Original Article

Knowledge of Pregnant Women on Caesarean Section and their Preferred Mode of Delivery in Northern Ghana

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Abstract

In maternal health, though caesarean section (CS) has contributed significantly to reducing maternal morbidity and mortality worldwide, there are still concerns about women's knowledge on caesarean section. Although there is an accelerating rate of caesarean section in both developed and developing countries, some recent studies have insinuated that African women have an aversion for caesarean section. Therefore, the study aimed to assess pregnant women's knowledge towards caesarean section at the Tamale Teaching Hospital. A descriptive cross-sectional study was conducted between February to April 2017 among pregnant women attending antenatal clinic. The simple random sampling method was adopted in recruiting 360 pregnant women. The Chi square test was used to determine the associations between women's demographics and their knowledge of caesarean section. Thirty-two percent (32%) of respondents had good knowledge regarding caesarean section, 48% and 20% had fair and poor knowledge on the procedure respectively. There was significant association between knowledge on caesarean section and respondents' characteristics (education p=0.035, gravida p=0.012, and previous CS p=0.001). Even though there was a high awareness level (80%) among women who attended antenatal clinic, there was a low level of knowledge on caesarean section. Women's preferred mode of delivery was influenced by their knowledge of the indications for CS and the perceived consequences of the procedure. Education should target women without formal education and primigravida as well as men since they are the major decision makers in most families in developing countries.

Keywords:

Caesarean section; knowledge; preferred mode of delivery; women.

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Introduction

Caesarean section (CS) is the most common surgical procedure performed worldwide (Jagruti, Sonal & Arti, 2009; Ghotbi et al., 2014) and has contributed significantly to the reduction of maternal morbidity and mortality (Ajeet, Jaydeep, Nandkishore & Nisha, 2011; Betrán et al., 2016; Agnihotri, Aruoma, & Agnihotri, 2016; Prah, Kudom, Lasim & Abu, 2017). It is essential to note that caesarean section is known to be related with increased risk of maternal and neonatal morbidity as well as high cost of healthcare than vaginal delivery (Ajeet, Jaydeep, Nandkishore & Nisha, 2011; Faremi, Ibitoye, Olatubi, Koledoye, & Ogbeye, 2014). The rate of CS in developed countries is rising as there has been a higher rate of acceptability over time while developing countries are struggling with the problems of non-acceptance of CS even in the face of eminent danger on pregnancy (Betran et al., 2007; Chigbu & Iioabachie, 2007; Amiegheme, Adeyemo & Onasoga, 2016). The rate of CS in developed countries is above the World Health Organisation's (WHO) estimated target of 15% mark in many of the countries (WHO Human Reproduction Programme, 2015). The lowest rates of CS are found in Africa (7.3%) and more specifically, in Western Africa (3%) (Betran, Torloni, Zhang, & Gu¨lmezoglu, 2016). The proportion of CS among total deliveries in Ghana increased steadily from 4.3% in 1999 to 6.9% in the year 2012 (Gulati & Hjelde, 2012). Though the figure has increased, it is still below the WHO target of 15% of all deliveries. Although women's preferred mode of delivery vary widely between different countries (D'Souza, 2013; Kuan, 2014), a plethora of cross-sectional studies from Sub-Saharan Africa have revealed that the majority of women prefer vaginal birth over CS (Aziken, Omo-Aghoja & Okonofua, 2007; Chigbu & Iloabachie, 2007; Enabudoso, Ezeanochie & Olagbuji, 2011) even though there might be pregnancy dangers. Some studies conducted in Ghana showed that an overwhelming majority of women had a preference for vaginal delivery over CS (Adageba, Danso, Adusu-Donkor & Ankobea-Kokroe, 2008; Danso et al., 2009; Prah et al., 2017). The WHO in 2013 estimated that 298,000 women were dying from pregnancy and birth related causes globally (WHO, UNICEF, UNFPA, 2013). Most of these deaths occurred in developing countries and Sub-Saharan Africa alone accounted for 62% (179 000) of the global deaths due to various challenges impeding the delivery of quality healthcare services. Caesarean section is still being viewed as an abnormal means of delivery by some women in developing countries (Qazi, Akhtar, Khan & Khan, 2013). Although knowledge of women towards CS is changing, there is still a wide knowledge gap between the developed countries and the developing countries (Amiegheme et al., 2016).There is a broadly held belief and view that women in the West African sub-region have an aversion for caesarean section delivery (Adageba et al., 2008). Some sociocultural factors hinder the acceptance of CS. According to Chiamaka and Adetomi (2017), it is traditionally believed that achieving a vaginal delivery portrays the woman's power and ability but a pregnant woman who delivers through CS is seen as being lazy. Women refuse CS for fear of being abandoned by their husbands and in-laws (Chiamaka & Adetomi, 2017) and are accused of being unfaithful (Mboho, 2013). This phenomenon leads to low acceptability of the procedure among African women, even in the face of obvious clinical justification. Many women perceive the process of not giving birth vaginally as a sign of 'failure'. A lot of them perceive vaginal birth as a right route of passage hence most of them crave for it (Robinson-Bassey & Uchegbu, 2017). The knowledge of society surrounding CS may have a significant role in the decision making process of pregnant women accepting to undergo the procedure. The lack of knowledge about CS by women in the developing countries has led to underutilization of the procedure compared to the large burden of obstetric morbidity requiring resolution by CS (Qazi et al., 2013). This attitude of some women towards CS influences their acceptance of the procedure and more often than not, results in psychological depression that women and their families usually experience (Faremi, Ibitoye, Olatubi, Koledoye & Ogbeye, 2014). In the northern part of Ghana, due to strong cultural values, women are most of the times reluctant in accepting CS whenever indicated. This normally delays the operation, which may pose damage to the mother and foetus. Few studies have been conducted on women's knowledge about CS and preferred mode of delivery in Ghana and little is known about it in Northern Ghana. Therefore, the study aimed to assess pregnant women's knowledge of CS and their preferred mode of delivery.

Design and Methods

Study Design

A descriptive cross-sectional study was conducted to examine the level of knowledge of CS and preferred mode of delivery of pregnant women in the Tamale Teaching Hospital.

Study site and Population

The study was conducted at the Tamale Teaching Hospital. The hospital is a 470 bed capacity tertiary level facility located in the Northern part of Ghana. The obstetrics and gynecological department provides antenatal, childbirth and post-partum services. The target population was all pregnant women who attended antenatal clinic during the three months that the study lasted. The average population for the three months' period was estimated at 4,743.

Sample size and sampling

The sample size for the study was determined by using Yamane's sample size formula (Yamane, 1967). Using an estimated population of 4,743, a sample size of 368 respondents was arrived at for three months. A simple random sampling technique was used to recruit respondents attending antenatal clinic. The women were required to pick confidentially prepared slips that had either 'YES' or 'NO' concealed inscription on them. Only eligible women that picked slip with the inscription 'YES' had the questionnaire administered to them. Necessary explanations and guidance were provided to women aged twenty (20) years and older who consented to participate in the study. Respondents who could not read nor write were assisted by an interpreter in the process of filling the questionnaire. Two nurses were recruited as research assistants to support in the administration of the questionnaire.

Research Instrument

A pre-tested, validated and reliable structured questionnaire was used for the survey. The instrument was divided into two sections (A & B). Section A focused on the demographic characteristics of the respondents, Section B assessed respondents' knowledge level and preferred mode of delivery. A total of 368 questionnaires were administered, 363 were retrieved and 360 were considered valid. Any woman who was selected and interviewed had her antenatal card marked with a sign (√) to avoid double recruitment during her subsequent clinic attendance. There were seven (7) questions related to knowledge towards caesarean section. Correct, wrong and I don't know responses were scored 3, 2, and 1 respectively. The total knowledge score ranged from 1-21. Women that had a total score less than 40% were considered to have poor knowledge, those with scores between 40-60% had fair knowledge and more than 60% were considered to have good knowledge on CS.

Reliability and Validity of Instruments

The reliability of the instrument was determined using the Test-Retest method. The structured questionnaire was submitted to two obstetric and gynecological specialists in measurement and evaluation to assess the face and content validity of the instrument. Their comments were used to make necessary corrections before administration of the instrument. Pretesting was done at the Tamale West Hospital using ten (10) pregnant women. Ambiguity of questions were rectified and finalized.

Data Analysis

Both descriptive and inferential statistics in the form of frequencies, percentages, and Pearson's chi-square test were used in the analysis. The data collected was coded and analyzed using the Pearson's Moment Correlation coefficient formula which gave a value of 0.99. Frequencies and percentages were computed using SPSS (Statistical package for social sciences) version 23.0. Association between level of knowledge, influencing factors on choice of caesarean section and respondents' characteristics were carried out using a chi-square ($\chi 2$) test. Characteristics with significant differences between groups by the $\chi 2$ test were included in a multivariate logistic regression analysis (COR [95%CI], AOR [95%CI]) to predict their independent associations within the group. Statistical significance was set at $p<0.05$.

Ethical consideration

Approval for the study was obtained from the Ethics Review Board of TTH and verbal consent sought from respondents. Confidentiality and anonymity was ensured. Anonymity of the questionnaire was adopted to ensure confidentiality of the response.

Results

Demographic data and obstetric characteristics

Table 1 shows the demographic and obstetric characteristics of the respondents. Out of the 368 pregnant women recruited for the study, 360 respondents' questionnaires were considered valid for data analysis. The majority 274(76%) of respondents had formal education. With regards to the number of pregnancies, 100(28%) of the women were primigravida, while the majority of women 130(36%) had two pregnancies, 88(24%) had three pregnancies and 42(12%) were gravida four or more. The majority 342(95%) of the respondents were married. Also 200(55.5%) of the respondents were self-employed. Out of the 360 respondents, 98(27%) were pregnant women that had previous CS.

Table 1: Demographic data and obstetric characteristics

Variable	N (%)
Age group	
20-24	86 (24)
25-29	112 (31)
30-34	108 (30)
35 and above	54 (15)
Marital status	
Single	18 (5)
Married	342(95)
Education	
No education	50 (14)
Informal education	36 (10)
Formal education	274 (76)
Occupation	
Government Employed	146 (40.5)
Self employed	200(55.5)
Unemployed	14 (4)
Gravida	
One	100 (28)
Two	130 (36)
Three	88 (24)
Four or more	42 (12)
Previous Caesarian section	
Yes	98 (27)
No	262 (73)
Place of previous delivery	
Hospital	280 (78)
Home	80 (22)

Level of Awareness of CS by pregnant women and Sources of information

The majority 288(80%) of respondents were aware of CS as an obstetric procedure and 72(20%) had not heard of CS. The main sources of respondents' information about CS were antenatal clinic 195(54%), and the media 80(22%). Sixty (17%) heard about CS from family/friends and the remaining 25(7%) had the information from other sources.

Pregnant women's knowledge of CS

Table 2 shows the knowledge level of respondents on CS. Only 115(32%) of pregnant women had good knowledge about CS. The majority 173 (48%) had fair knowledge and the remaining 72(20%) had poor knowledge.

Table 2: Knowledge level on CS

Knowledge level	N (%)
Good	115 (32)
Fair	173 (48)
Poor	72 (20)

Influencing factors of women's preferred mode of delivery

Table 3 shows influencing factors of women's preferred mode of delivery. When questioned on what their preferred mode of delivery for their current pregnancy was, 330(92%) and 15(4%) preferred vaginal delivery and caesarean section delivery respectively. The remaining 15(4%) were equivocal. When respondents were questioned on whether or not they were willing to undergo caesarean section delivery if indicated, 282(78%) concurred to undergo CS if necessary and 78(22%) did not accept to undergo CS. However, out of the 98 women who had a history of previous CS, 50 (51%) of them would accept to undergo CS while 48(49%) would not want to have CS again. When respondents were questioned about their reasons for not wanting CS, 288(80%) gave reasons of prolonged hospital stay, 264(73%) postoperative pain, 129(36%) feared being mocked, 60(17%) were afraid of death. Two-hundred and eighty-eight (80%) of the women knew that it was possible to have a normal vaginal delivery after CS and 5% said it was impossible. When questioned about the reasons/factors that can lead to CS, approximately 200(56%) of the respondents were aware that prolong labour is one of the factors that can lead to CS. Seventy six (21%) and 78(25%) of the respondents also indicated eclampsia and vaginal bleeding respectively as reasons for which CS will be performed.

Table 3: Knowledge of CS and Influencing factors for preferred mode of delivery.

Characteristics	N (%)
Preferred Mode of Delivery	
Vaginal	330(92)
CS	15(4)
Equivocal	15(4)
Acceptance of CS	
Willing to accept CS if necessary	282(78
Unwilling to accept CS	78(22)
***Reasons for not Wanting CS**	
Fear of death	60(17)
Fear of mockery	129(36)
Fear of Pain	264(73)
Prolonged hospital stay	288(80)

Expensive	53(44)
***Reason for CS**	
Prolong labour	270(76)
Eclampsia	76(21)
Breech	104(29)
Bleeding per vagina	78(25)
Small pelvis	12(3)
Don't know	60(17)

***Multiple Responses**

Respondents' knowledge on CS and factors influencing preferred mode of delivery

After applying both bivariate and multivariable logistic regression, two variables showed significant effect on factors influencing preferred mode of delivery at the 5% level of significance (table 4). There was a significant relationship between mother's knowledge on CS and their preferred mode of delivery. Mothers who had good knowledge about CS and preferred CS were 4.82 times more likely to accept CS than mothers that preferred vaginal delivery and mothers that were equivocal in this study (AOR=4.82[1.7, 15.01]). Mothers that had good knowledge on CS and indicating that breech presentation was a reason for CS were 6.34 times more likely to prefer CS than those who indicated that eclampsia and small pelvis were the reasons for CS (AOR=6.34[3.2, 25.02]). Also, mothers who had good knowledge of CS and indicated that prolong labour was a reason for CS had 2.02 higher odds of accepting CS than mothers that indicated eclampsia, small pelvis, and don't know (AOR=2.02[0.5, 5.34]).

Table 4: Respondents' knowledge on CS and factors influencing preferred mode of delivery

Characteristics	N (%)	GK	FK	PK	COR [95%CI]	AOR [95%CI]
Preferred Mode of Delivery						
Vaginal	330(92)	100	166	64	1.8[0.7, 8.24]	0.87[1.2, 10.25]
CS	15(4)	15	-	-	5.8[2.6, 12.52]	**4.82[1.7, 15.01]**
Equivocal	15(4)	-	7	8	1.0	1.0
***Reason for CS**						
Prolonged labour	270(76)	52	130	88	4.0[0.9, 12.65]	2.02[0.5, 5.34]
Eclampsia	76(21)	10	46	20	1.0	1.0
Breech	104(29)	68	30	6	8.2[1.8, 23.14]	**6.34[3.2, 25.02]**
Bleeding vagina	78(25)	5	43	30	3.1[0.8, 12.07]	1.80[1.1, 10.73]
Small pelvis	12(3)	-	3	9	1.0	1.0
Don't know	60(17)	-	-	60	1.0	1.0

Key: **GK**: Good Knowledge; **FK**: Fair Knowledge; **PK**: Poor Knowledge

***Multiple Responses**

Association between respondents' characteristics and knowledge on caesarean section

From table 5: There was significant association between knowledge about caesarean section and respondents' characteristics (education p=0.035, parity p=0.012, and previous CS p=0.001). However, 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 where $P>0.05$.

Table 5: Association between respondents' characteristics and knowledge on caesarean section

Variable	GK (*n*=115)	FK (*n*=173)	PK (*n*=72)	X^2	P-value
Age group					
20-24	20(17%)	48(28%)	18(25%)	6.435	
25-29	40(35%)	60(35%)	12(17%)		0.081
30-34	31(27%)	40(23%)	37(51%)		
35 and above	24(21%)	25(14%)	5(7%)		
Education					
No education	-	10(6%)	40(56%)	4.235	
Informal education	-	23(13%)	13(18%)		0.035*
Formal education	115(100%)	140(81%)	19(26%)		
Gravida					
One	10(9%)	50(29%)	40(56%)	5.001	
Two	20(17%)	90(52%)	20(28%)		0.012*
Three	50(43%)	30(17%)	8(11%)		
Four or more	35(30)	3(2%)	4(5%)		
Previous Caesarian section					
Yes	98(85%)	-	-	1.924	0.001*
No	17(15%)	173(100%)	72(100%)		

Key: **GK:** Good Knowledge; **FK:** Fair Knowledge; **PK:** Poor Knowledge

Association between respondents' characteristics and factors influencing preferred mode of delivery

In table 6, respondents that were willing to accept CS were considered to have positive reasons, and those who were unwilling to accept CS, even under conditions that were detrimental to their health, were said to have negative reasons. There was significant association between factors influencing preferred mode of delivery and respondents' education and whether they had previous CS (Education, p=0.013 and previous caesarian section p=0.001). Association between perception of factors influencing preferred mode of delivery and age, marital status, occupation, and previous place of delivery were found not to be significant.

Table 6: Association between respondents' characteristics and factors influencing preferred mode of delivery

Variable	PP (*n*=280)	NP (*n*=80)	X^2	P-value
Age group				
20-24	56(20%)	30(%)	4.910	
25-29	92(33%)	20(%)		0.241
30-34	78(28%)	30(%)		
35 and above	54(19%)	-		
Education				
No education	10(4%)	40(50%)	3.926	
Informal education	16(6%)	20(25%)		0.013*
Formal education	254(90%)	20(25%)		
Gravida				
One	60(21%)	40(50%)	2.014	
Two	105(38%)	25(31%)		0.096
Three	80(28%)	8(10%)		
Four or more	35(13%)	7(9%)		
Previous Caesarian section				
Yes	98(35%)	-	2.639	0.001*
No	182(65%)	80(100%)		

Key: **PP**: Positive perception; **NP**: Negative Perception

Discussion

The majority (85%) of the women that participated in the study were between the ages of 20-34 years. This was expected as this represents the reproductive age group commonly seen in the antenatal clinics, and it is congruent with most studies carried out in other countries (Sunday-Adeoye & Kalu, 2011; Izugbara & Ukwayi, 2007; Okezie, Oyefara & Chigbu, 2007) around the world. The high level of awareness (80%) on CS is similar to that found in some previous studies conducted in Ghana and Nigeria (Prah et al., 2017; Aziken, Omo-Aghoja & Okonofua, 2007). In our study, a smaller proportion (32%) had good knowledge on caesarean section, which is consistent with a study in Ghana where 39.5% of women had good knowledge (Prah et al., 2017) but lower than a study conducted in Nigeria (Robinson-Bassey & Uchegbu, 2017) where they reported 62.42% women having good knowledge about CS. The difference could be due to the difference in the educational level of the respondents in our setting. Additionally, the respondents in the Nigerian study might have had regular antenatal visits and benefited from education on pregnancy-related issues including CS which might have contributed to the higher knowledge score.

As much as 54% and 22% of the pregnant women in this study said their main sources of information on CS were from antenatal clinics and the media respectively. This finding is contrary to the report obtained in a study conducted in Cape Coast where 68% of respondents' main source of information was from the media (Prah et al., 2017). The current result is also very different from the findings from Bagdhad, in which only 12.7% obtained information from antenatal clinics (Nasir, 2017) and Ajeet et al. (2011) who ascertained that only 20.8% of the respondents' source of information about CS was from the hospital. The higher source of information on CS emanating from the hospital/antenatal clinic could imply that, the health facility and the health professionals of the Tamale Teaching Hospital are playing their respective roles of educating prospective mothers on maternal

and child health issues. Also, the midwives and nurses in the antenatal unit are always the first point of contact when a pregnant woman is visiting the antenatal clinic for assessment, and this creates opportunities for nurses/midwives to adequately engage pregnant women in discussions. The majority (92%) of the women, even among women who had previous CS, would choose vaginal delivery against CS, as their preferred mode of delivery. Similar findings were noted in other studies conducted in Ghana 94% (Prah et al., 2017), Nigeria 94% (Owonikoko, Akinola, Adeniji & Bankole, 2015), 91.5% (Ajeet et al., 2011) and in Italy where 80% of women preferred vaginal delivery (Montilla et al., 2012). Some women attributed their preference for vaginal delivery to it being a natural route for delivery and safer. Most women felt CS was more dangerous, painful and might not have good outcome.

In recent times, an increasing number of pregnant women are requesting cesarean delivery for non-obstetric indications (Narayanaswamya, Ambikaa & Sruthia, 2016). A significant number (22%) of respondents in our study will decline having caesarean section delivery even when their lives or that of their babies were in danger. In some Sub-Saharan African countries including Ghana, there is a broadly held societal belief that women who deliver via CS for their first pregnancies would have negative consequences on future pregnancies and child birth and are unable to have normal vaginal delivery for their subsequent pregnancies (Mboho, 2013; Amiegheme, Adeyemo & Onasoga, 2016). Moreover, in most families, women who undergo CS are often seen as weak and cannot withstand labour pains (Robinson-Bassey & Uchegbu, 2017), thereby rushing to the hospital in order to conceal their weakness. Pregnant women who undergo CS are often accused of being lazy, criticized for wasting money, considered as not women enough to have vaginal delivery (Mboho, 2013; Aziken, Omo-Aghoja & Okanofua, 2007). Furthermore, they also involve in stressful post CS activities so as to make them stronger (Keedle, Schmied, Burns & Dahlen, 2015). Additionally, some reasons given by pregnant women for not wanting CS were fear of mockery, fear of postoperative pain, and fear of death as well as prolong hospital stay (Owonikoko et al., 2015; Sunday-Adeoye & Kalu, 2011; Adageba et al., 2008; Qazi et al., 2013). The study revealed that formal education was significantly associated with knowledge of respondents on CS. This is probably because educated women would have the opportunity to access additional information from the electronic and print media on CS that will influence their knowledge level. The study revealed that gravida was statistically significant with women's knowledge on CS. This could probably be because women who have the opportunity to deliver in the health facilities or attend antenatal clinics during pregnancies will benefit from some education during these periods. The current study findings revealed that a previous experience of CS was significantly associated with pregnant women's knowledge on CS. This may be due to the fact that during pre-operation preparations for CS, women are educated on the procedure (Prah et al., 2017). The findings reveal that the influencing factors for preferred mode of delivery was statistically significant with women's education. Women who were educated had good and fair knowledge on CS. Health education during pregnancy and before CS might have increased women's awareness of CS in the Tamale Teaching Hospital, though some still held the notion that delivering through CS is between life and death. The significant knowledge on CS among those with previous CS could be a reflection of their earlier experiences during pregnancy, before, during and after CS coupled with their knowledge acquired leading to positive influencing factors about CS (Aziken, Omo-Aghoja & Okonofua, 2007; Naeimi, GHolami & Qasemi, 2015; Amiegheme et al., 2016; Prah et al., 2017).

Limitations of the Study

The study did not involve men who are considered the key stakeholders in decision making on caesarean section. The study also failed to assess the social, cultural and economic status of the respondents.

Implications for Nursing and Midwifery Practice

The results indicate that a significant proportion of pregnant women would prefer vaginal delivery even when their condition indicates the need for CS. This implies that acceptance of CS is still low. It is important that pregnant women are well informed as to any risks arising during pregnancy or labor by nurses/midwives at the antenatal clinics, so that they would be willing to set aside their preferences and

make an informed decision to have CS. These findings underscore the need for effective communication among midwives and pregnant women. Nurses/midwives should also intensify health education on caesarean section, with a major focus on causes and its importance in saving the lives of mother and baby as well as correcting misconceptions about CS. The findings from this study would provide baseline information, which can be used in planning strategies for improving the knowledge of women towards CS. This will possibly reduce the delay in opting for CS and improve its utilization and to help in reducing avoidable maternal and fetal complications.

Conclusion

Although a high percentage had fair and good knowledge about CS, the majority 92% preferred vaginal delivery. In this study, there were concerns about the safety of the procedure, post-operative pain and other social factors influencing the acceptance of CS. This brings to light the need for nurses/midwives to intensify education on indications for CS and safety of the procedure at the antenatal clinics. Education should also address negative factors influencing the acceptance of CS. The study revealed that though some women had formal education, it did not necessarily mean they had good knowledge on CS. Efforts at understanding cultural beliefs regarding CS and emphasis on safety of the procedure during antenatal care visits are recommended. There is therefore the need to conduct further robust research in this subject area. Future research should focus on understanding sociocultural factors and beliefs that impede the acceptance of caesarean section among pregnant women using qualitative approach.

Conflict of Interest

None declared.

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