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Assessment of Manual Perineal Protection Techniques Applied in the Second Stage of Labor and its relation to women's Birth Outcome

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Abstract: **Background: Perineal trauma can expose many women to short/ long-term physical, psychological, and social complications. As birth is imminent, the primary priority ismaintaining perineal integrity and avoiding perineal tear. Different perineal techniques are being used to protect the perineum and prevent injury including the three proposed methods (FMPP- VMPP-MRM). Aim: This study aimed to assess the relationship between various manual perineal protection techniques and birth outcomes during the second stage of labour. Methodology: a non-experimental quantitative study was performed at East Jeddah hospital, KSA. The study population consisted of a non-probability convenience sampling of 180 parturient women. Data collection was done by filling out the questionnaire through direct questions and observation of the childbirth process after consenting. Result: The main finding of the current study shows that the mean age was 31.8± 5.8 years (P <0.05), More than three- quarters of participants were multigravida and used a directed way of pushing, The vast majority of newborns were in cephalic presentation, occipito-posterior position, their weights were average (2.5-3.5kg). The VMPP technique was the most dominant MPP technique used by the attendants. The mean of the first stage, second stage, and pushing time was (8.3 ±3.9/Hr., 38.6 ±24.7/ min, & 27.5 ±18.8/ min) respectively. No complications during childbirth had been observed, and all newborns were vigorous 7-10 APGAR scores at the first and fifth minutes of life. Conclusion: This study concluded that there were no significant differences between the use of VMPP or FMPP techniques regarding birth outcomes. Worth mentioning that there was no single case of OASIs has been reported.**

Keywords: **MPP, parturient, perineum, Hands- on, Guarding, OASI.**

1. INTRODUCTION

Nothing is more beautiful, unique, and powerful than a woman giving birth. This ceremony simultaneously births a new mother and a new baby, an unforgettable moment (Schenker, 2019). As birth is imminent, the primary priority is maintaining perineal integrity and avoiding perineal tear (King et al., 2019). Perineal trauma/ laceration or tear is any damage to the perineum (from the vagina to the anus) during childbirth. It can occur spontaneously or result from a surgical incision: episiotomy (Althaydi et al., 2018).

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Worldwide, around 9 of 10 primiparous' women will experience some tear or laceration, 3.5% of them will experience third-degree tear during the active stage of labor. However, it is much less in multigravida. Eventually, most of the spontaneous tear will heal quickly (Aasheim et al., 2017; Royal College of Obstetricians and Gynaecologists, 2021).

Royal and American College of obstetrics and gynecology; classifies perineal lacerations into 4 degrees. The first-degree tear is superficial trauma to vaginal mucosa that may include perineal skin and heals on its own. The second-degree tear consists of the vaginal mucosa, perineal skin, and muscles of the posterior fourchette. It does not include the anal sphincter and usually needs stitching. The third-degree tear involves vaginal mucosa, skin, perineal muscles, and external anal sphincter. The third-degree tear is subdivided into three categories: 3A < 50% of the external anal sphincter affected, 3B > 50% of the external anal sphincter affected, and 3C if the internal anal sphincter is involved. The fourth-degree tear consists of the skin, vaginal mucosa, perineal muscles, posterior fourchette reaching internal and external anal sphincters, and the anterior mucosa of the rectum (Royal College of Obstetricians and Gynecologists, 2021). (OASIS), require suturing in the operation theater (Al-Ghamdi et al., 2018)

One of the most contributing causes of increasing or decreasing the risk of perineal trauma is the birth attendant. Some birth attendants make it very likely to have a perineal tear.

Parity is considered a contributing factor to perineal tear. Multiparous are less likely to experience third- and fourth-degree tear than primiparous. Furthermore, the baby's weight and position of presenting part may also increase or decrease the chance of having a perineal tear (Dekker, 2022).

Perineal trauma can expose many women to short/ long-term physical, psychological, and social complications. They may not be life-threatening, but they can affect every aspect of women's life. The perineal tear is likely to affect self-esteem, which means it will affect relationships at home with partners and children and other relationships with friends, family, social life, work, and employment opportunities (Frankel, 2022). Furthermore, perineal pain may be a long-term complication (Goh et al., 2018).

Physical complications such as bleeding, perineal trauma, and pain are the first complications that can occur immediately after childbirth. Women who experience perineal trauma have longer and more intense perineal pain than those with intact perineum (Goh et al.,

2018). Other complications may also occur, including rectovaginal (perineal) fistula, perineal hematomas, wound infection, dehiscence, necrotizing fasciitis, stress incontinence, pelvic organ prolapse, and unintentionally leaving a foreign body. Dyspareunia and flatal & fecal incontinence have been the most significant long-term issues. Indeed, OASIS is a substantial risk factor for delayed sexual intercourse resumption after birth and dyspareunia one year after childbirth. Flatal incontinence might occur up to ten years post-OASIS. Therefore, anal sphincter incompetence is still a major problem. These complications affect the mother, both physically and psychologically, and affect her care for the newborn and herself (Goh et al., 2018). Despite this, mothers should be reassured that approximately 80% of women do not suffer from symptoms after a year of repairing the OASIS and muscle healing (Goh et al., 2018).

Different perineal techniques are being used to slow down the birth of the baby's head and allow the perineum to stretch slowly to prevent injury. Those techniques may include massage, warm compresses, several manual perineal protection (MPP) techniques (Finnish manual perineal protection (FMPP), Viennese Manual Perineal Protection (VMPP), and Modified Ritgen Maneuver (MRM) (see figure 1-2) (Aasheim et al., 2017; Kleprlikova et al., 2020) are widely used by birth attendants.

A randomized control trial (RCT) study has shown that midwives in different countries tried various measures for guarding the perineum during birth, including (MPP) and its impact on decreasing OASIS (Zhou et al., 2019). Nevertheless, it is critical to recognize that most of the (RCTs) that assessed the subject did not focus on providing details about the method used for perineal guarding (Kleprlikova et al., 2020).

A retrospective study that was conducted in Abha, Saudi Arabia, reported that a total of (85 out of 19,374) women had a vaginal tear (0.43%), (81) had a third-degree and four had a fourth-degree perineal tear, (52) of the (85) women (61%) were primiparous (al Ghamdi, 2020). The low incidence of OASIS in this study results from proactive manual protection of the perineum, valid indications for episiotomy, and attendance of senior staff members at all difficult deliveries (al Ghamdi,

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2020). Moreover, a meta-analysis of MPP at the time of childbirth reported that there is a significant drop in the rate of OASIS with MPP (three studies, 74,744 women; RR 0.45; 95% CI 0.40–0.50; I2 = 32%) (Bulchandani et al., 2015).

Significance of the study:

A randomized control trial (RCT) study has shown that midwives in different countries tried various measures for guarding the perineum during birth, including (MPP) and its impact on decreasing OASIS (Zhou et al., 2019). Nevertheless, it is critical to recognize that most of the (RCTs) that assessed the subject did not focus on providing details about the method used for perineal guarding (Kleprlikova et al., 2020). To the author's knowledge, no studies reported MPP on the birth outcome among the Saudi population. The current study will be a pioneer in Saudi Arabia. It will uncover the performance of various birth attendants, either midwives or obstetricians, toward using Manual Perineal Protection techniques that play an essential role in reducing perineal trauma during the childbirth process.

Aim of the Study: The current study aimed to assess the relationship between the use of Manual Perineal Protection techniques and birth outcomes during the second stage of labour among parturient women at East Jeddah Hospital. Thus, the study objectives are:

Research questions:

1. What is the relation between Manual Perineal Protection techniques: FMPP, VMPP, and MRM and the maternal outcome among parturient women?

2. What is the relation between the Manual Perineal Protection techniques: FMPP, VMPP, and MRM and the neonatal outcome among parturient women?

3. What is the association between MPP techniques and perineal trauma among parturient women?

2. METHODOLOGY

Research design: A non-experimental, observational design was employed for the study. The non- experimental research is defined as research that does not involve the manipulation of an independent variable. Instead of controlling an independent variable, non-experimental researchers simply observe variables as they occur naturally in the real world (Price et al., 2017).

Research setting: The study was conducted at the labour and delivery unit in East Jeddah general hospital, Saudi Arabia. East Jeddah general hospital is one of the largest and most advanced governmental hospitals in Jeddah province, with a 300-bed capacity. The hospital also has an expanded obstetric department as one of the largest maternity units in Jeddah. It includes 12 single delivery rooms with a resuscitator, and 31 staff including midwives and nurses, responsible for the women since admission to childbirth. Midwives conduct most low-risk childbirths. But high-risk like; pregnancies with medical diseases, and assisted instrumental delivery are conducted by obstetricians.

Study Population Based on the inclusion criteria, parturient women scheduled to be admitted to the labour and delivery unit were recruited for this study. The inclusion criteria consist of all women willing to participate in the study, >18 years old, with gestational age >37wk, primipara and multipara in the second stage of labour with cephalic presentation and spontaneous vaginal delivery, and with an estimated baby weight <4.00 Kg.The exclusion criteria include: All preterm labour <37 wk, assisted vaginal delivery using ventose or forceps, epidural analgesia, labour augmentation by oxytocin, malpresentation, congenital fetal anomaly, and multiple pregnancies, obese women >30 BMI, all pregnant women with medical/chronic diseases.

Sample Size: The Calculator.net website was utilized to determine the appropriate sample size (calculator.net, 2021). Based on the power analysis, the desired sample size was 177. However, the number was increased to 180 to avoid any withdrawal rate, with a margin error of 4.73%. The parameters included for the calculation were 327, which is the number of spontaneous vaginal delivery per 3 months at East Jeddah General Hospital, and the confidence interval was set to 95% with a ± 5%margin of error which means the real value is within ±5% of the measured or surveyed value.

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Sampling Technique: A non-probability convenience sampling method was used. This sampling technique relies on collecting data from the population members who are suitably and readily available to participate in the study. It is used commonly and is incredibly rapid, straightforward, and economical. In many prospective members are readily available to participate in the study (Saunders et al., 2012).

Data collection process: Data was collected after the participant's voluntary consent, first by direct questions using the tool (I). When the woman goes into the pushing stage, the tool (II&III) was completed via direct observation for the whole birth event until finishing two hours postpartum. The observation includes an assessment of the MPP technique (see figure 1&2) and an assessment of the perineum by an expert midwife or obstetrician according to RCOG's definition of perineal lacerations. The assigned midwife or the nurse assessed the newborn using ABGAR scoring for the first and the fifth minute of life. In addition, the newborn was assessed using a modified tool (III), tool (I & III) was developed initially by Ismail and Tayel & kaboudan and his colleagues (Ismail & Tayel, 2019; Kaboudan et al., 2021).

Tool (I): Socio-demographic and clinical data, were developed after an extensive review of the literature and discussion with experts in the field of OB/GYN

Tool (I). Socio-demographic data: age, level of education, occupation, current residence, and age at marriage.

Part 2: Current obstetric data: gravidity, parity, weeks of gestation, fetal position, fetal presentation, height, weight, body mass index, way of pushing, birth position, and baby weight.

Tool (II). A manual perineal support observational checklist was developed after a pilot study and literature review (King et al., 2019; Kleprlikova et al., 2020). Including the three techniques: FMPP, VMPP, and MRM.

Tool (III). Maternal and fetal course of labour and its outcome assessment checklist:

Part 1: Maternal course of labour and its outcome assessment checklist: duration of the 1st stage, duration of the 2nd stage, pushing time, type of perineal support, time of the beginning of oxytocin, perineal condition, postpartum hemorrhage, time of beginning oxytocin after birth, perineal condition, perineal tear degree, and complications occurred during childbirth.

Part 2: fetal course of labour and its outcome assessment checklist: ABGAR scores at 1st and 5th minute, fetal problems at 1st and 5th minutes, and the need for resuscitation (Ismail & Tayel, 2019; Kaboudan et al., 2021).

Reliability and validity

Tool (III) reliability was tested using the Cronbach Alpha coefficient test in two studies, with internal consistency that equals (0.89) & (0.91) for the Maternal course of labor and its outcome assessment checklist (Ismail & Tayel, 2019; Kaboudan et al., 2021) For the perineal tear categories in the tool (III), Internal consistency equals (0.72) (Mackenzie et al., 2018).

The three tools mentioned above were checked for content validity by three experts in the field of OB/GYN nursing to ensure it is consistent and relevant.

Data management and analysis plan:Collected data were coded, entered, and analyzed using SPSS version 25 software. Descriptive statistics including frequency, percentage and graphs were used for categorical variables. Means and SD were calculated for quantitative variables. Inferential methods included a Chi-square test for association between the categorical variables and a t-test for independent groups. A p-value of less than or equal to 0.05 was considered significant.

Ethical consideration: This study was conducted after approval by the College of Nursing Research Unit, King Abdullah International Medical Research Center (KAIMRC) Jeddah, the Institutional Review Board (IRB) at King Abdulaziz Medical City-Western Region, and the Ministry of Health with East Jeddah hospital approval.

In addition, the responsible personnel in the hospital were contacted and notified before the actual time for data collection. Furthermore, the researcher explained the study's purpose and nature to each participant who meets the inclusion criteria. Also, informed consent was offered to all participants, including the following points: participation in this study is voluntary, maintaining the confidentiality of participants and parturient women can withdraw at any time without penalty or treatment bias.Finally, their information was saved and kept anonymous for safety and confidentiality. Names were not used, and all data was kept in a safe place; these data are only accessible to the research team.

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3. RESULT AND DATA ANALYSIS

Findings: Introduction

Table 1: Sociodemographic characteristics of participants:

Variable	N= 180	%
Age (mean)	31.8± 5.8	
Level of education		
Primary	1	0.6%
Secondary	31	17.2%
University	148	82.2%
Occupation		
Housewife	117	65.0%
Employee	63	35.5%
Current residence		
Rural	18	10.0%
Urban	162	90.0%
Age at marriage (mean)	25.1± 4.4	

The sociodemographic characteristics of 180 participants are presented in Table 1. The mean age was 31.8 ± 5.8 years and the mean age at marriage was 25.1 ± 4.4. Almost a fifth of the participants (82.2%) had a university degree, and two-thirds were housewives (65.0%). The vast majority (90.0%) were urban residents.

Table 2: Current obstetric data

Variable	N = 180	%
Gravidity		
1	22	12.2%
2-3	86	47.8%
4+	72	40.0%
Parity		
0	22	12.2%
1-3	124	68.9%
4+	34	18.9%
Weeks of gestation	38.7± 2.6	
Fetal position		
Occipito-Anterior	177	98.3%
Occipito-Posterior	3	1.7%
Fetal presentation		
Cephalic	179	99.4%
Compound	1	0.6%
Height (mean)	158.7± 4.3	
Weight (mean)	68.2± 16.5	
Body mass index		
Underweight	0	0%
Normal	42	23.3%
Overweight	138	76.7%
Way of pushing		
Directed	171	95.0%
Undirected	9	5.0%
Birth position		
Lithotomy	133	73.9%
Upright	24	13.3%
Lateral	23	12.8%
Baby weight		
<2.5 kg	15	8.3%
≥ 2.5 -3.5 kg	145	80.6%
>3.5 kg	20	11.1%

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The current obstetric data presented in table 2 shows that 12.2% of women were primigravida, and about half of them were gravida 2 to 3. The mean gestational age was 38.7± 2.6 weeks. The directed way of pushing was dominant with 95.0%, and the most common birth position was lithotomy (79.9%). The majority of fetal position was anterior with cephalic presentation. Moreover, about three-quarters (76.7%) of the participants were overweight. Most infants (80.6%) weighed between 2.5 and 3.5 kg.

Figure 1: Manual Perineal Support Observational Checklist

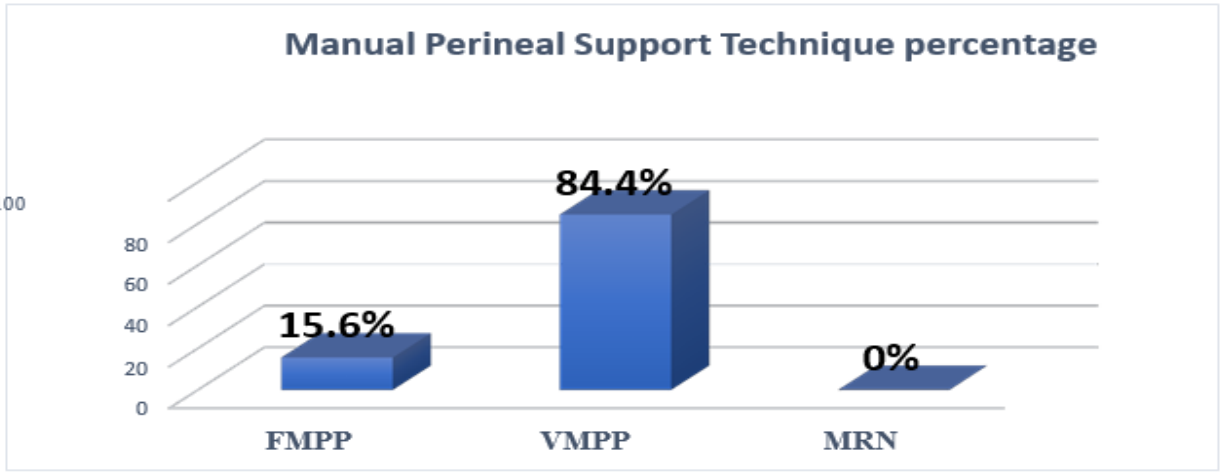

Figure 1 shows types of manual perineal support used by birth attendants. Among the three types included in this study, VMPP was the dominant manual perineal protection technique (84.4%). While no attendant used the MRN technique.

Table 3: Maternal course of labor and its outcome assessment checklist:

Variable	N=180	%
Duration of the 1st stage (mean)		8.3 ±3.9/Hr.
Duration of the 2nd stage (mean)		38.6 ±24.7/ min
Pushing time (mean)		27.5 ±18.8/ min
Time of beginning oxytocin afterbirth (mean)		1.3 ±0.93
Perineal condition		
Intact	83	(46.1%)
Tear	78	(43.3%)
Episiotomy	19	(10.6%)
Perineal tear degree	(n= 78)	
First	55	(69.6%)
Second	23	(30.4%)
Third	0	(0%)
Fourth	0	(0%)
Complications during childbirth		
Difficult of childbirth	0	(0%)
Umbilical cord prolapses	0	(0%)
Repeated vaginal injury	0	(0%)
Bleeding	0	(0%)

Table 3, the maternal course of labor and its outcome assessment shows that the mean duration of the first stage was 8.3 hours, and the second stages were 38.6 minutes. The pushing time mean was 27.5 minutes. The distribution of perineal condition showed that 46.1% were intact, 43.3% were torn, and 10.6% had an episiotomy. The first degree of perineal tear was dominant, and no complications occurred during childbirth.

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Table 4: The neonatal course of labor and its outcome:

Variable	N=180	%
ABGAR score after 1st minute		
7-10	180	100%
4-6	0	0%
0-3	0	0%
ABGAR score after 5th minute		
7-10	180	100%
4-6	0	0%
0-3	0	0%
Fetal problems		
Heart beats > 160 b/m	0	0
Heart beats < 100 b/m	0	0
Excessive molding	0	0
Excessive caput succedaneum	0	0
Fetal birth injury	0	0
Need for resuscitation		
Yes	0	0
No	180	100 %

Table 4 presents the Neonatal labor outcomes. All newborns had ABGAR scores of 7 to 10 after the first and fifth minutes. No fetal problems or resuscitation were observed for all newborns.

Table 5: Sociodemographic characteristics by technique:

Variable	FMPP		VMPP		P value
	n	%	n	%	
Age (mean)	29.1 ±6.4		32.2 ±5.6		0.009*
Level of education					
Primary	1	100%	0	0%	0.049*
Secondary	4	12.9%	27	87.1%	
University	23	15.5%	125	84.5%	
Occupation					
Housewife	17	14.5%	100	85.5%	0.605
Employee	11	17.5%	52	85.2%	
Current residence					
Rural	4	22.2%	14	77.8%	0.411
Urban	24	14.8%	138	85.2%	
Age at marriage	23.8 ±4.1		25.3± 4.5		0.106

*Significant differences χ^2: Chi-square test. *: Statistically significant at $p \leq 0.05$

Table 5 present the association results between the sociodemographic characteristics and the type of perineal support technique. The association showed statistically significant differences in variables of age (P = 0.009) and level of education (P = 0.049). However, there were no significant differences between MPP and occupation, current residence, and age at marriage (P > 0.05).

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Table 6: Current obstetric data by technique:

Variable	FMPP		VMPP		P value
	n	%	n	%	
Gravidity					
1	3	13.6%	19	86.4%	0.316
2-3	17	19.8%	69	80.2%	
4+	8	11.1%	64	88.9%	
Parity					
0	3	13.6%	19	86.4%	
1-3	21	16.9%	103	83.1%	0.736
4+	4	11.8%	30	88.2%	
Weeks of gestation	38.7± 1.2 wk.		38.8 ±2.8 wk.		0.993
Fetal position					
Occipito-Anterior	27	15.3%	150	84.7%	0.400
Occipito-Posterior	1	33.3%	2	66.7%	
Fetal presentation					
Cephalic	28	15.6%	151	84.4%	0.844
Compound	0	0%	1	100%	
Height (mean)	158.3± 3.5		158.7 4.4		0.643
Weight (mean)	66.5± 5.9		68.5 6.5		0.546
Body mass index					
Underweight	0	0%	0	0%	
Normal	6	14.3%	36	85.7%	0.817
Overweight	22	15.9%	116	84.1%	
Obese	0	0%	0	0%	
Way of pushing					
Directed	28	16.4%	143	83.6%	0.358
Undirected	0	0%	9	100%	
Birth position					
Lithotomy	23	17.3%	110	82.7%	
Upright	1	4.2%	23	95.8%	0.271
Lateral	4	17.4%	19	82.6%	
Baby weight					
<2.5 kg	5	33.3%	10	66.7%	
≥ 2.5 -3.5 kg	20	13.8%	125	86.2%	0.138
>3.5 kg	3	15.0%	17	85.0%	

The current obstetric condition is presented in table 6. There was no significant association between gravidity, parity, and weeks of gestation in regard to MPP. Moreover, there was no significant relationship between fetal position, presentation, and weight. Body mass index, birth position, and way of pushing were not significantly related ($P > 0.05$).

Table 7: Maternal outcomes by technique:

Variable	FMPP		VMPP		P value
	n	%	n	%	
Duration of the 1st stage (mean)	8.2± 4.1		8.7 ±3.9		0.536
Duration of the 2nd stage (mean)	40.6± 6.3		38.2 ±2.1		0.642
Pushing time (mean)	39.6 ±6.5		27.8 ±1.5		0.521
Time of beginning oxytocin after birth	1.3 ±0.5		1.4 ±1.0		0.654
Perineal condition					
Intact	12	14.5%	71	85.5%	0.928
Tear	13	16.7%	65	83.3%	
Episiotomy	3	15.8%	16	84.2%	
Perineal tear degree (n= 78)					
First	8	14.5%	47	85.5%	0.488
Second	5	20.8%	18	79.2% Third	0
	0%	0 0% **Complications during**			
childbirth	0	0%	0	0%	-
Difficult of childbirth	0	0%	0	0%	
Umbilical cord prolapses	0	0%	0	0%	
Repeated vaginal injury	0	0%	0	0%	
Bleeding	0	0%	0	0%	
None	28	15.6	152	84.4%	

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Regarding the maternal outcome and the use of different MPP techniques (Table 7), there was no significant relationship between the variables, MPP and the duration of the first and second stages of labour, pushing time, and the time of the beginning of oxytocin. There was also no significant association between the use of different MPP techniques perineal condition, tear degree, and complications during childbirth (P value > 0.05).

Table 8: The neonatal course of labor and its outcome by technique:

Variable	FMPP		VMPP		P value
	n	%	n	%	
ABGAR score after 1st minute					
7-10	28	16.6%	152	84.4%	-
4-6	0	0%	0	0%	
0-3	0	0%	0	0%	
ABGAR score after the 5th minute					
7-10	28	16.6%	152	84.4%	-
4-6	0	0%	0	0%	
0-3	0	0%	0	0%	
Fetal problems					
Heartbeats > 160 b/m	0	0%	0	0%	
Heartbeats < 100 b/m	0	0%	0	0%	
Excessive molding	0	0%	0	0%	-
Excessive caput succedaneum	0	0%	0	0%	
Fetal birth injury	0	0%	0	0%	
None	28	16.6%	152	84.4%	
Need for resuscitation					
Yes	0	0%	0	0%	
No	28	16.6%	152	84.4%	-

No significant relationship was identified between neonatal outcome (APGAR scores after one & five minutes, fetal problems, and the need for resuscitation) by the type of MPP in addition P-values cannot be obtained due to the absence of variability, as all cases fall into one category of each variable.

Figure 2: Association between MPP and Perineal condition

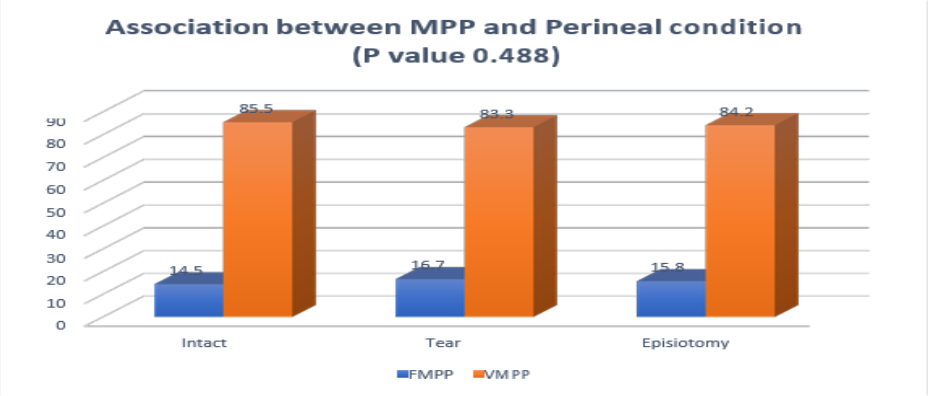

Figure 2: shows the association between MPP and Perineal condition. The analysis revealed no significant association between MPP techniques and perineal condition (p = 0.48).

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4. DISCUSSION OF FINDINGS, CONCLUSION, LIMITATIONS, AND RECOMMENDATIONS

Discussion

Discussion of the study results is presented under three main headings: manual perineal protection techniques checklist, Maternal and fetal course of labor and its outcome assessment checklist, and degree of perineal injury.

Regarding the sociodemographic characteristics of the study subjects, the results of the current study revealed that the average age of the women was 31.8 ± 5.8 years, and the majority of them were multigravida and multiparous women. The study outcomes are partially consistent with (al Ghamdi, 2020) the study was conducted in Mirbat in Abha Hospital, to assess incidence factors and predisposing factors for third- and fourth-degree perineal tear, which gives the same result for the average age of the participants 31 years but the women in his study were prim gravidas.

Next, the current study revealed that there was no significant relationship between Manual Perineal Protection techniques and course of the maternal labor and its outcomes in relation to its parity. This could be attributed to many reasons. First, the vast majority of the study subjects were multi or grand multiparas with the normal course of labour. Second, the majority of fetal positions were in Occipito-Anterior, and their weight was> 2.5 -3.5 kg. These findings are consistent with the findings of (Dekker, 2022) The researcher found that Multiparous are less likely to experience third- and fourth-degree tear than primiparous (Al Gamdi, 2020; Dekker, 2022). Moreover, fetal weight and position of presenting part may also increase or decrease the chance of developing a perineal tear. (Al Gamdi, 2020; Dekker, 2022). A retrospective study she found that primiparous was one of the leading causes of 3rd and 4th- degree tear.

The results of the current study indicated that there were no statistically significant differences between the MPP techniques and the perineal condition. It is interesting to explain that, less than half of the study had a perineal condition that was either intact or had a tear, while the rest underwent an episiotomy. These outcomes are consistent with those of (Downe et al.,2004). They conducted a study entitled “A prospective randomized trial on the effect of an adverse second stage of labour, on labor outcomes in women not delivering with epidural analgesia”). The results of the study showed that, by the practical method, when the fetal head is extended in the vulva and perineum the introitus opens 5 cm or more (Downe et al., 2004). This technique facilitates the dilation of the fetal head; thus, the fetal head passes the introitus in the perineum with smaller diameters, and it is associated with less perineal trauma, especially in connection with the less need for an episiotomy (Foroughipour et al., 2011).

However, the results of this study did not show significant differences between manual perineal protection techniques and the degree of perineal tearing. About two-thirds of the subjects surveyed had a first-degree tear and no case was reported for third and fourth-degree tear. In line with (Pasi, 2020) study where he studied the effect of a modified vinnise technique (VMPP) on perineal protection during labor, Pasi found that the use of a modified VMPP showsa significant reduction in the incidence of perineal injury, and neither third nor fourth-degree tear were reported. Another study (Naidu et al., 2017) aimed to determine whether perineal support at the time of vaginal delivery could reduce the incidence and severity of OASIS, reported that perineal support was associated with a significant decrease in OASI rates.

The results of this study did not show any significant differences between manual perineal protection techniques and the duration of the second stage of labor. It is interesting to note that about half of the subjects in the study had intact perineum and the duration of the second stage of labor stag was slightly shorter. The result of the current study is not consistent with the results of (Aasheim et al., 2017) and ; Kleprlikova et al., 2020). They reported that Various perineal techniques (MPP)are being used to slow down the birth of the baby's head and allow the perineum to stretch slowly to prevent injury. Hands-on approach is believed to promote spontaneous vaginal delivery and reduce perineal trauma (Aasheim et al., 2017; Kleprlikova et al., 2020; Trochez et al., 2011).

Although the results of the current study revealed that there was no significant relationship between manual perineal protection techniques and neonatal outcomes. A positive result was noted as all of the newborns had (7-10) APGAR scores after one and five minutes, without problems in the fetus, or the need for resuscitation. This consistent profile of the newborn was helpful in reducing external factors, which could interfere with the occurrence of fetal distress or the need for resuscitation. The findings are constant with (de Souza Caroci da Costa and Gonzalez Riesco, 2006) , who conduct a study titled “Comparison of ‘hands-off’ versus ‘hands-on’ techniques for reducing perineal tear during childbirth”, their study shows a higher rate of positive neonatal outcomes in the hands-on group.

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Limitations: Despite the fact that this study offered some insight into the connection between MPP and birth outcomes, the small sample size, limits generalizability. Additionally, compared to other sample techniques, the convenience sampling technique adopted here, has lower population representativeness.

Research Implications:

Education: Integrate and teach these techniques for nursing and midwifery in universities.

Practice and Administration: Continuous training of midwives and nurses to use MPP correctly. Stakeholders and policymakers in hospitals can add mastery of these techniques in the annual evaluation attendees including OBYGN clinicians and midwives and create competencies for them.

Research: Replicate the study and reducing or eliminating the limitations such as the sample size and choosing primigravida population. Conduct using systematic reviews and meta-analysis to summarize the best evidence regarding MPP technique practice.

Recommendation:

Based on the findings we recommend the following:

• Further studies are needed to assess birth attendants' performance. Focusing on primigravida participants, adding the head circumference of the neonate, and excluding OP position fetuses for more specific results.

• Combine another approach in addition to the MPP techniques to preserve the perineum during childbirth.

• It is vital to include the MPP techniques in the midwifery/ nursing teaching curriculum

Conclusion

There was no significant relationship between the use of various Manual Perineal Protection techniques on birth outcomes, in addition VMPP was the most preferred technique by birth attendants, while there was an equal effectiveness of (VMPP, FMPP) techniques in relation to birth outcome. Worth mentioning, MPP techniques showed zero incidences of OASIs.

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