

FACTOR RELATED TO EPISIOTOMY PRACTICE : SYSTEMATIC REVIEW

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Abstract

An episiotomy is a surgical operation used toward the end of the second stage of labor to make an incision on the perineum and widen the vaginal aperture in order to assist vaginal birth. It has developed into one of the obstetric procedures that are carried out the most frequently worldwide since it was first documented in the 10th century. It lessens the likelihood that the woman or her newborn baby may experience problems during labor and aids in smoother delivery. The World Health Organization (WHO) recommends a maximum ten percent episiotomy rate for all normal deliveries. An effort was made to fill a gap in the field under consideration regarding the updating of risk factors related to perineal incisions and the search for new ones that take into account their causes (medical indications). According to the conducted study, there were several independent risk factors for episiotomy during labor, including the first delivery, a longer second stage of labor, status after a cesarean section, epidural anesthesia, male gender, and a higher birth weight. A substantial protective factor against the necessity for an episiotomy was giving birth at a birth center. According to research, nullipara and age under 20 are the two main reasons why an episiotomy is necessary. The requirement for an episiotomy and the likelihood of complications are both increased by labor's first and second stage labor being prolonged.

Keyword: *Delivery; Episiotomy; Nullipara; Risk factor*

INTRODUCTION

During the latter portion of the second stage of labor, an episiotomy is a surgical procedure in which an incision is made on the perineum in order to enlarge the vaginal orifice in order to facilitate vaginal birth.¹ Since it was initially reported in the 10th century, it has evolved into one of the obstetric procedures that is performed the most frequently all over the world. It helps to make the delivery go more smoothly and reduces the risk of difficulties during labor for both the mother and her newborn baby. For all normal births, the World Health Organization (WHO) advises an episiotomy rate of no more than ten percent.^{2,3}

The episiotomy rate has been decreasing all throughout the world as a direct outcome of a policy of selective episiotomy. However, there is a need for current efforts to minimize the incidence of episiotomy, particularly in the nations that are still in the process of growing their economies.⁴ Episiotomies are considered elective procedures and are advised for women who have a history of surgery involving the lower genital tract as well as those who require assisted vaginal births. It is possible to administer it in an emergency situation, particularly when there is a presumption that a perineal rip is impending. Midline, lateral, and mediolateral episiotomies are the three varieties of this surgical procedure.⁵

At this particular facility, mediolateral episiotomies are the method of choice. The use of an episiotomy is linked to a number of different risk factors, including surgical vaginal birth, primiparity, inexperience and distress on the part of the healthcare professional, and fetal macrosomia. Indications for an episiotomy could come from either the mother or the fetus. Fetal indications include nonreassuring fetal testing during the expulsive phase of the second phase of labor, preterm delivery, vaginal breech delivery, and to help delivery in shoulder dystocia. Additionally, fetal indications include shoulder dystocia. Indications for the mother include maternal tiredness as well as a longer second stage or to facilitate an operational vaginal birth. This helps to preserve the relaxation of the pelvic muscles and reduces the risk of perineal lacerations as well as fecal and urine incontinence.^{3,6,7}

These beneficial effects are currently being questioned because they are not supported by substantial scientific evidence, and the evidence that is currently available advocates for the restrictive use of episiotomies rather than their routine use.⁶ This is because the restrictive use of episiotomies is associated with less posterior perineal trauma, less of a need for suturing, and fewer complications associated with healing. Complications associated with episiotomies include accidental extension into the anal sphincter or rectum, damage to the Bartholin's gland, unsatisfactory anatomic results such as skin tags, asymmetry or excessive narrowing of the introitus, difficulty in breastfeeding, rectovaginal fistula, and fistula in ano; it may also increase the risk of vertical transmission of the human immunodeficiency virus.⁸⁻¹⁰ This article investigate the factor related to episiotomy practice.

METHODS

Protocol

This review followed the guidelines established by Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) 2020. The regulations were based on the items on this list.

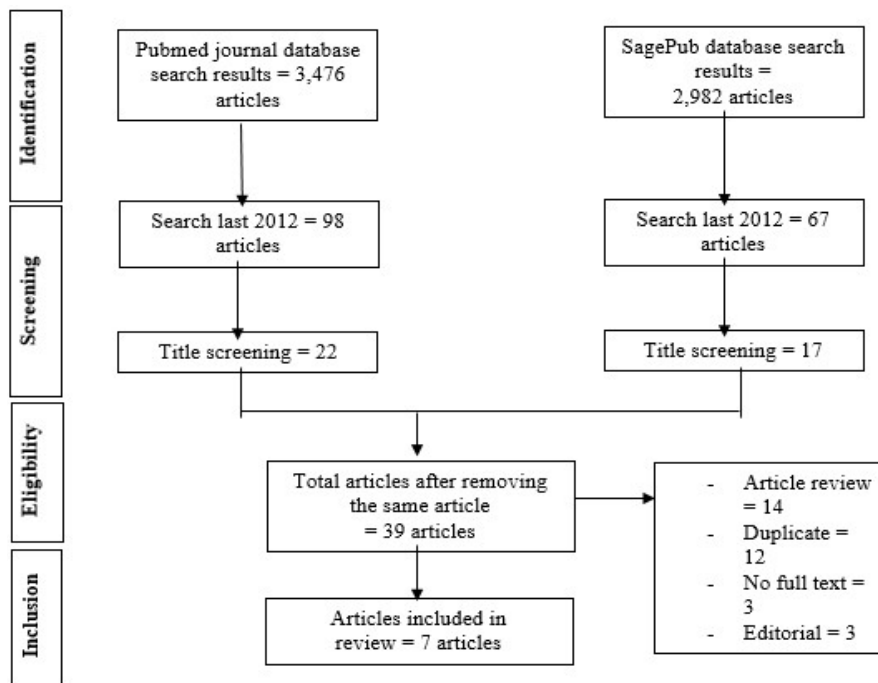


Figure 1. Article search flowchart

Eligibility Criteria

This systematic review was developed to assess literature on “episiotomy practice”, and "risk factor". These are the subjects that were thoroughly covered in the study under consideration. The following conditions must be met in order for your work to be taken into consideration: 1) In order to be accepted, articles must be written in English. 2) In order to be considered, the articles had to have been published after 2017, but before this systematic review was created. The following types of textual entries will not be considered for inclusion in the anthology: 1) Editorial letters, 2) submissions without a Digital Object Identifier (DOI), and 3) article reviews and submissions equivalent to those previously published in the journal.

Search Strategy

The search for studies to be included in the systematic review was carried out from December, 16nd 2022 using the PubMed and SagePub databases by inputting the words: “episiotomy practice”, and "risk factor". Where (*"episiotomy"[MeSH Terms] OR "episiotomy"[All Fields] OR "episiotomies"[All Fields]*) AND (*"practicability"[All Fields] OR "practicable"[All Fields] OR "practical"[All Fields] OR "practicalities"[All Fields] OR "practicality"[All Fields] OR "practically"[All Fields] OR "practicals"[All Fields] OR "practice"[All Fields] OR "practice s"[All Fields] OR "practiced"[All Fields] OR "practices"[All Fields] OR "practicing"[All Fields]*) AND (*"risk factors"[MeSH Terms] OR "risk"[All Fields] AND "factors"[All Fields] OR "risk factors"[All Fields] OR "risk"[All Fields] AND "factor"[All Fields] OR "risk factor"[All Fields]*) is used as search keywords.

Data retrieval

The study's author reworked the inclusion and exclusion criteria after doing a literature review and analyzing the titles and abstracts of previously published research. You can find the updated criteria in the study's supplementary materials. This was done to narrow down the scope of the problem and establish which aspects needed further investigation. The author reached this conclusion after reviewing similar studies that had already been done and published.

It was determined during the process of compiling the systematic review that only studies that adhered to all of the criteria should be included. This meant that only research ideas that fulfilled all of the requirements would be taken into consideration. This was done so that the assessment would be as thorough as feasible. The purpose was to collect information about each individual study, such as its title, author, publication date, origin of study location, research study design, and research factors. This type of data can be obtained. The following are some instances of information that could be gathered: This information can be presented to you in a variety of ways, depending on the presentation manner you want.

Quality Assessment and Data Synthesis

To decide which papers should be examined, the authors conducted independent evaluations of a subset of the research offered in the article titles and abstracts. Then, the complete texts of the studies that satisfy the inclusion criteria for the systematic review will be evaluated to determine which publications will be included in the review. This is done in response to the query, "Which studies may be utilized for the review?"

RESULT

The number of episiotomies performed was 22.1%. The standard deviation for the ages of the women was 3.2 years less than the mean, which was 23.8 years. Seventy-two patients, or 34.3% of the total, reported perineal pain that lasted for at least 72 hours; 61 patients, or 29.1% of the total, had trouble walking, and 37 patients, or 17.6%, had perineal discomfort. There was no statistically significant association found between the development of postepisiotomy complications and risk factors such as gestational age (T = 1.4, P = 0.1), packed cell volume on admission (T = 1.0, P = 0.2), duration of first stage of labor (T = 0.5, P = 0.1), duration of second stage of labor (T = 0.7, P = 0.3), duration of rupture of fetal membranes (T = 0.8, P = 0.4), delivery repair.¹¹

Table 1. The litelature include in this study

Author	Origin	Method	Sample Size	Result
Ononuju, 2020 ¹¹	Nigeria	Prospective study	403	The development of postepisiotomy complications was not statistically significantly associated with risk factors such as gestational age (T = 1.4, P = 0.1), packed cell volume on admission (T = 1.0, P = 0.2), duration of first stage of labor (T = 0.5, P = 0.1), duration of second stage of labor (T = 0.7, P = 0.3), duration of rupture of fetal membranes (T = 0.8, P = 0.4), delivery repair interval (T = 0.6, P = 0.2), estimated blood loss (T = 0.9, P = 0.2), duration of Sitz bath (T = 1.0, P = 0.2), duration of analgesic (T = 1.2, P = 0.1), duration of antibiotics (T = 1.3, P = 0.1), or the operator who performed or repaired the episiotomy (P = 0.2).
Shmueli, 2017 ⁷	Israel	Retrospective cohort study	41,347	Risk factors for episiotomy (nulliparous) were maternal age (aOR 0.98), gestational age (GA, aOR 1.07), regional analgesia (RA, aOR 1.18), labor induction (aOR 1.17), meconium (aOR 1.37) and birth weight (BW, aOR 1.04). Episiotomy was associated with PPH (aOR

				1.49). Among multiparous, risk factors were maternal age (aOR 1.04), previous vaginal delivery (aOR 0.38), GA (aOR 1.06), RA (aOR 1.22), meconium (aOR 1.22) and BW (aOR 1.05).
Owa, 2015 ³	Nigeria	Retrospective cohort study	802	Those age <20 years, nulliparous, those who had assisted breech and instrumental deliveries had more episiotomy (P <0.0001). All the instrumental deliveries and most assisted breech deliveries (67%) were taken by the doctors.
Braga, 2014 ¹²	Brazil	Case-control study	522	It was found that deliveries with episiotomy were more likely to have been attended by staff physicians (OR = 1.88; 95%CI: 1.01 - 3.48), to have required forceps (OR = 12.31; 95%CI: 4.9 - 30.1) and to have occurred in primiparas (OR = 4.24; 95%CI: 2.61 - 6.89).
Zhang, 2018 ¹³	China	Retrospective hospital-based cohort study	3,721	Risk factors specific to primiparas were increasing maternal age (per year) (OR = 1.04, 95% CI = 1.01 to 1.07, P = 0.035), increasing biparietal diameter (per centimeter) (OR = 1.40, 95% CI = 1.06 to 1.84, P = 0.017), first stage of labor beyond 10-hour (OR = 1.36, 95% CI = 1.10 to 1.68, P = 0.005), and birth weight (per 100 g) (OR = 1.06, 95% CI = 1.03 to 1.09, P < 0.001).
Beyene, 2020 ¹⁴	Ethiopia	Cross-sectional study	411	The proportion of episiotomy was 41.1% with 95% CI (36.5%, 46.2%). Multivariable logistic regression showed that primiparity (AOR=6.026, 95% CI (3.542,10.253)), prolonged second stage of labor (AOR=4.612, 95% CI (2.247,9.465)), instrument delivery (AOR=3.933, 95% CI (1.526,10.141)), using oxytocin (AOR=2.608, 95% CI (1.431,4.751)), medical resident attendant (AOR =3.225, 95% CI (1.409,7.382)) and birth weight ≥4000 grams (AOR=5.127,95% CI (1.106,23.772)) were significantly associated with episiotomy practice.
Rasouli, 2016 ¹⁵	Iran	Cross-sectional study	978	Episiotomy was found to have significant relationships with mother's age, parity, first and fifth minute Apgar scores, duration of the second stage of labor, birth spacing, use of oxytocin, vacuum deliveries and use of analgesics (P < 0.05).

Second study conducted with 41,347 women were included in the spontaneous vaginal delivery group: 12,585 (30.4%) nulliparous and 28,762 (69.6%) multiparous women. Risk factors for episiotomy (nulliparous) were maternal age (aOR = 0.98), gestational age (GA, aOR 1.07), regional analgesia (RA, aOR = 1.18), labor induction (aOR = 1.17), meconium (aOR = 1.37) and birth weight (BW, aOR = 1.04). Among multiparous, risk factors were maternal age (aOR 1.04), previous vaginal delivery (aOR 0.38), GA (aOR 1.06), RA (aOR 1.22), meconium (aOR 1.22) and BW (aOR 1.05). Only birth weight (nulliparous) and previous vaginal deliveries (multiparous) were contributors for episiotomy in the OVD group.⁷

The incidence of episiotomy was 9.3%. Those age <20 years, nulliparous, those who had assisted breech and instrumental deliveries had more episiotomy (P <0.0001). All the instrumental deliveries and most assisted breech deliveries (67%) were taken by the doctors.³ Braga, *et al* was found that deliveries with episiotomy were more likely to have been attended by staff physicians (OR = 1.88; 95%CI: 1.01 - 3.48), to have required forceps (OR = 12.31; 95%CI: 4.9 - 30.1) and to have occurred in primiparas (OR = 4.24; 95%CI: 2.61 - 6.89). The likelihood of a nurse having attended the delivery with episiotomy was significantly lower (OR = 0.29; 95%CI: 0.16 - 0.55).¹²

Zhang, *et al* (2018)¹³ study showed risk factors specific to primiparas were increasing maternal age (per year) (OR = 1.04, 95% CI = 1.01 to 1.07, P = 0.035), increasing biparietal diameter (per centimeter) (OR = 1.40, 95% CI = 1.06 to 1.84, P = 0.017), first stage of labor beyond 10-hour (OR = 1.36, 95% CI = 1.10 to 1.68, P = 0.005), and birth weight (per 100 g) (OR = 1.06, 95% CI = 1.03 to 1.09, P < 0.001). Birth weight resulted in an adjusted risk increase of 6.1% among primiparas for every 100 additional grams of birth weight.

Beyene, *et al* study showed proportion of episiotomy was 41.1% with 95% CI (36.5%, 46.2%). Multivariable logistic regression showed that primiparity (AOR=6.026, 95% CI (3.542,10.253)), prolonged second stage of labor (AOR=4.612, 95% CI (2.247,9.465)), instrument delivery (AOR =3.933, 95% CI (1.526,10.141)), using oxytocin (AOR=2.608, 95% CI (1.431,4.751)), medical resident attendant (AOR =3.225, 95% CI (1.409,7.382)) and birth weight ≥4000 grams (AOR=5.127,95% CI (1.106,23.772)) were significantly associated with episiotomy practice.¹⁴

Rasouli, *et al*¹⁵ conducted a study with 978 cases of vaginal childbirth, when 406 (41.5%) had undergone episiotomy. Mean age of participating women was 27.32±5.14 years. Episiotomy was found to have significant relationships with mother's age, parity, first and fifth minute Apgar scores, duration of the second stage of labor, birth spacing, use of oxytocin, vacuum deliveries and use of analgesics (P < 0.05). Overall, prevalence of intact perineum was 34.7%. In the final logistic regression analysis, among significant variables and variables with P < 0.0001 and birth spacing with P=0.043 were considered predictors of episiotomy.

DISCUSSION

The episiotomy is a procedure that was first created to lessen the prevalence of severe (third and fourth-degree) perineal tears during birth. In order to facilitate challenging deliveries, the overall concept is to make a controlled incision in the

perineum for vaginal opening expansion. When opposed to unmanaged vaginal injuries, an episiotomy would ideally relieve pressure on the perineum and result in an incision that is simple to repair. Episiotomy incisions can be made in a variety of ways, including the midline, modified-median, mediolateral, J-shaped, lateral, anterior, and radical.¹⁶⁻¹⁸

The US and Canada use the midline and mediolateral approaches, respectively (Europe). Prior to 2006, when the American College of Obstetricians and Gynecologists (ACOG) advised against its routine use, episiotomy was a commonly utilized procedure in the United States. The selective application of episiotomy is still useful, nonetheless, and should be done in accordance with clinical judgment and maternal or fetal indications. Some nations continue to routinely execute episiotomies nowadays.¹⁷⁻¹⁹

A void exists in the examined field regarding the updating of risk factors associated with perineal incisions and the search for new ones that take into account their reasons (medical indications), hence an attempt was made to fill it. The performed study revealed that the first delivery, longer second stage of labor, status after cesarean section, epidural anesthesia, male gender, and a larger birth weight were independent risk factors for episiotomy during labor. Birthing in a Birth Center was a significant protective factor against the need for an episiotomy.^{20,21}

A few studies have shown the value of using episiotomy only in certain circumstances.²² In contrast to women who underwent regular episiotomy, those who underwent selective episiotomy after non-operative vaginal birth experienced considerably lower rates of severe perineal damage, according to a Cochrane database review by Xu Qian et al. The advantages of its use as a standalone elective surgery, however, are still not well-supported by research. According to a 2019 paper by Sultan AH, the World Health Organization has not yet defined the function of episiotomy. As a result, indications are still guarded and should be decided by the healthcare team on a case-by-case basis. Medical professionals may think about doing an episiotomy when supporting a surgical vaginal delivery, treating shoulder dystocia, or handling a distressed fetus.^{23,24}

In addition, a significant increase in the risk of an episiotomy was identified with the use of oxytocin in the second stage of labor, administration of oxytocin in the first and second stages of labor, epidural anesthesia in primiparous women, and the condition following cesarean section. According to the findings of this study's analysis, first-time mothers have a significantly higher risk of requiring an episiotomy as compared to mothers who have already given birth multiple times.^{12,21}

Episiotomies were performed more frequently on first-time mothers who were examined during their first pregnancy and first delivery, on women who had been diagnosed with gestational diabetes, on women who had a previous history of cesarean section, and on women who had a higher body mass index. In addition, it has been demonstrated that the episiotomy was performed more frequently on women who gave birth in the delivery room as opposed to the Birth Center, who were treated with oxytocin in the first stage of labor, the second stage of labor, and during both the first and the second stage of labor, and on women who were treated with epidural anesthesia.^{12,21}

This was the case for all of these groups of women. It was discovered that the duration of the first and second stage of labor was longer in the group of women who underwent an episiotomy compared to the women who did not undergo this procedure. This was the case for both the first and second stages of labor. It was also discovered that the episiotomy was performed on a mother more frequently if she gave birth to a son or had a laboring partner present (this is known as family childbirth).^{12,21}

If labor does not start and progress naturally, which does not bring perineal muscle physiological relaxation and then could increase labor period, it could be due to intentional use in an effort to reduce labor time, which could imply a more interventionist approach by the delivery attending professional. Another potential reason is that if labor does not start and progress naturally, which does not bring perineal muscle physiological relaxation and then could increase labor period. Induced deliveries can also be more dystocic and can trigger a cascade of subsequent interventions. These interventions can result in patterns of non-reassurance in the fetal heart rate, which need the caregiver to perform an episiotomy.²⁰

When the second stage of labor lasted longer than two hours, there was a 4.6 times increased likelihood of an episiotomy being performed. This finding was also validated by studies that were conducted in Iran and in Ethiopia at hospitals in Addis Ababa and Debre-Markos, respectively. The possible explanation could be due to the incidence of maternal fatigue, which could be as a result of mothers being asked to push down from the early second stage for a long period of time.^{25,26}

Alternatively, the potential explanation could be due to the insufficient provision of any labor support, which contributes to mothers not pushing after more than two hours of efforts, thereby prolonging the second stage of labor. Therefore, obstetric care providers were also developed to be able to execute an episiotomy in order to reduce the risk of perinatal hypoxia, fetal discomfort, and maternal trauma.^{15,25}

CONCLUSION

Study shows that age less than 20 years and nullipara are the two most frequent factors that cause an episiotomy to be performed. Prolongation of the 1st and 2nd stages of labor is associated with the need for an episiotomy and the risk of complications.

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