

Original Article

PERCEPTION OF CAESAREAN DELIVERY BY PATIENTS AND THEIR CARE-GIVERS IN THE ULTRA-SHORT STAY VERSUS THE TRADITIONAL POST-OPERATIVE MANAGEMENT PROTOCOL, FOLLOWING UNCOMPLICATED CAESAREAN DELIVERY: A RANDOMIZED CONTROLLED TRIAL

Oyeyemi N^{1*}, Onwudiegwu U², Pughikumo DL³, Oyeyemi AS^{4,5}

¹Department of Obstetrics & Gynaecology, Federal Medical Centre, Yenagoa, Bayelsa State, Nigeria.

²Institute of Medical Education, Bayelsa Medical University, Yenagoa, Bayelsa State, Nigeria.

³Department of Physiology, College of Health Sciences, Niger Delta University, Wilberforce Island, Bayelsa State, Nigeria.

⁴Department of Community Medicine, Faculty of Clinical Sciences, Niger Delta University, Wilberforce Island, Bayelsa State, Nigeria.

⁵Department of Community Medicine, Niger Delta University Teaching Hospital, Okolobiri, Bayelsa State, Nigeria.

***Corresponding author:** Dr. Nuvie Oyeyemi; +2348035488675; nuviyemi@yahoo.com

Abstract

Background: Caesarean delivery is the most common major surgical procedure currently done in Obstetrics worldwide and is presently a relatively safe procedure, though there still remains a cultural aversion for it in developing countries like Nigeria. There is therefore a need to examine post-operative management protocols that can reduce length of hospital stay and their effects on the perception of Caesarean delivery by the patients and their significant others/care-givers, following uncomplicated Caesarean delivery.

Objective: To determine and compare the perception of caesarean delivery by patients and their care-givers; between the ultra-short stay and traditional post-operative management protocols, following uncomplicated Caesarean delivery.

Materials and Methods: This was a randomized controlled trial done in 3 centres in Bayelsa state, South-South, Nigeria. The Federal Medical Centre, Yenagoa, the Niger Delta University Teaching Hospital, Okolobiri, and the Diete-Koki Memorial Hospital, Opolo. One hundred and seventy-nine women who have just had uncomplicated caesarean delivery were randomized into the ultra-short stay (90) and traditional groups (89). The women in the ultra-short stay group were given minty chewing gums (menthos) to chew for 2 hours, within the first 6 hours after surgery. They started ambulating and oral intake initiated from 6 hours post-operative (regular diet commenced at 12 hours); and urethral catheter discontinued 6-12 hours post-operative.

Results: There was a significantly more positive perception of caesarean delivery in women who had the ultra-short stay post-operative management protocol ($\chi^2=19.51$, $p<0.001$), and their significant others/care-givers ($\chi^2=21.78$, $p<0.001$), than women who had the traditional protocol.

Conclusion: There is a better perception of caesarean delivery in women who are managed using the ultra-short stay, and their care-givers, than in the traditional post-operative management protocols; following uncomplicated Caesarean delivery.

Keywords: Patients, Perception, Care-givers, Significant others, Uncomplicated Caesarean delivery, Yenagoa.

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INTRODUCTION

Caesarean delivery is the most common major surgical procedure currently done in Obstetrics worldwide, and is presently a relatively safe procedure, though there still remain a cultural aversion for it; with myths and misconceptions about it, especially in developing countries like Nigeria. [1,2] These misconceptions include the exaggerated assumption of a mandatory prolonged duration of hospital stay following Caesarean delivery, and an extended period of incapacitation following the procedure; among others. There is therefore a need to examine post-operative management protocols that can reduce length of hospital stay and their effects on the perception of Caesarean delivery by the patients and their significant others/care-givers, following uncomplicated Caesarean delivery, and possibly make the operation more acceptable when indicated. [1,2] The socioeconomic implication of the length of hospital stay following uncomplicated Caesarean delivery is also very important. [1,3] Most studies have not detected an increased rate of morbidity associated with early discharge following Caesarean delivery.[4,5,6] Therefore, protocols that reduce duration of hospital stay following Caesarean delivery, will probably also improve patients' perception of Caesarean delivery, and the perception of their care-givers/significant others. This may also help in refuting the misconception about a compulsory prolonged hospital stay after every Caesarean delivery and therefore make the operation more acceptable, when indicated; especially in sub-Saharan Africa where there is still some aversion for it.[1]

In some societies, in Nigeria, vaginal delivery is perceived as 'normal delivery' and it is what is generally accepted, conversely, Caesarean delivery is considered 'abnormal' delivery. [7] Therefore many women are not open to the option of Caesarean delivery, when indicated. [7,8] Many have to get their husband's blessings/consent and perhaps his relatives, before consenting to Caesarean delivery. [7] Also endorsement from religious leaders (who know little or nothing about the indications for Caesarean delivery) is considered mandatory by some. [7,8] Caesarean delivery may be perceived by most men as a curse and punishment

to the woman and family and may be seen as a 'death warrant'. [9-11] A survey done in Nigeria revealed that in Bayelsa state, the norm was for relatives and society to decide how a woman should give birth in her community. [7] Many of the women would rather go to a traditional birth attendant (TBA) so that they are seen as the biblical '*Hebrew women*'. These TBAs are typically called 'massagers. Most of the women would rather have faith that they would have a vaginal delivery by praying and using 'anointing oil' given to them by their religious leaders. [7]

The women also expressed the misgiving that some hospitals, especially private hospitals, would recommend Caesarean delivery because it was their means of making money. [7] Many women in Bayelsa also expressed the opinion that for them and most women in their communities, Caesarean delivery was for those who were not 'strong enough'. They would rather listen to their significant others (mothers, mothers-in-law, husbands, pastors, pastors' wives), about the mode of delivery, even if the doctor recommends Caesarean delivery as the best and safest option for them. [7] It was concluded that the dominant factors that influenced the women's choices were religion, their significant others and cost.[7] On the other hand, increasing numbers of women worldwide are opting for an elective Caesarean delivery without medical indications and there is a decrease in the rate of vaginal birth after Caesarean delivery.[12,13] All these makes it important to review the length of hospital stay following Caesarean delivery, in order to clarify the misgivings, and also to reduce the inconveniences involved.

Specific Objectives:

1. To determine patients' perception of Caesarean delivery following uncomplicated Caesarean delivery, after the ultra-short stay and the traditional post-operative management protocol.
2. To compare patient perception of Caesarean delivery in the ultra-short stay versus the traditional hospital-stay, after uncomplicated Caesarean section
3. To determine patients' significant others/care-givers' perception of Caesarean delivery in both the ultra-

short stay and traditional hospital-stay protocol, following uncomplicated Caesarean delivery.

4. To compare the significant others/care-givers' perception of Caesarean delivery, in the ultra-short stay versus the traditional hospital stay protocol following uncomplicated Caesarean delivery.

MATERIALS AND METHODS

This was a multicentre randomized controlled trial, of the parallel design with allocation ratio of 1:1[14], carried out from April 2024 to April 2025, among booked antenatal patients in the Federal Medical Centre, Yenagoa (FMC-Y); the Niger Delta University Teaching Hospital (NDUTH), Okolobiri; the Diète-Koki Memorial Hospital (DKMH), Opolo; all in Bayelsa state, South-south Nigeria. Patients who just had uncomplicated Caesarean delivery for various indications, and are in the recovery room, fully awake. Women excluded were those outside the reproductive age group which is 15-49 years,[15] those who had any medical condition that required management by other specialities post-delivery that may warrant prolonged hospital stay, and Immunosuppressed or HIV positive women with features of the Acquired Immune Deficiency Syndrome (AIDS); women who had prolonged labour or prolonged rupture of membranes.

A total of 180 eligible consenting patients were consecutively recruited into the study. Randomization was done using computer generated random numbers (unstratified balanced allocation from WinPepi)[16] and random allocation concealment done using sealed opaque envelopes numbered from 1 to 60 for each centre. In this way, recruited patients were randomised into either of two groups representing the arms of the study: group A (traditional protocol) and group B (ultra-short stay protocol). An independent observer picked the envelopes consecutively at the time the eligible patient got to the recovery room after an uncomplicated Caesarean delivery, A total of 90 women were allocated into the ultra-short stay group and 89 (one of the women inadvertently allocated here in one of the centres had a iatrogenic bladder injury intra-operatively, so she was subsequently excluded reducing the participants to 89) into the traditional group. The sealed envelope picked was placed within the patients' case notes. All the surgeries were

performed by Consultants and Senior Registrars in the Department of Obstetrics and Gynaecology of the respective hospitals.

At recruitment in the recovery room, the women in the ultra-short stay group were given minty (menthos) chewing gums to chew for at least 2 hours and the appropriate sections of the proforma and interviewer-administered questionnaire (containing patient biodata and intra-operative information) were filled. The protocol (specific interventions) for the ultra-short stay protocol was placed at the nursing station on the ward for attention of the nursing staff. Those for the traditional protocol (group A) were managed according to normal unit protocol.

All patients in group A were commenced on graded oral sips at 24 hours post-operative and regular diet 12 hours later; ambulated within 24 hours (sitting out of bed from 12 hours and walking around ward from 24 hours) post-operative and had urethral catheter (with strict urinary output monitoring) discontinued 24 hours after surgery. Intravenous fluids dextrose water alternating with normal saline was given at 1 litre 8-hourly for at least the first 24 hours after surgery and until oral intake was well established. Analgesics, intramuscular pentazocine at 30 mg 6-hourly, suppository diclofenac 100 mg 12-hourly for 72 hours and intramuscular paracetamol 600-900 mg 8-hourly administered for the first 24 hours after surgery. Antibiotics, usually intravenous ceftriaxone, gentamicin and metronidazole at 1g 12-hourly, 80 mg 8-hourly and 500 mg 8-hourly respectively were also given for the first 48 to 72 hours. Antibiotics were converted to the oral equivalents when the intravenous regimen had been completed and analgesics to oral paracetamol 1g 8-hourly, and diclofenac 50-100 mg 12-hourly respectively. Wound was inspected and exposed on the fifth post-operative day and patient subsequently discharged home.

All patients in group B commenced graded oral fluids at six hours post-operative, gradually graded to semi-solids, then intravenous fluids were discontinued; and regular diet was commenced at 12 hours post-operative. They sat out of bed from 6 hours post-operative and walked around the ward from 12 hours post-operative. Urethral catheter was discontinued 6-12 hours after surgery. Analgesics,

intramuscular pentazocine at 30 mg 6-hourly, suppository diclofenac 100 mg 12-hourly until discharge and intramuscular paracetamol 600-900 mg 8-hourly was administered for the first 24 hours after surgery. Antibiotics, intravenous ceftriaxone, gentamicin and metronidazole, at 1g 12-hourly, 80 mg 8-hourly and 500 mg 8-hourly respectively were also converted to the oral equivalents at discharge and the analgesics changed to oral paracetamol 1g 8-hourly and diclofenac 50-100 mg 12-hourly respectively. Wound was inspected and exposed on the second post-operative day (36-48 hours post-operative) and patient subsequently discharged home on the same day without schedule for home visits, but with customer care lines to call if necessary.

The wound was cleaned with methylated spirit in both groups, and patients were instructed to clean wound with methylated spirit twice to thrice daily at home until the 2 weeks postnatal visit. The proforma and interviewer-administered questionnaires on patients' and care-giver's perception was filled at this visit, or through phone calls for those who missed their visits.

Data analysis was done using the IBM SPSS statistical software version 25. Data was presented in text and tables. Analysis included use of descriptive statistics such as mean, proportion and standard deviation to summarize the quantitative variables. Association between categorical variables was tested using Chi-square and differences in group means were assessed using t-test. A confidence level of 95% was used with the level of significance set at a p-value of <0.05.

RESULTS

There were 179 women who had uncomplicated Caesarean delivery, who were randomized into 90 women for the ultra-short stay post-operative management protocol and 89 for the traditional protocol. Eight women dropped out of the protocols, two in the traditional group (one had severe post-partum haemorrhage, acute kidney injury and had prolonged hospital stay; the other had voiding difficulties at removal of urethral catheter which resulted in prolonged hospital stay). Six women in the

ultra-short stay protocol group, dropped out of the protocol; reasons ranging from post-operative blood transfusions, signs of wound sepsis at wound exposure, to post-partum pregnancy-induced hypertension, all extending hospital stay.

Most of the participants were married women (93.3% in each group respectively) between the ages of 19 and 45 years. The 2 groups were comparable in age, parity, marital status, religion, tribe, except educational status where there were slightly more educated women in the ultra-short stay than the traditional protocol group ($X^2 = 7.82$, P-value = 0.020). Indications for Caesarean delivery, estimated gestational age at delivery and intra-operative variables had no statistically significant difference in these characteristics between the 2 groups, except cadre of surgeon, where more consultants did the surgeries in the ultra-short stay protocol group. The Surgeons were consultants in 84.4% and 62.9% ; senior registrars in 37.1% and 15.6% of the participants in the ultra-short stay and traditional groups respectively ($X^2 = 10.71$, p-value = 0.001).

The significant others reported were their husbands, mothers and sisters. The mothers were their biological mothers, mother-in-law, or any other mother figure often referred to as mother (like their pastor's wife). The sisters were either biological sisters (younger or older), female cousin or sister-in-law (husband's sister or brother's wife). These were the individuals with them at delivery, in the recovery room, on the lying-in ward, and through the post-partum period and the puerperium. The patient perception was categorised as positive, negative and indifferent. Perception was rated positive if they thought Caesarean delivery was a good option for delivery, rated negative if they perceived it as a bad and unfavourable option, and indifferent if they thought of it as "just there" or neither good nor bad.

The perception of the participants of Caesarean delivery as well as that of their significant others/care-givers were significantly more positive in the ultra-short stay than the traditional protocol, with both the intention-to-treat and per-protocol analysis

CONSORT FLOW CHART

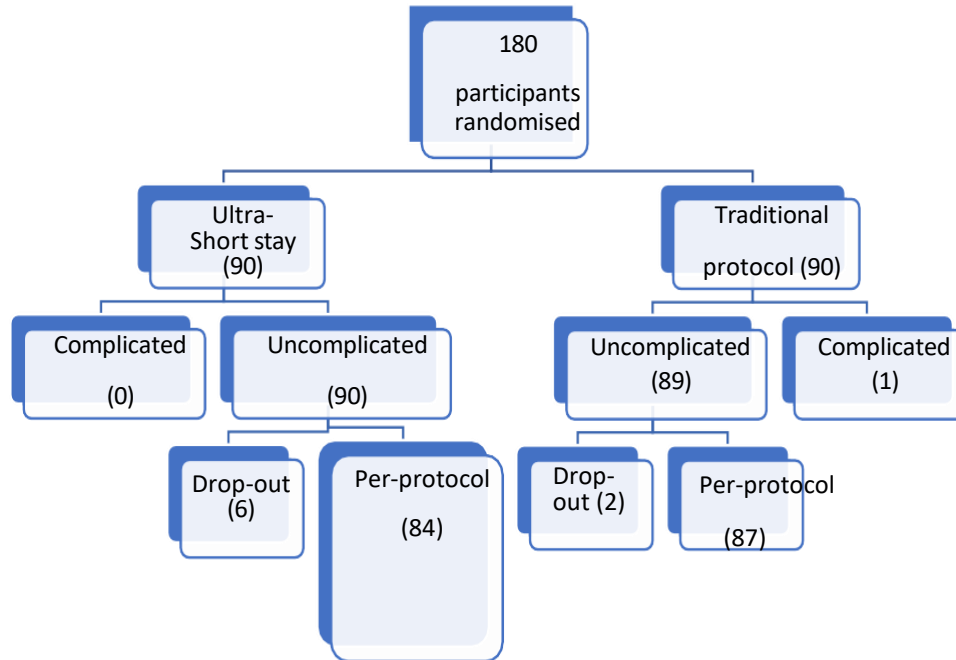


Figure 1: Flow diagram showing randomization to analysis

Table I: Perception of caesarean section by participants and significant others – intention-to-treat analysis.

Variables	Traditional (n = 89)	Ultra-short (n = 90)	t/ χ^2	P - value
Perception by participants (C - section)				
Positive	53 (59.6%)	79 (87.8%)	18.51	< 0.001*
Negative	11 (12.4%)	4 (4.4%)		
Indifference	25 (28.1%)	7 (7.8%)		
Perception by significant others (C - section)				
Positive	29 (32.6%)	59 (65.6%)	21.78	< 0.001
Negative	17 (19.1%)	14 (15.6%)		
Indifference	43 (48.3%)	17 (18.9%)		
Significant others				
Husband	13 (12.8%)	11 (12.2%)	1.21	0.545
Mother	65 (73.0%)	61 (67.8%)		
Sister	11 (12.4%)	18 (20.0%)		

*Fisher’s exact P - value, t-test applies to numerical variables while chi-squared test (χ^2) applies to categorical variables. P - value < 0.05 is statistically significant.

The perception of the participants of Caesarean delivery as well as that of their significant others was significantly more positive in the ultra-short stay than the traditional protocol. The significant others/care-givers of the patients

were predominantly mothers or mother figures and this distribution was comparable in both groups. These results were comparable to those obtained in the per-protocol analysis,

Table II: Perception of caesarean section by participants and significant others, per-protocol

Variables	Traditional (n = 87)	Ultra-short (n = 84)	t / χ^2	P – value
Perception by participants (C - section)				
Positive	52 (59.8%)	77 (91.7%)	23.47	< 0.001*
Negative	10 (11.5%)	2 (2.4%)		
Indifference	25 (28.7%)	5 (6.0%)		
Perception by significant others (C - section)				
Positive	29 (33.3%)	55 (65.5%)	18.79	< 0.001
Negative	17 (19.5%)	12 (14.3%)		
Indifference	43 (47.1%)	17 (20.2%)		
Significant others				
Husband	13 (14.9%)	10 (11.9%)	1.54	0.462
Mother	64 (73.6%)	59 (70.2%)		
Sister	10 (11.5%)	15 (17.9%)		

*Fisher’s exact P - value, t - test applies to numerical variables while chi-squared test (χ^2) applies to categorical variables. P - value < 0.05 is statistically significant.

Table III: Bivariate analysis of possible sociodemographic predictors of participant’s perception of Caesarean delivery, after combining the groups.

Participant’s perception of Caesarean delivery (n = 179)					
Variable	Positive	Negative	Indifference	χ^2	P value
Age				5.70	0.457
≤ 24	10 (7.6%)	0 (0.0%)	2 (6.3%)		
25 – 29	36 (27.3%)	3 (20.0%)	5 (15.6%)		
30 – 34	47 (35.6%)	9 (60.0%)	5 (15.6%)		
≥ 35	39 (29.5%)	3 (20.0%)	11 (34.4%)		
Marital				7.39	0.117
Single	5 (3.8%)	3 (20.0%)	2 (6.3%)		
Married	125 (94.7%)	12(80%)	30 (93.8%)		
Widowed	2 (1.5%)	0 (0.0%)	0 (0.0%)		
Education				16.11	0.003
No formal	2 (1.5%)	0 (0.0%)	0 (0.0%)		
Secondary	32 (24.2%)	11(73.3%)	10(31.3%)		
Tertiary	98 (74.2%)	4 (26.7%)	22(68.8%)		
Religion				15.03	0.001
Christianity	132 (100%)	13(86.7%)	31 (96.9%)		
Islam	0 (0.0%)	2 (13.3%)	1 (3.1%)		
Tribe				9.14	0.331
Yoruba	3 (2.3%)	1 (6.7%)	1 (3.1%)		
Ibo	23 (17.4%)	3 (20.0%)	8 (25.0%)		
Hausa	4 (3.0%)	2 (13.3%)	0 (0.0%)		
Ijaw	84 (63.6%)	7 (46.7%)	21 (65.6%)		
Other	18 (13.6%)	2 (13.3%)	2 (6.3%)		

*Fisher’s exact P-value. P – value of < 0.05 is statistically significant.

Bivariate analysis of possible sociodemographic predictors of perception of Caesarean delivery by participants with the two groups combined showed statistical significance in both level of education and religion. A significantly higher proportion of participants who had tertiary level of education had a positive perception of caesarean delivery. Furthermore, a significantly higher proportion of the Christians had a

positive perception of Caesarean delivery. Though very few Muslims participated in the study (only 3), none of them had a positive perception of Caesarean delivery. Parity was also not a statistically significant predictor of patient's perception of Caesarean delivery ($X^2 = 6.04$, P -value = 0.196).

DISCUSSION

The study determined and compared the patient perception and the perception of their significant others/care-givers of Caesarean delivery in the ultra-short-stay versus the traditional post-operative management protocol in women who had uncomplicated Caesarean delivery in Bayelsa State, South-south Nigeria. Patients' and care-givers' perception of Caesarean delivery was categorized as positive if they were favourably disposed to Caesarean delivery, negative if they were ill-disposed to Caesarean delivery, and indifferent if they were non-committal in their opinions of Caesarean delivery. The difference in indications for Caesarean delivery between the two groups was not statistically significant ($X^2 = 6.89$, P -value = 0.331). More consultants performed the surgeries in the ultra-short stay group than in the traditional group (84.4% and 62.9% respectively). This was statistically significant ($X^2 = 10.71$, P -value = 0.001). The predominant type of anaesthesia used was the subarachnoid block (97.8% for the traditional and 94.4% for the ultra-short stay), the difference between the 2 groups was not statistically significant ($X^2 = 1.35$, P -value = 0.509). This regional anaesthetic technique (subarachnoid block) has been found to be the safest and most appropriate type of anaesthesia for this procedure, as it encourages early post-operative ambulation thereby minimizing the risk of venous thrombosis. [17]

Studies have also shown that regional anaesthesia for Caesarean delivery seemed to be associated with shorter duration of hospital stay than general anaesthesia.[17] Regional anaesthesia also affords the patient the opportunity to be awake through the delivery process and she is able to witness the delivery of her baby and hear its first cry, this is likely to enhance a positive perception of this mode of delivery. Though the study did not show type of anaesthesia used as an intra-operative predictor of patients' perception of Caesarean delivery ($X^2 = 3.17$, P -

value = 0.530). The care-givers too may also have a more positive perception of Caesarean delivery when their patient is wheeled into the recovery room fully awake and able to converse with them. Most of the participants had Pfannenstiel incisions (96.6% in the traditional group and 97.8% in the ultra-short stay), and the difference in the 2 groups was not statistically significant ($X^2 = 2.35$, P -value = 0.309). The cosmetic effect/benefit of the transverse suprapubic incision (Pfannenstiel and Joel-Cohen incisions) is often fascinating to the patient and her care-givers especially when it is her first Caesarean delivery, this may likely enhance their perception of Caesarean delivery. Though this study too did not show type of skin incision as an intra-operative predictor of patients' perception of Caesarean delivery ($X^2 = 1.83$, P -value = 0.767).

Studies have also shown that early hospital discharge after Caesarean delivery results in reduced healthcare costs and enables patients to go home early with their babies.[18] This may help in promoting a positive perception of Caesarean delivery in both the patients and their care-givers. A previous study found that early discharge following uncomplicated Caesarean delivery was more cost-effective than a traditional hospital stay, considering community costs, and highly cost-effective with respect to only health system costs.[2,20] However, early discharge should not stop the need in the lying-in ward during the immediate post-Caesarean delivery period, to counsel women on breastfeeding, family planning, newborn care, and care of the surgical wound.[2,18] All these will ultimately help to enhance a positive perception of Caesarean delivery.

Conclusion

The ultra-short hospital stay post-operative management protocol produced significantly more positive patient perception of Caesarean delivery than the traditional protocol. The care-givers of patients also had a significantly more positive perception of Caesarean delivery, in the ultra-short stay than the traditional protocol. Therefore, enhanced recovery and early discharge after Caesarean delivery causes a better perception of the procedure in both the patients and their care-givers.

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Conflict of interest

There are no conflicts of interest

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