

# Effect of Implementing Nursing Process on Women's Health after Cesarean Birth at the Maternity Teaching Hospital/Erbil city

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**Abstract**-The incidence of cesarean birth has increased dramatically in the last 25 years from less than 5% in 1965 to 22.9% in 2000. Maternal complications occur in 25% to 50% of cesarean births. So proper nursing care is a main factor in preventing and treating complications, after cesarean birth, especially when it is implemented according to nursing process. The main objective of the study was to determine the effect of implementing nursing process on health status of women who had cesarean birth. A quasi-experimental study was conducted in the Maternity Teaching Hospital in Erbil city, during the period April 1<sup>st</sup>/2008-September 30<sup>th</sup>/ 2009. The sample of the study included 66 women who had cesarean birth, 33 of them were in the intervention group and other 33 in the control group. Data were collected through the use of one interview questionnaire and three checklists. The intervention group received care from the investigator according to nursing process, while the control group had usual nursing care from the staff of the hospital. Both groups were assessed for the effect of type of nursing care on health status of mothers in hospital. During the period of hospitalization the study group had less health problems and recovered earlier than the control group, as the percentage of mothers who had fatigue, dysurea, headache, insomnia and constipation was lower than the percentage of mothers in the control group and the percentage of mothers who initiated breast feeding was higher among study group than control group. It is concluded that nursing care according to nursing process is more effective in improving mother's health after cesarean birth than usual care, therefore implementing such type of nursing care is recommended.

**Keywords**-nursing process, women's health, cesarean birth.

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## I.INTRODUCTION

Pregnancy is considered a normal physiological process, but sometimes due to many factors, intervention is needed to accomplish the process of labor and delivery. One of these interventions is cesarean section (CS) which means an operative procedure whereby fetus(es), are delivered through an incision on the abdominal and uterine walls <sup>[1,2,3,4]</sup>.

The incidence of cesarean birth has increased dramatically in the last 25 years two to three folds from the initial

rate of about 10 percent, despite advances in surgical methods <sup>[5, 2]</sup>. The incidence of cesarean birth has increased from less than 5% in 1965 to 22.9 % in 2000 <sup>[6]</sup>. The Centers for Disease Control and Prevention (CDC) reported that CS accounted for about 29 % of all deliveries in the United States during 2004, and to 30.2% by 2005, and 33% seen for Latin America in the same year <sup>[7]</sup>.

In 2001 an estimated 21.4% of all deliveries in England and Wales were by CS, a fivefold increases since 1971. The CS rate is 22 % in Egypt, in most of the Arab countries CS rate ranges between 5-15 %. In Brazil, there are hospitals with 100% CS rate. In Delhi, CS rate in teaching hospitals currently ranges between 19-35 %. In Sweden, Denmark and Netherlands, the CS rate still close to 10% <sup>[8]</sup>. The proportion of cesarean section in Australia climbed from 19.4% of all births in 1994 to 29.1% by 2005 <sup>[7]</sup>.

It is worth mentioning that the incidence of cesarean section for the years 2006, 2007 and 2008 in three governorates according to the records of Ministry of Health/ Kurdistan Region were as following: in Erbil 10.61%, 14.53 %, 14.57 %; in Duhok 9.39 % , 10.81 , 11.84 % and in Suleimany 11.36 % 23.27 %, 17.57% <sup>[9]</sup>. Generally the incidence of CS in Iraq included 20 % for governmental hospitals and 60% for private hospitals in 2008 <sup>[10]</sup>.

The consensus recommendation for optimal CS rate of 10-15 % was made by WHO in 1985. Efforts to bring down the rate have failed and it is on a steady rise <sup>[8]</sup>.

Cesarean section is considered as a major abdominal surgery that may have many complications after surgery for the mother and the fetus. Maternal complications occur in 25% to 50% of births and include aspiration, pulmonary embolism, shock, sepsis, wound infection, wound dehiscence, thrombophlebitis, hemorrhage, urinary tract infection, injuries to the bladder or bowel and complications related to anesthesia <sup>[11,6,7]</sup>. Maternal morbidity is increased dramatically with cesarean compared with that of vaginal delivery. Principal sources are puerperal infection, hemorrhage, and thromboembolism <sup>[12]</sup>. Late complications include menstrual irregularities, chronic pelvic pain or backache, and scar rupture in future pregnancy <sup>[2]</sup>. In a population-based case-control study from North Carolina, which encompassed the 7-year period from 1992 to 1998, cesarean delivery was associated with an almost fourfold risk of death, even after controlling for pregnancy complications <sup>[12]</sup>.

Hall and Bewley (1999) showed that whereas emergency cesarean delivery was associated with an almost nine fold risk of maternal death relative to that of vaginal delivery, even elective cesarean delivery was associated with an almost threefold risk <sup>[12]</sup>.

Lydon-Rochelle and colleagues reported that rehospitalization in the 60 days following cesarean delivery was nearly twice as common as after vaginal delivery, 17 versus 10 hospitalizations per 1000 women delivered <sup>[12]</sup>.

A woman with such complications is at risk from three points of view: her own health, her future childbearing potential, and her ability to bond with her new infant. Fortunately, most postpartal complications are preventable and if they do occur, the majority can be treated effectively <sup>[4]</sup>. After a cesarean birth, the new mother has postpartal needs similar to those of women who gave birth vaginally, in addition to needs similar to those of other surgical clients <sup>[13]</sup>.

Proper nursing care is a main factor in preventing and treating such complication, especially when it follows the scientific approaches, and of those approaches is nursing process. It is worth mentioning that Ida Jean Orlando is one of the first nursing theorists to write about nursing process, which is a problem solving approach that enables the nurse to provide care in an organized scientific manner. The goal of nursing process is to alleviate, minimize or prevent actual or potential health problems [14]. The 5 steps / components of nursing process are assessment, nursing diagnosis, planning, implementation and evaluation. It is the accepted standard for clinical practice established by the American Nurses Association [15].

Women after CS need continues assessment during hospitalization to find any problem in order to correct it as soon as possible. Because of the systematic and rational nature of the nursing process it can be considered as a good approach for complete assessment and diagnosis of patient's problems. The quality of nursing intervention and education have important role in decreasing the side effects of such operation and in helping women to better self care.

Results of previous studies indicated that patients who received care according to nursing process were more satisfied than patients who received usual nursing care, because nurses spend more time with patient and patient had more participation in their care [16].

In a Veterans Administration (VA) ambulatory psychiatric practice in Providence, Shea *et al.* [17] used Orlando's theoretical model with patient (N=76) having a bipolar disorder. Their research results indicated that there were: higher patients' retention, reduction of emergency services, decreased hospital stay, and increased satisfaction.

Tapp reported that nurses who took care of patients according to nursing process were able to diagnosis patient's problems and needs more properly and had more organized documentation of such problems [18].

In a pilot study on application of nursing process, Potter and Bockenbauer [19] found positive results after implementing Orlando's theory. These included: positive, patient-centered outcomes, a model for staff to use to approach patients and a decrease in patient's immediate distress. The study provided variable measurements that might be used in other research studies. Meamarian & Vanaki [16] conducted a study on implementing nursing process in a teaching hospital in a surgical ward in Iran. 18 staff nurses involved in the study. They were taught how to implement nursing process. The results included the following: increasing the rate of giving plan sheets to patients from 2% to 86%, decreasing days of staying of patients in the hospital from 6.44 to 5.37, increasing mean quality of discharge education practice by staff from 2.24 to 12.2, increasing mean of quality of documentation by staff from 2 to 23.4, increasing quality of care, increasing level of nurses' satisfaction, increasing self-esteem of the nurses, changing nurse's attitude regarding nursing care and decreasing energy consuming during care, increasing the ability of patients for self-care. Also they concluded that nurses need education regarding the application of nursing process, in addition to that the nursing process is a good approach for evaluation and controlling the nursing care.

Potter & Bockenbauer [19] conducted a study on implementing Orlando's theory in New Hampshire Hospital on 30 patients in psychiatric ward. They concluded that:

1. Implementing Orlando's nursing theory result in positive, patient-centered outcomes and a model for staff to use for patients care.
2. Orlando's Nursing Theory provides a "road map" for nursing staff to use when approaching patients.
3. Patient's levels of immediate distress decrease significantly when Orlando's Nursing Theory is used.

Since a study concerning nursing care after cesarean section according to nursing process was not done in Iraq generally and in Kurdistan region particularly, therefore it is the intention of

this study to find the effect of implementing nursing process on the mothers' health after cesarean birth.

## II. OBJECTIVES

The aims of the study were to find out the impact of implementing nursing process on the following aspects of mother's health after cesarean birth:

1. General condition (vital signs and pain)
2. Body system including:
  - a- Reproductive system
  - b- Urinary system
  - c- Gastrointestinal system
  - d- Integumentary system
  - e- Musculoskeletal system
  - f- Respiratory system
  - g- Neurological system

## III. PATIENTS AND METHODS

A quasi – experimental study was conducted on mothers who did cesarean section in Maternity Teaching Hospital. It is the oldest and the only governmental maternity teaching hospital in Erbil city. The medical and nursing staff of the hospital includes the following: Specialist physicians (26), resident physicians (73), midwives (29), nurses (101) including (11) nurses with baccalaureate degree, (32) with diploma and (58) nurses who graduated from nursing school.

The study was conducted during the period April 1<sup>st</sup> / 2008 - September 30<sup>th</sup> / 2009. Data was collected during the period August 27<sup>th</sup>/2008 – May 30<sup>th</sup>/ 2009.

Non probability (purposive) sample consisted of (66) mothers who had cesarean birth. The sample was divided into two groups by selecting the patients according to matching criteria then assigning the first one to the study group and the second to the control group as following:

- 1- Study group which included (33) mothers, who received nursing care by the investigator and according to nursing process.
- 2- Control group which included (33) mothers too, and who received usual nursing care by the hospital's staff.

Inclusion criteria: Both groups had the following matching criteria:

- a - Parity: 1- 8
- b - Age: less than 20 – 45 years
- c - Type of cesarean section: emergency and elective
- d - Type of incision: lower segment cesarean section
- e - Mothers who operated from 8: 00 am to 1: 00 pm.
- f - Citizen of Erbil city

Mothers who had the following chronic diseases prior to pregnancy were excluded from the study sample: cardiovascular diseases, diabetes Mellitus and patients who were discharged from the hospital during the first day of operation.

Prior to actual data collection, formal administrative approval was obtained to conduct this study from Maternity Teaching Hospital in Erbil city.

The following instruments were designed and constructed by the investigator after reviewing related literatures to collect the data.

**a.** An interview questionnaire form was developed for the purpose of data collection from mothers. It consisted of (7) parts:

**Part I-** Demographic data: which consisted of information about participant's personal characteristics including: age, years of formal education for both wife and husband, and occupation of both wife and husband.

**Part II-** Information about mother's reproductive history including age of menarche, age of marriage, age of first pregnancy, number of gravida, para, type of previous method of birth including normal vaginal delivery and cesarean section.

**Part III-** Mother's medical history including information about presence of chronic diseases such as anemia and urinary tract problems.

**Part IV-** Information regarding health problems during last pregnancy like pregnancy induced hypertension, gestational diabetes, anemia, early and late bleeding and hemorrhoid.

**Part V-** Information about antenatal care such as attendance to antenatal clinic, trimester of pregnancy in attending clinic and place of attending antenatal care.

**Part VI-** Information about the present delivery like type of cesarean section, and indication of cesarean section.

**b. Checklists**

1- Checklist (1): assessment of women health status after cesarean birth which includes assessment of vital signs, pain and the following systems: reproductive, urinary, gastrointestinal, integumentary, musculoskeletal, respiratory, neurologic.

2- Checklist (2): possible nursing diagnosis and nursing intervention and evaluation for women after cesarean birth which included 14 nursing diagnosis.

**c- Equipments for data collection**

**a.** Mercury thermometer to measure mother's body temperature.

**b.** Mercury sphygmomanometer for measuring the blood pressure of mothers.

**c.** Stethoscope for checking the blood pressure, bowel and chest sound.

**d.** Peripad for determining the amount of lochia.

It was decided to conduct the study during the first day of operation in order to have better interaction between the investigator and women. Both study and control groups were assessed three times by the investigator during first and second day of operation and before their discharge from the hospital. The investigator use to spend about two hours with each mother of the intervention group and one hour with each mother of the control group.

**1. Study group:** nursing care according to nursing process was rendered to mothers who had cesarean section and as follows:

First day of operation:

a- Morning shift from 9:00 am to 1:00 pm .

b- Evening Shift: 7:00 pm – 10:00 pm.

Second day of operation:

a- Morning shift: 8:00 am – 10: 00 am., that mothers discharged from the hospital.

Study sample received nursing care according to nursing process which had the following steps:

**a. Assessment :** which included general survey and assessment of body system by taking information, observation, palpation, auscultation and measurement by related instruments.

- Assessment of vital signs: Temperature of mothers was checked by a mercury thermometer, through axilla for 5-7 minute in each visit. Blood pressure was checked by mercury sphygmomanometer with stethoscope.
- Assessment level of the fundus and its firmness: Palpation of fundus by flat part of fingers started from above the umbilical to pubis and search the fundus in midline, left or right side of abdomen and the hand cups the uterus to determine firmness<sup>[20]</sup>.
- Assessment of lochia: A perineal pad was applied to perineal area for 1 hour. After that investigator observed the stain of pad. The volume of lochia was estimated as following:
  1. Scanty: less than 2.5 cm stain on peri-pad
  2. Light: 2.5 cm to 10 cm stain on peri-pad
  3. Moderate: 10 to 15 cm stain on peri-pad
  4. Heavy: saturated in 1 hour<sup>[20,21,22,23]</sup>

▪ Assessment of breasts: the breast was observed for shape of nipples and palpated by inner side of fingertips.

▪ Assessment of bowel sounds: by putting the stethoscope on the right upper quadrant and moving clockwise and listen for sounds of air and fluid moving through the bowel at least for 2 minutes<sup>[24,25]</sup>.

▪ Assessment of lower extremities: By observation and gentle palpation of the calf for finding redness, tenderness and increased skin temperature<sup>[21]</sup>.

▪ Assessment of chest sounds: By using the diaphragm of the stethoscope, auscultation begin over the patient's trachea and moving to the upper lobes, one side of the anterior chest and then on the other side, the middle lung lobes, auscultation laterally and if possible auscultation posterior chest, comparing sounds on both sides before moving to the next area<sup>[24]</sup>.

Findings were documented on proper sheet.

**b. Nursing diagnosis:** mother's actual and potential health problems were identified as the results of assessment then categorized and prioritized and documented.

**c. Nursing intervention:** required nursing care was rendered and documented for study groups' mothers after cesarean birth according to their nursing diagnosis (health problems) (checklist 2). In addition the investigator prepared an educational booklet in kurdish language to guide mothers for self care after cesarean birth. The booklet included the following information: bathing, dressing, perineal hygiene, breast care, incision care, ambulation and post operative and postpartum exercises, rest and activity, nutrition, medication and coping with pain, abnormal signs and symptoms, breast feeding, emotional adjustment, contraception, tips for husbands and follow up instructions.

**d. Evaluation:** health assessment was done according to outcome criteria in each shift and for both groups results were documented (checklist 2).

**2. Control group:** the sample didn't take intervention or education from the investigator, only they were assessed like the study group for knowing their problems.

For testing the validity of the interview questionnaire form and checklists, the investigator presented it to 16 experts in different fields. They were four nursing faculty, nine obstetrician and gynecologist, two general surgeon and one specialist in community medicine. Results were indicated that most of experts had agreed that the questionnaire and checklists were clear, relevant and adequate. There were certain modifications based on the experts' recommendations and suggestions.

Measuring the reliability of the checklists was not applicable because of changing patient's health status.

Study group received care according to nursing process from the investigator while the control group was not deprived from care as they received usual care from the hospital's staff.

In the present study, data were entered into a computer using the Statistical Package for Social Science (SPSS version 15). The following statistical procedures were applied:

- 1- **Mean and standard deviations** were used to summarize numerical variables and percentages were used for categorical variables.
- 2- **t-test** was used to compare between means of two independent samples.
- 3- **Chi-square test of association** was used to compare between proportions of the two groups.
- 4- **Fisher exact test** was used (in 2x2 table) when expected counts of  $\geq 20\%$  of the cells  $< 5$ .
- 5- **If P – value :**  $\leq 0.01$  was designated Highly Significant  
 $\leq 0.05$  was designated Significant  
 $> 0.05$  was designated Non Significant

**IV-RESULTS**

The mean age and standard deviation of the study sample of intervention and control groups were (28.42 ± 4.75) vs. (28.42 ± 5.66), respectively. Table (1) indicates that there were no significant differences between intervention and control groups concerning means and standard deviations of the following items:

years of formal education of mothers and husband and occupation of mothers.

**Table (1)**

Variable	Intervention group		Control group		t- test	P- value
Years of formal education of mother						
$\bar{X} \pm SD$	6.52 ± 5.78		6.03 ± 4.66		0.375	0.709
Years of formal education of husband						
$\bar{X} \pm SD$	8.55 ± 5.02		7.36 ± 4.1		1.046	0.299
Occupation of mother						
	No.	%	No.	%	$\chi^2$	P-value
Employed	9	27.3	6	18.2	0.776	0.378
House wife	24	72.2	27	81.8		
<b>Total</b>	<b>33</b>	<b>100</b>	<b>33</b>	<b>100</b>		

Table (2) indicates that the highest percentage (57.6%, 60.0 %) respectively, of the study sample among both intervention and control groups respectively, did elective cesarean sections and there was no significant difference between two groups. The highest percentage (60.6 %, 45.5 %) respectively, indications of cesarean section among both intervention and control groups were maternal causes.

**Table (2)**

Variables	Intervention group		Control group		$\chi^2$ Value	P- value
	No.	%	No.	%		
Type of cesarean section						
Emergency	14	42.4	13	39.4	0.063	0.802
Elective	19	57.6	20	60.6		
Indication of cesarean section						
Fetal	5	15.2	14	42.4	---	---**
Maternal	20	60.6	15	45.5		
Both of them	7	21.2	4	12.1		
Patient request	1	3	0	0		
<b>Total</b>	<b>33</b>	<b>100</b>	<b>33</b>	<b>100</b>		

\* Fisher's exact test was applied . \*\*  $\chi^2$  and Fisher's exact test could not be applied.

There was significant difference between study and control groups regarding following problems during 2<sup>nd</sup> or 3<sup>rd</sup> visit: dry oral mucus membrane, feeling of thirst, knee joint pain, backache and blurred vision, as show in table 3.

**Table (3)**

Problems	Study group No. (%)	Control group No. (%)	$\chi^2$	P- value
Dry oral mucus	8 (24.2)	24(54.5)	6.346	0.012
Feeling of thirst	11(33.3)	22(66.7)	7.333	0.007
Knee joint pain	3(9.1)	11(33.3)	5.802	0.016
Backache	14(42.4)	25(75.8)	7.584	0.006

The percentage of following problems in study group were less than control group in 3<sup>rd</sup> visit, but there is no significant difference between them: moderate or severe abdominal pain, feeling of incomplete emptying bladder, dysuria, feeling of hunger, constipation, fatigue, chest pain, insomnia, headache, pale face and perspiration as show in table 4.

**Table (4)**

Problems	Study group No. (%)	Control group No. (%)	$\chi^2$	P- value
Moderate or severe abdominal pain	8(24.2)	9(27.3)	0.079	0.778
Feeling of incomplete emptying bladder	0(0)	2(6.1)	---	---**
Dysuria	4(12.1)	11(33.3)	---	---**
Feeling of hunger	6(18.2)	8(24.2)	0.363	0.547
Constipation	8(24.2)	10(30.3)	0.306	0.547
Fatigue	8(14.2)	11(33.3)	0.665	0.415
Require help for mobility	13(39.4)	16(48.5)	---	---*
Chest pain	0(0)	2(6.1)	---	0.492*
Insomnia	14(42.4)	18(54.5)	0.971	0.325
Headache	4(12.1)	8(24.2)	1.630	0.202
Pale face	25(75.8)	28(84.8)	0.862	0.353
Perspiration	8(24.2)	13(39.4)	1.746	0.186

\* Fisher's exact test was applied . \*\*  $\chi^2$  and Fisher's exact test could not be applied.

The percentage of breast feeding, good bowel movement and independent self care in study group were higher than in control group during 3<sup>rd</sup> visit as show in table 5.

**Table (5)**

Items	Study group No. (%)	Control group No. (%)	$\chi^2$	P- value
Breast feeding	27(81.8)	26(78.8)	0.096	0.757
Good bowel movement	25(75.8)	23(69.7)	0.306	0.580
Independent self care	15(45.5)	11(33.3)	---	---**

\* Fisher's exact test was applied. \*\*  $\chi^2$  and Fisher's exact test could not be applied.

## V-DISCUSSION

There was no significant difference between intervention and control groups concerning years of formal education of both wives and husbands. Results of the present study indicated that women who were included in study (both intervention and control groups) had low mean years of formal education (6.52 , 6.03 years respectively). It is worth mentioning that low level of education could affect the abilities of mothers to learn new aspects of self care after CS.

Goodburn *et al* [26] reported that mothers attending the out-patients clinic in a program of primary health care in rural west Bengal were interviewed for obtaining personal, socioeconomic, and health data. 65 of the mothers were educated (defined as primary level and above of education) and 136 were not. The uneducated group had experienced a greater rate of child loss at 130/1000 births compared to 58/1000 births in the educated group. Educated women had a significantly different attitude towards health matters, and towards the uptake of services for their own and their children's health. The strategies used by the educated mothers were significantly more appropriate than those of their non-educated counterparts with regard to pregnancy and childbirth. During illness significantly more educated women chose to consult a medically-qualified person instead of the traditional healer. There was also a greater trend for the educated women to be able to exercise autonomy in decision making on health related matters. The difference, however, was not significant. The educated women also benefited more from the primary health care program.

The highest percentage (57.6%, 60.6%) respectively of the study sample in both intervention and control groups had elective cesarean section. It is well known that a potential maternal benefit of elective cesarean delivery is the avoidance of emergency CS, which is associated with substantial increases in morbidity and

mortality. Avoiding emergency cesarean delivery has also been shown to enhance the pregnant woman's involvement in and satisfaction with the process of childbirth<sup>[27,28]</sup>.

In a prospective population-based study that was conducted by Renate and colleagues<sup>[29]</sup> in Norway on 2751 cesarean deliveries, the percentage of complications were 16.3 % in elective CS and 24.1% in emergency CS.

Indication of CS among the highest percentage (60.6%, 45.5%) respectively of both intervention and control groups was maternal, (51.5%, 30.3%) respectively of the study sample in both intervention and control groups had CS because they had previous CS. It is worth mentioning that one-third of all CS performed each year in the United States are for women with previous cesarean delivery<sup>[30]</sup>.

Morbidity reports reveal that only 9.5% of women delivered by cesarean section had no reported morbidity in the postnatal period. The evidence suggests that there is also a wide variation in reported morbidity and scanty research on this area<sup>[31]</sup>.

It is worth mentioning that all women after CS in Erbil Maternity Teaching Hospital receive Glucose/water (500 cc, every 6 hours) after operation until bowel sound return back then oral fluid is allowed. In addition to that all of them also are given prophylactic antibiotics for 48 hours which include: Metronidazol infusion (500 mg, 50 cc, IV, 3 times daily) and Ampicilin vial (500 mg, IV, every 6 hours) or Ampiclox vial (500 mg, IV, every 6 hours) or Cefotaxime vial (1g, IV, every 12 hours).

After discharge the following drugs are given: Cefixim tablet (400 mg, daily, orally) and Metronidazol tablet (500 mg, 3 times daily, orally) and/or Ferrofolc tablet (Folic acid 0.4 mg, 200 mg ferrous , daily, orally) .

Nursing intervention which was rendered to the study group by investigator include the following: allow sips of fluid when oral intake is allowed and increased oral fluid intake as tolerated and encouraged the mother for more intake fluid in addition to administration of medication.

Results of the present study indicated, that the highest percentage (54.5 %, 54.5%) respectively, of the study sample in both intervention and control groups had moderate to severe abdominal pain may be due to gas distention and surgery during 1<sup>st</sup> visit and this percentage increased during 2<sup>nd</sup> visit and the reason for that might be mothers started to take oral diet, without bowel motion, and as Lubetkin & Tomasulo<sup>[32]</sup> stated that after the CS procedure, a significant amount of gas may accumulate in the abdomen following this type of surgery. The gas and pain both begin to decrease after the patient becomes mobile.

The hospital routine for reducing pain after CS was the following: one ampoule of Diclofenac (75mg / 3ml, IM, on need), Mefnamic acid capsule (250 mg, 3 times daily, orally) as needed, Bisacodil (Laxodyl) suppository (5 mg, twice daily, suppository) and all women encouraged for early ambulation in the first day of operation.

Nursing intervention which was rendered by investigator to intervention groups include the following:

1. Helping mothers to be out of bed and move.
2. Explaining to the mother the advantages of early ambulation.
3. Encouraged the support person to bring semi-fluid diet which contain vegetable and protein for the mother from home as this was not given in the hospital.

The highest percentage of both intervention and control groups had mild pain at the site of CS and this is considered normal because women who undergo cesarean deliveries are more likely to report pain to be a problem in the first 2 months after delivery. In addition a national survey in U.S of more than 1500 women who had delivered in the prior 24 months found that those who delivered by CS reported that incision pain was a major problem 25% of the time, and a minor problem 83% of the time<sup>[33]</sup>.

The intervention group was encouraged by the investigator to breastfeeding their babies through education, demonstration and re-demonstration of breastfeeding and helped them to take comfortable position during breastfeeding and a

booklet including the topic of breast feeding was distributed to all mothers of that group. The percentage of breast feeding among intervention group was higher (81.8%) than that of control group (78.8%). These results are in agreement with previous literature which reported that initiation of breastfeeding is often delayed after CS.

Udy<sup>[34]</sup> reported that mothers who have cesarean are less likely to breastfeed, for many reasons like: mother is dealing with pain, fatigue, possibly stress, and even trauma. The incision itself causes the mother difficulty in finding a comfortable position in which to nurse. In addition initiation of breastfeeding is often delayed, because mothers who have delivered via CS often need some extra time to recover before they physically feel like holding and nursing their new baby. Babies born via CS may be somewhat drowsy and lethargic, especially if the mother was exposed to anesthetics for a prolonged period of time during labor. This doesn't mean that breastfeeding won't be successful, but it can mean that the milk may take a little longer to come in than it would after a vaginal birth. The baby may need some extra encouragement and stimulation in order to stay alert during feeding, but this period of lethargy only lasts a short time.

Result of a prospective, longitudinal study was conducted by Rowe-Murray & Fisher<sup>[35]</sup> on 203 primiparous women in Metropolitan hospitals in Melbourne and Australia, revealed that women who had a cesarean section experienced a significant delay in initiating breastfeeding compared with women giving birth vaginally. They confirmed that CS was significant barrier to the implementation of Baby Friendly Hospital Initiative.

A meta-analysis of 9 studies found that babies delivered by cesarean were less likely to be breastfed compared with those who were delivered vaginally, and this effect seemed to be stronger for those delivered by unplanned cesareans. Another study of more than 580000 women carried out in California found that mothers who underwent planned or unplanned cesarean deliveries were nearly twice as likely to have breastfeeding difficulties compared with those who delivered vaginally<sup>[33]</sup>.

It is worth mentioning that the issue of breastfeeding was not discussed by the hospital staff with mothers. All maternity hospitals staff including nurses should encourage mothers to breastfeeding according to Baby Friendly Hospital Initiative that is a joint effort of the WHO and UNICEF to promote and support breastfeeding as the model for optimum infant nutrition<sup>[36]</sup>.

The majority of the study sample did not have bladder distention, feeling of incomplete emptying and urinary frequency. Although there was no significant difference between two groups concerning problem of dysuria but the percentage (84.8%) of mothers who did not had dysuria in intervention group was higher than the percentage (66.7%) of control group and that might be related to higher intake of fluid by mothers in intervention group.

It is worth mentioning that the issue of urination was not discussed with mothers in the hospital but the investigator encouraged the intervention group to drink water, tea, milk or juice and have frequent urination in addition to encouraging them to use the sanitary pads and proper cleaning and drying the perineal area.

One of the factors that interfere with normal micturation includes the numbing effect of anesthesia. Spontaneous voiding , however, should resume by 6 to 8 hours after birth, and bladder tone usually returns to normal levels 5 to 7 days later<sup>[37]</sup>.

Physiological changes in the bladder during pregnancy which lead to symptomatic urine retention. It is less well recognized, however, that 1-18% of women may have postpartum voiding difficulties; up to 18% have high residual volumes and the problem can necessitate readmission. Risk for voiding difficulties have been reported with cesarean section<sup>[38]</sup>.

It is worth mentioning that IV fluid (Glucose water, 500 cc, every 6 hours) was given to all mothers who undergo uncomplicated CS in the hospital until return of bowel sounds. Barclay & Lie<sup>[39]</sup> stated that a CS patient should receive approximately 3-4 liter of intravenous fluid from initiation of the intravenous line through the first 24 hours.

In addition both intervention and control groups were allowed by physician to oral feeding after establishment of bowel sounds and they were advised to take juice and biscuit that is considered improper practice because oral feeding is started with clear liquids and then advanced to light and regular diet [2,39]. Therefore the investigator advised the support person who was accompanying the mother in the hospital to bring soup which contain vegetable for the mother.

A systematic review compared early with delayed oral fluids and food after CS and included 6 RCTs. Three RCTs were limited to CS with regional anesthesia; the other 3 RCTs included both regional and general anesthesia. The intervention group varied (either allowing immediate intake fluids and food within 6-8 hours if the woman was hungry or thirsty). The comparison groups delayed oral intake for a minimum of 12 hours to 24 hours, or to the presence of bowel sounds and graduated intake. Results indicated that early eating and drinking was associated with reduced time to return of bowel sounds and reduced postoperative hospital stay. There was no difference between the intervention and control groups with respect to nausea, vomiting, and abdominal distention, time to bowel action, paralytic ileus and number of analgesic doses. Therefore it is recommended that women who are recovering well and who do not have complications after CS can eat and drink when they feel hungry or thirsty [40].

In another study which was conducted by Kim *et al.* [41] in Korean on 80 healthy women delivered by CS assigned alternately to either early initiation of oral feeding (within 8 hours) or conservative dietary management (if bowel sound auscultated and flatus had passed). The result were as follows: 1- the duration of intravenous fluid administration in the early feeding group (study group) was significantly shorter than those in the control group, 2- the study group had a significantly shorter mean interval to first gas passage.

Overall, the patient can be started on clear liquids 12-24 hours after an uncomplicated procedure, and diet can be given accordingly. When the patient is able to tolerate good oral intake, the intravenous fluids can be stopped [39].

most of the study sample, both intervention and control groups had mild to moderate desire for eating and the majority of them (63.6%, 72.7%) respectively, had dry mucus membranes during 1<sup>st</sup> visit which means that they need enforcement of fluid and food intake but this percentage was reduced among both groups during 2<sup>nd</sup> and 3<sup>rd</sup> visits. There was significant difference between the two groups in 2<sup>nd</sup> visit which means that the investigator helped and educated the intervention group to increase fluid intake.

The majority of the study sample (90.9 %, 93.9%) respectively, of both intervention and control groups had constipation during 1<sup>st</sup> visit, while the majority of them did not have that problem during the 2<sup>nd</sup> & 3<sup>rd</sup> visits. The percentage (75.8%) of intervention group who did not have constipation in 3<sup>rd</sup> visit was higher than that of control group (69.7%) and might due to more mobility which was encouraged by the researcher.

It is worth mentioning that after birth there is a decrease in gastrointestinal muscle tone and mobility. When these changes are coupled with relaxation of abdominal muscles, gaseous distention can occur during the first 2 to 3 days postpartum. Constipation may result from hemorrhoids, perineal trauma, dehydration, pain, fear of having a bowel movement, immobility, and medication. Bowel movement typically resume 2 to 3 days after birth, and normal bowel elimination patterns resume by 2 weeks postpartum [37].

The majority of the study sample (78.8%, 57.6%) respectively, of both intervention and control groups had strong desire to eat and that could contribute to taking adequate food intake which is necessary for rebuilding mothers, bodies after CS birth in addition to maintaining process of breastfeeding provided that mothers take high quality diet [42].

The majority of the study sample in both intervention and control groups was pale in all visits but the percentage (75.8%) of intervention group in 3<sup>rd</sup> visit was less than the

percentage (84.8%) of those in the control group with no significant difference between both groups concerning that. It is worth mentioning that pale face might due to the fact that (66.7%, 54.4%) of both intervention and control groups had anemia during pregnancy. The incidence of postnatal anemia is 25-30% [43]. In addition Lemone & Burke [44] stated Pallor, or paleness of skin may occur with shock, fear or anger or in anemia and hypoxia.

Majority of the study sample had pelvic backache during the 1<sup>st</sup> visits. The reported prevalence of postnatal backache varies from 17% to 46% [38]. Back pain after caesarean can be caused due to several different factors. The lower back muscles could be tight from lying on the operating room table or from the surgery itself. Abdominal muscles have been stretched during pregnancy which can make back pain worse. Back pain after caesarean could also be caused by the compression or irritation of the nerves at the lower end of the spine. The best remedy for the treatment of back pain after caesarean is gentle but effective exercises [22,45].

The percentage (57.4%, 75.8%) respectively, of back pain reduced among both intervention and control groups in 2<sup>nd</sup> visit as well as (69.7%, 48.5%) respectively, during 3<sup>rd</sup> visit, and there was significant difference between the two groups during 2<sup>nd</sup> visit. It is worth mentioning that the percentage of mothers in the intervention group who had back pain was lower than that of control group, that might be due to that mothers in the intervention group had more activity, as the investigator helped and encouraged them to be more mobile and doing exercise.

Early ambulation is the most significant general nursing measure to prevent postoperative complications. Since it was first advocated nearly 40 years ago, the value of early ambulation has been obvious. The exercise associated with walking (1) increases muscle tone; (2) improve gastrointestinal and urinary tract functions; (3) stimulates circulation, which prevents venous stasis and speed wound healing; and (4) increases vital capacity and maintains normal respiratory function [25].

Most of the study sample, both intervention and control groups required help for mobility and they were semi dependent regarding self care and that might due to fact that majority of both groups suffered from fatigue during 1<sup>st</sup> & 2<sup>nd</sup> visits, while the percentage (75.8%, 66.7%) respectively, of both groups reduced during 3<sup>rd</sup> visit and the percentage of intervention group who had fatigue was less than the percentage of control group.

There was no significant difference between intervention and control groups concerning mobility, self care activity and fatigue. Investigator helped and encouraged the intervention group to take fluid and food while the control group were not helped concerning that.

The reason of fatigue may be iron deficiency [4] in addition, Tulman & Fawcett [46] mentioned that women frequently experience a deficit in physical energy during the postpartum. Reasons given for that deficit include the poor quality of sleep during the last few weeks of pregnancy. Marchant [47] stated that women should be encouraged to maintain a balanced fluid intake and a diet that has a greater proportion of fresh food in it. This is to improve feeling fatigue.

Kristiansson and colleagues [48] reported that almost 10% of the 200 women in their study reported back pain after delivery.

The majority of the study sample in both intervention and control groups did not have orthopnea, cough, chest pain and abnormal chest sound that may due to the fact that the sample did not have respiratory problem before operation. But almost half of the study sample in both groups had dyspnea in 1<sup>st</sup> visit while walking and that may be related to anemia, fatigue and inappropriate energy consuming from fluid and nutrition. There was no significant difference between both groups concerning dyspnea but the percentage (24.2%) of mothers who had dyspnea in intervention group was less than the percentage (42.4%) in control group in 2<sup>nd</sup> visit and that might be due to nursing intervention done by investigator to intervention group.

The majority of the study sample both intervention and control groups did not have headache. James [37] mentioned that headache may result from fluid shifts in the first week after birth,



fluid and electrolyte imbalance or stress. Assessment of the quality and location of the headache and of the vital signs are necessary.

The percentage (12.1%) of mothers who had headache among intervention group was less than the percentage (24.2%) of those in the control group during the 3<sup>rd</sup> visit and that might be due to more fluid intake, rest and mobility.

Many postpartum women report the occurrence of headache, especially during the first week postpartum<sup>[13]</sup>.

There was significant difference between intervention and control groups regarding blurred vision or dizziness and might be due to fluid and food enforcement by intervention group.

Majority of both intervention and control groups had insomnia during the 1<sup>st</sup> visit, this might be due to fatigue, discomfort and the demands of newborn care. But this problem was improved in 2<sup>nd</sup> visit and was remained, almost the same percentage in 3<sup>rd</sup> visit and that may be related to pain, noisy room environment and infants care.

## VI- RECOMMENDATIONS

- 1- Encouraging maternity hospitals to render nursing care to mothers after cesarean birth according to nursing process.
- 2- Increasing number of nurses with bachelor's degree in maternity hospitals in order to implement nursing care according to nursing process.
- 3- Training the nurses who work in hospitals for application of nursing process.
- 4- Conducting continuing education courses concerning nursing care according to nursing process for nurses with bachelor's degree who are working in maternity hospitals.
- 5- Emphasizing on teaching nursing care according to nursing process in the college of nursing and improving such teaching.
- 6- Conducting similar studies with larger study sample and in different nursing specialties and different hospitals.
- 7- Education of mothers about the importance of antenatal care visits for early detection and diagnosis the risk factors.
- 8- Education of mothers to attending postpartum visits to diagnosis and treatment any complication.

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