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COMPREHENSIVE REVIEW OF LABOR PAIN MANAGEMENT, PERINEAL TEARS, AND EPISIOTOMY COMPLICATIONS: A FOCUS ON PREVENTION AND THE ROLE OF NURSES

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Abstract

Objective*: This comprehensive review aimed to assess perineal management strategies during labor and their effectiveness in preventing perineal tears while enhancing maternal well-being.* **Methods***: A three-part review was conducted, covering labor pain causes and management, perineal tears and episiotomy, and preventive strategies with a focus on warm compresses. Existing literature and studies were synthesized to offer a holistic perspective on perineal management.* **Results***: Understanding Labor Pain: Labor pain arises from uterine contractions, perineal and cervical stretching, and pelvic pressure. Management options, including pharmacological and nonpharmacological techniques, such as massage, hydrotherapy, and acupuncture, effectively alleviate pain. Perineal Tears and Episiotomy: Perineal tears, including Obstetric Anal Sphincter Injuries (OASIS), are frequently linked to instrumental delivery, prolonged labor, and fetal positioning. Episiotomy, while at times necessary, carries specific indications and potential complications. Preventive Strategies with Warm Compresses: Studies consistently demonstrate the effectiveness of warm compresses applied during the second stage of labor in reducing perineal tears and enhancing perineal integrity, thereby decreasing the need for sutures.* **Conclusion***: Effective perineal management during labor is essential to ensure maternal well-being and reduce the risk of perineal trauma. Nonpharmacological pain management techniques provide viable options, while perineal tears and episiotomy complications emphasize the importance of preventive strategies. Warm compresses, thoughtfully applied during labor, consistently contribute to maintaining perineal integrity. Nurses play a pivotal role in implementing these strategies, offering holistic care, and ensuring safe and satisfying childbirth experiences.*

Keywords: perineal management, labor pain, perineal tears, episiotomy, warm compresses, childbirth, nursing care, preventive strategies.

Introduction

The researcher will present the literature review for this study in this paper. The researcher will provide a general overview of the stages of labor, covering the causes of labor pain, pain management techniques, and information on pharmacological and nonpharmacological management during labor. Additionally, the researcher will consider OASIS complications and perineal tears, with associated risk factors. The researcher will also briefly determine episiotomy and its complications. The researcher will present some perineal

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tears preventions followed by the role of the nurse in the labor room.

Search Strategy: The search technique incorporates the key elements of the research topic to attain trustworthy results. In this regard, choosing databases is a crucial step. The researcher conducted a thorough search for the literature review using electronic resources. For this review narrative, CINAHL, MIDLINE, PubMed, Semantic Scholar, and Google Scholar were the five electronic sources into which the researcher entered the search criteria and key terms. They found that a significant volume of research and journal articles were stored in these five databases. The screening process involved two steps: an abstract screening and a full-body examination. To find the significant publications for this research review, the researcher read the abstract from the sources of data first, then the body.

When searching for literature in the electronic databases, the researcher used the following keywords: Pregnant women, Expectant women, Reduce pain, Perineal tear, Perineal trauma, During active phase of labor, During second stage of labor, Perineal protection, and Perineal integrity. Furthermore, the researcher combined the acceptable vocabulary words with "AND" and "OR" to increase the number of targets in the chosen databases.

Overview of the Labor Stages: An average human pregnancy lasts 40 weeks, starting on the first day of the last menstruation. Although there is significant inter-individual variance in pregnancy length, it is common for it to last between 37 and 42 weeks after the last menstrual cycle. Unknown factors contribute to the wide diversity in the length of human pregnancies [Tanbo T et al, 2018].

The first stage is separated into three phases: early labor (latent phase), transition (deceleration phase), and active labor (accelerated phase) [Dashe JS et al, 2018]. The early phase (latent phase), which involves gradual cervical dilatation over several hours, is often the longest because it does not involve a great deal of measurable activity. Regular contractions trigger it, and it continues until the cervix is 3 cm dilated. The contractions grow milder and more stable throughout this stage and happen around every 10–15 minutes. In this stage, women tolerate pain and suffering well [Dashe JS et al, 2018].

In the active phase, the cervix will dilate between 6 and 10 cm. The contractions will get stronger, space out, and become regular. Women might feel nauseous, their legs might cramp, and they might experience a water break (*Stages of Labor and Birth: Baby, It's Time!*, 2022]. Furthermore, fetus descent occurs in the pelvic; during this period, women may easily lose control. As contractions strengthen, anxiety and discomfort spike, making it harder to bear the pain of labor. Contractions happen 5 minutes apart and range from mild to high severity [Dashe JS et al, 2018].

The cervical dilatation continues throughout the transitional phase (deceleration phase), although at a slower rate (8–10 cm), until complete dilation occurs. In some women, the deceleration phase transitions into the active period without being noticed. Additionally, during this period of rapid descent, there are more frequent contractions. Transition is a brief but stressful period, and many women struggle to maintain healthy coping mechanisms during this time [Dashe JS et al, 2018].

The time between the cervix's complete dilation and delivery of the fetus is referred to as the second stage of labor. The active part is when the mother begins to push while "bearing down" with her abdomen muscles. However, the fetal head may complicate the perineum and cause the anus to expand as it descends. A perineal trauma to a woman's genitalia is possible. Perineal skin tears of the first degree occur spontaneously; second-degree tears affect the perineal muscles and skin; third-degree tears include the anal sphincter complex; and fourth-degree tears affect the anal sphincter complex and anal epithelium [Modoor S et al, 2021].

Stage three of labor (placental stage) starts with the birth of the baby and finishes with the placenta's separation and delivery. It is divided into two stages: placental separation and placental ejection. After giving birth, the uterus can still actively contract, dramatically decreasing in size. The placenta separates from the uterine wall as a result of these contractions and prepared to give birth when it exhibits the following symptoms of separation. In the latter stage, within 30 minutes after giving delivery, the placenta is evacuated after placental detachment from the uterine wall due to continued uterine contractions [Dashe JS et al, 2018].

The fourth stage of labor, or the restorative

stage, starts 2 hours after the placenta is delivered because this is when homeostasis is restored and there is an immediate period of recovery. It is crucial to keep an eye on the development of complications throughout this time such as bleeding. Additionally, this is the period of time when the infant becomes familiar with the mother and other members of the family [Dashe JS et al, 2018].

Labor Pain: Labor is a physiological event. However, pain is an essential part of labor and usually unpleasant for women. Pregnant women look forward to labor, but for some, the experience of giving birth can be mixed with worry and panic due to the pain involved. Stress hormones are released when anxiety activates the sympathetic nervous system, which leads to abnormal uterine contractility and prolonged labor [Lestari CI et al, 2022].

For Muslim women, giving birth is a joyful experience. Muslims are advised to seek medical attention and to pray to Allah for relief when they are hurt. The Arabic term "jihad" literally translates to "straining or striving and working hard for anything," particularly for a noble cause (such as the crusades against smoking, drugs, and women giving birth) [Desmawati KW & Chatchawet W, 2019]. Because labor in childbirth is a natural process, a woman often requests an elective cesarean section (elective CS), unless it is her last alternative if she has problems [Desmawati KW & Chatchawet W, 2019].

Labor pain is one of the most difficult conditions that most women face in their lives, but the stress associated with uncontrolled labor pain has a significant influence on the mother and the fetus [Gönenç & Terzioglu, 2020].

The stimulation of pelvic and cervical pain by the fetal head in primigravida women and low fetal stations is the reason why they have more pain than multiparous women. Moreover, the lack of experience also contributes to the greater physiological pain produced by uterine contraction. Lack of information makes people's brains more fearful and anxious, which in turn makes their bodies tense and increases their pain and suffering. When spiritual and cultural concerns are ignored, a woman feels as though she is in a strange situation, which aggravates her anxiety and pain and affects how she views the pain of childbirth [Desmawati KW & Chatchawet W, 2019].

Causes of Labor Pain: First, the researcher will consider pain from uterine contractions: Normally, pain is not felt when the heart or stomach contract involuntarily. Uterine contractions are special in this regard. The compression of the arteries feeding the myometrium is what causes uterine ischemia (reduced blood flow and therefore a local oxygen deficit) that results from uterine contractions. Hypoxia develops as lactic acid builds up in the uterine muscles during contractions. This pain is mostly felt in the bottom part of the abdomen and extends to the iliac crests, gluteal region, and down the thighs [Alghatis A & Faheem W, 2020].

Second, labor pain is brought on by stretching of the cervix and perineum. As long as the woman pushes after the cervix has fully stretched and she feels the need to push so, the pain from the contractions can go away. The woman continues to push until the fetus-presenting part forces the perineum to finally stretch [Alghatis A & Faheem W, 2020].

Third, pressure on the mother's pelvis results in a sensory pain signal that goes down the sympathetic nerves that enter the neuroaxis between the auxiliary lower thoracic and upper lumber sympathetic nerves and the T11–T12 spinal nerve segment. These nerves begin in the body and cervix of the uterus [Alghatis A & Faheem W, 2020].

Pain intensity and frequency affect pain behaviors. Strong labor pains can result in obviously out-of-control pain behaviors, which might be harmful to the mother and fetus. This is due to the fact that they interfere with the autonomic maternal processes and result in the release of catecholamine, which causes abnormal labor and fetal distress [Desmawati KW & Chatchawet W, 2019].

Moreover, it has been reported in the past that pain and labor anxiety are correlated. Stress hormones including noradrenaline, cortisol, and adrenaline are released when the sympathetic nervous system is stimulated by anxiety, which increases both the intensity of labor pain and length of labor. Therefore, one of the most crucial challenges during labor is identifying how to deliver the most pain relief and relaxation with the fewest consequences [Tabatabaeichehr M & Mortazavi H, 2020].

Management of Labor Pain: It is uncomfortable to be in pain from labor contractions; however, pain management is necessary to protect the mother and fetus from potential harm. Pain man-

agement techniques come in many different forms. Nonpharmacological management is more effective and has fewer negative effects than pharmacological management [Lestari CI et al, 2022].

Pharmacological Pain Management During Labor: Pharmacological management for managing pain during labor includes giving patients sedatives and analgesics [Lestari CI et al, 2022]. Chronic pain, postpartum stress syndrome, and negative psychological and physiological effects have all been associated with untreated labor pain [Ashagrie HE et al, 2020]. Therefore, effective labor analgesia should work to make delivery safer for both the mother and the infant as well as to relieve the mother's pain and suffering [Lam K et al, 2020].

Entonox: A long-used mixture of 50% nitrous oxide and 50% oxygen is called Entonox [Lam K et al, 2020]. Entonox is a gas that has the advantages of rapid onset, short duration, and rapid fade. It is also tasteless, colorless, and odorless. Entonox usage has expanded due to its affordability and has minimal side effects. When using Entonox, drowsiness and nausea may occur as side effects; nevertheless, they usually go away after one stops inhaling it [Subasinghe TB et al, 2020].

Pethidine: Pethidine intramuscularly is frequently prescribed. Because pethidine is a strong opioid, its adverse effects are frequently somnolence, nausea, vomiting, and respiratory depression. It is less effective than epidural analgesia and cannot be administered at the end of the first stage of labor or during the second stage due to the baby's respiratory depression caused by the medication [Lam K et al, 2020].

Epidural Analgesia: Over the previous 20 years, there has been a sharp rise in the demand for use of lumbar epidural analgesia for labor pain relief, due to its rapid onset, and with its lower local anesthetic consumption, spinal epidural analgesia is currently becoming widely accepted. Authors of some comparative studies on the impact of lumbar epidural analgesia on the progression of labor and fetal outcome claimed that it prolongs the second stage of labor and raises the prevalence of instrument-assisted vaginal deliveries [Ashagrie HE et al, 2020].

Nonpharmacological Pain Management During Labor: Nonpharmacological pain management during labor refers to techniques used to make the woman more comfortable, encourage rest, make it easier for her to control the pain, and keep her from suffering without the use of medication. Nonpharmacological pain management decreases labor pain without having a significant impact on the mother, the fetus, or the progression of labor [Mwakawanga DL et al, 2022].

However, nonpharmacological pain management techniques can be employed alone as a pain treatment strategy or as a companion to pharmacological pain management techniques. These include mental or physical efforts that distract the mother's attention from her pain. By breaking the loop of pain, fear, and tension, they also lower stress and enhance tolerance for pain. The gate control hypothesis, which holds that distraction can be successful in stopping the brain from processing pain signals arriving at the cortex [Czech I et al, 2018].

Nonpharmacological measures can be used to manage the pain complaints instead of analgesia during labor and delivery. Breathing exercises, hydrotherapy (bath, water delivery, and immersion bath), massage, acupuncture/acupressure, and transcutaneous electrical nerve stimuli are some of these measures [Mascarenhas VH et al., 2019]. Heat and cold interventions with water are thought to be appropriate methods of labor pain management among nonpharmacological techniques for lowering pain [Yazdkhasti M et al, 2018].

Warm Compression: Heat decreases muscular spasms while raising body temperature, blood circulation, and metabolism. According to studies, heat greatly enhances uterine activity without changing the fetal heart rate. Because of this, using hot water during the early stage of labor might shorten its duration [Yazdkhasti M et al, 2018]. According to Kaur J et al. [2020], heat releases heat receptors in the skin and deep tissues, which stop the transmission of pain signals to the brain by closing the pain control gate, providing the mother with some pain relief. Warm compression on the lumbo-sacral region is a useful strategy for primigravida women in the first stage of labor to alleviate the pain of childbirth [Kaur J et al, 2020].

According to the gate control theory, heat therapy stops the transmission of impulses to the brain by generating endorphins to lessen pain. Additionally, it promotes oxytocin secretion, lessens adrenalin production, and eventually advances labor,

which ultimately decreases the labor time [Goswami S et al., 2022].

Cold Compression: Different forms of cold intervention may assist in alleviating pain. This impact might be analgesic stimulation, peripheral nerve receptor activation to suppress pain perception, or improved energy flow in acupuncture locations. Reduced muscular tension alters the speed of nerve conduction, slows down pain transmission to the central nervous system, and diverts attention away from pain. Other ways in which cold intervention works include lowering catecholamine levels and raising endorphin levels [Yazdkhasti M et al, 2018]. According to EL-Sayed S, [2019], the study group compared to the control group, cold compresses over the lower part of the abdomen were beneficial in decreasing the first stage of labor's duration and pain. Greater satisfaction among primiparous women with the use of the cold compress intervention was a further advantage.

Perineal Cold Compress: This is an ice pack that is wrapped in clean material, such as sterile gauze or a washcloth, then packaged for use. However, stimulation with a cold compress produces an analgesic effect with slow nerve conduction, which causes fewer pain impulses to reach the brain [Ulfa M & Monica LP, 2020].

Aromatherapy: Essential oils used in aromatherapy have the power to both comfort and fight infection [Lestari CI et al, 2022]. Because lavender essential oil is anti-inflammatory, analgesic, and antibacterial, it is one of the complementary therapies that can treat pain and infection. It is not unexpected that some recent findings suggest that lavender aromatherapy can lower pain, aches, and stress levels in pregnancy and childbirth because it includes linalool and linalyl acetate, which have an analgesic effect and can relax an individual [Lestari CI et al, 2022].

Back Massage: Endorphins, which are the body's natural painkillers and happiness enhancers created in the brain, are released when we receive massage therapy. Massages can help with pain relief and anxiety reduction in the early stages of labor. Additionally, it makes contractions feel less severe and more tolerable, which aids in coping. Valid research supports the benefit of back massage in reducing labor pain, according to the current review [Choudhary S et al, 2021].

Music Therapy: In the early stages of labor, music can help mothers relax, and later, when women are pushing, it can stimulate uterine activity, which reduces pain and anxiety [Guo H et al, 2022].

Positioning: The effect of changing positions during the early stage of labor can best be expounded by nurses who are able to demonstrate to the women. The nurse encourages the women to select between sitting, walking, kneeling, standing, lying down, going on hands and knees, utilizing a birthing ball, and changing positions regularly (every 30 minutes or so). However, ambulation and position changes are helpful for comfort and alleviation of pain during labor [Alghatis A & Faheem W, 2020].

Breathing Exercises: The parasympathetic nervous system is stimulated by breathing exercises, resulting in enhanced blood oxygenation and the release of endorphins, which lower heart rate and promote peacefulness. Endorphins also inhibit the sympathetic nervous system, which reduces the release of the stress hormone cortisol [Issac A et al., 2023]. In a quasi-experimental study [Choudhary et al., 2018], 60 women participated in the experimental group during the first stage of labor and received labor support measures such as left lateral position, deep breathing exercises, and sacral (back) massage. As a result, it may be said that labor support techniques were successful in reducing labor pain.

Perineal Tear: Perineal tears and trauma are the most common second-stage issues after labor [Sarhan EE et al, 2022]. A perineal tear is any injury to the perineal area or the muscles of the pelvic floor that happens unintentionally or on purpose (via an episiotomy) during the second stage of labor [Sarhan EE et al, 2022]. The term "perineal pain" refers to discomfort brought on by tears in the perineum, vagina, cervix, or uterus. These tears may occur naturally or because of interventions during labor [Syaiful Y et al, 2020).

Perineal tears generally fall into four groups: first-degree injuries are skin injuries, including fourchette, hymen, labia, and vaginal epithelium; second-degree injuries may affect the deep muscles (pubococcygeus) and superficial muscles (bulbocavernosus and superficial transverse perinea) as well as the perineal skin layer, subcutaneous fat, and posterior vaginal wall; third-degree injuries in-

clude the anal sphincter muscles, perineal skin, and the vaginal epithelium; and fourth-degree injuries involve complete destruction of the anal epithelium and external and internal sphincter anal complexes [*Fadlalmola H & Mohammed AA, 2023*].

Most often, perineal damage is accompanied by severe long-term consequences and discomfort. As a result, there is a pressing need for perineal trauma prevention [*Sarhan EE et al, 2022*].

Complications of Perineal Tears: More than 60% of women suffer perineal tears during a typical vaginal delivery [Gaheen MS & Abo-Hatab T, 2021]. Blood loss, hematoma infection, an abscess, the need for sutures, urine and fecal incontinence, weak muscles of the pelvic floor, dyspareunia, and ongoing perineal discomfort are some of the short- and long-term complications of perineal trauma after delivery [Gaheen MS & Abo-Hatab T, 2021]. Furthermore, the mother–baby bonding process, sexual behavior, nursing, and postpartum healing feelings are all affected by these issues [Gaheen MS & Abo-Hatab T, 2021].

Perineal Tear Risk Factor: Numerous researchers have identified several variables that are connected to perineal tears. Aguiar M et al. [2019] mentioned the factors age of the mother, parity, position during labor, postdate, weight of the child at birth, malpresentation and malposition of the fetus, instrumental delivery, shoulder dystocia, induction of labor, timing of the second stage of labor, education and awareness of the mother, male child, birth in a private hospital, and race. It is noted that in numerous pregnancies birth weight or being large for gestational age, the occipitoposterior position, prolonged second-stage labor, and forceps-assisted delivery were risk factors for perineal tears.

Obstetric Anal Sphincter Injuries (OASIS): In Saudi Arabia, between 0.73% and 8% of all vaginal births had an overall incidence of OASIS in a study by al Ghamdi DS [2020].

According to Sideris M et al. [2020], up to 30,000 women each year have OASIS, one of the most common causes of anal (fecal and flatus) incontinence in women of reproductive age. The incidence of OASIS following vaginal birth is reportedly rising globally as a result of growing instrumental delivery techniques and a rising birth rate [Darmody E et al, 2020]. According to Gurol-Urganci I et al. [2021], a few examples of practice changes that are believed to be contributing to the rise in the rates of OASIS include increased use of a "hands-poised/hands-off" strategy rather than a "hands-on" method to protect the perineum, a resistance to performing an episiotomy, and deficiencies in obstetricians' and midwives' training.

A diverse team of national U.K. professionals, with the assistance of national professional organizations, produced a "care bundle," which is a group of actions that, when used together, are expected to improve outcomes. The OASIS care bundle includes providing women with prenatal education, manual perineal care and, when clinically indicated, the use of mediolateral episiotomies at an angle of 60 degrees. To assist in identifying perineal tear and promote rapid healing, the care bundle also mandates that the perineum should be carefully inspected as soon as possible after birth, including a per rectum inspection [Gurol-Urganci I et al., 2021].

According to Ghamdi DS [2020], instrumental delivery, a longer second stage of labor, being primiparous, having a fetus that is large for gestational age, and having an occipitoposterior position are all factors that are consistently linked to OASIS. The risk of third- and fourth-degree perineal trauma is increased by parity, macrosomic infants, dorsoposterior position, and shoulder dystocia [Košec V et al., 2019].

Complications of OASIS: According to Gurol-Urganci I et al. [2021], OASIS is a significant side effect of a normal birth. The OASIS rate is increasing in several countries with long-term consequences including chronic pain, sexual dysfunction, and urinary or anal incontinence.

Third- and fourth-degree perineal tears can have substantial long-term effects on women, including ongoing perineal discomfort, fecal and flatal incontinence, painful sexual activity, a decreased quality of life, and depression, if they are not identified early and properly healed. Women's psychological well-being and family bonds may be impacted by significant social and emotional repercussions. Women who are considered to be "at risk" must be recognized, and any who experience a third- or fourth-degree tear must be quickly diagnosed, treated, and given follow-up and counseling [Wilson AN & Homer CS, 2020].

Episiotomy : A surgical procedure called an

episiotomy expands the birth canal's terminal portion in the perineum, making it easier for the fetal head to exit. Episiotomies come in a variety of forms, but three of them are most frequently employed. The health care provider makes a midline incision of the perineum down to the anus. The angle of the mediolateral episiotomy incision in either the left or right anal canal is between 40 and 60 degrees. An angle faces away from the midline lateral episiotomy incision at either 4–5 or 7–8 o'clock [Zaidan AD et al, 2018].

The WHO advises a 10% episiotomy rate for all regular births. Episiotomy indication may be fetomaternal. The non-reassuring fetal condition in the second stage of labor, preterm birth, vaginal breech delivery, and assistance of delivery in shoulder dystocia are all examples of fetal indications. Maternal reasons include tiredness, a longer second stage, or promotion of an operation vaginal birth, which preserves the pelvic muscles' ability to relax and lowers the risk of perineal lacerations and urine and fecal incontinence [Ononuju CN et al, 2020].

Complications of Episiotomy: Both short- and long-term consequences may result from episiotomy, with the former including perineal cuts and bruises, bleeding, wound site edema or infection, anal sphincter injury, and damage to the rectal mucosa. Additionally, it could, over time, result in chronic infection, anorectal dysfunction, sexual dysfunction, and pelvic organ prolapse [Haji A et al, 2022].

Preventative Strategies of Perineal Trauma

During the second stage of labor, maternity nurses can employ a variety of nonpharmacological strategies and methods to reduce pain and prevent perineal tears, including perineal muscle exercises, perineal lubrication, massage, hands-on (perineal supports) and hands-off approaches, and cold and warm applications [Gaheen MS & Abo-Hatab T, 2021].

Perineal Massage : The term "perineal massage" refers to the clinician's fingers massaging the posterior perineum (with or without lubricant) [Aquino CI et al., 2018]. When used during the active stage of labor, the perineal massage technique with lubricant can result in muscular dilation and the avoidance of trauma due to vasodilation and increased blood flow to the region [Akhlaghi F et al., 2019].

Hands-On Technique: Pressure should be exerted on the stretched perineum as well as the advancing vertex [Lee N et al., 2018]. This method, which slows down the fetal head's delivery and allows the smallest diameter to appear, has long been a standard practice in midwifery [Gaheen MS & Abo-Hatab T, 2021].

Hands-Off Technique : The midwife's function is to observe and track the delivery of the baby, provide light pressure in the case of a quick expulsion, and deliver the baby without touching its perineum [Goma L et al, 2020].

Ritgen's Maneuver: This involves the obstetrician delivering the fetus' head while using one hand to extract the fetus' chin from its position between the mother's anus and coccyx and the other to apply pressure on its occiput [Wilson AN & Homer CS, 2020].

Perineal Warm Compresses: Warm compresses applied to the perineum during the second stage of labor can help minimize perineal tears, increase maternal comfort, and cause vasodilatation, which increases blood flow to the tissues, aids in tissue stretching, and speeds up the evacuation of waste products from the tissues [Gaheen MS & Abo-Hatab T, 2021]. In a study by Modoor S et al. [2021], warm compresses were used by soaking a sterile perineal pad (gauze) with a specified temperature of warm water. In some research, after cleansing the perineum, participants were left there with the warm compress for 15–20 minutes [Farahmand M et al., 2019].

The Effect of Warm Compresses on Perineal Tear and Pain Intensity: Modoor S et al. [2021] conducted a randomized controlled trial with post-test-only design in Saudi Arabia with 100 primigravida pregnant women. They combined administration of the warm compresses with standard hospital care for the intervention group. Then, until the head began to bulge, they continuously applied warm compresses. During the second stage of labor, the control group received standard hospital care, including half-hourly monitoring and recording of the frequency of contractions, evaluation of the vital signs, and examining the frequency of micturition or catheterization to empty the bladder. The results showed that more than half of the experimental group (52%) reported moderate pain, and in the control group (34%) reported moderate pain. Additionally, the results showed that the intact perineum was higher in the experimental group

(22%) than in the control group (10%) in terms of minimizing tears. Interestingly, the control group had a higher incidence of episiotomy (24%) than the experiment group (18%).

Akbarzadeh M et al. [2018] conducted a study in Iran consisting of 150 primigravida women. In a randomized clinical trial, for the intervention group the researchers applied warm compress at 7 cm and finally 10cm cervical dilation once the position was zero. The application of warm compress was for at least 15 minutes and no longer than 20 minutes throughout each contraction in two stages. The researchers concluded that two-stage local warm compression was a highly promising intervention to shorten the pain duration at the second stage. Meanwhile, the first stage of labor pain duration was shortened by half.

Alihosseni F et al. [2018] conducted a clinical trial study in Iran with 114 primigravida women. For the intervention group, skilled midwives applied perineal pads to the perineum at the beginning of the second stage of labor in each shift, which were withdrawn after the mother's transfer to the labor room. The researchers delivered each subject while being blind to the application of the pads. Considering the mother's condition as well as the researchers' knowledge and expertise, they made decisions on whether to perform episiotomies or not. They applied Ritgen's maneuver for the control group. The results showed that the frequency of first- and second-degree tears was not significantly different between the two groups, with first-grade tears being recorded in (24.1%) and (26.4%) of participants in the control and intervention groups, respectively. The researchers observed (16.7%) and (13.2%) tears with the second degree in the control and intervention groups respectively, although these numbers were not statistically significant. Furthermore, in the control and intervention groups, (40.7%) and (20.8%) of participants, respectively, had an episiotomy, which was significantly different between the two groups.

A randomized experiment by Farahmand M et al. [2019] in Iran consisted of 150 primiparous women who were split into two groups. For the intervention group at zero dilatation, the researchers applied a warm compress once at 7 cm and once at 10 cm after cleansing the perineal area; they used sterile soft towels to cover the compresses, which were then left there for 15–20 minutes. Meanwhile, the control group simply received standard hospital care. The researchers concluded that on the Visual Analogue Scale (VAS), in the first stage of labor, VAS scores under 4 were observed in the intervention group (25.7%) compared to the control group (0.0%), and for the scores over 8, they saw in the intervention and the control group, (14.9%) and (58.7%), respectively. In the second stage of labor, the intervention group showed a higher percentage of VAS scores under 4 (75.7%) than the control group (0%), and for scores above 8, they found in the intervention and the control group, (0%) and (68%), respectively.

Gaheen MS & Abo-Hatab T, [2021] performed a comparative experimental research design in Egypt with a convenient sample of 120 pregnant women. The researchers examined the effects of perineal massage with warm compresses in which the participants perineum and external genitalia were given warm compresses and held continuously during the second stage of labor with gloved hands throughout and in between pushes. Participants were divided into four groups (three study groups and one control group). The results of the study showed that the applications and advantages of warm compresses, hands-on approaches, and perineal lubricated massage during the second stage of labor improved perineal outcomes. It was clear that the control group had a higher percentage of tears (43.3%) compared to the lubricated massage technique group, warm compress group, and hands-on technique group (3.3%, 10%, and 3.3%, respectively).

Sarhan EE et al. [2022] conducted a quasi-experimental (comparative) study in Egypt on a convenient sample of 150 primigravida women. The researchers applied a clean, warm perineal compress to the women's perineum over the entire second stage of labor, each time the uterus contracted, for the intervention group. Women received lubricated massage of the perineum during the second stage of labor for the second intervention group. The control group received standard hospital care, which was a hands-on technique. The result was that warm compresses were successful in minimizing perineal tears and the extension of the episiotomy. The results showed that the incidence of intact perineum was higher in the warm compress group (60%) than the control group (10%). In

terms of the severity of perineal tears, the research showed that the warm compress group had a lower incidence of third- and fourth-degree perineal tears (2%) than the perineal massage group (0%) and control group (6%). Regarding the rate of episiotomy, warm compresses had a significant effect on lowering the rate of episiotomy (16%) than the control group (64%) [Sarhan EE et al, 2022].

El-Sayed et al. [2022] conducted a study in Egypt, consisting of 69 women who were divided into three groups: 23 women from Group 1 were given lubricated perineal massages; 23 women from Group 2 were given warm perineal compression from the beginning of the second stage until crowning was replaced every 15 minutes; and 23 women made up Group 3's "control group," which received neither heated perineal compression nor perineal massage. The results showed that women who had perineum tear (52.2%) in the control group required perineal suturing, while (21.7%) of the warm compress group and (13.3%) of the perineal massage group required perineal suturing.

Thenu U et al. [2019] set out to determine the association between the usage of warm compresses around the perineum during the second stage and the incidence and severity of perineal laceration in primiparous women in a nonrandomized controlled trial study conducted in Indonesia with 124 primigravida women. The researchers applied warm compresses on the perineum for a total of 20 minutes during the second stage in intervention groups. Women who underwent assisted birth or episiotomy were excluded. Control group without warm compress. They concluded that there was a relationship between the use of warm compresses on the perineum area and the frequency and severity of lacerations. In the perineal warm compresses group, there were 10 respondents with intact perineum and 52 with a laceration. There were two respondents in the control group with intact perineum and 60 respondents with a laceration.

According to Magoga G et al. [2019], perineal injuries may have a serious impact on women's lives because they are associated with discomfort, incontinence, and sexual dysfunction. Warm compresses during the second stage of labor may minimize perineal injuries, according to this extensive review and meta-analysis of results from randomized controlled research. A total of 2,103 participants from seven studies made up this meta-analysis. Perineal warm compresses made from cleaning supplies were given to the women assigned to the intervention group. These were applied to the woman's perineum in the second stage both during and in between contractions. Warm compresses were often given during the second stage of labor when the baby's head started to distend the perineum or when the fetal descent occurred. The research result was that applying warm compresses during the second stage of labor increases the likelihood that the perineum will remain intact in the interventions group to a greater degree than in the control group (22.4% vs 15.4%) and results in a larger percentage of perineal injuries without the need for sutures (54.1% vs. 47.1%, respectively).

In a systematic review and meta-analysis conducted by Fadlalmola H & Mohammed AA, [2023], the researchers' goal was to determine how warm compresses affected maintenance of perineal integrity. The final analysis included 13 articles (n = 3,947) that met their inclusion criteria. The authors concluded that in terms of episiotomy, the severity of perineal trauma (third and fourth degree), perineal trauma needing suturing, and behavioral pain scores (severe muscular tenseness, being extremely restless, and continual grimacing), the warm compress demonstrated better results.

Role of the Nurse in the Labor Room

Nurses must be attentive with a woman who is in labor and her fetus, as well as support her and her family emotionally [Nuriy LM et al, 2018]. Therefore, to promote women's autonomy and give this singular moment of parturition a new meaning for women and the professionals who experience it, delivery care must be secure and based on scientific evidence [Da Silva TP et al., 2019].

Nurses and other medical professionals are required to assist women during labor by using non-pharmacological analgesic techniques such as massage, warm or cold compresses, and complementary medicine to reduce the pain while improving the mothers' mindset toward the pain of labor and vaginal delivery [Farahmand M et al., 2019].

Nurses employ several strategies to lower the rate of episiotomies and the resulting harm to the genital tract and perineum in the second stage of labor, but there is no analogous and efficient approach for safeguarding the perineum. Perineal

massage, localized perineal heating, restraining from using hands as the baby's head comes, and Ritgen's maneuver are some of the management strategies that have been used to date to preserve the perineum intactness, particularly in the second stage of labor. One of the supporting techniques that midwives frequently employ during the second stage of labor is local heating of the perineum. This procedure works by increasing the perineal muscles' capacity to relax and expand as well as the perineum's blood supply [Alihosseni F et al, 2018].

The major components of structured nursing and midwifery care, which includes a defined approach to assessment of and intervention for a mother and fetus throughout labor, are to normalize the environment; palpate to determine fetal position; promote mother's posture; evaluate labor pain; show cognitive, behavioral, and sensory intervention to manage labor pain; evaluate maternal emotional status; and utilize interventions to lessen emotional distress [Nuriy LM et al., 2018].

Summary

The researcher included an overview of the stages of labor in this chapter. There was also information on pharmacological and nonpharmacological management during labor, as well as the causes of labor pain and pain management techniques. The researcher additionally took into account perineal tears, perineal tear risk factors, and consequences of OASIS. The researcher gave a brief overview of episiotomy and its complications. The researcher discussed some ways to prevent perineal tears before moving on to the role of the nurse in the labor room. The researcher will discuss the methods employed to address the research question and accomplish the aim and objective in the following chapter.

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