

**Original Article**

# Maternal Satisfaction in receiving Spinal Anaesthesia for Caesarean Section: Cross-sectional survey at the Tamale Teaching Hospital, Ghana

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## Abstract

Spinal anaesthesia is the only type of anaesthesia that allows maximum patient participation, which is an appropriate module to use for the assessment of patient satisfaction since the patient will have full knowledge of what has transpired. This study assessed the level of satisfaction of mothers given spinal anaesthesia for caesarean section. A quantitative cross-sectional survey of 171 mothers who underwent spinal anaesthesia for caesarean section at the Tamale Teaching Hospital was recruited for the study. A structured questionnaire was administered within 24 hours after caesarean section at the post-natal unit. The results revealed a high level of satisfaction among mothers. Pain control (90.1%), communication by anaesthetists (93.0%) and patient care (89.5%) were cited by mothers as the reasons for the high level of satisfaction. Even though the study observed a high level of satisfaction by mothers who received spinal anaesthesia for caesarean section, the study concludes that adequate measures should be taken to sustain patients' level of satisfaction.

## Keywords:

**Maternal Satisfaction; Spinal Anaesthesia; Caesarean Section**

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## Introduction

The choice of anaesthesia for caesarean section (CS) depends on multiple factors such as the indication of surgery, the urgency of the operation, and the patient as well as the surgeon's desire (Siddiqi & Jaffri, 2009; Dharmalingam & Zainuddin, 2013). Anaesthesiologists always choose the method that is believed to be the safest and most comfortable for the mother, least depressant to the newborn and provides optimal working conditions for the obstetrician (Siddiqi & Jaffri, 2009). Spinal anaesthesia (SA), also called spinal block, is a form of regional anaesthesia involving the injection of a local anaesthetic into the subarachnoid space, generally through a fine needle (Bryant & Knights, 2011).

Spinal anaesthesia is commonly used in Caesarean section which entails the delivery of an infant through incisions in the abdominal and uterine walls (Sanjay, 2006). Over the years, SA has gained worldwide acceptance as its physiological effects provide a better outcome for caesarean section than general anaesthesia which is associated with significantly high maternal morbidity and mortality (Hawkins, Koonin, Palmer & Gibbs, 1997). In recent times, SA has gained patronage at the Tamale Teaching Hospital as clinical data confirm that, out of 1,786 caesarean sections performed in 2016, 83% (1,479 mothers) were given spinal anaesthesia (Tamale Teaching Hospital, 2016).

Patients' satisfaction has gradually emerged as an important global parameter in the appraisal of quality of health care (Sharma & Karma, 2013). Hence, assessment of health care facility performance comes out best when it includes measurement of the level of patient's satisfaction. Patient satisfaction takes into consideration the positive evaluation of the patient's experience, which has several short and long-term effects on the functional outcome of patients. Previous studies on maternal satisfaction with spinal anaesthesia for caesarean section have revealed varied results across different geographic settings (Melese, Gebrehiwot, Bisetegna & Habte, 2014; Siddiqi & Jaffri, 2009; Dharmalingam & Zainuddin, 2013). Generally, many of these studies have reported high levels of satisfaction between 85% and 100% among mothers (Shisanya & Morema, 2017). Satisfaction rate could be overestimated because patients like to please service providers by giving de-

sired responses (Dharmalingam & Zainuddin, 2013; Siddiqi & Jaffri, 2009).

Despite the steady rise in the patronage of spinal anaesthesia and expression of satisfaction of mothers around the world (Fassoulaki, 2010; Kimani, 2012), there is a dearth of studies on mothers' satisfaction from receiving spinal anaesthesia for CS in Ghana. There is little research for a procedure that is given to over 80% of mothers who underwent caesarean section in the hospital (Tamale Teaching Hospital, 2016). This study was therefore conducted to assess patients' perspective regarding spinal anaesthesia, their level of satisfaction and the factors influencing satisfaction during CS. The results of this study are relevant because understanding the perspectives of mothers about the care and treatment they have received will aid in improving the quality of spinal anaesthesia care and ensure that health care services are meeting the needs of patients.

## Design and Methods

### Research Design

This study used a quantitative cross-sectional survey design which is most suitable for studies aimed at finding the prevalence of a phenomenon, by taking a cross-section of the population (Babbie, 1989). Cross-sectional surveys are useful in obtaining the overall "picture" as it stands at the time of the study.

### Setting

The study was carried out at the Post Natal Unit of the Tamale Teaching Hospital (TTH). Tamale is the capital of the Northern region of Ghana. At the time this study was conducted, the region shared boundaries with the Upper East and Upper West regions to the north; Ivory Coast to the west; Togo to the east and Brong Ahafo and Volta regions to the south (GSS, 2014). According to the 2010 population and housing census, the total population for the Tamale Metropolis stood at 223, 252 people, comprising 111, 109 males and 112, 143 females (GSS, 2014). The Tamale Teaching Hospital was chosen because it is the largest health facility in the northern part of Ghana which is accessible to patients. This hospital was selected also because of the fact that it was a referral facility for the then five regions of the north. The Tamale Teaching Hospital (TTH) is a tertiary referral hospital that provides health care services to

the residents of Tamale and the rest of northern Ghana as well as neighbouring countries of Ivory Coast, Burkina Faso and Togo.

### Study population and Sampling Technique

In this study, the target population comprised all mothers who received spinal anaesthesia for CS between the periods, 25th April and 30th June, 2017. Out of the 179 mothers who received SA for CS within the two months' period, only 171 consented to participate in the study within 24 hours of their post-partum period. Therefore, all the 171 mothers were recruited for the study. The interviews were conducted within 24 hours to obtain appropriate experiences of mothers who were given SA, as memories of hospitalization and child-birth and feelings of satisfaction with them could have changed over time thereby making the results unreliable.

### Data Collection

Data was collected using a structured questionnaire developed by the lead author. The questionnaire was reviewed by an expert at the School of Medicine and Health Sciences, University for Development Studies. The questionnaires were administered by the lead author through face-to-face exit interviews with the mothers. The study response rate was 100% and the lead researcher administered the questionnaire personally. All questions were in English language but were interpreted to the understanding of respondents in Dagbani, with the assistance of a Research Assistant who was fluent in both English and Dagbani. The questionnaire was divided into four sections and had open and closed-ended questions. Section A of the questionnaire comprised questions that elicited information on sociodemographic variables such as age, occupation, marital status, employment status, levels of education, ethnicity, religion and parity of the respondents. Section B included questions on respondents' surgical information, whilst Section C was focused on anaesthetic information such as the number of times respondents received spinal anaesthesia and the experiences thereof. The final section involved questions on the level of satisfaction by respondents. Prior to the data collection, the questionnaire was pre-tested at TTH and ambiguous questions were restructured to provide better comprehension.

### Data Management and Analysis

The study employed a descriptive statistical analysis. The administered questionnaires were carefully edited, coded, processed and analysed with the Statistical Package for the Social Sciences Software (SPSS), Version 20 and Microsoft excel. The data was analysed using frequency tables and percentages generated. To determine the level of satisfaction with spinal anaesthesia, a three-point Visual Analogue scale (very satisfied, somehow satisfied and not satisfied) was used to rate responses in the various anaesthesia periods (preoperative explanations, intraoperative, postoperative and perioperative).

### Ethical Consideration

Institutional ethical approval was obtained from the Obstetric and Gynaecological units and Management of the Tamale Teaching Hospital. Ethical clearance was also obtained from the University for Development Studies. Verbal consent was obtained from the study respondents after explaining the purpose of the study to them. Additionally, the privacy, confidentiality and anonymity of respondents were ensured. Ergo, respondents are not directly identified in the study. Mothers who declined to participate in the study were assured that their refusal would not affect their access to health care in the future.

### Results

The study comprises 171 respondents. A summary of the demographic background of the respondents is provided in Table 1. The age distribution of the respondents shows that 54.4% were between ages 20 to 29 years, 42.7% were between 30-39 years, 1.8% of the population were below 20 years and 1.2% were 40 years and above. The mean age of mothers was 28.83 years. A significant proportion (47.9%) of the respondents had attained secondary and tertiary level education, whilst 31.6% did not have formal education. The majority (95.3%) of the respondents were married. Many of these respondents (78.4%) practised the Islamic faith. The majority of the surgeries (83%) were multi gravid and 67.3% of the total number was performed as emergency CS.

**Table 1: Respondents Demographic and Obstetric Characteristics**

Characteristic	Grouping	Frequency	Percent
<b>Age</b>	18-19	3	1.8
	20-29	93	54.4
	30-39	73	42.7
	40 and above	2	1.2
	None	54	31.6
<b>Educational Level</b>	Primary	10	5.8
	JHS	25	14.6
	SHS	24	14
	Tertiary	58	33.9
<b>Marital Status</b>	Single	8	4.7
	Married	163	95.3
<b>Religious Status</b>	Christianity	35	20.5
	Islam	134	78.4
	Traditional	2	1.2
<b>Employment Status</b>	Government worker	46	26.8
	Trader	57	33.3
	Unemployed	5	2.9
	Student	4	2.3
	Farmer	11	6.4
	Tradesman/Artisan	23	13.4
	Housewife	10	5.8
	Other	15	9.1
<b>Obstetric Information</b>	Prime	29	17
<b>Parity</b>	Multi	142	83
	Emergency	115	67.3
<b>Type of Surgery</b>	Elective	56	32.7

Adverse effects of spinal anaesthesia  
 Table 2 shows the adverse effects associated with spinal anaesthesia and CS as reported by 67 (39.2%) of the respondents. The study revealed that

a high proportion of the 67 mothers experienced pain and discomfort (53.3%). Nausea and vomiting were experienced by 36.7%, while rigor and palpitation were the least experienced effects (1.7%).

**Table 3: Mothers satisfaction with level of communication of anaesthetist**

Reason	Frequency	Percent
Continuous enquiry and reassurance	72	69.9
He was polite and reassuring	20	19.4
Very educative	10	10.7
Total	102	100.0

**Table 4: Mothers’ dissatisfaction with anaesthesia communication**

Reason	Frequency	Percent
Anaesthetist non-communication during surgery	6	50.0
Language barrier	3	25.0
No reassurance, no education	2	16.7
Don’t understand him	1	8.3
<b>Total</b>	<b>17</b>	<b>100</b>

**Intraoperative Pain Control**

Apart from the lack of adequate communication, pain management is also a parameter for the evaluation of the level of satisfaction by mothers. Most (63.2%) respondents indicated that they were very satisfied

with the kind of intraoperative pain control that was administered as compared to 26.9% and 9.9% mothers who were somehow satisfied and not satisfied respectively (see Figure 4.4).

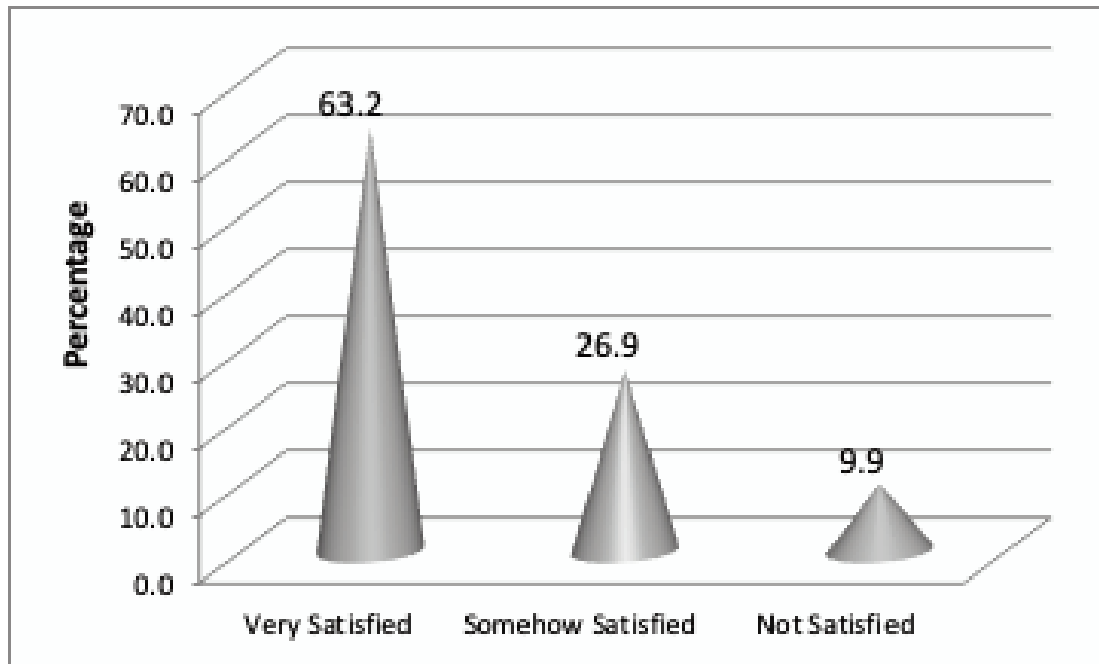


Figure 1: Level of satisfaction of intraoperative pain control

### Respondents' overall satisfaction with spinal anaesthesia given

Figure 2 shows that 89.4% of respondents were generally satisfied with spinal anaesthesia given them

(before, during and after delivery). The proportion of respondents who were not satisfied with the spinal anaesthesia given constituted 10.5%

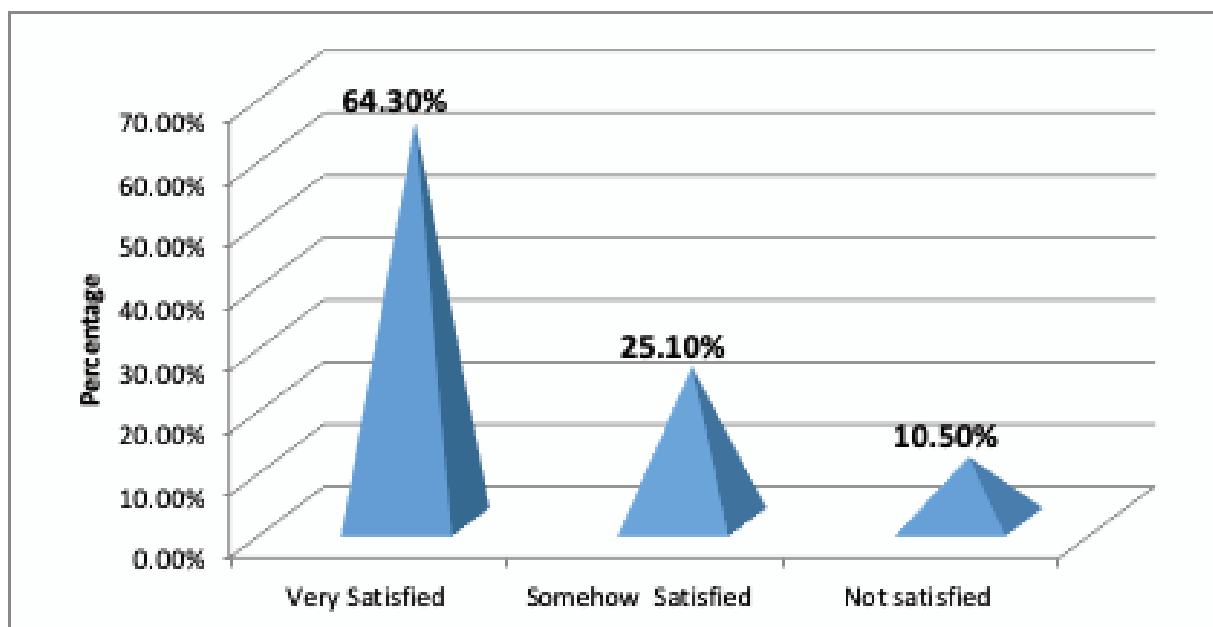


Figure 2: Overall satisfaction of respondents with spinal anaesthesia

**Respondents’ reasons for their overall satisfaction with the spinal anaesthesia**

Pain management was noted by 73.6% of mothers as the reason for their satisfaction with the spinal anaesthesia they received. Other reasons cited include, continuous enquiry and reassurance by the

anaesthetist (71.8%), mothers’ ability to talk while the operation was ongoing (34.6%), and mothers’ opportunity to see their babies immediately after delivery (50.0%). Finally, mothers were generally satisfied as they did not notice any problem during the operation (35.5%).

**Table 5: Mothers’ overall satisfaction with the spinal anaesthesia**

Reason	Frequency	Percent
I never experienced pain	81	73.6
The anaesthetist’s continuous enquiry & reassurance	79	71.8
I could talk while the operation was ongoing	40	34.6
I saw my baby	55	50.0
I did not notice any problem during the operation	39	35.5

\*Multiple reasons

**Reasons for mothers’ dissatisfaction with the spinal anaesthesia**

Mothers who were dissatisfied noted that they felt pain and discomfort (77.8%) during the operation. Some reasons including back pain (33.3%), dizziness and poor communication (5.6%) were cited for

their dissatisfaction with spinal anaesthesia.

The study revealed that 86.5% of the respondents answered in the affirmative when asked whether they will accept spinal anaesthesia in the future, while 13.5% said no, for various reasons as outlined in table 6.

**Table 5: Mothers’ overall satisfaction with the spinal anaesthesia**

Reason	Frequency	Percent
Pain and discomfort during the operation	14	77.8
They injected my back several times	6	33.3
I had nausea and vomiting	3	16.7
Never wanted to see my dead baby	3	16.7
Dizziness	1	5.6
Poor communication	1	5.6

\*Multiple reasons

**Discussion**

Spinal anaesthesia has been demonstrated to be superior to general anaesthesia for scheduled caesarean delivery (Birnbach & Browne, 2007). This

study therefore sought to assess the level of maternal satisfaction with spinal anaesthesia for Caesarean Section at the Tamale Teaching Hospital. Researching mothers’ satisfaction is key in understanding the

experiences of mothers in receiving spinal anaesthesia, and the results can help in improving the quality of anaesthesia and health care. Most of the respondents had attained tertiary education, which resonates with World Health Organisation's (2011) report that women with formal education are most likely to request caesarean section.

The study found that the majority of the cases operated upon were emergencies as compared to planned cases. This could be due to the fact that caesarean section is not the first line mode of delivery. Most expectant mothers go to labour before caesarean section is prescribed for various reasons which could be of maternal, foetal or combined indications. This contributes to increased risk of emergency caesarean sections (Ji, Jiang, Yang, Qian & Tang, 2015). Pain and discomfort during operation was reported by most mothers as an adverse effect associated with SA and CS. Other adverse effects identified include nausea and vomiting, breathing difficulty, dizziness, palpitations and rigor. These findings are similar to existing literature which has shown that the cause of discomfort from SA are immobility of lower limbs, post-operative nausea and vomiting (Bhattarai, Rahman, Sah & Singh, 2005). The resultant effects of these reported adverse effects are dissatisfaction with consequences such as sexual dysfunction, aversion to further pregnancy or birth, and increase in complaints and litigation (Kimani, 2012).

The level of satisfaction was high with regard to the communication and or interaction between anaesthetists and the mothers throughout the anaesthesia process. The results revealed that most of the clients were told what to expect for anaesthesia before the procedure was performed. However, some of the mothers who underwent planned operation were not told what to expect for anaesthesia. The ideal situation of the hospital demands that all planned cases visit the anaesthesia clinic for preoperative assessment during which the patients are counselled on all available options and told what to expect. Respondents cited various reasons for their satisfaction with the anaesthetist's communication. These include continuous enquiry and reassurance by the anaesthetist, the polite attitude of the anaesthetist and the education or explanation given about the procedure

by the anaesthetist. This supports Canale's (2015) argument that the patient will prefer the nurse to be more caring. Mothers who were not satisfied gave reasons such as the anaesthetist non-communication with them, language barrier, no reassurance, no education from the anaesthetist and the inability to understand the technical communication of the anaesthetist. The reasons stated are similar to a study by Duffy, Gordon, Whelan, Cole-Kelly, Frankel, Buffone, Lofton, Wallace, Goode & Langdon (2004) which indicates that effective communication and reassurance of the physician is essential to effective health care delivery and patient satisfaction.

The study highlights the presence of good intraoperative pain control as the majority of mothers expressed their satisfaction. Siddiqi and Jaffri (2009) in a study conducted on intraoperative pain control in Pakistan found a satisfaction score of 74.08%. This could be traced down to strict supervision on drug dosing.

The study identified high overall levels of satisfaction by mothers in receiving spinal anaesthesia for CS. The results are consistent with Kenya's National Hospital survey which reported 95% overall satisfaction (Kimani, 2012). On the contrary, mothers who expressed their dissatisfaction attributed it to pain and discomfort during surgery, multiple injections at the back, nausea and vomiting, dizziness and poor communication. Ensuring good quality of spinal anaesthesia and improving clinical skill of anaesthesiologists might improve mothers' satisfaction rate (Shisanya & Morema, 2017). Despite the reasons given, the majority of mothers indicated that they will accept spinal anaesthesia for the next possible operation, all factors being equal. This supports the assertion by Fassoulaki (2010) that 80% of mothers have preference for spinal anaesthesia in their future caesarean sections in Greece.

This is a cross-sectional study, so causality cannot be defined. Moreover, satisfaction is a feeling; hence, it is non-quantifiable and subjective. Satisfaction is therefore prone to change even in a single respondent with time. This makes it very difficult to measure or even reproduce the same results given the exact settings.



## Implications for anaesthesia practice

The evidence from the study suggests that health care providers should educate prospective mothers on the various anticipated modes of delivery to address the reactive approach to caesarean experience. This would ensure that pregnant women are well-prepared for any of the available delivery modes. It will also help to dispel anxiety with respect to the mode of delivery. The evidence highlights and supports communication flow between anaesthetists and patients, which help to dispel anxiety during surgery.

## Conclusion

The study assessed maternal satisfaction in receiving SA for CS and it was found that the majority of the cases operated were emergencies as compared to planned cases. Pain and discomfort during operation were reported by most of the mothers as an adverse effect associated with spinal anaesthesia and CS. Other adverse effects identified include nausea and vomiting, breathing difficulty, dizziness, palpitations and rigor. Level of satisfaction was generally high in terms of communication and or interaction be-

tween anaesthetists and mothers throughout the anaesthesia process. Mothers cited various reasons for their satisfaction with the anaesthetist's communication. The study identified high overall levels of satisfaction by mothers in receiving spinal anaesthesia for CS due to effective pain management, anaesthetists' continuous enquiry and reassurance, ability to talk while the operation was ongoing, as well as seeing their babies in the theatre. On the contrary, mothers who expressed their dissatisfaction attributed it to pain and discomfort during surgery, multiple injections at the back, nausea and vomiting, dizziness and poor communication. Despite the reasons given, the majority of mothers had preference for spinal anaesthesia for the next possible operation, all factors being equal.

## Conflict of Interest

The authors declare that there is no conflict of interest.

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