

Effectiveness Of Preoperative Teachings On The Prevention Of Postoperative Complications To Patients Undergoing Caesarean Section At Gregorio T. Lluich Memorial Hospital (GTLMH), Iligan City

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Abstract: The study aimed to find out the effect of providing preoperative education on the prevention of complications after the surgery in clients undergoing caesarean surgery at Gregorio T. Lluich Memorial Hospital (GTLMH), Iligan City. Thirty (30) sample clients were randomly picked and equally divided into two groups. Fifteen (15) clients for the experimental group and fifteen (15) clients for the control group. This research used a combination of experimental design and descriptive correlation design to know the effect of structured preoperative education on the complications postoperatively. Specifically, the experimental design involved in giving the structured preoperative education to patients having elective caesarean section to investigate the effect of preoperative education on the postoperative outcomes of the control and experimental groups. Results showed that there is no significant relationship between personal data of the clients and postoperative outcomes. However, both groups (experimental and control) shows significant relationship in postoperative outcomes. For experimental group (with preoperative teachings) shows almost no postoperative problems arose as compared to control group in the context of problems in respiratory, deep vein thrombosis, and wound dehiscence. Elective caesarean sections for pregnant women need preoperative health teachings as way in preparation for the surgical intervention to decrease possible postoperative outcome problems. The researcher aimed to evaluate the effects of preoperative teachings in the prevention of postoperative outcome problems to patients undergoing caesarean section in Gregorio T. Lluich Memorial Hospital (GTLMH) in Iligan City. This study can be used as a lead and guide the students' clinical experience in the operating room and recognized the importance of including preoperative health teachings to their nursing care plans on patients having surgical interventions. This study could also be suggested to the hospital to strictly observe implementation of preoperative health teachings to their clients' scheduled for surgery.

Keywords: Preoperative teachings, Postoperative complications, Prevention, Caesarean section

1. Introduction

Pregnancy is a condition that always tests the resiliency of women and their threshold to pain. Thus, all pregnant mothers wished for a normal delivery to experience the giving of birth to their child. Apparently, giving birth is one experience that gives a woman a sense of fulfillment. However, women were never sure of the type of delivery that they have to undergo. They may either have normal deliveries or a caesarean section, a surgery done to remove the baby from the mother's womb. As observed, women enduring caesarean section need a special interference to cope with the surgical procedure and that is, the importance of giving preoperative care. Preoperative care is the preparation of a patient prior to a scheduled surgical intervention. It includes both physical and psychological preparation. Clients who are physically and psychologically ready for surgical intervention tend to have an improved surgical outcome. Preoperative teaching meets the patient's need for information regarding the surgical experience, which in turn alleviate most of their fears. Preoperative care is highly significant prior to any invasive procedure, regardless whether the procedure is less invasive or a major surgery. Surgeries are seen as stressors that trigger preoperative anxiety. Preparing the clients for surgical intervention through preoperative health teaching becomes crucial to allay anxiety level. With the growing number of surgical interventions being performed worldwide, postoperative complications are also increasing proportionately. Prevention of these postoperative complications is a high medical priority. Preoperative

education to clients, including provision of preparatory information about the correct behavior after surgical procedure, could improve the postoperative outcome, but the evidence on this is inconclusive. Postoperative outcomes may either be universal or specific, depending on the type of surgical intervention undertaken by the client and should be managed on the client's mind. Common postoperative problems include postoperative fever, atelectasis, wound infection, embolism and deep vein thrombosis (DVT). The highest incidence of these problems arising after the surgical intervention is between one and three days after the surgical intervention. However, specific complications occur in distinct temporal patterns: early postoperative, several days after the surgical intervention, throughout the period postoperatively, and in the late period postoperatively. As a nurse and at the same time a clinical instructor in one of the special areas in nursing, which is the operating room, researcher learned that it is very important to know the different postoperative problems probably arising in postoperative patients. Preoperative teachings and nursing management are sought in the study so that they can be used as a guide to the students' clinical exposure in the operating room. Such knowledge may help prevent the occurrence of postoperative problems in patients going through caesarean section in Gregorio T. Lluich Memorial Hospital (GTLMH), Iligan City, where the College of Health Sciences is affiliated to and thereby help the patient physically, emotionally, and financially.

2. Statement of the Problem

This study aimed to assess the effect of preoperative teachings in the prevention of postoperative problems of clients going through caesarean section in Gregorio T. Lluich Memorial Hospital (GTLMH), Iligan City. Clients meeting the following criteria served as the subjects of this study: (1) those admitted under non-emergency conditions, preoperative teaching could be done in the night before surgical intervention, and (2) those scheduled for surgical procedure which involves caesarean section. Clients admitted on February 8 to February 29, 2016 served as the control group, while patients admitted on March 1 to March 31, 2016 served as the experimental group. The structured preoperative teaching plan were limited only to those instructions related to deep breathing exercises, coughing exercises, early ambulation, leg exercises, and turning exercises. The postoperative outcomes were limited to respiratory complications, deep vein thrombosis, and wound dehiscence as evidenced at least two or more of the following: (1) purulent tracheal sputum production/secretion or change in sputum character; (2) pyrexia over 37.5°C (oral/tympanic) or over 38.5°C (rectal); (3) total peripheral white blood cell (WBC) count > 12 g/L or WBC < 4.5 g/L or > 15% immature neutrophils (bands), regardless of total peripheral WBC count; (4) chest X-ray or CT scan findings (anterior-posterior (ap) or posterior-anterior (pa) and, if possible, lateral views) in agreement with the clinical diagnosis of bacterial pneumonia, that is, the appearance of new, progressive pulmonary infiltrate(s) attributable to infectious etiology; (5) antibiotics prescribed for chest congestion; (6) any notation of respiratory complications in the doctor's progress notes or discharge summary; (7) clinical evidence of painful, swollen, warm, livid leg) of a previously unknown thrombosis located in a deep leg or pelvic vein; and (8) postoperative absence of continuity of the abdominal fascia in combination with wound dehiscence requiring re-intervention, while the patient is in the hospital up to 30 days after surgery.

3. Methodology

The research utilized a combination of experimental and descriptive correlation research design to determine the effect of structured preoperative teaching plan on the postoperative problems (respiratory complications, deep vein thrombosis, and wound dehiscence) of clients undergoing caesarean section. Specifically, the experimental design was in administering of structured health teachings before the patients undergo elective caesarean section to know the effect of preoperative teachings on the postoperative outcome problems of the control and experimental groups. On the other hand, the qualitative aspect of the study used the descriptive research design to provide an accurate portrayal or account of the characteristics of the control and experimental groups while correlational research design was used to assess if preoperative education in coughing, deep breathing, leg exercises, turning to sides, and early ambulation decreases postoperative problems.

3.1. Respondents of the Study

The subjects included in this research study were clients who were scheduled for an elective, non-emergency caesarean section and who were expected to require at least an overnight hospitalization so that preoperative teaching can be

done the evening before surgical intervention. A total of 30 clients were targeted as potential subjects in this study. Those subjects who were admitted in GTLMH, Iligan City from February 8 to 29, 2016 were randomly assigned to the control group. Those subjects who were admitted from March 1 to 31, 2016 were randomly assigned to the experimental group. The postoperative care of both the experimental and control groups were not to be directly affected by the investigator. The only difference between the two groups, were the preoperative teaching were done only for the experimental group.

3.2 Research Instruments Used

This research study used a structured preoperative teaching plan containing the health education provided to the subjects at least the evening prior to their scheduled surgical operation. This structured preoperative teaching plan has been developed by the researcher from the review of literature related to the interruption of respiratory complications, deep vein thrombosis, and wound dehiscence of clients going through cesarean section. The structured preoperative teaching plan involved in explaining the procedures to the clients. The researcher demonstrated how each step was to be performed and asking the subjects to return-demonstrate the procedure to find out if they were performed correctly. The demonstration of procedures was repeated until the researcher was satisfied with the performance of the subjects. Part I of the questionnaire used is on the personal data of the respondents such as age, civil status, and highest educational background. Part II is the preoperative teachings done to the patient, and Part III is the postoperative problems experienced by the patients. Estimated time frame for the duration of the demonstration and return-demonstration took approximately one hour. To reinforce the demonstration of procedures, the researcher also distributed an instruction sheet (pamphlet) of the preoperative teachings with pictures to the subjects, which contain the instructions on how to perform the exercises. Additionally, the researcher also used a developed master chart for each of the subjects comprising all information related to the study including the socio-demographic profile of the subjects; any notation of changes in the temperature; notation of purulent tracheal sputum production/secretion or change in sputum character; laboratory results of the peripheral white blood cell (WBC) count; doctor's order of any antibiotics prescribed for chest congestion; results of X-ray reports; and any notations of clinical evidence of painful, swollen, warm, livid leg) of a previously unknown thrombosis located in a deep leg or pelvic vein, and postoperative absence of continuity of the abdominal fascia in combination with wound dehiscence requiring re-intervention. An occurrence of at least two or more of the above mentioned signs and symptoms would indicate a postoperative complication. All data significant to the study were collected and recorded in the master chart of each of the subjects for statistical analysis, which commenced on February 8, 2016.

3.3 Statistical Technique

After collection and consolidation, it was tallied and encoded for statistical analysis. Descriptive and inferential statistics were used employing the following statistical tools. Frequency and percentage distribution were applied in the statement of the problem number 1, 2, and 3. Then for the

statement problem number 4 and 5 that deal with the significant relevance between variables, Pearson chi square correlation was applied. Lastly, to determine the significant difference between two groups, T-test was determined as the most appropriate tool.

- Frequency** is the total number of responses. Frequency of responses, including the respondents' personal profile was tallied for the computation of percentage value.
- Simple Percentage** is a part of a whole expressed in hundredths and was utilized to determine the frequencies and the percentages of the first variable. This includes the manner on how the items were rated after the consolidation of data. The formula for Simple Percentage is as follows:

$$P = (F_i/N) \times 100\%$$

where: F_i is the number of respondents and N is the total sample.

- Chi-Square.** This was used to establish the significant relationship between the demographic profiles of the clients in terms of age, civil status, educational attainment, and monthly family income, and the postoperative outcomes; and also the significant relationship between the preoperative teachings and the postoperative outcomes of patients who underwent cesarean surgery.

$$X^2 = \sum \frac{(O_i - e_i)^2}{e_i}$$

Where:

- X^2 = Value of chi-square
- O_i = Observed frequency
- E_i = Expected frequency

- T-test.** This was used to determine significant difference between two groups. This test also determined if the variable is significant to other variables to strongly conclude the statistical difference between variables.

4. Presentation of Findings

This explained and interpreted the responses of the sample respondents toward preoperative teachings done to help prevent postoperative complications which include deep breathing exercises, coughing exercises, leg exercises, turning exercises, and early ambulation. It is similarly presented through frequency and percentage distribution. Furthermore, part of the survey questionnaire was presented through mean, standard deviation, and descriptive rating to explain and interpret the responses of sample respondents pertaining to the postoperative outcomes of the surgical patient in terms of respiratory complications, deep vein thrombosis, and wound dehiscence. On the other hand, the significant relationships between variables were presented through Chi-square showing the degree of relationship, p-value level, and the interpretation of the findings.

QUESTION ITEMS	Yes		No	
	F	%	f	%
	1. Practice in the same position you assume in bed after surgery: a semi-Fowler's position, propped in bed with the back and shoulders well supported with pillows.	14	93.3	1
2. With the use of hands in a loose fist position, let them rest lightly on the front of your lower ribs, with the fingertips against the lower chest to feel the movement.	13	86.7	2	13.3
3. Breathe out gently and fully as the ribs sink down and inward toward the center of the chest.	15	100	0	0
4. Take a deep breath through the nose and mouth, letting the abdomen rise as the lungs fill with air.	15	100	0	0
5. Hold this breath for a count of five.	15	100	0	0
6. Exhale and let out all the air through the nose and mouth.	15	100	0	0
7. Repeat this exercise 15 times with a short rest after each group of five.	13	86.7	2	13.3
8. Practice this twice a day preoperatively.	12	80	3	20

Table 1 shows the frequency and percentage distributions of the participant's deep breathing exercises. It reveals that in doing deep breathing exercise, almost all of the steps were properly executed by the patients (experimental group).

Following the proper process of deep breathing exercises could maximally benefit the patient in strengthening the musculoskeletal, neurovascular, and respiratory (muscles) systems (Bernier, M.J., 2003). According to Valkenet (2010), breathing exercise must be done to all patients who will undergo surgical procedure because it decreases tension or psychological stress to patients that could affect the intraoperative procedures and the postoperative outcomes. This implies that patients may execute the proper steps in deep or diaphragmatic breathing exercises but may get tired to repeat as such which could be attributed to the tension or psychological stress experienced due to the perceived surgical procedure. In this scenario, the role of significant others could be appreciated by conscientiously assessing the patient to perform the said exercise on its prescribed scope or range. The preoperative health teaching then must be done with the presence or involvement of the patient's significant others.

QUESTION ITEMS	Yes		No	
	f	%	f	%
	1. Lean forward slightly from a sitting position in bed, placing the fingers together, and putting the hands across the incisional site to act as a splint like support when coughing.	14	93.3	1
2. Breathe with the diaphragm as described on the previous page.	15	100	0	0
3. With the mouth slightly open, breathe in fully.	15	100	0	0
4. "Hack" out sharply for three short breaths.	15	100	0	0

Table 2 shows the frequency and percentage distribution of the participant's coughing exercises. It reveals that in doing coughing exercises almost all of the steps were properly executed by the patients (experimental group).

Coughing exercise is routinely done in adjunct to breathing exercises given that it is tolerated by the patient. Bernier (2003) and Valkenet (2010) settled that coughing exercises helps optimally boost the respiratory functions as it clears the lungs from secretions and may free from obstructions and aspirations.

Respondents Leg Exercises				
QUESTION ITEMS	Yes		No	
	f	%	f	%
1. Lie in a semi-Fowler's position and perform the following simple exercises to improve circulation.	15	100	0	0
2. Bend the knee and raise the foot—hold it a few seconds, then extend the leg and lower it to the bed.	13	86.7	2	13.3
3. Do this five times with one leg, then repeat with the other leg.	14	93.3	1	6.7
4. Then trace circles with the foot by bending it down, in toward each other, up, and then out.	14	93.3	1	6.7

Table 3 shows data on the frequency and percentage distributions of the participant's leg exercises. It also reveals that in doing leg exercises almost all of the steps were properly executed by the patients (experimental group).

Leg exercises are part of an ambulatory exercise being promoted by the health care provider before and after surgical procedure. Encouraging and enabling patient to ambulate promotes stability of blood circulation that helps in the transport of blood to the surgical site to promote healing. This in turn helps to decrease the probability of postoperative complications. According to Jie and Jiang (2012), leg exercises facilitates swift flow of blood in the entire system which also helps in the transport and absorption of essential nutritional needs of the patient.

Respondents Turning to the Side				
QUESTION ITEMS	Yes		No	
	f	%	f	%
1. Turn on the side with the top leg flexed most and supported on a pillow.	15	100	0	0
2. Grasp the side rail to help move to the side.	15	100	0	0
3. Practice diaphragmatic breathing and coughing while on side.	14	93.3	1	6.7

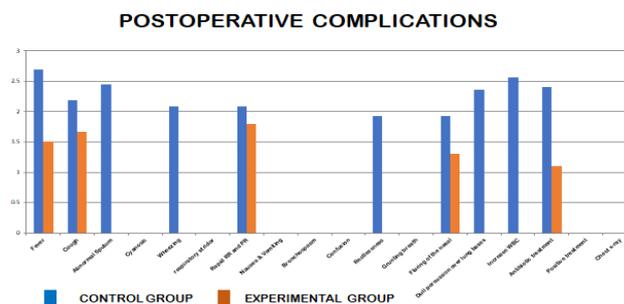
Respondents Getting Out of Bed				
QUESTION ITEMS	Yes		No	
	f	%	f	%
1. Turn on the side.	12	80	3	20
2. Push oneself up with one hand as you swing your legs out of bed.	14	93.3	1	6.7
3. Practice diaphragmatic breathing and coughing while on your side.	14	93.3	1	6.7

Data in Table 4 shows the frequency and percentage distribution of the respondent's turning to the side exercises. It reveals that in turning to the side as part of exercise almost all of the steps were properly executed by the patients (experimental group).

Assisting patient in turning to the side of the bed is part of promoting ambulatory exercise to patient (Jie and Jiang, 2012). Turning patient also in a desired position while doing a health intervention promotes comfort and relaxation that could eventually decrease anxiety and discomfort due to the presence of surgical site and trauma experienced during surgical procedure. Turning of patients from side-to-side may also prevent possible bedsores. Patients may uncomfortably do diaphragmatic or deep breathing exercises in a side lying position, otherwise contraindicated to other positions such as supine, low-fowlers, and high fowlers. It might be also taxing for patients to turn side lying while simultaneously doing a deep breathing exercise. According to Langhammer (2007) study on patients with musculoskeletal problems, turning exercises has wider consideration. Limitations are strictly observed among patients with head, neck, and back injuries as well as those with surgical incisions. The frequency and percentage

distribution of the respondent's getting out of bed exercises. It reveals that in going out of bed as part of exercises almost all of the steps were properly executed by the patients (experimental group). This procedure as part of the health teaching done is the simplest yet essential. Teaching patient from getting out of bed through swinging hands and legs promotes doing range of motion exercises to patient. This improves blood circulation, lessens anxiety, and promotes independence. Only few participants of the study (patients) resisted getting out of bed as evidenced by a response of not turning on one side (3 or 20%) and not swinging of hands and legs out of bed (1 or 6.7%).

Table 5 below shows the Comparison (Control vs. Experimental) of Postoperative Complications of cesarean patients in terms of respiratory complications.



5. Conclusion

Specifically, this study sought to answer the following questions regarding the profile of the respondents in terms of age, civil status, highest educational attainment, and family monthly income. In addition, if the preoperative teachings done such as deep breathing exercises, coughing exercises, leg exercises, turning exercises, and early ambulation, and early ambulation helped in the prevention of postoperative complications. Furthermore, it assessed answered the operative outcomes in terms of respiratory complications, deep vein thrombosis, and wound dehiscence. Finally, it sought to determine any significant relevance in terms of the personal profiles of the surgical patients (control group) and their postoperative results; significant relevance between the personal profile of the surgical patients (experimental group) and their postoperative outcomes; the significant relationship between the preoperative teaching plan provided to the surgical patients and their postoperative outcomes; and the significant difference between the control group (those not provided with preoperative teachings) and the experimental group (those provided with preoperative teachings, in terms of their preoperative outcomes. The experimental design involved in administered structured preoperative teaching to patients having elective cesarean section to investigate the effects of preoperative education on the postoperative outcomes of the control groups and experimental groups. On the other hand, the qualitative aspect of the study utilized the descriptive research design to provide an accurate portrayal or account of the characteristics of the control and experimental groups while correlational research design was used to determine if preoperative education in coughing, deep breathing, leg exercise, turning to sides, and early ambulation would decrease postoperative complications. The data shows that the personal data of the respondents in terms of age, civil status, educational attainment, and monthly

family income have **no significant** relationship to the postoperative complications of patients who underwent cesarean procedure as evidenced by computed p value of .321, .076, .057, and .325 respectively which is higher than 0.01 alpha level of significance. Therefore, the null hypothesis number one (1), H_{01} : There is no significant relationship between the personal profile of the surgical patients (control group) and their postoperative outcome is not accepted. In the same manner that the personal data of the respondents in terms of age, civil status, educational attainment, and monthly family income has **no significant** relationship to the postoperative complications of patients who undergone cesarean procedure as evidenced by computed p value of .381, .353, .239, and .105 respectively which is higher than 0.01 alpha level of significance. Therefore, the null hypothesis number two (2), H_{02} : There is no significant relationship between the personal profile of the surgical patients (experimental group) and their postoperative outcome is not rejected. However, findings shows that the preoperative teachings plan in terms of deep breathing or diaphragmatic breathing and coughing exercises has **significant** relationship to the postoperative complications of patients who underwent cesarean procedure as evidenced by computed p value of 0.004 and 0.000 respectively which is higher than 0.01 alpha level of significance. On the other hand, preoperative teaching plan in terms of leg exercise and turning to the side of bed has **no significant** relationship to the postoperative complications of patients who underwent cesarean procedure as evidenced by computed p value of .674 and 1.000 respectively which is higher than 0.01 alpha level of significance. Thus, it can be concluded that pregnant patients who will be undergoing cesarean procedure need preoperative health teachings as preparation for surgical procedure. The results of the survey suggest that the combined descriptive-experimental research that was conducted is effective in decreasing possible postoperative complications. As inferred from the findings, preoperative teaching plan done to patients who will be undergoing cesarean surgical procedure shows to be effective in preventing postoperative complications in the context of respiratory, deep vein thrombosis, and wound dehiscence as evidenced by less complications identified compared to patients who did not have preoperative teachings. Thus, the researcher concluded that preoperative teaching plan must be applied to all patients not only to those who will be undergoing cesarean procedure but all those scheduled for surgical procedure or operation. This may contribute in general, to decreasing different postoperative complications. The investigation proved that the preoperative teachings such as deep breathing, coughing, leg and turning exercises and early ambulation are effective in preventing caesarean postoperative complications such as respiratory problems, deep vein thrombosis, and wound dehiscence. The preoperative teachings done by the investigator could be recommended in the clinical area as a protocol and to become part of a regular nursing routine. Findings further imply that preoperative teachings are indispensable which should not be done only to patients but to significant others as well. The family members of the patient could do further health teachings, before and after surgical procedure. Giving attention to health teachings as integrated in the health care plan (independent, dependent, interdependent, and collaborative) of the nurse promotes quality outcome.

5.1 Recommendations

Based on the findings of this study, recommendations were formulated. Preoperative teachings done by the researcher to the patients scheduled for caesarean procedure could also be done to patients with different case or condition who will undergo surgical procedure. This study is highly recommended to the clinical areas, chief nurse, nursing supervisor, and managers to give preferential attention on health teachings before surgical procedure as it has been found crucial in the prevention of postoperative complications. The possibility of formulating preoperative teaching protocol can be proposed in the clinical area. Since this study has no further support from the local study, an extensive, longitudinal, and other experimental method of study is also recommended to strongly support findings of this undertaking. The findings of the study can be confirmed and strengthened, thus the researcher recommended conducting more study on the topic and may be focusing on in depth application of preoperative teachings to further support and validate the study. It is also imperative that the knowledge, skills, and attitude of the student nurses on the preoperative care be enhanced and enriched. The study confirmed that Preoperative care is very crucial in the prevention of post-operative complication to caesarean patients. It is finally suggested that, since pregnancy at an early age pose a serious health and psychological risk to young women there is a dire need for hospital and academic institutions to provide massive information on the importance of preoperative care on caesarean patients. Thus more training of nurses on this aspect should be a requirement to be administered to minimized postoperative complications.

6. References

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