

The effect of kegel exercise on reducing perineal pain in post-partum mothers: narrative review

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Abstract

During childbirth, mothers can experience perineal lacerations. Perineal lacerations are ruptures that occur in the perineum during labor. Perineal lacerations can be classified based on the degree of laceration, namely degree I, degree II, degree III, and degree IV. The impact of perineal ruptures can cause pain in the perineum so that it can affect a woman's ability to exercise and cause complications such as postpartum hemorrhage. Postpartum pain can be managed by doing physical exercises, one of which is Kegel Exercise. Kegel Exercise can help postpartum healing by alternately contracting and relaxing the pelvic floor muscles, namely by making stitches tighter, accelerating healing, relieving hemorrhoids, and improving urinary control, which can improve circulation in the perineum, thereby accelerating healing and reducing swelling. The study is aimed to determine and analyze the effect of giving Kegel exercises on reducing pain in postpartum mothers. This study employed the Narrative Review method with the PICO framework (Population/Patients/Problem, Intervention, Comparison, Outcome) then to identify articles using databases (PubMed, Google Scholar, and ScienceDirect) with predetermined keywords referring to the inclusion and exclusion criteria. From the total article search, 168 articles were obtained. Then, article selection was carried out. 15 articles obtained stated that giving Kegel exercises reduced perineal pain in postpartum mothers. There is an effect of giving Kegel exercises on reducing perineal pain in postpartum mothers.

Keywords: kegel exercise; perineal pain; postpartum

1. Introduction

The postpartum period is a crucial stage involving various physical, emotional, and social changes in mothers following childbirth. Perineal pain after delivery—particularly due to birth canal tears—often leads to postpartum anxiety. Such anxiety can contribute to maternal morbidity, including discomfort during sitting, standing, walking, and other movements. Moreover, both anxiety and pain may negatively impact bonding, attachment, and breastfeeding processes (Qiuxia et al., 2022).

According to the World Health Organization (WHO), 99% of maternal deaths related to labor and delivery occur in developing countries. The maternal mortality risk in these countries is the highest, with 450 maternal deaths per 100,000 live births, compared to significantly lower rates in developed nations. In 2015, there were 2.5 million cases of perineal rupture worldwide, and this number is projected to rise to 6.3 million by 2050. In Asia alone, approximately 50% of women experience perineal rupture during childbirth. In several provinces in Indonesia, one in five women with perineal rupture dies from related complications (20%).

The prevalence of perineal rupture in Indonesia is 24% among women aged 25–30 years and 62% among those aged 32–39 years. The incidence of hemorrhage due to perineal rupture is estimated at over 5.5%–7.2% in primiparous women and 4.0% in multiparous women. Perineal ruptures are classified into four degrees: I, II, III, and IV.

Postpartum care is essential to support the process of uterine involution and maternal recovery, which includes mobilization, diet, urination, defecation, lactation, breast care, and perineal care. Approximately 90% of deliveries result in perineal tears, with or without episiotomy. During postpartum, mothers undergo significant physical changes such as abdominal wall laxity, vaginal opening relaxation, and pelvic floor muscle weakening. Perineal lacerations are defined as tears occurring in the perineum during childbirth and are classified into degrees I–IV (Anis & Nikmah, 2024).

Perineal tears can cause pain that impairs physical activity and may result in postpartum complications such as hemorrhage. Perineal trauma can also cause discomfort and pain during sexual intercourse. In addition, there is a risk of infection at the suture site, which may spread to the urinary tract and birth canal, potentially leading to complications such as cystitis or vaginal infection. Scar tissue formation following perineal rupture can also cause pelvic floor dysfunction. Therefore, accurate

identification and timely repair of perineal tears are crucial for long-term maternal health and well-being (Erlinda Sari Nurhidayah et al., 2022).

Many researchers have highlighted the potential benefits of postpartum exercises. Among them, Kegel exercise is considered the most suitable after childbirth. This pelvic floor exercise can be performed at home and offers several advantages: it accelerates wound healing by increasing blood flow and oxygenation to tissues, facilitates recovery from tears or episiotomies, improves tissue flexibility, reduces swelling, minimizes pressure on incisions and surrounding tissues, and helps alleviate pain caused by scar tissue. Additionally, Kegel exercise helps restore bladder control, strengthen pelvic floor muscles, and improve vaginal lubrication during sexual arousal (Farrag & Eswi, 2016).

Kegel exercise plays a vital role both during pregnancy and in postpartum recovery. In pregnant women, it helps strengthen pelvic floor muscles, reducing the risk of birth canal tears. During the postpartum period, it aids perineal and vaginal recovery and helps alleviate pain caused by episiotomy or birth-related tears (Rahmawati et al., 2024).

Kegel exercise also serves as therapy for stress and urge incontinence by strengthening the pelvic floor or pubococcygeal muscles. The alternating contraction and relaxation of pelvic floor muscles tighten stitches, accelerate healing, relieve hemorrhoids, and improve urinary control. Regular practice can enhance blood circulation in the perineal area, thereby reducing swelling and promoting faster healing. Mothers can perform Kegel exercises immediately after delivery on a daily basis to support perineal suture recovery (Desta Ayu & Hidyatunnikmah, 2024).

2. Method

This study employed a narrative review approach, a type of literature review aimed at providing a comprehensive understanding of a topic in a descriptive and interpretative manner. Unlike systematic reviews, narrative reviews are less rigid in methodology and literature selection, allowing for a broader synthesis of available evidence. Narrative reviews are often used to provide an overview of a field of study, identify research gaps, or present the authors' perspectives based on existing literature (Sarkar & Bhatia, 2021).

To formulate the research question in a narrative review, one of the most effective and still relevant approaches is the PICO framework (Population, Intervention, Comparison, Outcome). In the context of a narrative review, PICO is not always applied rigidly, but rather as an exploratory guide to structure questions that can encompass various perspectives found in the literature. This enables researchers to develop a rich, contextual scientific narrative while maintaining focus on the main issues (Speckman & Friedly, 2019).

Table 1. Research Question Framework Based on PICO Components

Component	Description
P (Population)	Postpartum mothers experiencing perineal pain
I (Intervention)	Implementation of Kegel exercise
C (Comparison)	Without Kegel exercise or with alternative interventions (e.g., cold compresses, special sitting positions, analgesics)
O (Outcome)	Reduction in perineal pain level

The literature identification process included several steps: formulation of the search strategy, selection of relevant databases, and determination of inclusion and exclusion criteria for screening studies. These steps ensured that the selected articles directly addressed the research focus and contributed valid evidence to the arguments or recommendations presented (Basheer, 2022).

Table 2. Inclusion & Exclusion Criteria Framework

Inclusion Criteria	Exclusion Criteria
Studies discussing the effect of Kegel exercise on postpartum pain	Studies not reporting perineal pain as an outcome
Population: postpartum mothers (up to 6 weeks after childbirth)	Studies involving non-human subjects or pregnant women

Inclusion Criteria	Exclusion Criteria
Main outcome: reduction in perineal pain	Studies using interventions other than Kegel exercise
Publications in Indonesian or English	Editorials, commentaries, opinion papers, or non-peer-reviewed articles
Publication year between 2015–2025	Articles not available in full text

Following the literature search using keywords formulated on the basis of the PICO components, namely:

The database search was conducted using keywords derived from the PICO components: **"Kegel Exercise" OR "Postnatal Exercise" AND "Postpartum Women" OR "Postnatal Mothers" AND "Perineal Pain" AND "Pain Reduction"**.

Initial searches were performed in Google Scholar, PubMed, and ScienceDirect. Titles and abstracts were screened to identify the most relevant studies. Articles meeting the inclusion criteria—such as those discussing the effects of Kegel exercise on perineal pain in postpartum mothers—were then subjected to a full-text review to confirm relevance and scope alignment.

Table 3. Article Acquisition Framework from Each Database

No	Database	Articles Found	Passed Title & Abstract Screening	Passed Full-Text Screening
1	Google Scholar	98	20	8
2	PubMed	37	11	5
3	ScienceDirect	33	9	2
Total		168	40	15

Out of the total 168 articles identified, 15 met the eligibility criteria based on inclusion and exclusion requirements and were used as the primary sources for this narrative review. These articles were critically analyzed to assess research trends, main conclusions, and their relevance to the topic—specifically, the effect of Kegel exercise on reducing perineal pain in postpartum mothers.

3. Results and Discussion

The effectiveness of Kegel exercise in reducing perineal pain among postpartum mothers has been widely examined in both Indonesian and international studies. Overall, the findings consistently demonstrate that pelvic floor muscle exercises—whether performed independently or in combination with pelvic floor muscle training (PFMT)—have a significant impact on accelerating perineal wound healing and reducing pain intensity after childbirth.

In this review, 15 articles met the inclusion and exclusion criteria. Of these, 14 reported a positive effect of Kegel exercise in reducing perineal pain in postpartum mothers, while one article found no significant effect.

Effect	Author(s) / Year	Study Objective	Study Design	Main Findings
Positive	Afra & Lili (2024)	Effectiveness of Kegel exercise in reducing pain and promoting perineal wound healing in postpartum mothers at Zahrotul Umma Clinic, Karawang	Quasi-experimental	Pain score decreased from 10.73 to 4.40 ($p = 0.000$)
Positive	Gustini et al. (2020)	Effectiveness of Kegel exercise in accelerating perineal wound healing in postpartum mothers	Quasi-experimental	Pain score decreased from 5.3 to 2.8
Positive	Fahrur & Nurrohmah (2024)	Evaluation of Kegel exercise and abdominal muscle activation on wound healing and pain reduction	Quasi-experimental	Pain score decreased from 6 to 3; increased blood circulation

Effect	Author(s) / Year	Study Objective	Study Design	Main Findings
Positive	Napitupulu & Desi (2022)	Effect of Kegel exercise and breathing techniques on perineal pain and wound healing	Pre-experimental	Pain decreased from 5.2 to 2.1; faster wound healing
Positive	Nor Asiyah et al. (2023)	Effect of Kegel exercise on the degree of perineal rupture in primiparous women	Quasi-experimental	Significant pain reduction ($p = 0.0001$)
Positive	Lestari & Anita (2024)	Effectiveness of Kegel exercise on perineal wound healing in postpartum mothers	Experimental	Pain score decreased from 6 to 2
Positive	Mariyatul & Widiyanti (2024)	Effect of Kegel exercise on speed of perineal wound healing in postpartum women	Post-test only	Significant pain reduction ($p < 0.0005$)
Positive	Reni Yuli et al. (2024)	Kegel exercises for perineal wound healing in postpartum women at Driyorejo Gresik Health Center	Pre-experimental	Significant pain reduction; improved mobility and comfort
Positive	Rita Afni & Ristica (2021)	Relationship between Kegel exercise and perineal wound healing in postpartum mothers at PMB Dince Safrina, Pekanbaru	Observational	No pain increase; improved abdominal wall recovery ($p = 0.0001$)
Positive	Zhang et al. (2023)	Influence of PFMT during pregnancy on urinary incontinence, episiotomy, and severe perineal tears	RCT	PFMT reduced postpartum pain
Positive	Ruiju He et al. (2023)	Effect of PFMT and perineal massage in late pregnancy on pelvic floor function in nulliparas	RCT	Lighter pain levels and improved pelvic floor muscle strength
Positive	Anis & Nikmah (2024)	Differences in perineal wound healing between performing and not performing Kegel exercises	Quasi-experimental	Pain reduction and accelerated healing
Positive	Ting-Feng et al. (2021)	Early postpartum biofeedback-assisted PFMT in primiparous women with second-degree perineal lacerations	Experimental	Lower perineal tear severity and pain in intervention group
Positive	Desta Ayu & Hidyatunnikmah (2024)	Effectiveness of Kegel exercise on perineal wound healing in postpartum women	Quasi-experimental	Significant pain reduction and faster healing
No effect	Lia Gomes et al. (2021)	Can PFMT prevent perineal lacerations? Systematic review and meta-analysis	Systematic review	PFMT not effective in reducing perineal pain

Several studies in Indonesia, such as that by Afra and Lili (2024), reported that Kegel exercise improves blood circulation to the perineum, allowing oxygen-rich blood to accelerate wound healing. Similarly, Fahrur and Nurrahmah (2024) stated that Kegel exercise enhances blood flow in the perineal area and reduces edema, thereby expediting the healing process. Supporting these findings, Gustini et al. (2020) explained that Kegel exercise strengthens the pubococcygeal muscles and increases perineal tissue elasticity, which facilitates smooth blood circulation and faster wound recovery.

Desta Ayu and Hidyatunnikmah (2024) also noted that Kegel exercise improves tissue elasticity and strengthens the pelvic muscles, thus accelerating wound healing and alleviating discomfort. In line with this, Mariyatul and Widiyanti (2024) emphasized that the contraction–relaxation movements in Kegel exercise promote optimal blood and oxygen supply to perineal tissues, supporting oxygenation and recovery. This view is reinforced by Anis and Nikmah (2024), who stated that the engagement of pubococcygeal muscles during Kegel exercise enhances blood and oxygen circulation, allowing perineal wounds to heal more quickly due to better oxygen and nutrient availability.

Kegel exercise also benefits pelvic floor muscle strength, which is often stretched or damaged during childbirth. Gustini et al. (2020), Reni Yuli et al. (2024), and Rita Afni & Ristica (2021) agreed that Kegel exercise strengthens the urinary tract and vaginal muscles, positively influencing perineal

wound healing and restoring pelvic muscle tone. Napitupulu and Desi (2022) further noted that postpartum Kegel exercise significantly aids perineal wound healing following episiotomy and reduces the risk of infection, recommending it as a standard postpartum intervention.

Additionally, Nor Asiyah et al. (2023) highlighted that regular pelvic floor training strengthens vaginal and pelvic floor muscles, increases blood flow to the vagina and anus, and restores perineal muscle elasticity—all of which are essential for postpartum recovery. Lestari and Anita (2024) provided a broader perspective, noting that Kegel exercise not only accelerates perineal suture healing but also alleviates hemorrhoids and vulvar varicosities, improves urinary control, enhances sexual response, and restores pelvic floor muscle tone and strength. They further noted that Kegel exercise can be performed immediately after childbirth, and when practiced consistently, it optimizes blood circulation to the perineum and promotes recovery.

From an international perspective, Zhang et al. (2023) demonstrated that pelvic floor muscle training (PFMT) during pregnancy significantly reduces the incidence of urinary incontinence and third- or fourth-degree perineal tears, though it does not significantly affect episiotomy rates. Their study emphasized the importance of structured and consistent PFMT during pregnancy to improve maternal quality of life and perinatal outcomes, as it can also help prevent obstetric complications and support perineal structural recovery.

Ruiju He et al. (2023) supported Zhang's findings through an objective assessment using pelvic floor muscle electromyography (EMG). Their study found that PFMT performed in late pregnancy maintains or increases type I and II pelvic floor muscle fiber strength up to six weeks postpartum, contributing to physiological recovery of pelvic floor function and supporting perineal wound healing. Notably, they found that perineal massage had no significant effect on pelvic floor muscle strength, making PFMT the preferred intervention.

Ting Feng et al. (2021) examined the effects of PFMT on postpartum sexual function and found no significant difference between intervention and control groups up to six months postpartum. They attributed inconsistencies in findings to differences in training duration, exercise methods, and assessment tools. While not directly investigating perineal wound healing, their work suggests that PFMT's impact on postpartum pelvic floor function and comfort is complex and may require longer training periods to achieve clinically meaningful outcomes.

In contrast, Lia Gomes et al. (2021), through a systematic review of nine randomized controlled trials, concluded that PFMT was not significantly effective in preventing perineal lacerations. However, they noted that most interventions in their review did not follow recommended protocols in terms of frequency, contraction type, or supervision, suggesting that the lack of significant results may be due to poor implementation rather than the ineffectiveness of PFMT itself. This underscores the need for well-designed PFMT programs that adhere to established standards in order to achieve optimal benefits in perineal healing.

4. Conclusion

Based on the review of 15 research articles analyzed in this narrative review, Kegel exercise is effective in accelerating perineal wound healing and reducing perineal pain intensity in postpartum mothers. Fourteen out of fifteen studies reported positive effects of Kegel exercise on wound recovery, achieved through improved blood circulation, enhanced tissue oxygenation, and strengthened pelvic floor muscles.

The effectiveness of Kegel exercise depends largely on consistency, proper technique, and adequate training duration. Several studies emphasized the importance of structured protocols and professional supervision to maximize benefits. Therefore, Kegel exercise should be promoted as a routine component of postpartum care.

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