IOSR Journal of Nursing and Health Science (IOSR-JNHS)
e-ISSN: 2320–1959.p- ISSN: 2320–1940 Volume 9, Issue 2 Ser. IV (Mar - Apr. 2020), PP 48-57
www.iosrjournals.org

Assessment Of Nursing Practices Provided For Patients Post Laparoscopic Cholecystectomy.

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Abstract: *Laparoscopic cholecystectomyhas achieved the high successful rate, as a minimally invasive procedure with low cost and short recovery .So, the standards of nursing care for patients recovering from laparoscopic cholecystectomy are comprehensive which include monitoring , evaluation and treatment.**Objective:** To assess nursing practices provided for patients post laparoscopic cholecystectomy**. Setting:** The study was carried out at the InpatientSurgical Department at Alexandria Main University Hospital (MUH), Medical Research Institute Hospital and Smouha New University Hospital. **Subjects:** All available surgical nurses involved in providing direct nursing care for patients post laparoscopic cholecystectomy were included in the present study; they comprised 65 nurses working in the previous mentioned settings. **Tools:** One tool was used for data collection**:** Nurses' practices for patients post laparoscopic cholecystectomy observational checklist. **Results:** The current study showed that maximum scores of nurses 'practices were for administering IV therapy during the 1st and 2nd observations with Mean ± SD equal to 47.44 ± 21.70, 34.74 ± 22.75, respectively. While, the minimum score of nurses 'practices during the 1st and 2nd observations was for post-operative teaching and nursing instructions post laparoscopic cholecystectomy with Mean ± SD8.68 ± 14.33, 8.02. ±14.42, respectively. **Conclusion:** It was concluded that, the majority of the studied nurses had poor practice scores in their overall nursing practices provided for patients post Laparoscopic cholecystectomy. **Recommendations:** Development of manual guidelines for nurses about caring of patients post laparoscopic cholecystectomy and continuing educational sessions must be organized for all surgical nurses about nursing practices provided for patients post laparoscopic cholecystectomy.*

Key words: *Assessment, Postoperative, Nurses' practices, Laparoscopic Cholecystectomy Patients.*

Date of Submission: 18-03-2020 Date of Acceptance: 03-04-2020

I. Introduction

A laparoscopic cholecystectomy (LC) is the gold standard procedure for patients with symptomatic gallstone disease [(1)].Laparoscopic cholecystectomy has become a popular alternative than open cholecystectomy[(2)]. In USA more than 750,000 patients undergo cholecystectomy per year and 80% to 90% of them are candidates for laparoscopic cholecystectomy .The number of surgical procedures has grown increasingly over the years, with the purpose to avoid the symptoms, complications and recurrence of gallstones in the biliary tract[(3)]. Around 70% to 80% of all cholecystectomies in the western world are now performed by laparoscopic cholecystectomy[(4)]. According to statistical records in Alexandria Main University hospital in 2018, the incidence of laparoscopic cholecystectomy was about 80% of all patients undergoing cholecystectomy[(5)].

Laparoscopic cholecystectomy has many benefits over open cholecystectomy in terms of minimal postoperative pain, shorter hospital stay, early recovery, a rapid return to work, less intra-abdominal adhesion, a better cosmetic outcome and decrease in perioperative septic complications [(5,6)]. However, numerous studies have shown that laparoscopic cholecystectomy is associated with a higher frequency of complications compared to the standard open cholecystectomy including injury to the common bile duct, bleeding, injury to other abdominal organs, leakage of bile from the bile ducts into the abdomen, wound infection and complications from general anesthesia with fatal outcomes [(7-9)].

The study done by Radunovic et.al (2016) on post operative complication(POC) of laparoscopic cholecystectomy revealed that vascular injuries are the most common ones, and after the complications of anaesthesia, they are the second leading cause of mortality and morbidity in laparoscopic surgery. In addition to, biliary duct leaks, infection of the surgical wound and pain that worsens or is not relieved by medication and comfort measures[(10)].

The standards of nursing care for patients recovering from laparoscopic cholecystectomy are comprehensive and start from initial recovery from the stress of anesthesia and surgery until the first postoperative hours include monitoring, evaluation and treatment. Nurses who provide postoperative care must

have knowledge of the implications of the procedure, risk factorsand clinical manifestations of complications [(11)]. Accurate nursing assessment and intervention are necessary to assist the patient in returning to optimal function quickly and safely as much as possible [(12)].

Nursing care focuses on regaining the patient's physiologic equilibrium, for prevention or early detection of postoperative complications. Early nursing intervention is needed for monitoring vital signs, pain, the level of post-operative nausea and vomiting (PONV), wound sites and wound drain. Nurse should intervene early on promote adequate ventilation, relieving of pain, maintain intact skin, provide optimal nutritional intake , provide measures to alleviate patients' discomfort during postoperative period and educate patients necessary information's needed throughout the recovery period postoperatively and after discharge [(13-16)].

It is clear that patients post laparoscopic cholecystectomy need to be monitored closely after the operation and efficient nursing practice is important during recovery period. So, this study aims to assess nursing practices provided for patients post laparoscopic cholecystectomy.

Aim of the study:

The study aimed to assess nursing practices provided for patients post laparoscopic cholecystectomy**.**

Research question:

- What are the nursing practices provided for patients post laparoscopic cholecystectomy?

II. Materials and Method

Materials

Research Design:

A descriptive research design was used in this study.

Setting:

The study was conducted atthe In-patient GeneralSurgical Department at Alexandria Main University Hospital (MUH), Medical Research Institute Hospital and Smouha New University Hospital, Egypt.

Subjects:

All available surgical nurses involved in providing direct nursing care for patients post laparoscopic cholecystectomy, were included in the present study; they comprised 65 nurses working in the previous mentioned settings for a minimum period of one year experience and aged from 20 to less than 60 years. They were distributed as 33 nurses at Alexandria Main University Hospital (MUH), 14 nurses at Medical Research Institute Hospital and 18 nurses at Smouha New University Hospital.

Tools of the study:

One tool was used in order to fulfill the study aim.

Nurses' practices for patients post laparoscopic cholecystectomy observational checklist.

This tool was developed by the researcher based on relevant literature [(4,10,11,12,13,17)] to determine nursing practices carried out by nurses during the first24 hrs post laparoscopic cholecystectomy. This tool includes 6 main domains in 62items of nursing practices.

First domain: **Nurses' practices concerning monitoring and managing potential complication** included 10 items related to monitoring vital signs (temperature, pulse, respiratory and blood pressure), observe dressing, wound drainage, detect and report any abnormality such as hemorrhage, move slightly on bed, encouraging to go out of bed, assessing and recording any sign and symptom related to gastrointestinal problems as tenderness and rigidity of abdomen, and abdominal distension.

Second domain: Nurses' practices concerning improving respiratory status included 7 items related to assessing and recording the rate, depth and breathing sound**,** raising the head of bed, putting in the low fowler's position**,** encouraging turn, take deep breaths and cough gradually ,helping to walk early and identifying how to support areas of operation wounds when coughing and walking.

Third domain: Nurses' practices concerning relieving pain included 6 items related to assessing and recording pain characteristic (location, type and severity), changing position, supporting the surgical incision with pillow or binder during turn, walking, massage to back and administering analgesics as prescribed.

Fourth domain: **Nurses' practices concerning maintaining skin integrity and drainage** included 12 items related to recording skin status, eye sclera, recording characteristic (color and amount)of wound drainage every 1 to 2 hours in the first day post operative, checking the patency of the drainage tube**,** caring of the drainage bag**,** assess drain insertion site for signs of leakage, signs of ooze, dressing on the drainage tube**,** ensure drain is located below the insertion site and free from kinks or knots, recording fluid out put and any change in color of urine and encouraging patient mobilization with a drain.

Fifth domain : Nurses' practices concerning maintaining nutritional status included 6 items related to administering IV therapy as prescribed, monitoring the state of swallowing and bowel sounds, encouraging soft

diet after bowel sound return, record fluid intake, assesses the symptoms of the digestive system as nausea and vomiting and assessing the color and consistency of stool.

Six domain: **Nurses' practices regarding to post operative teaching and nursing instructions post laparoscopic cholecystectomy** included 21 items related to diet(3 items), activity(6 items), driving(2 items), breathing and coughing exercise(2 items), medication(2 items),incision(4 items)and follow up(2 items).
In addition, a sociodemographic structured interview schedule for nurses under the study was also attached. It included data about age, gender, occupation, marital status, income, education level, years of experience in laparoscopic field, working area and previous attendance of training programs about caring of patients post laparoscopic cholecystectomy.

- **Scoring system:**

Each item in this tool was checked and scored on a three point rating scale as follows: "three" scores were given for each practice that was done correct and complete."Two" scores were given for each practice that was done correct but incomplete."One" score was given for each practice that was not done**.**

The total score summed up to give a total score, ranging from 62 to 186 and converted into percent nurses' practice evaluated as the following: Scores of 75% and more was considered "good nursing practice", whereas scores of 50-75% was considered "fair nursing practice" and scores less than 50% was considered "poor nursing practice".

III. Method

-An official written approval from the Faculty of Nursing, Alexandria University was directed to responsible authorities at Surgical Department at Alexandria Main University Hospital (MUH), Medical Research Institute Hospital and Alexandria New University Hospitalto take permission to conduct the study after explanation of its purpose.
-Nurses' observational checklist for practices provided for patients post laparoscopic cholecystectomywas developed by the researcher after reviewing the relevant literature.
-The developed tool was tested for its content validity by seven faculty members who are experts in the field of medical surgical nursing, Faculty of Nursing, University of Alexandria toassure the content validity and clarity of items and necessary modifications were introduced, accordingly.
-Study tool was tested for its reliability using Alpha Cronbach's statistical test for internal consistency of tool items. The reliability coefficient was 0.992 which is acceptable.
-A pilot study was carried out before starting the data collection. It was applied on 7 nurses to test clarity, feasibility and applicability of the developed tool. They were excluded from the total sample, and no modifications were done.
-Data collection: Data were collected throughout a period of six months starting from the first September 2018 to the end of February 2019.Every nurse was observed individually by the researcher through concealed observation.Each item of observation sheet was checked two times to assess nursing practices provided for patients post laparoscopic cholecystectomy during the first 24 hrs postoperatively. The first observation was done during the first six hours immediately postoperative and the second observation was done during the last six hours of the first postoperative day before patient discharge.

7- Ethical considerations

- The anonymity and confidentiality of nurses' responses and privacy have been asserted.

8- **Statistical analysis of the data**

Data were fed to the computer and analyzed using IBM SPSS software package version 20.0**.**Qualitative data were described using number and percent.Quantitative data were described using mean, standard deviation. Significance of the obtained results was judged at ≤ 0.05 level.[18]The used tests were Chi-square test:For categorical variables, to compare between different groups andMonte Carlo correction: Correction: for chi-square when more than 20% of the cells have expected count less than 5.

IV. Results:

Table (I): shows frequency distribution of the studied nurses according to their sociodemographic data. In relation to age the results revealed that more than half of nurses (50.8%) were in the age group of twenty years to less than thirty years old. The majority of nurses (93.8%, 67.7%) was females and married respectively. More than three quarters of studied nurses (76.9%) had secondary nursing school. It was noticed that nearly half of nurses (49.2%) had equal or more than ten years of experience. The same table showed that more than half (50.77%) was working in Main University Hospital. The results also illustrated that all the studied nurses

(100%) didn't attend any training program about nursing practices applied for patients post laparoscopic cholecystectomy.

Table (2.a,b&c): Shows percentage distribution of the studied nurses' practices provided for patients post laparoscopic cholecystectomy on the 1st and 2nd observation. Regarding, nurses' practices concerning monitoring and managing potential complications, the results revealed that the majority of the studied nurses (81.5 % and 46.2) was measured the vital sign correctly but incomplete in the first and second observation respectively. Moreover, 76.9% and 86.2% of the studied nurses did not instruct the patient and their family to report any change in the color of the stool in the first and second observation respectively. In relation to, nurses' practices concerning improving respiratory status, 58.5 and 86.2% of studied nurses did not encourage the patient to turn, take deep breaths and cough gradually during first and second observation respectively. Regarding, nurses' practices concerning relieving of pain, the majority (63.1% and 81.5%) of studied nurses was administered analgesics as prescribed correctly but incomplete in the first and second observation respectively.

Regarding, nurses' practices concerning maintaining skin integrity and drainage, the results of the present study showed that the majority (69.2% and 32.3%) of studied nurses was checked the patency of the drainage tube correctly but incomplete during first and second observation, respectively. In relation to nurses' practices concerning maintaining nutritional status 60.0%&36.9% of studied nurses was administered IV therapy as prescribed correctly and completely during first and second observation respectively.

Concerning,post-operative teaching and nursing instructions post laparoscopic cholecystectomy, the results of the current study revealed that the majority (72.3% and 76.9%)of studied nurses did not teach patient about return gradually to fatty meals as tolerance until three months after surgery in the first and second observation respectively. 86.2of studied nurses did not instruct the patients to avoid vigorous activities as digging or lifting up to 6 weeks after operation in both observations. All (100%) the studied nurses did not instruct patient about driving, perform breathing and coughing exercise and visit the clinic immediately if you complain from fever, elevated heart rate, wound drainage, sudden severe abdominal pain in both observations.

Table (3): Reveals frequency distribution of the studied nurses according to overall nursing practices provided for patients post laparoscopic cholecystectomy on the 1st and 2nd observation. The results indicated that the majority (86.2%, 90.8%) of the studied nurses gained a poor nursing practices score during first and second observation respectively.

Table (4): Shows ranking of studied nurses' practices for patient's post laparoscopic cholecystectomy on 1st and 2 nd observations. The descending ranking of nurses 'practices for providing nursing care for patients post laparoscopic choleycstectomy showed that maximum scores of nurses 'practices were for maintaining nutritional status as administering IV therapy during the 1st and 2nd observations with Mean ± SD equal to 47.44 ± 21.70, 34.74 ± 22.75 respectively. This followed by maintain skin integrity and drainage as checking the patency of the drainage tube with Mean ± SD equal to 41.92 ± 26.37during 1st observation. Then followed by monitoring and managing potential complication asmonitoring vital sign with Mean ± SD equal to 41.46 ± 21.81during 1st observation. While, the minimum score of nurses 'practices during the 1stand 2ndobservations was for post-operative teaching and nursing instructions post laparoscopic cholecystectomy with Mean ± SD8.68 ± 14.33, 8.02. ±14.42, respectively.

Table (5): Shows relation between overall studied nurse's practices score and their socio demographic data. This results revealed that there was statistically positive correlation between overall studied nurses practices scores and their working area ($\chi 2=17.450$ p= $<0.001^{*)}$, marital status ($\chi 2=23.770$p= $<0.001^{*)}$, level of education($\chi 2=15.078$ p=$0.001^{*)}$ and years of experience ($\chi 2=22.479$p=$<0.001^{*)}$.

V. Discussion

Laparoscopic cholecystectomy has been the gold standard choice for the past 50 years of treatment of cholithiasis. LC was achieved the high successful rate, minimally invasive procedure, low cost and short recovery [(19)].

The nurse has a crucial role for management of patients post laparoscopic cholecystectomy through assessing, understanding needs and providing meaningful nursing care to prevent post operative complication and improve patient quality of life[(20,21)]. So that, this study carried out to assess nursing practices provided for patients post laparoscopic cholecystectomy.

In relation to overall practice score, the results of the current study revealed that the majority of studied nurses had poor practice score in their overall nursing practices provided for patients post laparoscopic cholecystectomy. There was a great difference between the nursing practices actually given to the patients included in this study and the standard nursing practices necessary to such patients. Poor nursing practices might be related to unavailability of in-service training program

which has a negative impact on nurses' performance and the quality of patient care. Also, the researcher noticed during observation that there is a lack of supervision and nurses' evaluation against identified standard of patient care. Moreover, shortage of nurses' number and lack of co-worker leads to increased workload on staff nurses and decreased their productivity.

These results were in agreement with the study done by Abdel Aziz(2018) [(22)]Who showed that the majority of the studied nurses had poor practice scores in their overall nursing practices provided for patients undergoing TURP surgery. This results was supported also by Crow(2014) [(23)] who emphasized up on the need for effective continuing education program for nurses in this specific area to better prepare nurses to be more active and achieve high quality of patient care.

Regarding ranking of nursing practices provided for patients post LC, the results of the present study showed that the highest priority of nursing practices were directed toward administrating IV therapy, followed by checking the patency of the drainage tube and followed by monitoring of vital signs. This may be due to that most nurses recognize the importance of administering of IV therapy immediately post operative to replace fluid loss during surgery. Also, nurses recognize the importance of maintaining drainage tube patent to prevent tube obstruction and lead to accumulation of blood intrabdomen and initiate bleeding. Nurses had monitored baseline vital signs within the established time frame for early detection of signs of excessive blood loss. From the researcher observations, some nurses worked by repetition, imitation and experience. Therefore efforts are needed to correct unacceptable nurses' practice.

These results are supported by the study done by Alaa and Halema(2014)[(12)]Who found that the main concern of studied nurses post LC aregiving fluid by intravenous infusion according to the medical prescription, install drainage bag and recording vital signs. On the contrary,Graham(2008)[(11)]reported that nurses working in a surgical units must implement all the nursing standard of patient care post LC which include relieving pain , improving nutritional status , improving respiratory status,maintaining skin integrity and drainage, monitoring and managing potential complication.In addition , providing patients with practical discharge advice will improve their confidence in managing their care at home.

While, the lowest priority of nursing practices were directed toward postoperative health teaching and nursing instruction post laparoscopic cholecystectomy.This might be due to that the majority of studied nurses had a diploma degree of nursing who may had insufficient knowledge, nurses not have enough time to give health teaching to patients, lack of hospital policy and standard guidelines instructions provided for patients post LC.

This finding was in line with Stergiopoulou (2014) [(24)]who reported that the nurse must give specific post operative teaching and nursing instructions to the patient post LC about detailed home instructions that include postoperative medication, diet , activity , wound care ,breathing and coughing exercise and the situation where patient should contact the health care provider immediately if he experiences any of the following postoperative complications such as shortness of breath , yellowish eyes or skin (jaundice),chills, fever of 38.0°C or higher, redness, swelling, increasing pain, pus, or a foul smell at the incision site, dark or rust-colored urine, stool that is clay-colored or light in color instead of brown, increasing belly pain, rectal bleeding and leg swelling.Also, the study done by Raj et.al (2016) [(25)]they emphasized that the nursing personnel need to take initiative in directing, teaching and educating patients about prevention of post operative complications.

From the researcher point of view patient's post LC are hospitalized for a short period of time and spend most of their course of treatment at home, therefore, post operative teaching and guidelines instructions are required in order to manage and control the illness, symptoms, complications, and postoperative problems. Zapf (2013)[(26)]found that quality of life is significantly affected in the first 24 hrs after LC but returns to baseline at the third week and contact with patients must be initiated after LC to provide feedback on discharge counseling to increase patient satisfaction.This is in the line with Tamhankaret al (2010) [(27)] who put great emphasis on utilization of guideline instructions to reduce complications post LC surgery and enhance quality of life. Also, Odom-Forren et.al (2018) [(28)]who showed that perianesthesia nurses should focus not only on the immediate recovery, but also prepare patients and their caregivers for the more prolonged issues of recovery at home.

The present study findings concluded that a poor level of practice in general was significantly correlated with nurses' level of education, working area and years of experience. As regards level of education; the results revealed that diploma nurses got poor practice score than other nurses' qualification. This might be due to the quality of nursing care is influenced by knowledge, judgment, skills, and values of those participating in care of patients and nurses' cognitive ability to

decide on a plan of action that depends upon their education. These results are contradicting with the study done by Ashour (2016) [(29)] who found that the practice score of diploma nurses was significantly higher compared to other nurses' qualifications.

Concerning working area the present study revealed that the majority of studied nurses in the Smouha University Hospital had fair practice level while the majority of studied nurses in Main University Hospital had poor practice level. This might be related to lack of in-service training program, continuous supervision and guidance in carrying out their task which affects performance of nurses. These findings are in agreement with Abdel Aziz(2018)[(22)] who reported that the majority of nurses working at Main University Hospital had poor performance than other hospitals.

Regarding years of experience in surgical wards, the majority of studied nurses had equal or more than ten years of experience. Also, it was noticed that nurses with long years of experience were not involved in direct patient care and worked in morning shift which certainly led to shortage of staff, increased patients to nurses' ratio in evening shift and heavier workload on nurses. This may be due to hospital policy that nurses who worked more than fifteen years had the permission to work in morning shift only. These results did not match El-kady (2010)[(30)] who stated that the nurses' years of experience and attendance of training programs have positive effects on nurse's performance.

Finally, the analysis of the present study findings had revealed many areas where nurses are lacking the competent skillful practices. Continuous in service nursing education and staff management will help in achieving high quality of nursing interventions and the use of guidelines for nursing interventions post LC to improve their quality of life and prevent complications.

VI. Conclusion:

From the findings of the present study, it can be concluded that:

- The majority of the studied nurses had poor practice scores in their overall nursing practices provided for patients post Laparoscopic cholecystectomy.

Recommendations:

-Development of manual guidelines for nurses about caring of patients post laparoscopic cholecystectomy

- Educational programs and continuing educational sessions have to be organized for all surgical nurses about nursing practices applied for patients post laproscopic cholecystectomy.

- Periodic evaluation of nursing practices by nursing supervisor for enhancing level of practices.

-Further study should be carried out about the effect of an educational program on the improvement of nurses' practices provided for patients post laparoscopic cholecystectomy.

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Table (1): Frequency distribution of the studied nurses according to their sociodemographic data (n=65)

Sociodemographic data	No.	%
Age		
20<30	33	50.8
30<40	20	30.8
40<50	9	13.8
50-60	3	4.6
Gender		
Male	4	6.2
Female	61	93.8
Marital status		
Single	18	27.7
Married	44	67.7
Divorced	3	4.6
Educational level		
Secondary nursing school	50	76.9
Technical nursing school	12	18.5
Bachelor nursing	3	4.6
Years of experience		
1<5	18	27.7
5<10	15	23.1
≥10	32	49.2
Working area		
Main University Hospital	33	50.77
Medical Research Institute Hospital	14	21.53
Smouha University Hospital	18	27.7
Attendance of training program for laparoscopic cholecystectomy.		
No	65	100.0
Yes	0	0.0

Table (2a): Percentage distribution of the studied nurses' practices provided for patients post laparoscopic cholecystectomy on the 1st and 2nd observation. (n=65)

Q	Postoperative Nurses' practices items	First observation						Second observation					
		correct and complete		correct but incomplete		Not done		correct and complete		correct but incomplete		Not done	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	**Nurses' practices concerning monitoring and managing potential complication**												
	-Monitoring vital signs (Temperature, Pulse, Respiratory and Blood Pressure)	12	18.5	53	81.5	0	0.0	6	9.2	30	46.2	29	44.6
	-Ensuring the dressing is clean, dry, and intact	18	27.7	39	60.0	8	12.3	12	18.5	6	9.2	47	72.3
	-Observing the surgical dressing and any drains for bleeding	18	27.7	36	55.4	11	16.9	12	18.5	15	23.1	38	58.5
	-Early detecting and reporting any abnormality	15	23.1	36	55.4	14	21.5	6	9.2	24	36.9	35	53.8
	-Moving patient slightly on bed after 4-6 hours post operatively	12	18.5	48	73.8	5	7.7	6	9.2	30	46.2	29	44.6
	-Helping the patient to go out of bed.	9	13.8	39	60.0	17	26.2	3	4.6	18	27.7	44	67.7
	-Instructing the patient and family to record any change in the color of the waste (stool)	3	4.6	12	18.5	50	76.9	0	0.0	9	13.8	56	86.2
	-Assessing the patient for increased tenderness and rigidity of the abdomen	0	0.0	24	36.9	41	63.1	3	4.6	9	13.8	53	81.5
	-Record the patient for increased tenderness and rigidity of the abdomen.	6	9.2	39	60.0	20	30.8	6	9.2	15	23.1	44	67.7
	-Record the abdominal distension	3	4.6	21	32.3	41	63.1	3	4.6	6	9.2	56	86.2
2	**Nurses' practices concerning improving respiratory status**												
	-Assessing the rate, depth and sound of breathing.	0	0.0	30	46.2	35	53.8	0	0.0	18	27.7	47	72.3
	-Recording the rate, depth and breathing sound	0	0.0	21	32.3	44	67.7	0	0.0	12	18.5	53	81.5
	-Raising the head of the patient's bed	18	27.7	47	72.3	0	0.0	9	13.8	38	58.5	18	27.7
	-putting the patient in the low Fowler's position	18	27.7	42	64.6	5	7.7	12	18.5	33	50.8	20	30.8
	-Encouraging the patient to turn, take deep breaths and cough gradually	6	9.2	21	32.3	38	58.5	3	4.6	6	9.2	56	86.2
	-Helping the patient to walk early with supporting the surgical incision site when coughing and walking	9	13.8	42	64.6	14	21.5	6	9.2	18	27.7	41	63.1
	Identifying the patient how to support areas of operation wounds when coughing and walking	6	9.2	9	13.8	50	76.9	3	4.6	6	9.2	56	86.2
3	**Nurses' practices concerning relieving pain**												
	-Assessing and recording pain characteristic (location, type and severity)	3	4.6	33	50.8	29	44.6	0	0.0	30	46.2	35	53.8
	-Changing the patient's position	3	4.6	42	64.6	20	30.8	3	4.6	21	32.3	41	63.1
	-Helping the patient in a pillow or binder over the surgical incision during turn, Coughing and deep breathing	0	0.0	6	9.2	59	90.8	0	0.0	6	9.2	59	90.8
	-Helping the patient during walking	0	0.0	24	36.9	41	63.1	0	0.0	9	13.8	56	86.2
	-Performing massage to the patient's back	3	4.6	0	0.0	62	95.4	0	0.0	0	0.0	65	100
	-Administering analgesics by as prescribed	18	27.7	41	63.1	6	9.2	9	13.8	53	81.5	3	4.6

Table (2b): Percentage distribution of the studied nurses' practices provided for patients post laparoscopic cholecystectomy on the 1st and 2nd observation. (n=65)

Q	Postoperative Nurses' practices items	First observation						Second observation					
		correct and complete		correct but incomplete		Not done		correct and complete		correct but incomplete		Not done	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
4	**Nurses' practices concerning maintaining skin integrity and drainage**												
	-Recording skin status and eye sclera	9	13.8	24	36.9	32	49.2	6	9.2	15	23.1	44	67.7
	-Recording characteristic (color and amount)of wound drainage	9	13.8	24	36.9	32	49.2	6	9.2	18	27.7	41	63.1
	-Checking the patency of the drainage tube	15	23.1	45	69.2	5	7.7	6	9.2	21	32.3	38	58.5
	-Caring of the drainage bag	9	13.8	39	60.0	17	26.2	6	9.2	9	13.8	50	76.9
	-Assess drain insertion site for signs of leakage, redness or signs of ooze.	9	13.8	42	64.6	14	21.5	6	9.2	9	13.8	50	76.9
	-Dressing on the drainage tube	9	13.8	48	73.8	8	12.3	3	4.6	9	13.8	53	81.5
	-Assessing if drain is secured with suture or tape and document.	15	23.1	42	64.6	8	12.3	3	4.6	12	18.5	50	76.9
	-Changing of the outer dressings and protection of the Skin from irritation.	6	9.2	36	55.4	23	35.4	3	4.6	9	13.8	53	81.5
	-Turning the patient position frequently	6	9.2	33	50.8	26	40.0	3	4.6	15	23.1	47	72.3
	-Ensuring drain is located below the insertion site and free from kinks or knots.	15	23.1	24	36.9	26	40.0	9	13.8	15	23.1	41	63.1
	-Recording fluids output and any change in color of urine	9	13.8	15	23.1	41	63.1	6	9.2	12	18.5	6	9.2
	-Encouraging patient mobilization with a drain	12	18.5	36	55.4	17	26.2	6	9.2	15	23.1	44	67.7
5	**Nurses' practices concerning maintaining nutritional status**												
	-Administering IV therapy as prescribed	39	60.0	23	35.4	3	4.6	24	36.9	41	63.1	0	0.0
	-Monitoring the state of swallowing and bowel sounds	15	23.1	36	55.4	14	21.5	9	13.8	15	23.1	41	63.1
	-Encouraging soft diet after bowel sounds return	33	50.8	32	49.2	0	0.0	21	32.3	44	67.7	0	0.0
	-Recording fluids intake	0	0.0	24	36.9	41	63.1	0	0.0	21	32.3	44	67.7
	-Assessing the symptoms of the digestive system as nausea and vomiting	3	4.6	45	69.2	17	26.2	3	4.6	21	32.3	41	63.1
	-Assessing the color and consistency of stool.	3	4.6	24	36.9	38	58.5	3	4.6	9	13.8	53	81.5

Table (2c): Percentage distribution of the studied nurses' practices provided for patients post laparoscopic cholecystectomy on the 1st and 2nd observation. (n=65)

Q	Postoperative Nurses' practices items	First observation						Second observation					
		correct and complete		correct but incomplete		Not done		correct and complete		correct but incomplete		Not done	
	6-Post operative teaching and nursing instructions post laparoscopic cholecystectomy	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	**Diet**												
	Return to normal food when returning to home	15	23.1	12	18.5	38	58.5	15	23.1	6	9.2	44	67.7
	Avoid salty, fatty or heavy meals for the first few days, as some of these foods may cause diarrhea or nausea	15	23.1	6	9.2	44	67.7	15	23.1	3	4.6	47	72.3
	Return gradually to fatty meals as tolerance until three months after surgery, you can ingest fatty foods without discomfort	15	23.1	3	4.6	47	72.3	15	23.1	0	0.0	50	76.9
2	**Activity**												
	Take short walks 2-3 times a day for reducing the risk of blood clots.	9	13.8	6	9.2	50	76.9	6	9.2	9	13.8	50	76.9
	Use the stairs with support as needed as long as you are not dizzy or weak.	0	0.0	12	18.5	53	81.5	3	4.6	9	13.8	53	81.5
	Resuming light office work after 2-3 weeks.	0	0.0	15	23.1	50	76.9	3	4.6	12	18.5	50	76.9
	Avoiding heavier manual work for 4-6 weeks.	0	0.0	15	23.1	50	76.9	3	4.6	12	18.5	50	76.9
	Resuming sports such as swimming or golf after one month	0	0.0	3	4.6	62	95.4	0	0.0	3	4.6	62	95.4
	Avoid vigorous activities as digging or lifting up to 6 weeks after operation	0	0.0	9	13.8	56	86.2	0	0.0	9	13.8	56	86.2
3	**Driving**												
	Do not drive until take permission on post-operative clinic office visit.	0	0.0	0	0.0	65	100	0	0.0	0	0.0	65	100
	Don't take pain medicines stronger than acetaminophen at the time of driving,	0	0.0	0	0.0	65	100	0	0.0	0	0.0	65	100
4	**Breathing /Coughing exercises**												
	Perform 10 deep breaths and 2 coughs every hour for at least 12 hours a day, for one week post-operative to reduce the risk of respiratory problems.	0	0.0	0	0.0	65	100	0	0.0	0	0.0	65	100
	Support the incision sites with a pillow when coughing.	0	0.0	6	9.2	59	90.8	0	0.0	6	9.2	59	90.8
5	**Medications**												
	Take prescribed medications on time and with proper dose.	0	0.0	15	23.1	50	76.9	0	0.0	12	18.5	53	81.5
	Take pain medications with food to avoid nausea and vomiting.	0	0.0	3	4.6	62	95.4	0	0.0	3	4.6	62	95.4
6	**Incisions**												
	Do not attempt to remove sutures from the wound.	0	0.0	9	13.8	56	86.2	0	0.0	6	9.2	59	90.8
	You can take shower the day after surgery and allow clean, soapy water to run over the wound and dry it probably	0	0.0	0	0.0	65	100	0	0.0	0	0.0	65	100
	Don't expose the incisions to soaking in water including: hot tub, bathtub or swimming pools for the first 6 wk. post	0	0.0	0	0.0	65	100	0	0.0	0	0.0	65	100
	Do not put any ointment or creams over the incisions without doctor prescriptions	0	0.0	3	4.6	62	95.4	0	0.0	0	0.0	65	100
7	**Follow Up**												
	Follow the post-operative clinic visits schedule.	0	0.0	12	18.5	53	81.5	0	0.0	9	13.8	56	86.2
	Visit the clinic immediately if you complain from fever, elevated heart rate, wound drainage, sudden severe abdominal pain	0	0.0	0	0.0	65	100	0	0.0	0	0.0	65	100

Table (3): Frequency distribution of the studied nurses according to overall practices provided for patients post laparoscopic cholecystectomy on the 1st and 2nd observation.(n = 65)

Postoperative nursing practices items	First observation						Second observation					
	Good		Fair		Poor		Good		Fair		Poor	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1.Nurses' interventions concerning monitor and managing potential complication	9	13.8	15	23.1	41	63.1	6	9.2	6	9.2	53	81.5
2.Nurses' practices concerning improving respiratory status	6	9.2	9	13.8	50	76.9	3	4.6	6	9.2	56	86.2
3.Nurses' practices concerning relieving pain	0	0.0	6	9.2	59	90.8	0	0.0	6	9.2	59	90.8
4.Nurses' interventions concerning maintaining skin integrity and drainage	9	13.8	12	18.5	44	67.7	6	9.2	6	9.2	53	81.5
5.Nurses' interventions concerning maintaining nutritional status	15	23.1	12	18.5	38	58.5	9	13.8	6	9.2	50	76.9
6. Pre discharge post operative teaching and nursing instructions post laparoscopic cholecystectomy	**0**	**0.0**	**0**	**0.0**	**65**	**100**	**0**	**0.0**	**0**	**0.0**	**65**	**100**
Diet	15	23.1	3	4.6	47	72.3	15	23.1	0	0.0	50	76.9
Activity	0	0.0	6	9.2	59	90.8	3	4.6	3	4.6	59	90.8
Driving	0	0.0	0	0.0	65	100	0	0.0	0	0.0	65	100
Breathing /coughing exercises	0	0.0	0	0.0	65	100	0	0.0	0	0.0	65	100
Medications	0	0.0	3	4.6	62	95.4	0	0.0	3	4.6	62	95.4
Incisions	0	0.0	0	0.0	65	100	0	0.0	0	0.0	65	100
Follow Up	0	0.0	0	0.0	65	100	0	0.0	0	0.0	65	100
Overall practice	**0**	**0.0**	**9**	**13.8**	**56**	**86.2**	**0**	**0.0**	**6**	**9.2**	**59**	**90.8**

Table (4): Ranking of studied nurses' practices provided for patient's post laparoscopic cholecystectomy on 1st and 2 nd observation. (n = 65)

Postoperative nurses' practices items	First observation Mean ± SD.	Rank	Second observation Mean ± SD.	Rank
1.Nurses' interventions concerning monitor and managing potential complication -Monitoring of vital sign	41.46±21.81	**3**	21.23±25.19	**3**
2.Nurses' practices concerning improving respiratory status -Raising the head of the patient's bed	35.82±22.07	**4**	21.65±22.76	**2**
3.Nurses' practices concerning relieving pain -Administering analgesics by as prescribed	25.64±16.69	**5**	18.33±14.30	**4**
4.Nurses' practices concerning maintaining skin integrity and drainage -Checking the patency of the drainage tube	41.92±26.37	**2**	18.27±28.56	**5**
5.Nurses' practices concerning maintaining nutritional status Administering IV therapy as prescribed	47.44±21.70	**1**	34.74±22.75	**1**
6.Post operative teaching and nursing instructions post laparoscopic cholecystectomy	**8.68 ± 14.33**	**6**	**8.02 ± 14.42**	**6**
Overall practice	**28.86 ± 18.27**		**17.26 ± 19.98**	

Table (5): Relation between overall studied nurse's practices and their socio demographic data.

Socio demographic data	Overall practice							
	First observation				Second observation			
	Fair (n =9)		Poor (n =56)		Fair (n =6)		Poor (n =59)	
	No.	%	No.	%	No.	%	No.	%
Age								
20<30	9	100.0	24	42.9	6	100.0	27	45.8
30<40	0	0.0	20	35.7	0	0.0	20	33.9
40<50	0	0.0	9	16.1	0	0.0	9	15.3
50-60	0	0.0	3	5.4	0	0.0	3	5.1
χ^2 (^{MC}p)	8.691*(0.019*)				4.935(0.137)			
Marital status								
Single	9	100.0	9	16.1	6	100.0	12	20.3
Married	0	0.0	44	78.6	0	0.0	44	74.6
Divorced	0	0.0	3	5.4	0	0.0	3	5.1
χ^2 (^{MC}p)	23.770*(<0.001*)				14.485*(0.001*)			
Educational level								
Secondary nursing school	3	33.3	47	83.9	3	50.0	47	79.7
Technical nursing school	3	33.3	9	16.1	0	0.0	12	20.3
Bachelor nursing	3	33.3	0	0.0	3	50.0	0	0.0
χ^2 (^{MC}p)	15.078*(0.001*)				14.654*(0.001*)			
Years of experience								
1<5	9	100.0	9	16.1	6	100.0	12	20.3
5<10	0	0.0	15	26.8	0	0.0	15	25.4
≥10	0	0.0	32	57.1	0	0.0	32	54.2
χ^2 (^{MC}p)	22.479*(<0.001*)				13.194*(0.001*)			
Working area								
Main University Hospital	0	0.0	33	58.9	0	0.0	33	55.9
Medical Research Institute Hospital	1	11.1	13	23.2	0	0.0	14	23.7
Smouha University Hospital	8	88.9	10	17.9	6	100.0	12	20.3
χ^2 (^{MC}p)	17.450*(<0.001*)				13.233*(<0.001*)			

χ^2: **Chi square test** MC: **Monte Carlo** p: p value for association between different categories *: Statistically significant at p ≤ 0.05

Abeer Mohamed EL- Shatby Moursy1,etal. "Assessment Of Nursing Practices Provided For Patients Post Laparoscopic Cholecystectomy." *IOSR Journal of Nursing and Health Science (IOSR-JNHS)*, 9(2), 2020, pp. 48-57.