



## Effectiveness of an Educational Intervention on Knowledge of Postpartum Perineal Wound Care amongst Antenatal Mothers in Jos

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### Abstract

**Background:** Most mothers who sustained perineal trauma during vaginal birth suffer some forms of postpartum complications such as pain which interferes with activities of daily living and care for her baby, wound dehiscence, infection and dyspareunia. Information on postpartum perineal wound care has been given less attention during antenatal health education sessions.

**Objectives:** The aim of this study was to assess the effectiveness of an educational intervention on knowledge of postpartum perineal wound care.

**Design:** One group pretest and post-test design.

**Setting:** Study was conducted in Antenatal clinic, Jos University Teaching Hospital.

**Participants:** A total of 100 pregnant mothers were serially recruited purposively in antenatal Clinics.

Instruments used for data collection was questionnaire which was reliable at Cronbach co-efficient alpha .78. Descriptive statistics such as frequency tables, percentages, mean and standard deviations were used in analysis and Inferential statistics such as McNemar's test was used to compare between pretest and post-test knowledge scores and Chi-square were used in testing hypothesis.

**Method:** Pre-test questionnaire was administered to mothers during antenatal visit. Participants were educated immediately after filling the questionnaire. Seven days after intervention, post-test questionnaire was administered.

**Results:** Findings indicates that Mother's knowledge on postpartum perineal wound care increased significantly after intervention (average mean knowledge score from 2.22±0.833 pretest to 2.89±0.381 post-test P<0.05). Previous delivery did not significantly increase pretest (X<sup>2</sup>=0.581; P-value=0.748) and post-test (X<sup>2</sup>=5.530; P-value=0.063) knowledge score.

**Conclusion:** In conclusion, women who were taught postpartum perineal wound care had improvement in their knowledge therefore, it is recommended that postpartum self-perineal wound care be taught to antenatal mother, guidelines on perineal wound care be made available in delivery centers and knowledge of health care providers on postpartum perineal wound care be assessed.

### Introduction

Spontaneous perineal tear or episiotomy is common with most vaginal deliveries. About 90% of women sustain trauma during delivery. Prevention of perineal trauma is most time not possible [1], but when it occurs there can be short-term and long-term complications such as fear of becoming pregnant [2-4]. Perineal discomfort, perineal pain, difficulty with breastfeeding, difficulty with walking, perineal bleeding [5] and episiotomy breakdown [6].

There has been less emphasis on information support regarding postpartum perineal care in practice [7]. Women often

times consult their care provider regarding perineal health after delivery, either with specific concerns or opportunistically during routine postnatal check [8] when some preventable complication would have occurred. Midwives are to educate clients with self-care strategies that will promote wellness, prevent illness, regain health and prevent hospitalization [9]. Midwives are to provide accurate and adequate information to the client regarding their health need that would impact positively in changing client's behavior towards promoting health, preventing infections, maintain healthy living, and the best way to provide cost effective care [10].

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The instructions related to postpartum perineal care were given to pregnant mothers during antenatal health education sessions on; perineal hygiene, application of ice pack, positions to reduce perineal oedema and pain, recognition of signs of localized perineal wound infections and wound dehiscence, see health care provider earlier if experiencing signs of infection or wound dehiscence, nutrition, bladder and bowel care, and kegel exercise.

### Framework

Orem's self-care deficit nursing theory was used on the belief that, mother is endowed with ability, capability and power of self-care [11], but where lack of knowledge exist, then some degree of guidance, support, and teaching to assist mothers can be employed by midwives in providing adequate and accurate information on postpartum self-perineal wound care, as this will go a long way in improving knowledge, change in behavior which may result in proper care practice of perineal wound care thereby prevention of some short-term and long-term complications.

### Method

**One-group pretest and post-test design** - Jos University Teaching Hospital (JUTH) was randomly selected using paper balloting from the 2 public tertiary Hospitals in Jos. 100 pregnant mothers constituted the sample size for the study.

Serial recruitment of eligible candidates was done; at least 20 pregnant women were recruited purposively each antenatal care day until the sample size was reached.

**Criteria for inclusion** -Pregnant mothers aged 18 years and above.

**Criteria for exclusion** - Critically ill pregnant mothers, pregnant mothers with diagnosed psychiatric problems and unwilling to participate.

### Instrument for data collection

A self-structured questionnaire was used. Three (3) levels rating scale for the assessment of women's knowledge was used. The rating of the score was (3) for "I know", (2) for "uncertain" and (1) for "I don't know" with cut-off point as 2. The knowledge was rate as follow; Unsatisfactory: less than cut-off-point (<2), Satisfactory: equal or more than the cut-off point (>2)

A pilot test involving 10% of subjects meeting inclusive criteria in Plateau State Specialist Hospital was conducted and was found reliable with Cronbach co-efficient alpha .78.

### Procedure for data collection

A leaflet containing details of the study and researcher 's contact was given to participants during antenatal educational session.

A pre-test questionnaire was administered to participants.

Pregnant mothers were taught on postpartum self-perineal care after the administration of pretest questionnaire. This session lasted 60 to 90 minutes.

Post-test assessment on the same questionnaire was done seven days after pre-test.

### Result

Statistical Package for the Social Sciences (SPSS) version 22.0 software was used.

Table 1 Shows that, most (50%) mothers were within the age range 24-29 years. Regards to mother's education, 77% had tertiary education, 29% were primigravidas while 71% were multigravidas. Women with no previous delivery were 37%. Twenty five 25% had one previous delivery, 19% had 2 deliveries, 9 delivered 3 and 4 children respectively and only

one had 5 previous deliveries.

Table 2 shows that the total knowledge scores of the pregnant women on recognition of localized perineal infection before intervention was 41.7% which increase to 90.7% after intervention.

Table 3 shows that most 72% before intervention said they knew about removing soaked pad from front to back and discarding it, while majority (95%) after intervention knew. Before intervention 43% participants said they knew about not staying in the bath tub for longer than 10 minutes as they bath, while majority 84% after intervention knew about it. Similarly, More than half 51% before intervention said they knew about drying the perineal area with unpowdered tissue or clean flannel form front to back, while majority 87% after intervention said they knew about it, 37% before intervention, said they knew about applying clean perineal pad from front to back, touching only sides and outsides of pad, while majority 85% after intervention, said they knew about that, 42% before intervention, said they did not know about exposing the perineum to the air by letting their pads down while resting or napping, while majority (83%) after intervention said they knew about it.

Table 4 shows that most 60% of participants before intervention knew that a warm or cold sitz bath for 20 minutes, three times a day is good while 95% after the intervention knew about it. More than half (52%) before intervention did not know that perineal muscles exercises lessen perineal pain, while 96% after intervention knew, 46% before intervention said they did not know that cold sitz bath relieves pain and swelling, while 89% after intervention said they knew about

**Table 1.** Socio-demographic data of the participants

Variable n=100		F	%
Age in years	18-23	5	5.0
	24-29	50	50.0
	30-35	28	28.0
	36 and above	17	17.0
	Total	100	100
Mother's Education	No formal education	0	0.0
	Primary	1	1.0
	Secondary	22	22.0
	Tertiary	77	77.0
	Total	100	100
Number of Present pregnancy	1	29	29.0
	2	33	33.0
	3	17	17.0
	4	10	10.0
	5 and above	11	11.0
	Total	100	100
	Number of children delivered	None	37
1		25	25.0
2		19	19.0
3		9	9.0
4		9	9.0
5 and above		1	1
Total		100	100

**Table 2.** Participants' knowledge on signs of localized perineal infection

Knowledge on signs of localised perineal infections	I know				Uncertain				I don't know				M& SD		M & SD		R	
	Pre-test		Post-test		Pre-test		Post-test		Pre-test		Post-test		Pre-test		Post-test		PRT	POT
	F	%	F	%	F	%			F	%	F	%	X	SD	X	SD	R	R
Perineum becomes very painful	58	58	95	95	21	21	2	2	21	21	3	3	2.37	0.812	2.92	0.367	S	S
Perineum becomes very red	28	28	88	88	26	26	8	8	46	46	4	4	1.82	0.845	2.84	0.465	US	S
Stitched area is swollen	40	40	91	91	29	29	6	6	31	31	3	3	2.09	0.842	2.88	0.409	S	S
Offensive odour from the stitched area	51	51	93	93	23	23	3	3	26	26	4	4	2.25	0.845	2.89	0.424	S	S
Fluid drainage around the stitches area	31	31	89	89	33	33	4	4	36	36	7	7	1.95	0.821	2.82	0.539	US	S
Stitched area separate	42	42	88	88	28	28	8	8	30	30	4	4	2.12	0.844	2.84	0.465	S	S
Average Knowledge score	41.7	41.7	90.7	90.7	26.7	26.7	5.2	5.2	31.7	31.7	4.2	4.2	2.1	0.835	2.87	0.445	S	S

PRT= Pre-test; POT= Post-test; M ( X ) = Mean; SD= Standard Deviation; R= Remark US=Unsatisfactory; S= Satisfactory

**Table 3.** Participants Knowledge on hygiene

Knowledge on hygiene	I know				Uncertain				I don't know				M& SD		M & SD		REM-ARK	
	PRT		POT		PRT		POT		PRT		POT		PRT		POT		PRT	POT
	F	%	F	%	F	%			F	%	F	%	X	SD	X	SD	R	R
Keep the wound as clean as possible by bathing regularly	79	79	99	99	5	5	1	1	16	16	0	0	2.63	0.747	2.99	0.1	S	S
Remove soaked pad from front to back and discard	72	72	95	95	7	7	4	4	21	21	1	1	2.51	0.822	2.94	0.277	S	S
Cleaning of perineum starts at the front and then towards the back	59	59	99	99	16	16	1	1	25	25	0	0	2.34	0.855	2.99	0.1	S	S
Do not stay in the bath tub for longer than 10 minutes as you bath	43	43	84	84	23	23	11	11	34	34	5	5	2.09	0.877	2.79	0.518	S	S
Pour warm water over your perineum from front to back after urination	64	64	98	98	12	12	0	0	24	24	2	2	2.4	0.852	2.96	0.281	S	S

Apply medicated spray, ointment or pad as directed by provider	56	56	84	84	17	17	7	7	27	27	9	9	2.29	0.868	2.75	0.609	S	S
Dry the perineal area with unpowdered tissue or clean flannel from front to back, and then discard it.	51	51	87	87	24	24	7	7	25	25	6	6	2.26	0.836	2.81	0.526	S	S
Apply clean perineal pad from front to back, touching only sides and outsides of pad	37	37	85	85	29	29	11	11	34	34	4	4	2.03	0.846	2.81	0.486	S	S
Expose the perineum to the air by letting your pad down while you are resting or napping	24	24	83	83	34	34	7	7	42	42	10	10	1.82	0.796	2.73	0.633	US	S
Maternity sanitary pads is good to use immediately after delivery	79	79	94	94	6	6	4	4	15	15	2	2	2.64	0.732	2.92	0.339	S	S
Tampons could be used immediately after delivery	21	21	83	83	25	25	8	8	54	54	9	9	1.67	0.805	2.74	0.613	US	S

Key: PRT= Pre-Test; POT= Post-Test; M ( X ) = Mean; SD= Standard Deviation; R= Remark Us=Unsatisfactory; S= Satisfactory

Table 4. Participants' knowledge on reducing perineal tear discomfort

Knowledge on reducing Perineal tear discomfort	I know				Uncertain				I don't know				M& SD		M & SD		REMARK	
	PRT		POT		PRT		POT		PRT		POT		PRT		POT		PRT	POT
	F	%	F	%	F	%	F	%	F	%	F	%	X	SD	X	SD	R	R
A warm or cold sitz bath for 20 minutes, three times a day is good	60	60	95	95	11	11	3	3	29	29	2	2	2.31	0.896	2.93	0.325	S	S
Perineal muscles exercises lessen perineal pain	27	27	96	96	21	21	2	2	52	52	2	2	1.75	0.857	2.94	0.312	US	S
Cold Sitz bath relieves pain and swelling	25	25	89	89	29	29	5	5	46	46	6	6	1.79	0.82	2.83	0.513	US	S

Warm sitz bath relieves perineal pain	66	66	93	93	9	9	4	4	25	25	2	2	2.41	0.866	2.92	0.34	S	S
Perineal ice packs work best within first 24 hours after birth	17	17	86	86	26	26	7	7	57	57	7	7	1.6	0.765	2.79	0.556	US	S
The ice pack should remain in place approximately 20 minutes and then removed for about 10 minutes before it is replaced	22	22	87	87	18	18	6	6	60	60	7	7	1.62	0.826	2.8	0.55	US	S
Pour warm water over your perineum while you pee	57	57	95	95	13	13	3	3	30	30	2	2	2.27	0.897	2.93	0.326	S	S
Some medication may be given by your provider to reduce pain	77	77	91	91	7	7	5	5	16	16	4	4	2.61	0.751	2.87	0.442	S	S
Do not stretch the stitched area	76	76	95	95	7	7	3	3	17	17	2	2	2.59	0.767	2.93	0.326	S	S
Lie on your side while resting to reduce strain on the stitched area	49	49	91	91	22	22	7	7	29	29	2	2	2.2	0.865	2.89	0.373	S	S

Key: PRT= PRE-TEST; POT= POST-TEST; M ( X ) = MEAN; SD= Standard Deviation; R= Remark US=Unsatisfactory; S= Satisfactory

Table 5. Participants' knowledge on Nutrition

Knowledge on Nutrition	I know				Uncertain				I don't know				M& SD		M & SD		REMARK	
	PRE-TEST		POST-TEST		PRE TEST		POST TEST		PRE-TEST		POST-TEST		PRETEST		POST TEST		PRT	POT
	F	%	F	%	F	%	F	%	F	%	F	%	X	SD	X	SD	R	R
Eat lots of fruit and vegetables after delivery	87	87	96	96	7	7	2	2	6	6	2	2	2.81	0.526	2.94	0.312	S	S
Balance diet, copious fluid intake is good after delivery	82	82	96	96	8	8	3	3	10	10	1	1	2.72	0.637	2.95	0.261	S	S

Key: PRT= Pre-Test; POT= Post-Test; M ( X ) = Mean; SD= Standard Deviation; R= Remark Us=Unsatisfactory; S= Satisfactory

**Table 6. Participants' Knowledge about Positioning**

Knowledge on Positioning	I know				Uncertain				I don't know				M& SD		M & SD		RE-MARK	
	Pre-test		Post- test		Pre- test		Post- test		Pre-test		Post- test		Pre-test		Post- test		PRT	POT
	F	%	F	%	F	%			F	%	F	%	X	SD	X	SD	R	R
Do not sit directly onto the wound for long periods of time	62	62	96	96	12	12	2	2	26	26	2	2	2.36	0.871	2.94	0.312	S	S
Any comfortable position can be good to do perineal muscles exercise	35	35	95	95	17	17	2	2	48	48	3	3	1.87	0.906	2.92	0.367	US	S
Using a soft "doughnut" cushion when sitting may help reduce stretching on stitched area	37	37	92	92	16	16	4	4	47	47	4	4	1.9	0.916	2.88	0.433	US	S
Avoid standing and sitting for long periods of time is good	57	57	95	95	14	14	2	2	29	29	3	3	2.28	0.889	2.92	0.367	S	S

Key: PRT= Pre-Test; POT= Post-Test; M ( X ) = Mean; SD= Standard Deviation; R= Remark Us=Unsatisfactory; S= Satisfactory

**Table 7. Participants' knowledge on Toileting**

Knowledge on Toileting	I know				Uncertain				I don't know				M& SD		M & SD		REMA-RK	
	Pre-test		Post- test		Pre-test		Post- test		Pre-test		Post- test		Pre-test		Post-test		PRT	POT
	F	%	F	%	F	%	F	%	F	%	F	%	X	SD	X	SD	R	R
Always wash your hands before and after using the toilet	97	97	100	100	1	1	0	0	2	2	0	0	2.95	0.297	3	0	S	S
Avoid straining the perineum when passing stool	72	72	97	97	14	14	3	3	14	14	0	0	2.58	0.727	2.97	0.171	S	S
When sitting on the toilet keep your knees higher than your hips	40	40	91	91	26	26	8	8	34	34	1	1	2.58	0.727	2.97	0.171	S	S
Flushing water through the perineum as you pass urine is good	50	50	94	94	29	29	5	5	21	21	1	1	2.29	0.795	2.93	0.293	S	S

Key: PRT= Pre-Test; POT= Post-Test; M ( X ) = Mean; SD= Standard Deviation; R= Remark Us=Unsatisfactory; S= Satisfactory

**Table 8.** Participants' knowledge on strengthening the perineal muscles

Knowledge on strengthening the perineal muscles	I know				Uncertain				I don't know				M& SD		M & SD		RE-MARK	
	Pre-test		Post- test		Pre- test		Post test		Pre-test		Post- test		Pretest		Post test		PRT	POT
	F	%	F	%	F	%	F	%	F	%	F	%	X	SD	X	SD	R	R
Perineal muscle exercise can be done when one is fit to do	44	44	88	88	21	21	8	8	35	35	4	4	2.09	0.889	2.84	0.465	S	S
Perineal muscles exercise can be done anywhere	34	34	88	88	28	28	8	8	38	38	4	4	1.96	0.852	2.84	0.465	US	S
Perineal muscles exercise helps to regain control of bladder	42	42	96	96	21	21	3	3	37	37	1	1	2.05	0.892	2.95	0.262	S	S
Perineal muscles exercises everytime you urinate and at least 100 exercises each day is good	31	31	91	91	27	27	4	4	42	42	5	5	1.89	0.852	2.86	0.472	US	S

Key: PRT= Pre-Test; POT= Post-Test; M ( X ) = Mean; SD= Standard Deviation; R= Remark Us=Unsatisfactory; S= Satisfactory

**Table 9.** Participants' Knowledge on seeking medical advice

Knowledge on seeking medical advice	I know				Uncertain				I don't know				M& SD		M & SD		REMARK	
	Pre-test		Post- test		Pre- test		Post- test		Pre-test		Post- test		Pre-test		Post-test		PRT	POT
	F	%	F	%	F	%			F	%	F	%	X	SD	X	SD	R	R
Seek advice immediately if any sign of localized perineal infection is noticed	84	84	96	96	9	9	2	2	7	7	2	2	2.77	0.566	2.94	0.312	S	S
Seek advice when you have questions about health condition or care	87	87	96	96	7	7	1	1	6	6	3	3	2.81	0.526	2.93	0.355	S	S

Key: PRT= Pre-Test; POT= Post-Test; M ( X ) = Mean; SD= Standard Deviation; R= Remark Us=Unsatisfactory; S= Satisfactory

**Table 10.** Participants overall knowledge score on postpartum perineal wound care

Knowledge on Postpartum perineal wound care	I know				Uncertain				I don't know				M & SD		M & SD		REMARK	
	PRE-TEST		POST-TEST		PRE TEST		POST TEST		PRE-TEST		POST-TEST		PRETEST		POST TEST		PRT	POT
	F	%	F	%	F	%	F	%	F	%	F	%	X	SD	X	SD	R	R
Reducing Perineal discomfort	47.6	47.6	91.8	91.8	16.3	16.3	4.5	4.5	36.1	36.1	3.6	3.6	2.12	0.831	2.88	0.406	S	S
Hygiene	53.2	53.2	90.1	90.1	18	18	5.5	5.5	28.8	28.8	4.4	4.4	2.24	0.821	2.86	0.407	S	S
Nutrition	84.5	84.5	96	96	7.5	7.5	2.5	2.5	8	8	1.5	1.5	2.77	0.581	2.95	0.287	S	S
Positioning	47.8	47.8	94.5	94.5	14.8	14.8	2.5	2.5	37.5	37.5	3	3	2.1	0.895	2.92	0.37	S	S

Toileting	64.8	64.8	95.5	95.5	17.5	17.5	4	4	17.8	17.8	0.5	0.5	2.47	0.671	2.95	0.199	S	S
Strengthening the perineal muscles	37.8	37.8	90.8	90.8	24.3	24.3	5.8	5.8	38	38	3.5	3.5	2	0.871	2.87	0.416	S	S
Seeking Medical Advice	85.5	85.5	96	96	8	8	1.5	1.5	6.5	6.5	2.5	2.5	2.79	0.546	2.94	0.334	S	S
Signs of Localized Perineal infections	41.7	41.7	90.7	90.7	26.7	26.7	5.2	5.2	31.7	31.7	4.2	4.2	2.1	0.835	2.87	0.445	S	S
Total Knowledge score	52.9	52.9	92	92	15.7	15.7	4.5	4.5	31.4	31.4	3.5	3.5	2.22	0.833	2.89	0.381	S	S

Key: PRT= PRE-TEST; POT= POST-TEST; M ( X ) = MEAN; SD= Standard Deviation; R= Remark US=Unsatisfactory; S= Satisfactory

**Table 11.** McNemar’s pretest posttest total knowledge score about postpartum wound perineal care.

POSTTEST		Total			McNemar Broker Test	P-value	DF	Pretest		Posttest	
		I don’t know	Uncertain	I know				Mean	SD	Mean	SD
PRE-TEST	I don’t know	3(3.0%)	5(5.0%)	23(23.0%)	44	0	3	2.22	0.833	2.89	0.381
	Uncertain	0(0.0%)	0(0.0%)	16(16.0%)							
	I know	0(0.0%)	0(0.0%)	53(53.0%)							
Total		3(3.0%)	5(5.0%)	92(92.0%)							

**Table 12.** Pretest. There is no significant difference in the knowledge of postpartum perineal wound care among women with previous delivery compared to those with no previous deliveries..

Crosstab		PRETEST			Total	Chi-square	Df	P-value
		I don't know	Uncertain	I know				
Parity	Nulliparas	Count	13	5	19	0.581	2	0.748
		% within Parity	35.10%	13.50%	51.40%			
	Women with previous delivery	Count	18	11	34			
		% within Parity	28.60%	17.50%	54.00%			
Total		Count	31	16	53			
		% within Parity	31.00%	16.00%	53.00%			

**Table 13.** Posttest. There is no significant difference in the knowledge of postpartum perineal wound care among women with previous delivery compared to those with no previous deliveries.

Crosstab		POSTTEST			Total	Chi-square	Df	P-value
		I don't know	Uncertain	I know				
Parity	Nulliparas	Count	2	4	31	5.53	2	0.063
		% within Parity	5.40%	10.80%	83.80%			
	Women with previous delivery	Count	1	1	61			
		% within Parity	1.60%	1.60%	96.80%			
Total		Count	3	5	92			
		% within Parity	3.00%	5.00%	92.00%			

it. Most 66% of participants before intervention knew that warm sitz bath relieves perineal pain. More than half (57%) before intervention said they did not know that perineal ice packs work best within first 24 hours after birth, while 86% knew about it after intervention. Similarly, more than half of the subjects before intervention said they did not know that ice packs should remain in place approximately 20 minutes and then removed for about 10 minutes before it is replaced, while 87% after intervention they knew about it.

Table 5 shows that 87% knew about eating fruits and vegetables during postpartum period while 96 knew it after intervention.

Table 6 shows that most (62%) participants before intervention said they knew that they should not sit directly onto the wound for long periods of time, while majority 96% after intervention said they knew about it.

Table 7 shows that majority 97% of participants before intervention said they knew about always wash their hands before and after using the toilet, while 97% of them also knew about it after intervention, 72% before intervention said they knew that they should avoid straining the perineum when passing stool, while majority (97%) also knew about it after intervention. However, 40% before intervention said they knew that they should keep their knees higher than their hips, when sitting on the toilet, while majority (91%) after intervention, said they knew about that.

Table 8 shows that 44% of participants before intervention, said they knew that perineal muscle exercise can be done when one is fit to do it, while 88% after intervention, said they knew about it, 38% before intervention said they did not know that perineal muscles exercise could be done anywhere, while after intervention, majority 88% knew about that. Moreover, 42% before intervention participants said they knew that perineal muscles exercise helps to regain control of bladder, while after intervention, majority 96% said they knew about it.

Table 9 shows that majority (84%) of participants said that they knew that they should Seek advice immediately if any sign of localized perineal infection is noticed, while after intervention majority (96%) also said they knew about it. Similarly, majority 87% said they knew that they should seek advice when they have questions about health condition or care, while after intervention, majority (96%) of the respondents said they knew about it.

Table 10 shows that 47.6% before intervention had knowledge on reducing perineal trauma discomfort, while after intervention majority (91.8%) knew about it. More so, majority (84.5%) of subjects before intervention knew about nutrition that prevents constipation, while majority (96%) knew about after intervention.

Most (64.8%) participants before intervention knew about good toilet practices, while majority (95.5%) after intervention knew about it. Before intervention, 38% said they did not know about strengthening perineal muscles, while after intervention majority (90.8%) said they knew about it. More so, majority (85.5%) before intervention said they knew about seeking medical advice, while after intervention majority (96%) also knew about seeking medical advice. Similarly, before intervention, 41.7% of subjects knew about signs of localized perineal infections while after intervention, majority (90.7%) knew about signs of perineal infections.

The total knowledge score of the pregnant women on postpartum perineal wound care before intervention was 52.9% which increase to 92% after intervention.

Table 11 shows that there is a significant increase from total pretest mean knowledge score 2.22 to post-test mean knowledge score 2.89 ( $p < 0.05$ ;  $p = 0.000$ ).

Table 12 shows there is no statistically significant difference in pretest knowledge among nulliparas and women with previous delivery ( $X^2 = 0.581$ ;  $p\text{-value} = 0.748$ ).

Table 13 shows that there is no statistically significant difference in post-test knowledge between nulliparas and mothers with previous deliveries ( $X^2 = 5.530$ ;  $p\text{-value} = 0.063$ ).

## Discussion

The aim of the current study was to determine the effectiveness of an educational intervention on knowledge of postpartum perineal wound care. Pregnant mothers were taught on numerous measures of care which will improve knowledge that may promote perineal wound healing.

Regarding socio-demographic characteristics, most (50%) intervention were within the age range 24-29 years, this is similar to [12] whose participants were in mean age 25.62, not similar to [13] where majority were less than 20 years and mean age 22.2 years [4]. Regarding mother's education, 70% had tertiary education, 22% had secondary education 4% similar to [4,14], in contrast with [12]. Regarding pregnancy status, 29% were primigravidas while 71% were multigravidas. Women with no previous delivery were 37%, with 25% who had one previous delivery, 19% 2 deliveries, 9% delivered 3 and 4 children respectively and only one had 5 and above previous deliveries.

Regarding knowledge on signs of localized perineal infection, more than half (58%) of participants said they knew that perineum very painful as a sign of localized perineal infection, while after intervention majority (95%) knew that it is a sign. Hence, there was a satisfactory increase in mean knowledge score from  $2.37 \pm 0.812$  pretest to  $2.92 \pm 0.367$  post-test. More so, 46% before intervention women did not know that the perineum becomes very red as a sign of localized perineal infection, while majority (88%) after intervention said they knew that it is a sign. However, there was a satisfactory increase in mean knowledge score from  $1.82 \pm 0.845$  pretest to  $2.84 \pm 0.465$  post-test. Furthermore, 40% before intervention said they knew that swollen stitched area is a sign of localized perineal infection; while after intervention majority (91%) knew that it is a sign. Hence, there was a satisfactory increase in mean knowledge score from  $2.09 \pm 0.842$  pretest to  $2.88 \pm 0.409$  post-test.

Furthermore, 40% of subjects knew that bad smelling discharge from the stitched area is a sign of localized perineal infection, while after intervention; majority (93%) said they knew it is a sign. Hence, there was a satisfactory increase in mean knowledge score from  $2.25 \pm 0.845$  pretest to  $2.89 \pm 0.424$  post-test. Similarly, 36% said they did not know that drainage around the stitches area is a sign of localized perineal infection, while majority (89%) after intervention said they knew that it is a sign. Hence there was a satisfactory increase in mean knowledge score from  $1.95 \pm 0.821$  pretest to  $2.82 \pm 0.539$  post-test. More so, 42% said they knew that separation of stitched skin is a sign of localized perineal infection, while majority (88%) after intervention said they knew that it is a sign. Hence, there was a satisfactory increase in mean knowledge score from  $2.12 \pm 0.844$  pretest to  $2.84 \pm 0.465$  post-test. However, the average knowledge score of the pregnant women on recognition of localized perineal infection before intervention was 41.7% which increase to 90.7% after intervention. Hence there was a satisfactory increase in average mean knowledge score from  $2.10 \pm 0.835$  pretest to  $2.87 \pm 0.445$  post-test.

Findings on participants' knowledge on postpartum perineal wound care showed that 47.6% before intervention had knowledge on reducing perineal trauma discomfort, while after intervention majority (91.8%) knew about it. Hence, there was a satisfactory increase in mean knowledge score about

reducing perineal wound discomfort from  $2.12 \pm 0.831$  pretest to  $2.88 \pm 0.406$  post-test. Similarly, before intervention, more than half (53.2%) knew about the practice of hygiene, while after intervention, majority (90.1%) had knowledge; hence, there was a satisfactory increase in mean knowledge score on hygiene from  $2.24 \pm 0.821$  pretest to  $2.86 \pm 0.407$  post-test. More so, majority (84.5%) of subjects before intervention knew about food that prevents constipation, while majority (96%) knew about it after intervention. Hence, there was a satisfactory increase in knowledge about nutrition from  $2.77 \pm 0.581$  pretest to  $2.95 \pm 0.287$  post-test. Furthermore, about half (47.8%) of participants before intervention knew about positioning while after intervention majority (94.5%) had knowledge. Hence, there was a satisfactory increase in mean knowledge score of  $2.10 \pm 0.895$  pretest to  $2.92 \pm 0.370$  post-test.

Most (64.8%) participants before intervention knew about proper toileting, while majority (95.5%) after intervention knew about it. Hence, there was a satisfactory increase in mean knowledge score on toileting from  $2.47 \pm 0.671$  pretest to  $2.95 \pm 0.199$  post-test. Before intervention, 38% said they did not know about strengthening perineal muscles, while after intervention majority (90.8%) said they knew about it. Hence there was a satisfactory increase in mean knowledge score on strengthening perineal muscles from  $2.00 \pm 0.871$  pretest to  $2.87 \pm 0.416$  post-test. More so, majority (85.5%) before intervention said they knew about seeking medical advice, while after intervention majority (96%) also knew about seeking medical advice. Hence there was a satisfactory increase in knowledge from  $2.79 \pm 0.546$  pretest to  $2.94 \pm 0.334$  post-test. Similarly, before intervention, 41.7% of subjects knew about signs of localized perineal infections while after intervention, majority (90.7%) knew about signs of perineal infections. Hence, there was a satisfactory increase in mean knowledge score from  $2.10 \pm 0.835$  pretest to  $2.87 \pm 0.445$  post-test. However, the total knowledge score of the pregnant women on postpartum perineal wound care before intervention was 52.9% which increase to 92% after intervention. Hence there was a satisfactory increase in total mean knowledge score from  $2.22 \pm 0.833$  pretest to  $2.89 \pm 0.381$  post-test ( $p < 0.05$ ;  $p = 0.000$ ).

The findings on knowledge are similar to [15] who found that education enhanced first term father's knowledge of newborn care. It supported [16] who found educational intervention to increase knowledge. Knowledge of married immigrant women on efficacy and knowledge of self-care has increased after intervention [17], there was increased in post level knowledge score on knowledge related to selected warning signs of pregnancy among primigravida [18], there was a significant increase in knowledge score after structured teaching programme on cardiac rehabilitation [19] knowledge of mothers on postpartum self-care and newborn care has significantly increased after an educational intervention [20], overall knowledge on menstrual hygiene and menstruation to have significantly increased [21], increased knowledge after receiving education on essential newborn care [22], women who received instructional intervention had their knowledge on self-perineal care improved [13], significant increase in pregnancy-related and newborn care knowledge and postpartum care self-efficacy among married immigrant women [23].

The hypothesis tested for difference in knowledge between pregnant women who had previous delivery and those who had no previous deliveries indicates no statistically significant difference in pretest and post-test knowledge between nulliparas and those with previous birth ( $X^2 = 0.581$ ;  $P\text{-value} = 0.748$ ) and ( $X^2 = 5.530$ ;  $P\text{-value} = 0.063$ ) respectively. This implies that previous delivery did not significantly influence their

knowledge about postpartum perineal care. Lack of difference in knowledge score of women that had previous delivery with those who had none was as a result inadequate information on postpartum perineal wound care.

### Summary

The study was conducted to determine the effectiveness of an educational programme on knowledge of postpartum perineal wound care among antenatal mothers in Jos. A pre-test post-test design was used. One hundred pregnant mothers were recruited purposively. Data was analyzed, presented and discussed. The teaching programme was found to be effective after educational intervention.

### Conclusion

Mothers with stitched perineum after vaginal birth suffer some complications. Expectant mothers' information on how to carry out postpartum perineal wound care was inadequate. Women who were taught postpartum perineal wound care had improvement in knowledge.

### Recommendations

Based on available evidence, mothers should be taught on postpartum self-perineal care during antenatal and reinforced immediately the perineum is stitched. There is also need to improve the quality of care of patients by re-training health care practitioners on evidence-based practice of postpartum perineal wound care.

### Suggestions for Further Studies

Research should be carried out on measures that prevent perineal trauma, health care provider's knowledge on practices of postpartum perineal wound care and immediate to six weeks post-delivery perineal trauma assessment for nature of perineal wound healing.

### Limitation of the study

Study was conducted on only limited numbers of pregnant mothers.

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# Supplementary Data

## QUESTIONNAIRE

INSTRUCTION: Kindly tick as appropriate.

### SECTION A-SOCIO-DEMOGRAPHIC CHARACTERISTICS:

Age in years - 18-23 { } 24-29 { } 30-35 { } 36 and above { }  
 Level of education- No formal education { } Primary { } Secondary { } Tertiary { }  
 Religion- Christianity { } Islam { } Others {specify} \_\_\_\_\_  
 Marital status- Married { } Single { } Divorce { } Widow { }  
 Residency - Urban { } Rural { }  
 Type of family- Nuclear { } Extended { }  
 Present pregnancy is number - 1{ } 2{ } 3{ } 4{ } 5 above { }  
 Number of children delivered – None { } 1{ } 2{ } 3{ } 4{ } 5 above { }

### SECTION B- KNOWLEDGE ON PERINEAL TEAR:

Knowledge on perineal tear	I know	Uncertain	I don't know
Perineal tear could happen on its own or given by care provider			
Perineal tear if not manage properly could lead to infection at the wound area			
Perineal tear if not manage properly could lead to infection to the whole body			
Long term problems of perineal tears could lead inability to control urine and faeces			
Early recognition of wound area infection may prevent general body infection			

### SECTION C -KNOWLEDGE ON PERINEAL TEARS CARE PRACTICES

Knowledge on reducing perineal tear discomfort:	I know	Uncertain	I don't know
A warm or cold sitz bath for 20 minutes, three times a day is good			
Perineal muscles exercises lessen perineal pain.			
Cold Sitz bath relieves pain and swelling			
Warm sitz bath relieves perineal pain			
Perineal ice packs work best within first 24 hours after birth			
The ice pack should remain in place approximately 20 minutes and then removed for about 10 minutes before it is replaced			
Pour warm water over your perineum while you pee.			
Some medication may be given by your provider to reduce pain			
Do not Stretch the stitched area			
Lie on your side while resting to reduce strain on the stitched area			
Knowledge on Hygiene:			
Keep the wound as clean as possible by bathing regularly			
Remove soaked pad from front to back and discard			
Cleaning of perineum starts at the front and then towards the back			
Do not stay in the bath tub for longer than 10minutes as you bath			
Pour warm water over your perineum from front to back after urination for cleansing.			
Apply medicated spray, ointment or pad as directed by provider.			
Dry the perineal area with unpowdered tissue or clean flannel from front to back, and then discard it.			

Apply clean perineal pad from front to back, touching only sides and outsides of pad			
Expose the perineum to the air by letting your pad down while you are resting or napping.			
Maternity sanitary pad is good to use immediately after delivery			
Tampons could be used immediately after delivery			
Knowledge on Nutrition:			
Eat lots of fruit and vegetables after delivery			
Balance diet, Copious fluid intake is good after delivery			
Knowledge on Positioning don't know	I know	Uncertain	I
Do not sit directly onto the wound for long periods of time			
Any comfortable position can be good to do perineal muscles exercise			
Using a soft "doughnut" cushion when sitting may help reduce stretching on stitched area			
Avoid standing and sitting for long periods of time is good			
Knowledge on Toileting:			
Always wash your hands before and after using the toilet			
Avoid straining the perineum when passing stool			
When sitting on the toilet keep your knees higher than your hips			
Flushing water through the perineum as you pass urine is good			
Knowledge on Strengthening the Perineal Muscles			
Perineal muscle exercise can be done when one is fit to do			
Perineal muscles exercise can be done anywhere			
Perineal muscles exercises help to regain control of bladder			
Perineal muscles exercise every time you urinate and at least 100 exercises each day is good.			
Knowledge on Seeking Medical advice			
Seek advice immediately if any sign of localized perineal infection is noticed			
Seek advice when you have questions about health condition or care.			

**SECTION D -KNOWLEDGE ON SIGNS OF LOCALIZED PERINEAL INFECTION:**

Variables	I know	Uncertain	I don't know
Perineum becomes very painful			
Perineum becomes very red			
Stitched area is swollen			
Bad smelling discharge from the stitched area			
Drainage around the stitches area			
Stitched skin separate			