue, affecting sarcomeres and fascia. As the muscle stretches, the Golgi tendon organs also stretch, leading to reduced nerve impulse activity and subsequent muscle relaxation. Kegel exercises help strengthen and increase the flexibility of the pubococcygeus (PC) muscles—located between the pelvis and the tailbone—and improve blood circulation in the vaginal area, providing benefits during both pregnancy and childbirth. Difference in Laceration Degrees Between Perineal Massage and Perineal Massage Combined with Kegel Exercises Table 3 shows a significance value (Sig.) of 0.668; since this value is greater than 0.05, there is no difference in the degree of laceration between the perineal massage group and the group receiving perineal massage combined with warm compresses. Massage exerts a mechanical effect: when muscles are pulled and elongated, the stretch is transmitted to muscle fibers via surrounding connective tissue, affecting sarcomeres and fascia. As the muscle stretches, the Golgi tendon organs also stretch, reducing nerve impulse activity and promoting muscle relaxation. Additionally, massage enhances blood and lymph flow, aiding in the clearance of lactic acid and boosting metabolism; this ensures that tense tissues receive adequate oxygen and nutrients, thereby reducing perineal muscle tension and improving elasticity.

Research by (Hartati, Hidayah, and Arisonaidah 2026) indicates that prenatal perineal massage is effective in reducing the incidence of episiotomy, third- and fourth-degree perineal tears, postpartum perineal pain, and fecal incontinence. Kegel exercises also help strengthen and increase the flexibility of the pubococcygeus (PC) muscles—extending from the pelvis to the coccyx—and improve blood circulation in the vaginal area, which is beneficial during pregnancy and childbirth. Current midwifery practice emphasizes "mother-friendly care," which minimizes invasive procedures by avoiding routine episiotomies for all laboring women unless specific indications arise—such as shoulder dystocia, breech presentation, or perineal rigidity. Furthermore, any episiotomy requires the consent of the mother or her family. Routine episiotomy is not recommended, as it is associated with increased blood loss, a higher risk of hematoma and infection, increased labor pain, and a greater incidence of third-degree lacerations.

CONCLUSION

Regarding respondent characteristics, the massage group consisted of 11 individuals (78.6%) with a high school education; the majority (8 individuals or 57.1%) worked in the private sector, and most (10 individuals or 71.4%) did not experience birth canal lacerations. In the group combining massage and Kegel exercises, 7 individuals (50%) had a high school education; the majority of the mothers (8 individuals or 57.1%) were housewives, and most (11 individuals or 78.6%) did not experience birth canal lacerations. In the control group, 10 individuals (71.4%) had a high school education; the majority (8 individuals or 57.1%) were housewives, and almost all (13 individuals or 92.9%) experienced second-degree birth canal lacerations. Kruskal-wallis test results can be concluded that there is a difference in the degree of laceration among the control group, intervention group 1 (perineal massage), and intervention group 2 (perineal massage combined with Kegel exercises) the p-value is 0.001 ($p < 0.005$); therefore the p-value is 0.001 ($p < 0.005$); therefore, it can be concluded that there is a difference in the degree of laceration among the control group,

The study results indicate a difference in the degree of birth canal laceration among the perineal massage group, the group combining perineal massage with Kegel exercises, and the control group of primigravida mothers in the service area of Clinic S. Thus, the hypothesis stating that there is a difference in the degree of laceration between perineal massage and perineal massage combined with warm compresses is accepted.

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