Obstet Gynecol Res 2021; 4 (3): 186-195 DOI: 10.26502/ogr067

Research Article

Wound Care Education for Caesarean Section Clients: What Do Midwifery Students Know?

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Received: 29 July 2021; **Accepted:** 10 August 2021; **Published:** 21 August 2021

Citation: Angelina Abban Ansu. Wound Care Education for Caesarean Section Clients: What Do Midwifery Students Know?. Obstetrics and Gynecology Research 4 (2021): 186-195.

Abstract

Background: Complications associated with Caesarean Section (CS) delivery such as surgical site infection (SSIs) are complex. Infection of the CS wound has enormous consequences. A major risk factor associated with CS wound infection is lack of knowledge of CS clients about wound care. The knowledge of trainee midwives is critical if they are to educate CS clients on wound care.

Aim: The objective of the study was to explore midwifery students' knowledge on the education of CS clients on wound care.

Materials and methods: This cross-sectional study purposely used 339 final year midwifery students within the Midwifery Training Colleges of Greater Accra Region. Participants answered a questionnaire formulated from relevant literature. Frequencies and percentages analyses were used for the data.

Statistical analysis: Stata SE version 13 software.

Results: This study revealed that 317 (93.1%), 325 (96%), 320 (94.4%) were knowledgeable about CS, surgical site wound care and education for CS clients on wound care respectively. Again, 286 (84.37%) of the students indicated that their training has equipped them to give education on wound care to CS clients. However, 227 (65.96%), 287 (84.66%), 179 (52.8%) did not have adequate knowledge on aspects of indications for CS delivery, surgical site wound care and education for CS client on wound care, respectively.

Conclusions: Majority of the final year midwifery students recorded higher knowledge scores about CS,

surgical site wound care and education for CS clients on surgical site wound care. However, quite a number could not respond to aspects of indication for CS delivery and CS wound care.

Keywords: Caesarean Section (CS); Caesarean Section Client; Wound Care; Surgical Site Infections (SSIs); Final Year Midwifery Students; Knowledge; Education on Wound Care

1. Introduction

Caesarean delivery is on the rise in Ghana, and with it associated complications such as SSIs [1-3]. Three studies conducted in some hospitals in Ghana between 2011 and 3013 revealed that CS was the highest performed surgery, at a percentage of 35% to 50% [4-6]. Also, CS deliveries in some facilities in the Greater Accra Region such as the Greater Accra Regional Hospital (Ridge) increased from 35% in 2012 to 43% in 2014 and that of Korle Bu Teaching Hospital increased from 36.8% in 2009 to 43% in 2013 [7, 8]. The hospitals and their midwives are critical in caring for these patients [9]. However, evidence suggest that about 15.4% to 86% of surgical patients including CS clients report back to the hospital with SSIs [1, 2, 6, 10].

Patients' wound care knowledge becomes essential and thus, educating them and their family members would be appropriate [9]. The knowledge of midwives (trainee midwives) is critical if they are to provide such up-to-date care and education to CS patients and their families [11]. However, there seems to be no study that assessed the knowledge of final year trainee midwives about educating CS clients on wound care of the surgical site. Moreover, these are the trainee midwives whose knowledge and practice of surgical wound care and the ability of providing such education to clients become paramount as they are at the verge of joining the mainstream midwifery practice. The purpose of the study was to explore the knowledge of midwifery students on the education of CS clients on wound care. This study would help identify the knowledge level of final year midwifery students in the Greater Accra Region midwifery training colleges on the education to CS client on wound care. This is likely to provide guide for curriculum developers, college administrators and tutors when they are teaching. For example, it would help the Nursing and Midwifery Council of Ghana to develop an effective curriculum for midwifery training.

2. Materials and Methods

This study implored a cross-sectional quantitative design to include all the final year midwifery students in the midwifery training colleges in the Greater Accra Region of Ghana from June 2017 to August 2017. The study sampled all the 450 final year midwifery students except those who refused to take part. After data collection and screening, data from 339 final midwifery students were used for the study. This gives a response rate of 75.3%. About 229 (67.55%) of the sampled respondents were from Pantang midwifery training college, 71 (20.94%) from Korle-Bu midwifery training college and 39 (11.50%) from the 37 Military Hospital midwifery training college. These are all public midwifery training colleges. This group of students were all females with ages ranging from 20 to 42 years. Ethical clearance was sought and granted by the University of Cape Coast Institutional Review Board (UCCIRB/CES/2017/25), and permission also given by the Heads of the three Colleges. The participants signed consent forms to participate in the study. Questionnaires were given to participants by the researcher at the various study Colleges at different days. Questionnaires given out in the presence of the researcher were filled by the students and were collected on the same day.

A structured questionnaire was used for the data collection. Variables of the study, the research questions

and suggestions from literature constituted the sources for developing the questionnaire. Demographic variables elicited were age, sex, type of midwifery training programme, years of training, type of institution, and qualification awarded. The research variables tested were organized on the following themes: CS, CS site wound care, education to CS client on surgical wound care and midwifery students training. The questionnaire consisted of 32 items which were all close-ended questions. Items 1-6 elicited the demographic features of the participants; 7-13 explored participants knowledge on CS; 14-16 appraised participants' knowledge on surgical site wound care; 17-29 assessed participants' knowledge on education for CS client on surgical site wound care; 30-32 measured participants' perception on whether their midwifery training has equipped them with relevant knowledge about education of the CS clients on surgical site care. For all items, participants selected an option deemed appropriate. Responses on the 23 key information on CS, CS site care, education for CS clients on wound care knowledge were solicited using *No*, *Yes* and *Don't Know* (1 for each correct response and 0 for wrong response). The seven main items to assess knowledge on CS were what is the definition of CS, what are the two main ways CS is classified, what does emergency CS is also termed, what are the indications for CS, a CS client with surgical site pain is more likely to be readmitted than the one with SSIs, what are the ways to discover that a CS client has SSI and what are the effects of SSIs. Three key information sought on the knowledge on CS site care were what does care of surgical wound after CS involves, what does dressing of surgical wound entails and what are the benefits of wound dressing after CS.

Thirteen items were used to solicit information on knowledge of respondents about education for CS clients on wound care. These thirteen items on education to CS clients on wound care included supporting ones wound during coughing, laughing or sudden movements; wound should be washed with soap but never rub it; gently cleaning the wound with the prescribed solution and leaving it uncovered to be air dried; gently cleaning the wound with the prescribed solution and leaving it uncovered to be air dried; wearing of loose cotton clothing that does not press on the wound; strenuous activity like lifting any weight that is heavier than ones baby can be done; having enough rest and sleep; driving can be done even when the wound is still not healed; exercising like gently walking; maintaining personal hygiene; perform hand hygiene by means of hand rubbing or hand washing; drinking water and eating foods that are rich in fiber like cereals, fruits and vegetables to avoid constipation; breastfeeding feeding can be done at any position; monitor wound every now and then for signs of infection to report to your midwife or doctor for treatment. There were three main questions that measured participants' knowledge on whether their midwifery training equipped them with adequate level of knowledge about educating CS clients on surgical site wound care. These questions were Do midwives and other health professionals give education on CS to clients including that on wound care? Has your midwifery training equipped you to give education to the CS client? Why do you think your midwifery training has not equipped you to give education to the CS client? These questions were answered with five-point Likert Scale of Totally Disagree (1) to Totally Agree (5).

A Stata SE version 13 software was utilized for the statistical analysis. Frequencies and percentages analyses were calculated to assess the level of knowledge of students on the knowledge on CS, CS surgical site wound care and education given to CS clients on wound care. Knowledge scores for each student were obtained from the responses given to

specific items. No, yes and don't know (1 for each correct response and 0 for wrong response) were awarded to the responses [12]. Scores for each category were summed up, divided by the total of the required mark if all responses were to be correct and multiplied by 100%. Scores under each category of interest were weighted and the ranged from 0.0% to 100.0% for each student. Scoring of the midwifery students' knowledge on each domain as well as the overall mean knowledge scores were done as very high (80-100%), high (70.00-79.99%), moderate (60-69.99%), low (50-59.99%) and very low knowledge (<50.00%) based on the standard university grading system [13]. To determine if the training of students in the Greater Accra midwifery training colleges equip them to give education on surgical site wound care to the CS clients, specific questions based on five-point Likert scale were used. Scores for each student on the level of agreement to statements were obtained. Totally disagree, disagree, doubt, agree, strongly agree (1=totally disagree, 2=disagree, 3=doubt, 4=agree, 5=strongly agree) were awarded marks on answers to the responses [13]. Scores for the level of agreement to each statement were summed up, divided by the total of the required mark if all responses were to be strongly agree (5 marks) and multiplied by 100 %. Scores under each category of interest were weighted and the scores ranged from 0.0% to 100.0% for each student.

3. Results

Although all the 450 final year midwifery students in the public midwifery training colleges in the Greater Accra Region of Ghana were targeted, 339 of them participated in the study. The population consisted of 3-year diploma and 2-year post-basic certificate final year midwifery students. The population under study were all females with ages ranging from 20 to 42 years. The socio-demographic data of the respondents can be found in Table 1. Assessment of the midwifery students' knowledge about CS showed that 317 (93.1%) students were knowledgeable about CS. On the other hand, analysis of item specific questions about knowledge on CS revealed that approximately, 227 (67%) of the students do not have in-depth understanding of whether delivery of babies that have lower weight at term should be a prerequisite for CS. These are students who scored below 50% of the question asked. Detailed analysis of some of the responses on knowledge on CS can be found in Table 2. About 325 (96%) of the midwifery students reported high knowledge about CS surgical site wound care. However, approximately 287 (85%) of the students provided incorrect responses to the question of whether care of the surgical site after CS should involve application of positive pressure wound therapy. Analysis of some of specific surgical site wound care questions can be found in Table 3. Almost all the students, 320 (94.39 %) registered a high knowledge score on education for CS clients on wound care. However, about 179 (52.8 %) of the students provided incorrect response to whether breastfeeding can be done at any position after CS. Some of the item specific analysis on students' level of knowledge on education for CS clients on CS wound care can be found in Table 4. Out of the 339 students, 286 (84.37%) reported their training has equipped them to give education on surgical site wound care to CS clients (responses are found in Table 5).

Socio-demographic variables	n (%)
Age	
19-30 years	200 (59.00)
31-40 years	129 (38.00)
41-50 years	10 (3.00)
Sex	
males	0 (0)
Females	339 (100)
Type of midwifery program (years)	
Registered midwifery (3)	240 (71.00)
Post Basic midwifery (2)	99 (29.00)
Type of institution	
Government	339 (100)
Private	0 (0)
Qualification awarded	
Diploma	240 (71.00)
Certificate	99 (29.00)
Total number of respondents	**339**

Table 1: Socio-demographic variables.

Knowledge of CS among midwifery students	Incorrect responses n (%)	Correct responses n (%)
Definition and types of CS		
CS is a surgical procedure carried out to deliver the fetus, placenta and membranes through an incision in the abdominal wall and uterus.	4 (1.18)	335 (98.82)
Caesarean deliveries can be commonly termed as elective and emergency CS	12 (3.54)	305 (89.99)
The indications for CS		
Medical indications to save the life of the mother and or the Baby	34 (10.03)	305 (89.99)
History of previous CS	112 (33.04)	227 (66.96)
Delivery of babies that are of lower weight at term	227 (66.96)	112 (33.04)
Ways to discover that a CS client has SSI		
Wound discharging pus	35 (10.32)	304 (89.68)
Presence of infectious organisms from wound tissue and fluid culture.	38 (11.21)	301 (88.79)
Pain, swelling and tenderness at the surgical site.	27 (7.96)	312 (92.04)
Effect of CS SSI		

Delay wound healing	23 (6.78)	316 (93.22)
Increase the length of stay in the hospital	26 (7.67)	313 (92.33)
Increase the chance of readmission	27 (7.96)	312 (92.04)
Total number of respondents		**339**

Table 2: Level of knowledge on CS among midwifery students.

Knowledge of students on CS surgical site wound care	**Incorrect responses n (%)**	**Correct responses n (%)**
Care of surgical wound after CS		
Regular wound dressing	16 (4.72)	323 (95.28)
Application of positive pressure wound therapy	287 (84.66)	52 (15.34)
Taking prescribed antibiotics and other medications	12 (3.54)	327 (96.46)
Providing patients/ careers with knowledge on wound care	10 (2.95)	329 (97.05)
Dressing of a CS site		
Removal of the old dressings	9 (2.65)	330 (97.35)
Cleaning the wound with sterile cotton wool using solutions like saline solution	52 (15.34)	287 (84.66)
Covering the wound with sterile gauze	22 (6.49)	317 (93.51)
Some of the benefits of wound dressing after CS		
Promotes wound healing	7 (2.06)	332 (97.94)
Reduces risk of wound infection	326 (96.17)	13 (3.83)
Helps control exudates secretion	43 (12.68)	296 (87.32)
Total number of respondents	**339**	

Table 3: Knowledge level of students on CS site care.

Knowledge on education to CS clients on caesarean wound care	**Incorrect responses n (%)**	**Correct responses n (%)**
Gently cleaning the wound with the prescribed solution and leaving it uncovered to be air dried	126 (37.1)	213 (62.83)
Wearing of loose cotton clothing that does not press on the wound	27 (7.96)	312 (92.04)
Having enough rest and sleep	32 (9.44)	307 (90.56)
Maintaining personal hygiene	13 (3.83)	326 (96.17)
Breastfeeding can be done at any position	179 (52.8)	160 (47.20)
Total number of respondents	**339**	

Table 4: Student's level of knowledge on education to CS clients on caesarean wound care.

Response				
Type of midwifery programme	**Disagree n (%)**	**Agree n (%)**	**Doubt n (%)**	**Total**
Registered midwifery	18 (7.50)	216 (90.00)	6 (2.50)	240
Post Basic midwifery	2 (2.02)	96 (96.97)	1 (1.01)	99
Training Institution				
Pantang	20 (8.73)	202 (88.21)	7 (3.06)	229
Korle-Bu	6 (8.45)	60 (84.51)	5 (4.41)	71
37 Military hospital	10 (25.64)	24 (61.54)	5 (12.82)	39
Total number of respondents		**339**		

Table 5: Evaluating responses to whether training of students in Accra midwifery training schools equip them to give education on wound care to CS clients.

4. Discussion

The purpose of the study was to assess the knowledge of midwifery students on the education of CS clients on surgical site wound care. This study found that, of all the 339 final year midwifery students studied, 317 (93.1%), 325 (96%), 320 (94.4%) were knowledge-able about what CS, surgical site wound care and education to CS clients on wound care are respectively and 286 (84.37 %) of them indicated that their training has really equipped them to give education on wound care to CS clients. However, 227 (65.96%), 287 (84.66%), 179 (52.8%) of the students from the three midwifery training colleges did not have adequate knowledge on aspects of indication for CS delivery, surgical site wound care after CS and education to CS client on wound care respectively.

A study on health care professionals with varying expertise in evidence-based medicine from North America and Europe showed that knowledge gained from a course of study could be associated with active participation of learners [14]. A similar finding by Gong et al. [15] indicates that students who are highly self-disciplined and fully get involved in their course of study tend to have higher knowledge than their peers who are less self- disciplined. An assertion made by Rycus [16] was that when a trainee acquires knowledge, it provides him or her with a comprehensive, factual information about the topic under study. Grad et al. [15] revealed in their study that lower levels of knowledge in certain aspect of a topic under study might be due to teaching shortcomings in the educational institutions or the syllabus. The midwifery students' high knowledge about CS in this study may be as a result of their active participation in a course of midwifery on CS. The students' higher knowledge in CS, place them in a position where they are fully equipped with in-depth, factual information about CS. The finding again demonstrates that, more than half of all the students recorded low knowledge on whether delivering of babies that have lower weight at term should be an indication for CS delivery. This low level of understanding, may probably be because certain aspect of CS were not taught due to teaching shortcomings of the syllabus. Both Kunz et al. [14] and Master et al. [18] concluded that knowledge gained of a course is optimized when the course is well structured; fewer topics taught at a lesson time; when the teaching time is not too long; fewer learners per tutor; stronger academic backgrounds of the tutor of the course. Willingham [19] explains that being knowledgeable about something helps one to have sufficient background knowledge to

understand the problem relating to that issue. Kunz et al. [14] showed that students' low levels of knowledge in a course is a result of more topics taught at lesson session.

The higher knowledge scores of the final year midwifery students about CS site care may be due to how the course content on CS site care was structured and taught [14, 18]. Higher knowledge of these students puts them in a position where they are equipped with knowledge to care for CS clients. On the other hand, a larger proportion of the students provided incorrect responses to the question on whether care of surgical site wound after CS should involve application of positive pressure wound therapy. This may be an indication of the need for more topics on CS surgical site wound care to be taught to the students. The lower level of knowledge scores on application of positive pressure wound therapy on CS wound may suggest these midwifery students are not provided with a comprehensive, factual information about negative pressure wound therapy as a means of caring for CS clients' wound. Al-Zarea [20] found in a study that final year university students recorded a higher level of knowledge score on oral health. Evidence suggest that adequate knowledge can lead to good practices that improves quality of care and reduce maternal and perinatal mortality and morbidity [21, 22]. As discovered by some other experts, education and knowledge on how to care for the wound after surgery are critical measures to prevent SSIs [23-25]. Carneiro et al. [26] revealed that majority of final secondary school students studied had adequate level of knowledge on oral health but low level of oral health practices. Likewise, Silva et al. [27] found that though most of the respondents displayed good knowledge of nutritional and health values of fruits and vegetables, only few have adopted appropriate consumption of fruits and vegetables. This finding of Silva et al. agrees with the other experts that, it is not in all instances that knowledge acquired lead to practice.

This study recorded high level of knowledge on education for CS clients on wound care. This could be attributed to the students' level of education. However, no comparison could be made since the current study did not collect data from other students of lower level. Thus, these students could help prevent infections at CS surgical site. However, this does not guarantee that students would appropriately provide such education to CS clients. Moreover, about half of the students provided incorrect responses to whether breastfeeding can be done at any position. This result may indicate inadequate knowledge as a result of ineffective study of some of the students. Thus, many of these students are not equipped to educate CS clients on the best position for breastfeeding. Therefore, majority of these students are not in a position to communicate with their CS clients on the best position for breastfeeding which can affect how a CS client position her baby for breastfeeding such that it will not put a strain on her wound. There is the need for better clinical learning experience for these students. For instance, WHO [30] indicated that midwifery schools need to provide required school and clinical learning environment that deliver the knowledge and skills required of prospective midwives to meet the needs of their respective populations. For midwifery students to be equipped with the requisite knowledge, the International Confederation of Midwives stress on the rule that students should have sufficient midwifery practical experience in a variety of settings to be able to give the best of care to clients [31].

5. Conclusions

The study aimed at assessing the knowledge of midwifery students on the education of the CS clients on wound care. Almost all the final year students were knowledgeable about what CS, surgical site wound care and education to CS clients wound care. However, quite

a number of the students could not respond to whether (a) delivering of babies that have lower weight at term should be an indication for CS delivery, (b) care of surgical site after CS should involve application of positive pressure wound therapy and, (c) breastfeeding can be done at any position. Students believed their midwifery training has equipped them enough to educate on surgical site wound care to CS clients. This means these midwifery students have acquired the knowledge and skills necessary to meet the needs of their CS clients. Based on the conclusions of this study, it was recommended that the management of the three institutions maintain or improve on their teaching and learning processes to help maintain or increase the knowledge level of the midwifery students in these training colleges for excellent midwifery practice. Students of this study could not be assessed practically giving education to CS clients on wound care as was done in other studies because of the quantitative nature of this study.

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