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Practices that Applied on Protection of Perineal Trauma among Parturient Women

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Abstract
The aim *of this study was to evaluate the practices that applied on protection of perineal trauma among parturient women.*
Methods: *a cross sectional descriptive design was carried out at two governmental hospitals at Mansoura city & two private hospitals at El Mahala El Koubra city, Egypt on 113 parturient women in the 2nd stage of labor, who were selected by convenient sample technique.* Data collection lasted 6 months, by using*documentary data sheet*and observational checklist.
Results*: the incidence of perineal trauma was nearly three quarter among parturient women. The risk factors for perineal trauma were short birth interval, old episiotomy, fundal pressure and maternal obesity. Meanwhile, hands on technique, perineal massage and guided pushing technique are suitable interventions that could be used to reduce perineal trauma.*
*Thisstudy****Recommended****: the importance of designing a standard protocol of perineal management techniques during second stage of labor to reduce the occurrence of perineal trauma.*
Keywords: *practices, perineal trauma, parturient women.*

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I. Introduction

Perineal trauma represents a major problem of normal labor. It affects the women's physical, psychological and social wellbeing immediately after birth as well as leading to long term complications ***(Dönmez&Kavlak, 2015)***. Perineal trauma refers to any damage to the genitalia during childbirth that may occur spontaneously which is called non- intentional trauma (tears) or as a result of an episiotomy which is called intentional trauma***(Leon-Larios et al., 2017)***. Perineal trauma is divided into four categories according to the anatomic structures and depth of injury; mild (first and second degree) and severe (third and fourth degree) ***(Pergialiotis et al., 2014)***.

There are several maternal and fetal factors have been established for the development of perineal trauma, these include; maternal risk factors (e.g. body mass index and primiparity)**,** fetal risk factors(e.g. shoulder dystocia, fetal malposition and macrosomic baby), and delivery risk factors (e.g. episiotomy type, duration of second stage of labor, and fundal pressure)***(Mohamed, 2016; Smith et al., 2013)***.

Perineal trauma during childbirth can be associated with significant short and long-term complications for women such as sexual dysfunction, urinary & anal incontinence and pelvic organ prolapse. In addition to varying levels of disappointment, guilt and anxiety feelings related to the disconnection between mother's expectations of the birth and the reality ***(Glazener et al., 2013; Priddis et al., 2014)***.

Nurses are playing an integral role in protecting women from unneseccary interventions which may lead to negative birth experiences. They focus their care on perservation and the effective management of the perineum in order to reduce the occurrence of perineal trauma during labor ***(Moore& Moorhead, 2013)***. These roles include antenatal education for pregnant women about the importance of antenatal perineal massage and pelvic floor exercise. Furthermore, they applying several intervention during second stage of labor to reduce the risk of perineal trauma such as manual perineal protection, guided pushing technique, warm compresses on perineum, perineal massage during labour, and vaginal lubricants ***(Laine et al., 2016)***.

Aim of this Study

This study aimed to evaluate the practices that applied on protection of perineal trauma among parturient women.

II. Subjects and Method

A cross sectional descriptive study design was carried out at two governmental hospitals at Mansoura city (Mansoura University Hospital and New General Mansoura Hospital) and two private hospitals at El Mahala El Koubra city (Madenat El Shefaa Hospital and Al Safwa Hospital), Egypt. A convenient sample technique was recruited on 113 parturient women during their second stage of labor from the beginning of February 2017 to the end of July 2017.

Tools of Data Collection

Two tools were used for data collection**:**

Tool 1: Documentary Data: This is data was collected from women's Medical Sheet which includes

- Personal data of women such as age, education, occupation and residence.
- Previous obstetrical history such as number of gravidity, parity, birth interval, and mood of previous delivery.
- History of present pregnancy and current labor process such as number of antenatal visits, gestational age at delivery, complication during pregnancy, duration of first and second stage of labor.
- Data related to examination on admission to labor unit include

1. General examination such as weight& height and body mass index.
2. Local examination to determine fetal position, as well as neonatal birth weight.

Tool II: Observational Check List: This tool was consisted of three checklists to assess:

- Risk factor for perineal tear such as primiparous, maternal age, fundal pressure and neonatal birth weight.
- Practices that used to reduce perineal trauma during 2nd stage of labor such as perineal massage, guided pushing technique, and vaginal lubricant.
- Perineal condition after delivery such as: intactness of perineum, occurrence of perineal tear & its degree.

Ethical consideration

Ethical approval was obtained from the research ethics committee at the Faculty of Nursing, Mansoura Universityto the responsible authorities of the study settings to obtain their permission for data collection. All ethical issues were taken into consideration during all phases of the study: an informed consent was obtained from every parturient woman involved in the study after clarification of the nature objective of the study,confidentiality of collected data was maintained and assuring that all women have the right to refusing participation or withdrawing from the study at any time.

Field Study

Pilot study phase was carried out for one month at the two governmental hospitals at Mansoura city and two private hospitals at El Mahala El Koubra city to test the applicability & relevance of the research tools & the clarity of the designed checklist and the required modification were made.

Data collection took a period of six months from the beginning of February 2017 to the end of July 2017**.** The researcher started the data collection from Mansoura University Hospital 3 days/ week for two months. Then data was collected from the New General Mansoura Hospital 2 days/ week for two months. Finally, data was collected from the other two private hospitals at El Mahala El Koubra city 2 days / week for two months.

After data were collected it was coded, computed and statistically analyzed by using SPSS for windows version 20.0 (statistical package of social sciences, Chicago, IL). Continuous data were expressed in mean ± Standard deviation (SD), while categorical data were expressed in number and percentage. Chi square (X2) test was used for comparison of variable with categorical data. Statistical significant was set at $P < 0.05$.

III. Results

Figure 1 illustrates that 34.5% of subjects had perineal tear.Meanwhile, 36.3% of them had episiotomy.

Figure 2 reveals that 46.2%, 28.2 % of subjects had either 2nd or 1st degree of perineal trauma, respectively. While only 2.6% had labial tear.

Table 1 shows that, there were a highly statistical significant difference between maternal age and the occurrence of perineal trauma (p=<0.001). Also, the results revealsthat there was a statistical significant difference between educational level and occupation of women and the occurrence of perineal trauma (P=0.017, P=0.029, respectively).

Table 2 reveals that the occurrence of perineal trauma is positively correlated to the parity, gravidity and birth interval between pregnancies (P= <0.001). Also, there were a statistical significant difference between perineal tear and the mode of previous delivery (P=0.005).

Figure 3reveals that, there were a statistically significant difference between the occurrence of perineal trauma and obesity (p= 0.008).
Table 3presentsthat, there was no a statistically significant difference between neonatal birth weight and perineal condition among parturient women (p= 0.088).
Table4presentsthat, there was a highly statistically significant difference between the application of fundal pressure during second stage of labor and the occurrence of perineal trauma (p= <0.001).
Table 5indicates that the occurrence of perineal trauma is positively correlated to hands on technique, perineal massage and guided pushing technique (p= <0.005, 0.010 and 0.035, respectively).

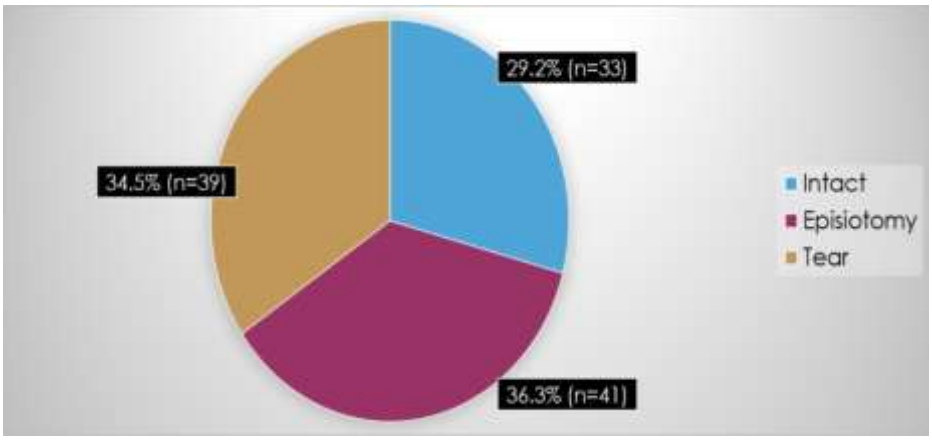

Figure 1 Incidence of Perineal Trauma among Parturient Women (n=113)

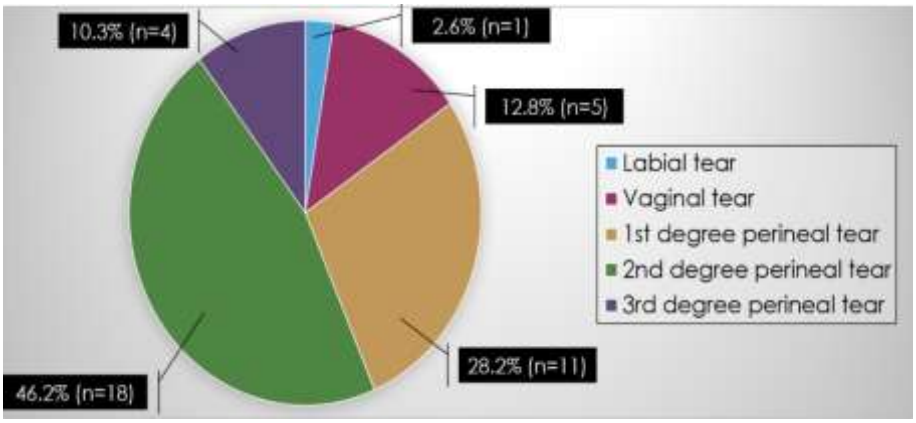

Figure 2Types and degrees of perineal tear among Parturient Women (n=113)

Table 1Correlation between General Characteristics of Parturient Women and the Occurrence of Perineal Trauma (n=113)

General Characteristic	Perineal condition						Chi square test	
	Intact (33)		Episiotomy (41)		Tear (39)			
	No.	%	No.	%	No.	%	X^2	P
Age (years)								
≤ 21	5	15.1	26	63.5	11	28.2		
22 -34	16	48.5	14	34.1	24	61.5		
≥ 35	12	36.4	1	2.4	4	10.3	30.783	<0.001**
Education Level								
Illiterate	5	15.2	1	2.4	0	0.0		
Basic	14	42.4	20	48.8	26	66.7		
Higher	14	42.4	20	48.8	13	33.3	12.086	0.017*
Occupation								
House wife	21	63.6	26	63.4	34	87.2		
Working	12	36.4	15	36.6	5	12.8	7.047	0.029*
Residence								

Rural	18	54.5	24	58.5	27	69.2		
Urban	15	45.5	17	41.5	12	30.8	1.794	0.408

Table 2Correlation betweenObstetrical History of Parturient Women and the Occurrence of Perineal Trauma (n=113)

Obstetrical History	**Perineal condition**						**Chi square test**	
	Intact (33)		**Episiotomy (41)**		**Tear (39)**			
	No.	%	No.	%	No.	%	X^2	P
Gravidity								
Primigravida	5	15.1	31	75.6	10	25.6		
Multigravida (2 – 4)	16	48.5	10	24.4	27	69.2		
Grand multigravida (≥ 5)	12	36.4	0	0.0	2	5.1	50.380	<0.001**
Parity								
Primiparity	5	15.1	33	80.5	10	25.6		
Multipara (2 – 4)	25	75.8	8	19.5	29	74.4		
Grand multipara (≥ 5)	3	9.1	0	0.0	0	0.0	44.287	<0.001**
Birth Interval (n=65)								
< One year	2	7.1	4	50.0	0	0.0		
1 – 2 years	14	50.0	3	37.5	22	75.9		
> 2 years	12	42.9	1	12.5	7	24.1	22.184	<0.001**
Mode of Previous Delivery(n=65)								
Spontaneous vaginal delivery								
With episiotomy	13	46.4	6	75.0	25	86.2		
Without episiotomy	15	53.6	2	25.0	4	13.8	10.530	0.005*

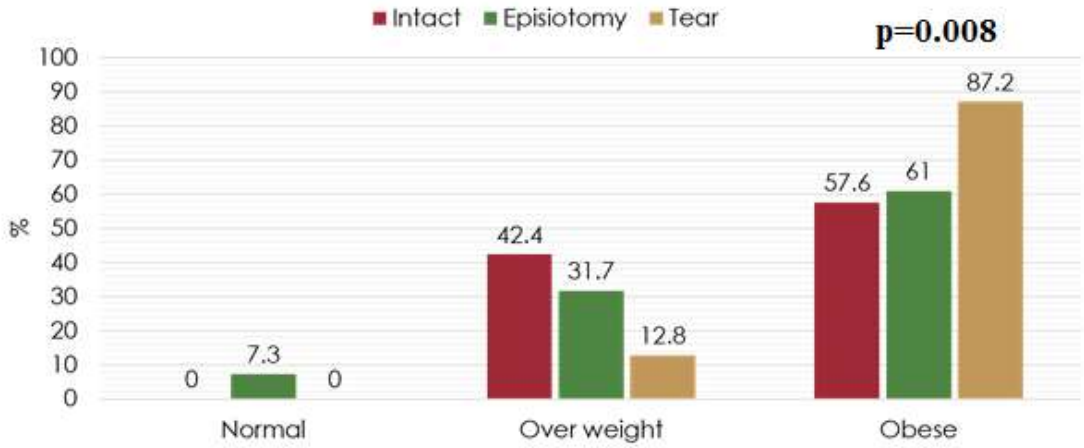

Figure 3Correlation between Maternal Body Mass Index and the Occurrence of Perineal Trauma (n=113)

Table 3Correlation between Neonatal Birth Weight and the Occurrence of Perineal Trauma (n=113)

Neonatal Birth Weight (kg)	**Perineal condition**						**Chi square test**	
	Intact (33)		**Episiotomy (41)**		**Tear (39)**			
	No.	%	No.	%	No.	%	X^2	P
< 2.500	5	15.1	2	4.9	0	0.0		

2.500 – 3.700	26	78.8	36	87.8	34	87.2		
> 3.700 kg	2	6.1	3	7.3	5	12.8	8.108	0.088

Table 4Correlation between the Application of Fundal Pressure during Second Stage of Labor and the Occurrence of Perineal Trauma (n=113)

Fundal Pressure	**Perineal Condition**						**Chi square test**	
	Intact		**Episiotomy**		**Tear**			
	(33)		**(41)**		**(39)**			
	No.	%	No.	%	No.	%	X^2	P
Yes	15	45.5	35	85.4	32	82.1		
No	18	54.5	6	14.6	7	17.9	17.321	<0.001**

Table 5 Relationship between the Practices that are Used to Reduce Perineal Trauma* and it's Occurrence *(n=113)

Practices	**Perineal Condition**						**Chi square test**	
	Intact		**Episiotomy**		**Tear**			
	(33)		(41)		(39)			
	No.	%	No.	%	No.	%	X^2	P
Hands ontechnique	32	97.0	29	70.7	26	66.7	10.689	0.005*
Hands off technique	9	27.3	8	19.5	9	23.1	0.622	0.733
Perineal massage	20	60.6	16	39.0	10	25.6	9.130	0.010*
Warm compresses on perineum	5	15.2	7	17.5	8	20.5	0.356	0.837
Guided pushing technique	16	48.5	10	24.4	9	23.1	6.702	0.035*
Vaginal lubricant	6	18.2	6	14.6	3	7.7	1.812	0.404

IV. Discussion

This study aimed to evaluate the practices that applied on protection of perineal trauma among parturient women. Also, it has provided a description for the incidence of perineal trauma among the parturient women and the risk factors that lead to perineal trauma during the second stage of labor.

The finding of this study revealed that nearly three quarter of the subjects were exposed to perineal trauma. The results showed that, about one third of the subjects were exposed to perineal tear. These findings are consistent with***Mora- Hervás*et al., *(2015)***who found that, the incidence of perineal tear was 35.3%. Also, this result is in concurrent with the findings of an Egyptians study by***Mohamed, (2016)*** who reported that 27.0% of the subjects had perineal tear. The little observed difference in the incidence of our study findings and the other studies could be attributed to the variations in sample size and its selection criteria.

As regards the incidence of episiotomy, the findings of our study revealed that, 36.3% of the subjects had episiotomy. This incidence is lower than the finding by ***Mora- Hervás*et al., (2015)** who reported that, the episiotomy rate was about two third among primiparous women. But ourincidence is higher than the finding of ***Mohamed, (2016)*** who reported that less than one fifth of parturient women had episiotomy. The difference between the previous results also can be attributed to the variations in the sample size of the studied groups.

Regarding to the types and degrees of perineal tear,the present study results revealed that, more than two fifth of the subjects were exposed to second degree of perineal tear which is considered as the most common type of perineal tears, followed by 28.2 % who have first degree of perineal tear. This result is consistentwith ***Mohamed, (2016)*** who reported that, the most common degree of perineal tear was the second degree.

The current study shows that, there was a highly statistical significant difference between the subject's age and the occurrence of perineal tear. The finding revealed that, the women who had increased in age are more liable to had perineal tear.This finding is in concurrent with ***Mohamed, (2016)*** who reported that, the majority of women who had perineal tear were in age group of 30-33 years.

Another result that showed a statistical significant difference is the maternal occupation in relation to the occurrence of perineal tear. The current study revealed that the housewife women more likely to had perineal tear. This finding is in concurrent with***Mohamed, (2016)*** who reported that perineal trauma was more common in non- working women. This finding could be attributed to the sedentary life and the lack of activity of non- working mothers which in turn lead to decrease in the physical fitness level and effects on maternal pushing abilities during labor.

The present study revealed that,there were a statistical significant difference between parity and the occurrence of perineal trauma. Results showed that, the incidence of perineal tear in multiparous women was higher than in primiparous women. This finding is in accordance with the results of ***Mohamed, (2016)***who reported that, the multipara women are more likely to have perineal tear than primiparous women.

On other hand, this is contrary to ***Kavita et al., (2016)***who stated that,theprimiparity was an important leading factorto perineal tears.This can be attributed to that the perineal connective tissues among primiparous women are inelastic and stronger than in multiparous wom*en.*

In the same line, the finding of our study revealed that, the parity was positively correlated to the occurrence of episiotomy. Our finding revealed that, the majority of primiparous women had episiotomy. These findings could be attributed to that, the performance of episiotomy is considered as a part of hospital policy for routine care of primiparous women.

These resultsare parallel with several studieswho concluded thatprimiparity was associated with a higher rate ofroutine episiotomy ***(Saxena et al., 2010;Mbukani& Kakoma1, 2012;Pitanguiet al., 2014).***Meanwhile, this result is in disagreement with ***Mohamed, (2016)***whoreported that, multipara women were significantly more to have episiotomy.

Several studies reported that the incidence of perineal trauma was more likely to occur in women who had a history of pervious delivery with episiotomy***(Manzanares et al., 2013; Mohamed, 2016).***Our result showed that, the majority of subjects who had previous episiotomy are significantly more to have perineal trauma.

This finding is in congruent with***Manzanares et al., (2013)***findings who concluded thatepisiotomy at the first delivery is associated with a higher risk for perineal lacerations in the next delivery. These finding could be explained by that; the old perineal scars of episiotomy are more likely to lacerate as a result of improper pushing during labor.

The time interval between pregnancies is viewed as an important and modifiable risk factor for adverse birth outcomes ***(Ball et al., 2014).*** The present study revealed that,there were a statistical significant difference between birth interval and the occurrence of perineal trauma. Results showed that, about three quarter of subjects who exposed to perineal tear had short birth interval.

This result supported by ***Mohamed, (2016)***who reported that,women who had short birth interval were significantly more likely to have perineal tear. These finding could be explained by that, the short interval between pregnancies doesn't give enough time for perineal tissue to heal probably especially in women with old perineal scars due to episiotomy which is more likely to lacerate during labor.

Maternal obesity is a growing epidemic and it affects maternal morbidity and outcome during perinatal period ***(*UshaKiran *et al., 2005)***. It's interesting to notice that our results revealed that, there were a statistical significant difference between the occurrence of perineal trauma and maternal obesity, more than four fifth of obese women had perineal tear. This result is consistent with ***Arrowsmith et al., (2011)*** who reported that, about one third of obese women had second degree perineal tear.

Contradictory to these findings***Gallagher et al., (2014)*** who concluded that obesity or excessive weight gain during pregnancy didn't increase the risk of perineal trauma during vaginal delivery.

The current study showed that no statistical significant difference between neonatal birth weight and the occurrence of perineal trauma. The researcher views that this finding was related to, the majority of the sample had normal neonatal birth weight between 2.500 – 3.700 kg. This finding is in agreement with another several studies which found that, there was no relation between neonatal birth weight and the occurrence of perineal trauma ***(Brandie &MacKenzie, 2009; Mohamed et al., 2011)***.

These results are in contrast with the finding by ***Kavita et al., (2016)*** who found that, women who had obeseneonates were more likely to have perinealtrauma. Moreover, this result is in contradictory with the finding of ***Mikolajczyk et al., (2013)*** who studied the risk factors of perineal lacerations, he reported that, the larger fetal size (more than 3500 g) was associated with perineal trauma.

Fundal pressure during second stage of labor appears to be a routine practice during vaginal delivery in developing countries***(Moiety & Assam, 2014).***The current study revealed that, there was a highly statistical significant difference in relation to the application of fundal pressure during second stage of labor and the occurrence of perineal trauma, in which the majority of subjects who had fundal pressure were exposed to perineal tear. This finding could be related to that, the incorrect technique or unsuitable timing for the fundal pressure to hasten delivery doesn't give enough time or opportunity for the connective tissue of perineal body to stretch enough and allow delivery without lacerations.

These results agreed with ***Mohamed, (2016)*** who stated that the women who were not exposed to fundal pressure during the second stage of labor were significantly more likely to have an intact perineum. In the same respect, another Egyptian study by ***Moiety and Azzam, (2014)*** who reported that, the significant increase in the risk of severe perineal trauma is more common in women who had fundal pressure.

Also, ***Mahendru et al., (2010)*** reported that, the application of fundal pressure during second stage of labor increases the evidence of maternal exhaustion and the rate of using instrumentation during deliveries as well as lacerations on the perineum or extension of episiotomy. In contrast with the present study findings ***Api et al., (2009)***who found that, there is no significant changes in the risk of severe perineal laceration among fundal and non-fundal subjects.

Nurses can use a variety of techniques in the second stage of labor to lower the incidence of perineal trauma and reduce pain***(Mohamed et al., 2011)***. Hands on techniques are considered as one of traditional interventions that used during the second stage of labor in order to reduce th6e occurrence of perineal trauma ***(Wang et al., 2015)***. The current study shows that, there was a statistical significant difference in relation to the application of hands on technique and prevention of perineal trauma.

This finding is in agreement with several studies which concluded that, the supporting of fetal head during crowning with one hand reduces the incidence of third and fourth degree of perineal tear ***(Leenskjold et al., 2015; Pergialiotis et al., 2014)***. Conversely to our results, the findings by ***(Fahami et al., 2012;Jönsson et al., 2008)*** they didn't support the application of hands on technique in order to reduce perineal trauma. These finding can be interpreted by that;the supporting techniques slow down the birth of the fetal head which allowing the perineum to stretch slowly and thus reducing perineal trauma rate.

Perineal massage is another technique which isperformed by nurses during the second stage of labor ***(Kalichman, 2008)***.The present study revealed that, there were statistical significant differences between perineal massage and the occurrence of perineal trauma, in which the women who had perineal massage had an intact perineum. This study finding is in agreement with ***Arafahet al., (2017)***whoreported that, a statistical significant association between the application of perineal massage and lowering in the incidence of perineal lacerations.

Also, this result is supported by ***Smith et al., (2013)*** who reported that perineal massage during second stage of labor reduces the risk of perineal trauma. These findings could be explained by that, perineal massage increases the blood flow, elasticity, relaxation of the pelvic floor muscles and soften the perineal tissue. Thus, reduces perineal trauma during delivery.

Guided spontaneous pushing technique with each uterine contraction is another approach for management the second stage of labor ***(Vaziri et al., 2016)***. The present findings revealed that, there was a significant association between the guided spontaneous pushing technique and the occurrence of perineal tear, in whichnearly halfof women who had intact perineum are guided to push correctly during uterine contractions.

These resultsare in agreement with***Mohamed, (2016)***who reported thatthe use of correct pushing during bearing down effort is significantly lowers perineal trauma. Also, this result is consistent with ***Christine and LAM, (2010)***, who reported that, the effect of spontaneous pushing revealed more positive effects on perineal integrity.

V. Conclusion

Nearly three quarter of parturient women had perineal trauma**.** There are several risk factors significantly associated with perineal trauma such as short birth interval between pregnancies, maternal obesity, presence of old episiotomy incision and improper fundal pressure technique.Meanwhile,there are several interventions that can be used during second stage of labor to reduce perineal trauma such as hands on technique, perineal massage and guided spontaneous pushing tequnique.

VI. Recommendation

This study recommended the importance of designing a standard protocol of perineal management techniques during second stage of labor to reduce the occurrence of perineal trauma, as well as it should be followed as governmental strategy in health services and community involvement.

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