

**EFFECT OF GUIDED EDUCATION ON PERCEPTION AND ATTITUDE OF
CHILDBEARING WOMEN TOWARDS CAESAREAN SECTION IN NIGERIA**

Mary Idowu Edward^{1*}, Oluwaseun Segun Bolarinwa²,
Omowumi Suuru Ajibade³, Temilola Mabel Aregbesola⁴

^{1,2,3}, Department of Adult and Mental Health Nursing, Faculty of Nursing Science, University of Medical Sciences, Akure Campus, Akure, Ondo State,

⁴Basic Health Center Iloro, Akure, South, Ondo State, Nigeria

Corresponding Author: Mary Idowu Edward RN, RM, RNE, PhD. Nursing. Department of Adult and Mental Health Nursing, Faculty of Nursing Science, University of Medical Sciences, Akure Campus, Akure, Ondo State. Email:edwardmary@unimed.edu.ng

Original article

DOI: [10.32549/OPI-NSC-90](https://doi.org/10.32549/OPI-NSC-90)

Submitted: 10 December 2022

Revised: 20 March 2023

Accepted: 30 March 2023

Published online: 11 April 2023

This article is licensed under the Creative Commons Attribution - Non Commercial - No Derivatives 4.0 (CC BY NC ND 4.0) international license.

ABSTRACT

Background: Nigerian women are unwilling to have a Caesarean section because of the general belief that abdominal delivery is a reproductive failure on their part regardless of the feasibility of vaginal birth after Caesarean section and the decreasing mortality from Caesarean sections.

Aim: The primary objective of this study was to investigate the existence of a significant relationship between pregnant women's knowledge and attitudes toward cesarean delivery before and after training.

Materials and Methods: The study employed a pre/post-test study design, using questionnaires to obtain data from 152 childbearing women attending antenatal in Iloro Basic Health Centre, Akure, Ondo State. Descriptive statistics were used to summarize and present data. Associations between variables were tested using Spearman correlation at a p-value 0.05 level of significance.

Results: The researcher found a significant relationship between the knowledge and attitude of pregnant women towards Caesarean section delivery before and after the training. The findings revealed an increase in the knowledge of mothers after the educational intervention, mothers would opt for a Caesarean section if it is necessary to protect them and the baby and they believe that it is a woman's right to choose a Caesarean section for herself. Significant relationship exists between knowledge and attitudes toward the Caesarean section.

Conclusion: It was concluded that childbearing mothers still believe that vagina delivery is a natural delivery and there is joy attached to it, however, most women would still prefer vagina delivery to Caesarean section. The study recommends a need for awareness programs to enhance women's and the community positive perception towards the Caesarean section in Nigeria.

Keywords: Guided Education, Perception, Attitude, Childbearing women, Caesarean Section

Introduction

Worldwide, Caesarean section accounts for about 15% of births. Caesarean section is one of the oldest procedures in obstetric practice and may be a necessary end in the termination of pregnancy to abort or minimize complications to the mother, foetus, or both ^[1]. At the onset, the operation was associated with high morbidity and mortality rates, largely because of the low level of medical science available at the time ^[2]. This type of surgery has been in existence throughout medical history and has steadily progressed from being one that is totally fatal to one that is safe for both the mother and the foetus ^[1]. In developed countries, the operation of Caesarean section has become well established with ease and safety, hence there is a lure for the procedure with women opting for it, increasingly for non-medical reasons ^[3]. It is the most commonly performed major obstetric operation in the world and there is no doubt that it has contributed to improved obstetric care throughout the world ^[4]. In Africa, the cesarean section is usually performed when a vaginal birth is deemed hazardous either to the foetus or the mother ^[5].

Available evidence pertaining to the population-based prevalence of Caesarean section in Nigeria reveals a threshold that is, far below the 10% recommended by the WHO ^[5]. Moreover, there has been no significant increase in the population-based Caesarean section rates for several years in Nigeria ^[7]. For instance, in 2008, merely 2% of births were delivered through a Caesarean section in Nigeria, and the rate remained unchanged in 2013. This is considerably low and suggests unmet needs which may contribute to poor maternal and neonatal outcomes in the country ^[5].

Interestingly, pregnant women's perception of Caesarean section has been an essential consideration for providers of healthcare in the USA ^[7]. One of the major reasons is that a positive perception can lead to an effective adaptation to the maternal role while a negative perception can leave women with a sense of failure, loss of control, personal disappointment, and a cause to distrust their personal abilities as childbearing women, hence the need to promote positive perceptions in Caesarean section related issues ^[8]. For a healthy women population, the choice of delivery option is

an important decision^[9]. In developing countries, the negative perception of Caesarean section has led to the under utilization of the procedure^[9]. Although there are many who consider the Caesarean section to be either safe or unsafe, more costly than the normal vaginal delivery, and more prone to complications than the SVD, there are some African women who perceive a Caesarean section to be a sign of female infidelity, a “curse,” or a “failure of womanhood”.

In a study carried out to assess the attitude of women toward a Caesarean section in Nigeria, it was found that vaginal delivery was the preferred mode of delivery by 93% of the respondents while 7% preferred a Caesarean section as the mode of delivery^[11]. Expectant parents make many choices which usually include the site for delivery and the choice between spontaneous vaginal delivery and Caesarean section^[10]. The reasons for this choice are being a natural process, being good for the mother’s health, and safety, and being an easy process^[12]. Most of the women thought that Caesarean delivery can lead to long-term ill effects on the mother’s health. All the women who preferred elective Caesarean delivery initially said that they would rather opt for painless labour and vaginal delivery if offered over Caesarean section^[11].

Nonetheless, the world health body emphasizes the need for Caesarean section service provision to every woman in need of it regardless of the prevailing population-based rates^[13]. When medically indicated, Caesarean section has the potential for reducing maternal/neonatal mortalities and morbidities including delivery complications such as obstetric fistula^[14]. However, a non-medically indicated Caesarean section has no associated additional benefits for mothers and newborns, rather like any surgery, it carries both short-term and/or long-term health risks^[14]. Some studies have been conducted on Caesarean section utilization in Nigeria including a survey that examined the perception of pregnant women and found that a high proportion of the study participants were averse to Caesarean section delivery^[5]. Significant associations between Caesarean section and parity, maternal weight, child’s birth weight, and previous Caesarean section were reported in another study^[13]. However, it is not strange to hear many pregnant women ventilating the wrong

attitude toward Caesarean section as an alternative method of birth ^[15]. In Nigeria, a number of women believe a Caesarean section is a last resort used to deliver pregnant women of their babies, many will even say, being told that they are going to deliver their babies through a Caesarean section is like giving a death warrant ^[13].

Traditionally, Nigerian women are unwilling to have a Caesarean section because of the general belief that abdominal delivery is a reproductive failure on their part regardless of the feasibility of vaginal birth after Caesarean section and the decreasing mortality from Caesarean sections. Inaccurate cultural perception about Caesarean section delivery accounts for the poor attitude of women towards Caesarean section ^[5]. Only one-third of women demonstrate a positive attitude towards Caesarean delivery as against 95.5% for vaginal delivery in the same group of respondents. The study concluded no significant differences in attitude and knowledge scores according to women's levels of education ^[16]. It is necessary to note that the issue of vaginal birth is not only peculiar to developing countries but also to some developed countries. Women still choose vaginal birth after having a Caesarean section even in the case of postdates slated for elective Caesarean section. Hence, it is imperative to educate the average pregnant woman irrespective of her level of education and parity on Caesarean section. Therefore, this study assessed the effect of guided education on the perception and attitude of childbearing women toward Caesarean section.

Objectives of the study

1. The primary objective of this study was to investigate the existence of a significant relationship between pregnant women's knowledge and attitudes toward cesarean delivery before and after training.
2. The secondary objective of the study was to describe the levels of knowledge and attitude of childbearing mothers about cesarean section before and after the educational intervention and the factors for not accepting cesarean section as a mode of delivery among women.

Hypothesis

H₀₁: There is no significant relationship between the knowledge and attitude of pregnant women towards Caesarean section delivery before and after the intervention.

Materials and Methods

Study Design, Population, and Area

The study utilized a quasi-experimental pre/post-test design. This design was adopted by the researcher because it will help to ascertain the effect of guided education on the perception and attitude of childbearing women towards Caesarean section in Basic Health Center Iloro, Akure South Local Government Area. The research setting for this study is Basic Health Center Iloro, Akure South Local Government Area. The head-quarter of Akure South Local government area is Akure town. Akure is a city in southwestern Nigeria and the capital of Ondo State. The metro area population of Akure in 2022 was 717,000 a 3.76% increase from 2021 which was 691,000^[17]. Basic Health Center Iloro is a step above your ordinary health center, they make the provision of primary health care a full package. Health professionals and caregivers are available to give postnatal care. The population of this study was composed of childbearing women attending the antenatal clinic in Basic Health Center Iloro, Akure South Local Government Area. The study population was randomly selected.

Sample Size Estimation, Sampling Technique, Data, collection, and Analysis

To estimate the minimum number n of childbearing women to investigate the effect of guided education on the perception and attitude toward Caesarean section, we considered the Gaussian theory^[18]:

$$n = \frac{sn}{1 + sn/N} \quad \text{with} \quad sn = \frac{z_{\alpha}^2 \pi(1-\pi)}{\varepsilon^2}$$

where N is the population size from which the sample size was defined. It resulted that the minimum estimated sample size of childbearing women required for a survey of a population of 255 mothers is equal to 143. It is evaluated, considering a z-score at 95%, an error $\varepsilon = 10\%$ and hypothesizing a prevalence π equal to 70% about the impact of guided education. In addition to reduce statistical biases connected to information/data loss the sample size is enlarged to 152 mothers.

Instruments

The research instrument used was developed ad hoc, considering an extensive search of empirical studies on caesarian sections and was administered before and after the nurse-led education [9,19,21,22,23]. The instrument has the following sections: Demographic characteristics of the respondents (7 items), knowledge of childbearing mothers on caesarean section (8 items), perception of the childbearing mother towards the caesarean section (7 items) and the attitude of a childbearing mother towards the caesarean section (10 items), and factors for not accepting caesarean section as the mode of delivery among the women (8 items). The reliability test of the instruments was Cronbach's alpha value of 0.83. The demographic, knowledge and factor data were scored using frequency and percentage while perception and attitude data were scored using 3 point likert scale of Agree, Not Sure and Disagree while factors data was obtained using 5 likert scale of strongly agree, agree, Not Sure, disagree and stongly disagree.

Procedure for data collection

The data was collected over a period of 4 weeks. All pregnant women were qualified to be included in the study hence need to randomly select about 20 manageable women during the antenatal visit (two Antenatal clinics per week) out of more than 60 attendance to prevent disruption of antenatal clinic activities and efficiency in data collection. The selected 20 women having been informed

about the study and consent gained were administered the pretest. The education intervention which is already prepared materials on what Caesarean section is, when is it needed, types, and how to prepare for a Caesarean section are included in the module of training. The questionnaires were administered at the end of the intervention, that is, post-test.

Statistical analysis

Descriptive analysis like percentages and frequency tables were used to present the summary of the data, Cronbach's alpha was utilised to test reliability of the instrument and Spearman correlation was used to test the hypotheses - relationship between knowledge and attitude at a 0.05 level of significance. Data were analyzed using the statistical package for social sciences (SPSS) version 20. The knowledge variable was defined by assigning points based on the affirmative response of Yes or No. For example if the number of participants who has correct answer to the questions is below 50%, 1 point is assigned, if they are between 50-75% 2 points is assigned while 3 points is assigned for participants between 76-100%. The maximum obtainable points of 8 knowledge items is 24 points while the minimum is 8 points. Therefore knowledge is graded thus: 1-8 (Low knowledge), 9-16 (Medium knowledge) while 17-24 (High Knowledge). The Perception and attitude were scored based on 3 points likert scales thus: Agree (3), Disagree (2) and Not Sure (1). the maximum obtainable score for Perception (7 items) is 21 and the minimum is 7. The maximum obtainable scores for attitude is 30 while the minimum is 10. Factors questionnaires were graded on 5 points likert scales. The maximum obtainable mark is 35 while the minimum is 7.

Ethical considerations

Letter of introduction and intention of the study was taken to the Primary Health Care Authority and written permission was obtained. The study is not an invasive study, no formal approval by the Local Ethics Committee was required for this study hence no protocol number was indicated on the

letter but the reference number PHCA/AK-S/020/124. However, the participants informed consent were obtained and willingness to participate was expressed before inclusion in the study. All participants were assured anonymity and confidentiality.

Results

Table 1 revealed the socio-demographic characteristics of the respondents.

Variables	Modalities	Frequency (N=152)	Percentage (%)
Age at last birthday	Less than 20 years	24	15.8%
	20-30years	78	51.3%
	31-40years	38	23.7%
	Above 40 years	14	9.2%
Marital Status	Single	12	7.9%
	Married	137	90.1%
	Divorced/Separated	2	1.3%
	Widow	1	0.7%
Ethnicity	Yoruba	133	87.5%
	Igbo	11	7.2%
	Hausa	2	1.3%
	Others	6	3.9%
Religion	Christianity	127	83.6%
	Islam	21	13.8%
	Traditional	1	0.7%
	Others	3	2%
Level of Education	No formal education	6	3.9%
	Primary	13	8.6%
	Secondary school	27	19.1%
	Tertiary	104	68.4%
Occupation	Housewife	8	5.3%
	Artisan	19	12.5%
	Businesswoman	36	23.7%
	Private Sector employee	61	40.1%
	Civil servant	28	18.4%
Parity	Primipara	64	42.1%
	Multipara	88	57.9%

Table 1. *Socio-demographic characteristics of the 152 respondents.*

The respondents are 152 in number. Of the 152 respondents, 51.3% of the participants fall in the age group between 20-30 years, and 90.1% are married. 87.5% are Yoruba and 83.6% are Christians. Findings further showed that 68.4% had tertiary education, 40.1% were private sector employees and 57.9% were multipara.

Table 2 above shows the knowledge of childbearing mothers on Caesarean section. Before the intervention, the participants had medium knowledge, that is, the score of 16 which is 66.7% of the responses from study participants while after the intervention, the participants had high knowledge of Caesarean section, that is, the score of 24 which is (100%) of obtainable knowledge scores.

Variables	Before		After		Remark	
	Yes (%)	No (%)	Yes (%)	No (%)	Before	After
Caesarean section is an operation carried out to deliver a baby	91 (59.9%)	61 (40.1%)	152 (100%)	0 (0.0%)	2	3
Caesarean section is a mode of delivery to deprive a woman of the right to womanhood	65 (42.8%)	87 (57.2%)	3 (2%)	149 (98%)	2	3
Caesarean section is an operation to remove the womb	34 (22.4%)	118 (77.6%)	4 (2.6%)	148 (97.4%)	3	3
Caesarean section can be performed to save the mother and the newborn	83 (54.6%)	69 (45.4%)	151 (99.3%)	1 (0.7%)	2	3
Caesarean section is usually performed when a vaginal birth is deemed hazardous either to the foetus or the mother	108 (71.1%)	44 (28.9%)	152 (100%)	0 (0.0%)	2	3
Reasons for the C-section include obstructed labor, twin pregnancy, high blood pressure in the mother, breech birth, and problems with the placenta or umbilical cord	127 (83.6%)	25 (16.4%)	152 (100%)	0 (0.0%)	3	3
A caesarean delivery may be performed based on the shape of the mother's pelvis or the history of a previous C-section.	53 (34.9%)	99 (65.1%)	148 (97.4%)	4 (2.6%)	1	3
Some C-sections are performed without a medical reason, upon request by someone, usually the mother.	29 (19.1%)	123 (80.9%)	141 (92.8%)	11 (7.2%)	1	3

Table 2. Knowledge of 152 childbearing mothers on Caesarean section

Table 3 below shows the perception of childbearing mothers toward Caesarean section. The training improves the perception of mothers toward Caesarean as a method mode of delivery. All the respondents (100%) stated that vaginal delivery is a natural and acceptable mode of delivery.

Variables	Before			After		
	Agree (%)	Not Sure (%)	Disagree (%)	Agree (%)	Not Sure (%)	Disagree (%)
Vaginal delivery is a natural and acceptable mode of delivery	148 (97.4%)	0 (0.0%)	4 (2.6%)	152 (100%)	0 (0.0%)	0 (0.0%)
Seeing the baby immediately after vaginal delivery is a pleasure for the mother	151 (99.3%)	0 (0.0%)	1 (0.7%)	92 (60.5%)	2 (1.3%)	58 (38.2%)
Mothers regain their health status sooner after vaginal delivery than caesarean section	137 (90.1%)	12 (7.9%)	3 (2%)	152 (100%)	0 (0.0%)	0 (0.0%)
I believe that having a vaginal birth is a more remarkable experience than delivering by caesarean section	104 (68.4%)	1 (0.7%)	47 (30.9%)	86 (56.6%)	0 (0.0%)	66 (43.4%)
The most important thing in having a vaginal delivery is the woman's own confidence in her ability to give birth	123 (80.9%)	2 (1.3%)	27 (17.8%)	58 (38.2%)	0 (0.0%)	94 (61.8%)
Women who deliver their baby by caesarean section miss an important life experience	98 (64.5%)	0 (0.0%)	54 (35.5%)	23 (15.1%)	0 (0.0%)	129 (84.9%)
I believe that a woman recovers faster after a caesarean section than after vaginal birth	13 (8.6%)	47 (30.9%)	92 (60.5%)	0 (0.0%)	0 (0.0%)	152 (100%)

Table 3. Perception of 152 childbearing mothers toward Caesarean section.

Table 4 below shows the attitude of childbearing mothers towards Caesarean section as the accepted mode of delivery among women. Before the training, many mothers had negative attitudes towards Caesarean but this improves after the training.

Variables	Before			After		
	Agree (%)	Not Sure (%)	Disagree (%)	Agree (%)	Not Sure (%)	Disagree (%)
I think Caesarean section can lead to excessive loss of blood, hence I would not undergo one	117 (77%)	9 (5.9%)	25 (16.4%)	78 (51.3%)	0 (0.0%)	74 (48.7%)
It would not undergo a Caesarean section since I can die on the operating table	93 (61.2%)	1 (0.7%)	58 (38.2%)	29 (19.1%)	2 (1.3%)	121 (79.6%)
I believe any woman can have a Caesarean section by choice	46 (30.3%)	14 (9.2%)	92 (60.5%)	137 (90.1%)	0 (0.0%)	15 (9.9%)
I would undergo a Caesarean section if it is necessary to protect me and my baby	127 (83.6%)	2 (1.3%)	23 (15.1%)	149 (98%)	1 (0.7%)	2 (1.3%)
Babies born by Caesarean section are healthier than those delivered by vaginal delivery	59 (38.8%)	16 (10.5%)	77 (50.7%)	12 (7.9%)	2 (1.3%)	138 (90.8)
Caesarean section is not preferable as the pain after delivery is unpleasant	133 (87.5%)	4 (2.6%)	15 (9.9%)	143 (94.1%)	0 (0.0%)	9 (5.9%)
It is a woman's right to choose a Caesarean section for herself, even if there are no medical reasons to have it	36 (23.7%)	27 (18.8%)	89 (58.6%)	144 (93.7%)	0 (0.0%)	8 (5.3%)
I would undergo a Caesarean section if I were more knowledgeable about the risk and procedure	68 (44.7%)	5 (3.3%)	79 (52%)	146 (96.1%)	1 (0.7%)	5 (3.3%)
I would undergo a Caesarean section if my close friend or family consented to it	82 (53.9%)	14 (9.2%)	52 (34.2%)	141 (92.8%)	0 (0.0%)	11 (7.2%)
I would undergo a Caesarean section if it is conducted by a doctor I trust	97 (63.8%)	9 (5.9%)	46 (30.3%)	136 (89.5%)	2 (1.3%)	14 (9.2%)

Table 4. *The attitude of 152 childbearing mothers towards Caesarean section.*

Table 5 above shows factors for not accepting Caesarean section as the mode of delivery among women. The women stated that fear of death, fear of pain, cost of the operation, cultural belief,

being a subject of ridicule by friends, husband disapproval, and religion for not accepting Caesarean section as the mode of delivery among the women.

Variables	Strongly agree (%)	Agree (%)	Not sure (%)	Disagree (%)	Strongly disagree (%)
Fear of death	91 (59.9%)	34 (22.4%)	0 (0.0%)	19 (12.5%)	8 (5.3%)
Fear of pain	88 (57.9%)	47 (30.9%)	1 (0.7%)	14 (9.2%)	2 (1.3%)
Cost of the operation	93 (61.2%)	46 (30.3%)	0 (0.0%)	13 (8.6%)	0 (0.0%)
Being seen as a failure	54 (35.5%)	37 (24.3%)	4 (2.6%)	19 (12.5%)	38 (35%)
Cultural belief	66 (43.4%)	26 (17.1%)	3 (2%)	35 (23%)	22 (14.5%)
Being a subject of ridicule by friends	48 (31.6%)	21 (13.8%)	2 (1.3%)	28 (18.4%)	51 (33.6%)
Husband disapproval	53 (34.9%)	43 (28.3%)	1 (0.7%)	26 (17.1%)	29 (19.1%)
Religion	55 (36.2%)	47 (30.9%)	9 (5.9%)	23 (15.1%)	18 (11.8%)

Table 5. Factors for not accepting Caesarean section as the mode of delivery among 152 women.

Knowledge	Attitude						Total(%)	rho	P
	Positive		Moderate		Negative				
	N	%	N	%	N	%			
High	81	53.3%	18	11.8%	1	0.7%	100(65.8%)		
Medium	25	16.4%	10	6.6%	2	1.3%	37(24.3%)	0.300	0.001
Low	11	7.2%	3	2 %	1	0.7%	15(9.9%)		

Table 6. Spearman correlation between knowledge and attitude of pregnant women towards caesarean section delivery.

Spearman correlation analysis test was carried out to determine the relationship between knowledge and attitudes, obtained $p < 0.001$ indicating that $p < 0.05$. H_0 is rejected and H_1 is accepted, it can be concluded that there is a significant relationship between knowledge and attitude of pregnant women towards caesarean section delivery. It is found that $\rho = 0.300$ and the direction of positive

correlation (+). It can be concluded that the strength of the correlation between knowledge and attitude is low, which means that even though in this study there is a significant relationship between the two variables, there are still many factors that influence knowledge and attitude. The results of this study also show a positive correlation direction (+), which means that the relationship between knowledge and unidirectional attitude - meaning that the higher one's knowledge, the better the attitude.

Discussion of findings

The discussions made on the findings of this study are presented in accordance with the research questions. The sub-headings under which the discussions are provided show in specific what each research question seeks to find.

Demographic characteristics of respondents

Findings from this study revealed that the average age of the respondents is 27 years. The majority (90.1%) were married and multipara and the population were dominated by Yoruba and Christians. More than half of the respondents had tertiary education. This was similar to the study of ^[19] on the attitude of pregnant women in southwestern Nigeria. The findings are in line with the study of ^[19] on the perception and attitude of pregnant women towards Caesarean section delivery in the University of Port-Harcourt Teaching Hospital, Rivers State, in which the majority of respondents between the age group of 25-29 years, and 85.9% were married.

Knowledge of childbearing mother on Caesarean section

Based on the findings from this study, it was revealed that there was an increase in the knowledge of mothers after the educational intervention on Caesarean section. The increased level of knowledge among pregnant women may be attributed to the educational intervention and

information provided during the training. This is in consonant with the study of [20,21,22] who reported that majority of the women have good knowledge about caesarean section. The study of [23] on pregnant women's knowledge, perception, and attitudes towards the Caesarean section also showed that the majority of women had adequate knowledge and were aware of all of the factors concerning Caesarean section deliveries. This study was in contrast with the study of [24] who reported good knowledge of 17.4% on Caesarean section delivery. [25] also found that there was a low overall knowledge of mothers about the modes of delivery.

Perception of the Childbearing Mothers towards Caesarean section

The findings from this study revealed that the majority of mothers had a poor perception of a Caesarean section before the training; however, there was an increase in the mothers' score on the perception of Caesarean section among childbearing mothers after the intervention. Childbearing mothers still believe that vagina delivery is a natural delivery and has joy attached to it, and most women still prefer it over Caesarean section[25]. The study of [27] reported that having a Caesarean section takes away from the joy of giving birth and was of the view that Caesarean section births are not natural and should be reserved for those with medical issues or those who fear pain.

The attitude of Childbearing Mothers toward Caesarean section

The findings from this study revealed improved scores in the attitude of mothers toward Caesarean section. The majority of the mothers reported that they would opt for Caesarean section if it is necessary to protect them and their babies, and they believe it is a woman's right to choose a Caesarean section for herself, even if there are no medical reasons to have it. They were also of the opinion that Caesarean section is not preferable as the pain associated with it post-delivery is unpleasant. Although before the training majority thought Caesarean section can lead to excessive loss of blood and they could die on the operating table. This assertion corresponds to the finding of

[23] who submitted that the fear of death, complications, and other negative perceptions about Caesarean section make women unwilling to opt for it. The study of [28] on perception and attitude towards Caesarean section in Niger/Delta reflected that 83.2% of mothers would accept Caesarean section if it is a necessity that will protect them and their babies [29].

Factors for not accepting Caesarean section as the mode of delivery among the women

Findings from this study revealed fear of death, fear of pain, cost of the operation, being seen as a failure, cultural belief, husband disapproval, and religion were the factors revealed by the mothers for not accepting Caesarean section as the mode of delivery. [31] listed fear of death, denial of womanhood, expensive mode of delivery, and the possibility of being exposed to insults as reasons for opposing Caesarean section for delivery. [29] stated maternal autonomy, women empowerment and gender inequality as several women often need to take permission from their husbands and/or religious leaders before making health-related decisions[29]. According to [30] women's decision-making in consultation with relatives is the main influencer to accept elective caesarean section.

Discussion of the hypothesis

The primary objective of this study was to investigate the existence of a significant relationship between pregnant women's knowledge and attitudes toward cesarean delivery before and after training. The secondary objective of the study was to describe the levels of knowledge and attitude of childbearing mothers about cesarean section before and after the educational intervention and the factors for not accepting cesarean section as a mode of delivery among women. Based the inferential statistics carried out in this study, it was revealed that there is a significant difference between the pre and post-intervention knowledge of Caesarean section, and pre and post-intervention attitudes of pregnant women towards Caesarean section delivery. Similarly, [32] found a significant difference between pre and post-intervention knowledge and pre and post-intervention

attitudes of pregnant women to Caesarean section. Contrary to these findings, there was no significant association between knowledge about Caesarean section and respondents' characteristics in relation to age, marital status, occupation, and previous place of delivery^[33].

Conclusions

Nigerian women are unwilling to have Caesarean section because of the general belief that abdominal delivery is a reproductive failure on their part regardless of the feasibility of vaginal birth after a Caesarean section and the decreasing mortality from Caesarean sections. The primary objective of this study was to investigate the existence of a significant relationship between pregnant women's knowledge and attitudes toward cesarean delivery before and after training. The secondary objective of the study was to describe the levels of knowledge and attitude of childbearing mothers about cesarean section before and after the educational intervention and the factors for not accepting cesarean section as a mode of delivery among women. The study revealed an increase in the mothers' knowledge about Caesarean section after the intervention. In addition, both perception and attitude towards Caesarean section improved following the intervention. The researchers found a significant relationship between the knowledge and attitude of pregnant women towards Caesarean section delivery before and after the intervention. It was concluded that the childbearing mothers still believe that vagina delivery is a natural delivery and there is joy attached to it, most women would only agree to have Caesarean section if the need arises but they would still prefer spontaneous vagina delivery.

Recommendations

Based on the findings, the following recommendations are made:

1. There is still a need for awareness programs to increase women's and community's understanding about Caesarean section in Nigeria.
2. Our society needs further enlightenment on the advantages of antenatal care attendance and hospital deliveries as the problem is rooted in our culture.
3. Local, State and Federal Governments should subsidize the costs of maternity services through an all-inclusive National Health Insurance Scheme. This will go a long way to encourage women to accept Caesarean section when the need arises.

Limitations

The research was carried out in just one health center (Iloro Comprehensive Health Center) in Akure Local government area of Ondo State due to limited funds. Future research should utilize more facilities to enhance generalisation.

Conflicts of interest and sources of funding:

None declared. This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Author contributions: All authors equally contributed to the conduct of this study and to preparing this article.

Acknowledgments

The authors appreciate the Management of Basic Health Centre Iloro, Akure, Ondo State, Nigeria, and all the mothers that participated in the study for their cooperation.

References

1. Cunningham, F.G., MacDonald, P.C., Gant, N.F., Leveno, K.J, Gilstrap, L.C. & Hankins, G. (2017). Caesarean delivery and Caesarean hysterectomy. In: Cunningham, et al, editors. Williams Obstetrics, 20th edition. Stamford, CF: Appleton & Lange; p. 509-31.
2. Kerr-Wilson R. (2018). Caesarean section on demand. In: Current Obstetrics and Gynaecology. Harcourt Publishers: 126-28.
3. Gomen, R., Tamir, A. & Degani, S. (2014). Obstetricians' opinions regarding patient choice in caesarean delivery. *Obstet Gynecol.*;99(4):577 -80.
4. Ohanson, R.B., El-Timini, S., Rigby, C., Young, P. & Jones P. (2019). Caesarean section by choice could fulfil the inverse care law. *Eur J Obstet Gynecol Reprod Biol.*;97(1):20-2.
5. Ezeonu, P. O., Ekwedigwe, K. C., Isikhuemen, M. E., Eliboh, M. O., Onoh, R. C., Lawani, L. O., Ajah, L. O. & Dimejesi, E. I. (2017). Perception of Caesarean Section among Pregnant Women in a Rural Missionary Hospital. *Advances in Reproductive Sciences*, Vol.5 No.3.
6. Egwuatu, V.B. & Ezeh, I.O. (2018). Vaginal delivery in Nigeria Women after a previous section. *Int J Gynaecol Obstet.*;32: 1-6
7. Coleman, V.H., Lawrence, H. & Schulkin, J. (2019). Rising Cesarean Delivery Rates. The Impact of Cesarean Delivery on Maternal Request. CME review article 4. *ObstetGynecol survey.*; 64: 2.
8. Penna, L. (2014). Caesarean section on request for non-medical indications. *Current Obstet. Gynaecol.*; 14: 220-223.
9. Naa Gandau, B.B., Nuerthey, B.D., Seneadza, N.A.H. et al. Maternal perceptions about caesarean section deliveries and their role in reducing perinatal and neonatal mortality in the Upper West Region of Ghana; a cross-sectional study. *BMC Pregnancy Childbirth* 19, 350 (2019). <https://doi.org/10.1186/s12884-019-2536-8>
10. Danon, D., Sekar, R., Hack, K.E & Fisk, N.M. (2013). "Increased stillbirth in uncomplicated

- mono chorionic twin pregnancies: a systematic review and meta-analysis". *Obstetrics & Gynecology*. 121 (6): 1318–26. doi: 10.1097/AOG.0b013e318292766b. PMID 23812469. S2CID 5152813.
11. Onah H.E. & Ugonna M.C. (2014). Preference for Caesarean section or symphysiotomy for obstructed labour among Nigerian women. *IJOG* 2004; 84: 70-91.
 12. Ezechi, O.C., Fasuba, O.B., Kalu, B.E., Nwokolo, C.A. & Obiesie, L.O. (2014). Caesarean Delivery: Why the aversion? *Trop J ObstetGynaecol.*; 21 (2): 164-167.
 13. Chigbu, C. & Iloabachie, G. (2017). The burden of Caesarean section refusal in a developing country setting. *BJOG: An International Journal of Obstetrics & Gynaecology*; 114: 1261 - 1265.
 14. Bonney, E.A. & Myers, J.E. (2015). Caesarean section: Techniques and complications. *Obstet. Gynaecol Rep Med*; 21(4): 97 – 102. <http://dx.doi.org/10.1016/j.ogrm>.
 15. Etuk, S.J. & Ekanem, A.D. (2017). Socio-demographic and Reproductive Characteristics of women who default from orthodox obstetrics care in Calabar, Nigeria. *Int. J. Gynaecol. Obstet*; 73: 57-60.
 16. Awoyinka, B.S., Ayinde, O.A & Omigbodun, A.O. (2016). Acceptability of Caesarean delivery to Antenatal patients in a tertiary health facility in south west Nigeria. *J Obstet Gynaecol.*; 26(3); 208-210.
 17. United Nations - World Population Prospects: Akure, Nigeria Metro Area Population 1950-2023: -Akure - Historical Population Data
<https://www.macrotrends.net/cities/21978/akure/population>; Retrieved 2023-03-08.
 18. Colton T., *Statistics in Medicine*. Little Brown & Co. 1974.
 19. Faremi, A., Ibitoye I., Olatubi M., Koledoye, P. & Ogbeye G. (2014). Attitude of pregnant women in south western Nigeria towards caesarean section as a method of birth. *Int J Reprod Contracept Obstet Gynecol.*;3(3):709-714. DOI: 10.5455/2320-1770.ijrcog20140970.

20. Robinson-Bassey, G. & Uchegbu, J. (2017). Perception and attitude of pregnant women towards caesarean section delivery in University Of Portharcourt Teaching Hospital, Rivers State. *International Journal for Research in Health Sciences and Nursing*, Volume-2, Issue-4.
21. Orukwogu, U. & Ene-Peter, J. (2022). The Knowledge and Attitude of Pregnant Women towards Cesarean Section in the University of Port Harcourt Teaching Hospital (UPTH). *IPS Journal of Basic and Clinical Medicine*, 1(3), 1–12. <https://doi.org/10.54117/ijbcm.v1i3.3>
22. Al Sulamy, A. , Yousuf, S. & Thabet, H. (2019) Knowledge and Attitude of Pregnant Women toward Elective Cesarean Section in Saudi Arabia. *Open Journal of Nursing*, **9**, 199-208. doi: [10.4236/ojn.2019.92020](https://doi.org/10.4236/ojn.2019.92020).
23. Dorkenoo, J.E. & Abor, P.A. (2021). Pregnant women's knowledge, perception and attitudes towards caesarian section among obstetrics unit attendants in a teaching hospital. *Res. J. of Health Sci.* Vol 9(3). <http://dx.doi.org/10.4314/rejhs.v9i3.2>.
24. Saoji, A., Nayse, J., Kasturwar, N. & Reiwani, N. (2017). Women’s knowledge, perception and potential demands towards caesarean section. *National Journal of Community Medicine* 2(2): 244-248.
25. Nusrat, N., Nisar, A. S. & Ahson, M. (2019). Knowledge, attitude and preferences of pregnant women towards modes of delivery. *Journal of Liaquat University of medical and Health Sciences*, 8 (3): 228-233.
26. Gamble, J.A. & Creedy, D.K. (2015). Women’s preference for a caesarean section: incidence and associated factors. *Birth*. 28(2):101-10.
27. Dorkenoo, J.E. & Abor, P.A. (2021). Pregnant women's knowledge, perception and attitudes towards caesarian section among obstetrics unit attendants in a teaching hospital. *Res. J. of Health Sci.* Vol 9(3). <http://dx.doi.org/10.4314/rejhs.v9i3.2>.
28. Sunday-Adeoye, I. & Kalu, C.A. (2011). Pregnant Nigerian women's view of cesarean section *Nigerian Journal of Clinical Practice*; 14(3), 276-279.

29. Abah, M.G. & Umoh, A.V. (2015). Perception and attitude towards Caesarean section by pregnant women attending antenatal clinic in a Niger Delta tertiary facility. DOI: 10.47837/CMJ.19770126.201531167.
30. Bam V, Lomotey AY, Kusi-Amponsah Diji A, Budu HI, Bamfo-Ennin D, Mireku G. Factors influencing decision-making to accept elective caesarean section: A descriptive cross-sectional study. *Heliyon*. 2021 Aug 11;7(8):e07755. doi: 10.1016/j.heliyon.2021.e07755. PMID: 34430742; PMCID: PMC8365447.
31. Adewuyi, E.O., Auta, A. & Khanal, V. (2018). Prevalence and factors associated with underutilization of antenatal care services in Nigeria: A comparative study of rural and urban residences based on the 2013 Nigeria demographic and health survey. *PLoS One*;13:e0197324.
32. Ashimi, A.O., Amole, T.G. & Aliyu, L.D. (2013). Knowledge and attitude of pregnant Women to caesarean section in a semi-urban community in northwest Nigeria. *Journal of the West African College of Surgeons*; 3(2), 46-61.
33. Afaya, R.A., Bam, V., Apiribu, F., Agana, V.A. & Afaya, A. (2018) Knowledge of Pregnant Women on Caesarean Section and their Preferred Mode of Delivery in Northern Ghana, *NUMID HORIZON: An International Journal of Nursing and Midwifery*; 2(1), 62-73.