Ann. For. Res. 66(2): 212-226, 2023
ISSN: 18448135, 20652445
ANNALS OF FOREST RESEARCH
www.e-afr.org

NURSES' LEVEL OF PRACTICE AND ATTITUDE TOWARD CARE OF PATIENTS PRE/POST LAPAROSCOPIC CHOLECYSTECTOMY

Fatma M. Elmansy[1,2]

[1]Department of Medical Surgical Nursing, College of Nursing, Qassim University, Saudi Arabia.

[2]Medical Surgical Nursing Department, Faculty of Nursing, Suez Canal University, Ismailia, Egypt.

ABSTRACT

Background: The most prevalent cause of biliary tract disorders in adults is gallstones, laparoscopic cholecystectomy is a golden standard and less invasive treatment for this condition. Highly standard of nursing care is a significant factor in patient recovery, especially laparoscopy, though less invasive than the traditional open surgery, with less risk of complications. **Aim:** this study was to assess nurses' level of practice and attitude toward care of patients pre/post laparoscopic cholecystectomy. **Design:** A cross-sectional descriptive design was utilized. **Setting:** It was carried out in male and female surgical wards at Ismailia Medical Complex. Sample: A nonprobability convenient sample of all available nurses (50 nurses) from both sexes in previously mentioned wards. **Tools for data collection:** Three tools were utilized in the current study; Tool I: personal data sheet to assess demographic data, Tool II: Observational checklist to observe the level of nurses' practice, and Tool III: nurses' attitude scale to identify nurses' attitude toward care of patient pre/post laparoscopic cholecystectomy. **Results:** the findings of the study revealed that most of the nurses recruited had a moderate adequacy level of practice and positive attitude toward care of patients pre/post laparoscopic cholecystectomy. Moreover, there was a highly statistically significant difference between nurses' personal data and their level of practice and attitude. **Conclusion:** Studied nurses` level of practice and attitude toward care of patients pre/post laparoscopic cholecystectomy were moderate adequacy and positive level sequentially. There was a positive correlation between nurses' adequacy level of practice and their attitude. **Recommendations:** Periodic in-service training sessions in an advanced and comprehensive manner toward nursing care for patients pre/post laparoscopic cholecystectomy to improve their practice and attitude.

Keywords: Attitude, Cholecystectomy, Laparoscopic, Nurses' practice.

1. INTRODUCTION

Gallbladder disease is the accumulation of bile deposits in the gallbladder containing chemical composites that normally dissolved in bile and eliminated through the gastrointestinal tract. Once disturbance the metabolism process of bile or its composition results in gallstone (cholelithiasis) that could block the flow of bile through the ducts. It causes bile to back up into the nearby organs, leads to pain, and causes inflammation (cholecystitis) **(Ignatavicius, & Heimgartner, 2023)**. It is more common among adults than older adults not only in Egypt but also worldwide. Despite

cholelithiasis's high incidence, only a few patients exhibit symptoms. Although most patients have the acute type may be calculous or acalculous cholecystitis **(Lewis, et al. 2018 & Vincent, et al. 2022)**.

Since its introduction by Mühe in 1985, followed by Mouret in 1987, laparoscopic cholecystectomy (LC) has become a gold standard treatment for gallbladder diseases **(Harding, et al. 2020)**. Furthermore, it is a current procedure for diagnosis gallbladder diseases that is less invasive and allows patients to recover faster than previous diagnostic procedures **(Iseda, 2023)**. Although this procedure has eventually replaced open surgical treatment to be one of the greatest prevalent surgical procedures performed worldwide, they are still compared in terms of mortality rates, hospital stay, and biliary tract injury incidence **(Mohammed, 2018)**.

Compared to other healthcare professionals, nurses spend more time with patients having cholecystectomy procedures, and the standard of nursing care influences patient condition and help hospitalized patients recover more quickly **(Elsayed, et al. 2021)**. The specialty practice area of medical-surgical nursing, also known as adult health nursing, involves nurses promoting, restoring, or maintaining patients' optimum health. Specialized knowledge, clinical skills, and good attitude are required to manage actual or potential health issues that affect patients. In these settings, a nurse's duties may include care coordination, nursing, patient education, and patient and family advocacy **(Eldeen, et al. 2016 & AbdElgilil, et al. 2020)**.

Preoperative and postoperative care is crucial to enhancing healing without complications, lowering hospital stays, and controlling costs. Pre-operative care has led to the identification and testing of patients undergoing cholecystectomy prior to admission. Start the nursing assessment process as well, which may focus on laparoscopic cholecystectomy as an intervention **(AbdElgilil, et al. 2020)**. Post-operative care involves measuring the patient's oxygen saturation level, encouraging early mobility, evaluating the wound, administer a prescribed medication, give intravenous fluids, monitoring vital signs, particularly the respiratory rate, and giving an antiemetic medication for any nausea or vomiting. Enhance discharge from the hospital in three to five days, with return for follow-up care about four to six weeks after the procedure (**Vincent, et al. 2022)**. So that; this study aimed to assess nurses' level of practice and attitude toward care of patients pre/post laparoscopic cholecystectomy.

2. MATERIALS AND METHOD

A cross-sectional descriptive design was utilized in this study. It was conducted among studied nurses from both male and female surgical wards at Ismailia medical complex from June to the end of August 2019. Ethical approval obtained from the Research Ethics Committee (REC). Registered nurses with previous experience of more than six months were involved in this study. The studied nurses provided approval and a written consents pre their participation in the current study.

2.1 Sampling and sample size:

A nonprobability convenient sample technique of all available nurses (50-nurses) from both sexes previously mentioned wards. The sample size was calculated through the utilizing of the EpiCalc program, 2000), consideration the following: precision (5%) and confidence level (95%). The final estimated sample size was fifty nurses recruited in the targeted wards.

2.3 Tools for data collection: Three tools were utilized in the current study.

Personal data sheet. The researcher developed it to assess demographic data such as (age, gender, education level, experience years, ward type, and receiving previous training program). Observational checklist to observe the level of nurses' practice. It was a valid and reliable checklist adapted by researchers from related previous studies **(Alaa, et al. 2023 & Perry, et al. 2021)**. It was utilized to assess the level of nurse's practice toward care for patients pre/post laparoscopic cholecystectomy, which involved (day pre-laparoscopic operative care, pain control, and post-operative surgical wound care). Each competent step was given one grade, and the incompetent was given zero grade. Adequacy level is considered as low if score≥ 50%, moderate= 51-75%, and high≥75%. Nurses' attitude scale. It was adapted from previous studies to identify nurses' attitude level toward care of patients pre/post laparoscopy cholecystectomy **(Cawich, et al. 2019 & Teshome, et al. 2022)**.

The scale consisted of 10- items on the Likert scale, and their responses were sorted into the following replies: (absolutely disagree=zero, disagree=one, neutral=two, agree=three, highly-agree=four). The total score is accumulated and divided by the sum, so attitude is considered positively as low if the score is≥ 50%, moderate= 51-75%, and high≥75%. A panel of five experts in Medical-Surgical Nursing and Surgery Medicine reviewed it to evaluate tool validity thar clarified its relevance, comprehensiveness, clarity, and applicability. In the same way, tool's reliability was assessed using Cronbach's alpha values for tools II, and II were (0.83), and (0.80) respectively, indicating high internal consistency of the recruited tools. Piloting tools were conducted on four nurses (10%) prior to the start of the study to evaluate its clarity, applicability, and feasibility. The necessary changes were made, and the findings were removed from the study.

2.4 Ethical approval and considerations: The research was approved and coded by the ethics committee Faculty of Nursing, Suez Canal University, Egypt and from hospitals administrator. The research goal was explained to nurses in a clear and simple manner. Participants provided informed consent prior to data collection by coding the collected data. The researcher guaranteed that the subject data would be kept anonymous and confidential and that it would only be used for research purposes.

2.5 Filed of Work: **Overall research work for this study's data collection process began and was completed in six months, from June to the end of August 2019. Prior to data collection, the investigator identified and introduced herself to the participants and gave them an explanation of the study and its aim. Every nurse was selected and interviewed to collect the necessary data for the study. Following their approval, the researcher collected data in three days weekly in all shifts within 5-10 minutes for every participant, which the individualized observational checklist was used for each nurse to evaluate the level of practice at the time of implementing actual care of patient pre/post laparoscopic cholecystectomy. Nurses attitude scale was shared with the participants to be filled according to their personal attitude away from working hours. They trusted the data obtained would be kept confidential and used solely for the study.**

2.6 Statistical analysis: IBM SPSS Statistics 25 was used to analyze it. The data was organized, revised, analyzed, tabulated, and the normality test was≥0.05 evaluated by the Kolmogorov-Smirnov test, clarified parametric data. Data were presented in the form of frequencies and percentages using descriptive statistics. The Chi-square test (x2) was used to compare qualitative variables, and the Spearmen's rank test was used to test the correlation between variables. A statistically significant correlation was considered at p-value< 0. 05.

3. RESULTS

It reveals that more than half (58%) of the study participants were in the age between (20-< and 30 years old) with their mean age (29.5±3.2) Regarding gender, more than two-thirds (82%) of them were females. With concerns to educational qualification, it was shown that more than half (54%) of them have a Technical Institute, and less than half (40%) of them had 5 <10 years of experience. About the ward type, it was found that nearly half (54%) of them had female ward, and more than two-quarter (58%) received related training courses **(Table 1)**.

Regarding pre-laparoscopic cholecystectomy care, explains that less than half (46%) of the study nurses had practice in reviewing physicians' orders with Mean±SD (13±3.5), and more than half (58%) of them had applied education to the patient. While more than two-quarters (62%) of them explain the aim of enemas or laxatives to the patient before surgery rested with Mean±SD (13±1.1) regarding day pre-laparoscopic cholecystectomy care. The same table regarding pain management displays that about (82%) of the studied nurses assessed pain features with Mean±SD (8±2.1), while less than one-third (28%) of them monitored and recorded vital signs with Mean±SD (8±1.0). In the same concerns, more than half (54%) of them assisted patients to change position frequently with Mean±SD (8±1.0) **(Table 2)**.

Concerning post-laparoscopic cholecystectomy care; explains that more than half (54%) of the study nurses placed a waterproof pad under wound site with Mean±SD (24±1.6), and less than half (40%) of them had put on sterile gloves with Mean±SD (24±1.1). While less than one third (30%) labeled dressing with date and time with Mean±SD (24±2.0). in the same line, more than two-thirds (88%) of the studied nurses assessed pain features with Mean±SD (8±0.9), while less than

one-half (40%) of them monitored and recorded vital signs with Mean±SD (8±1.0). In the same concerns, less than one third (24%) of them assisted patients to change position frequently with Mean±SD (8±2.4). **(Table 3)**.

Presented the distribution of the studied nurses about level of attitude scale toward care of patients pre/post laparoscopic cholecystectomy. This table demonstrated that nearly two-thirds of participated nurses their positive level was moderate with Mean±SD (31±2.8) of attitude total score **(Table 4)**.

As concerns the total level of nurses' practice clears that, more than half (58%) of them had moderate adequacy level toward care of patient pre/post laparoscopic cholecystectomy, while more than one quarter (30%) had low adequacy level. As regards the total level of nurses' attitude this figure clears that, less than two third (70%) of them had moderate positive attitude level, on the other hand, less than one-quarter (12%) of them had high positive attitude level toward care of patient pre/post laparoscopic cholecystectomy. There was statistically significant correlation between total nurses' practice adequacy level and attitude level of the studied nurses p value<0.05 **(Figure 1)**.

There was a highly statistically significant correlation between total nurses' practice adequacy level toward care of patient pre/post laparoscopic cholecystectomy and their personal data (age, educational level, experience years, & receiving related training courses) P value<0.01 **(Table 5)**.

Table (1): Frequency and distribution of the studied nurses considering their personal data (n=50).

Variable	N	%
Age (year)		
▪ 20-<30	29	58
▪ 30-<40	12	24
▪ ≥40	9	18
Mean±SD 29.5±3.2		
Gender		
▪ Male	16	18
▪ Female	34	82
Education level		
▪ Diploma Nurse	13	26
▪ Technical Institute	27	54
▪ Bachelor of Nursing	7	14
▪ Post Graduate Studies (technical diploma, MSc, Ph.D.)	3	6
Experience years		
▪ < 5	8	16
▪ 5-<10	20	40
▪ 10-<15	12	24

▪ ≥15	10	20
Mean±SD 8.2±6.1		
Ward type		
▪ Male Ward	23	46
▪ Female Ward	27	54
Receiving related training courses		
▪ Yes	29	58
▪ No	21	42

SD: Standard deviation

Table (2): Frequency and distribution of the studied nurses toward care of patients pre-operative laparoscopic cholecystectomy (n=50).

Procedures	**Mean±SD**	**Competent**	
		N	**%**
A- Day pre-laparoscopic cholecystectomy			
1. Review physicians' orders.	13±3.5	23	46
2. Gather the necessary equipment.	13±6.0	21	42
3. Perform hand washing.	13±3.1	19	38
4. Explain procedure to the patient.	13±4.8	16	32
5. Keep the patient privacy.	13±1.1	22	44
6. Check that informed consent has been signed and dated.	13±2.1	24	48
7. Apply education about: exercises, breathing and coughing exercises, turning in bed, pain management and follow dietary/fluid restrictions.	13±2.9	29	58
8. Inform the patient that IV-line, foley catheter will be inserted to him.	13±1.8	11	22
9. Ask the patient to bathe with antiseptic solution and clean the surgical site.	13±1.9	17	34
10. Explain aim of enemas or laxatives to the patient before surgery.	13±1.1	31	62
11. Check administration of medications regularly.	13±3.2	29	58
12. Perform hand washing.	13±2.5	41	82
13. Document procedures.	13±2.9	45	90
Overall	13±2.1	29	58
B- Pre-laparoscopic cholecystectomy pain management			
1. Assess pain features (severity, location, radiation, …etc.)	8±2.1	41	82
2. Assess using assessment scale (Likert, visual, descriptive, etc.).	8±1.3	32	64

3. Administer analgesia medication as ordered.	8±2.0	21	42
4. Monitor and record vital signs.	8±1.0	14	28
5. Provide distraction activities such as (reading newspaper, watching TV, mobile gaming etc.)	8±3.2	19	38
6. Assist patient to change position frequently.	8±1.1	27	54
7. Provide other treatment modalities to relive pain as herbal.	8±0.0	15	30
8. Document the procedure.	8±1.8	31	62
Overall	8±1.4	34	68

SD: Standard deviation

Table (3): Frequency and distribution of the studied nurses toward care of patients post- operative laparoscopic cholecystectomy (n=50).

Procedures	**Mean±SD**	**Competent**	
		N	**%**
A- Post laparoscopic cholecystectomy wound care			
1. Review medical orders.	24±3.4	12	24
2. Gather necessary equipment.	24±2.8	17	34
3. Perform hand washing and put on gloves.	24±3.4	14	28
4. Explain procedure to the patient.	24±1.0	13	26
5. Place a waste receptacle or bag for use during the procedure.	24±2.1	20	40
6. Adjust bed at comfortable height.	24±2.3	11	22
7. Assist the patient to a comfortable position.	24±3.1	18	36
8. Cover any exposed area other than the wound.	24±2.1	22	44
9. Place a waterproof pad under wound site.	24±1.6	27	54
10. Carefully remove soiled dressings.	24±1.7	15	30
11. Assess characteristics of old dressing.	24±2.4	28	56
12. Inspect the wound site for size, appearance, and drainage.	24±0.9	14	28
13. Check status of sutures, adhesive closure strip and drains if present.	24±0.7	18	36
14. Prepare a sterile work area and open needed supplies.	24±1.8	11	22
15. Open sterile cleaning solution.	24±2.0	24	48
16. Put on sterile gloves.	24±1.1	20	40
17. Clean the wound area using gauze sponge in the same manner.	24±2.2	17	34
18. Apply layer of dry and sterile dressing over the wound.	24±2.1	18	36
19. Remove and discard gloves	24±3.1	19	38
20. Apply tape or roller gauze to secure the dressing.	24±1.1	11	22
21. Label dressing with date and time.	24±2.0	15	30
22. Return patient in comfortable position with side rail up.	24±1.9	13	26
23. Perform hand hygiene	24±3.0	14	28

24. Document the procedure	24±1.1	17	34
Overall	24±3.1	26	52
B- Post-laparoscopic cholecystectomy pain management			
1. Assess pain features (severity, location, radiation, …etc.)	8±0.9	44	88
2. Assess using assessment scale (Likert, visual, descriptive, etc.).	8±1.3	30	60
3. Administer analgesia medication as ordered.	8±2.1	41	82
4. Monitor and record vital signs.	8±1.0	20	40
5. Provide distraction activities such as (reading newspaper, watching TV, mobile gaming etc.)	8±1.4	11	22
6. Assist patient to change position frequently.	8±2.4	12	24
7. Provide other treatment modalities to relive pain as herbal.	8±3.1	10	2
8. Document the procedure.	8±1.8	31	62
Overall	8±1.6	37	74

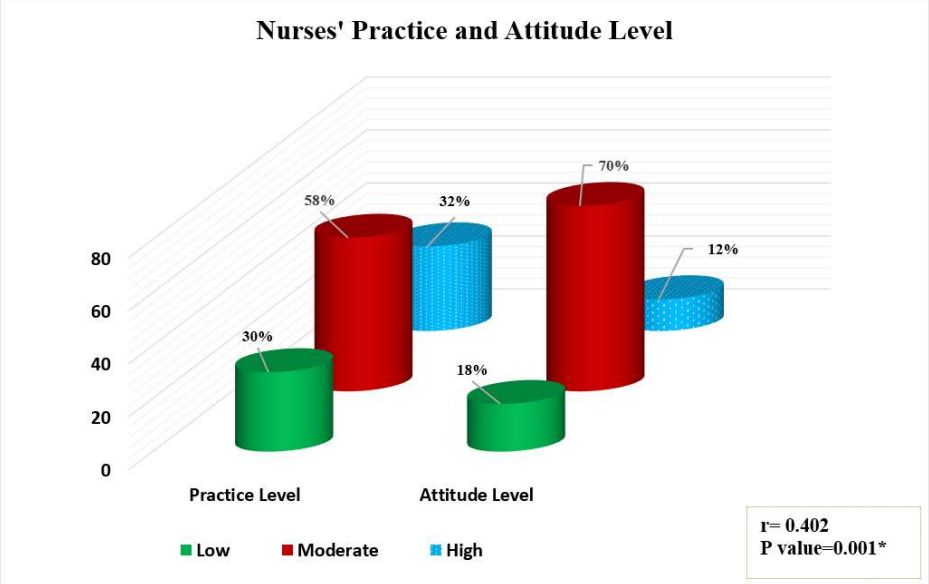
SD: Standard deviation

Table (4): Frequency and distribution of the studied nurses about level of attitude scale toward care of patients pre/post laparoscopic cholecystectomy (n=50).

Attitude scale	N	%
Level		
▪ Low level <30	9	18
▪ Moderate Level 30-<40	35	70
▪ High level ≥40	6	12
Total score		
▪ Min. – Max	0-40	
▪ Mean ± SD.	31±2.8	
▪ Median	31.4	

SD: Standard deviation

Figure (1): Percentage distribution of the studied nurses' total level of practice and attitude and its correlation toward care of patients pre/post laparoscopic cholecystectomy (n=50).



r test: Pearson correlation coefficient (*) Statistically significant at p<0.05

Table (5): Relation between the studied nurses' personal data and their total practice and attitude toward care of patients pre/post laparoscopic cholecystectomy (n=50).

Variable		The studied nurses		Total practice		Total attitude	
		N	%	X^2	P-v.	X^2	P-v.
Age (year)	20-<30	29	58	7.89	0.00 *	6.21	0.01 *
	30-<40	12	24				
	≥40	9	18				
Mean SD	29.5±3.2						
Gender	Female	16	18	2.71	0.52	4.11	0.78
	Male	34	82				
Education level	Diploma Nurse	13	26	14.2	0.01 *	9.12	0.51
	Technical Institute	27	54				
	Bachelor of Nursing	7	14				
	Post Graduate Studies (technical diploma, MSc, Ph.D.)	3	6				
Experience years	< 5	8	16	18.1		13.9	
	5-<10	20	40				
	10-<15	12	24				

	≥15	10	20		0.05*		0.02*
Receiving related training courses	Yes	29	58	4.02	0.04*	2.71	0.00*
	No	21	42				

X^2: Chi squared tests *Significantly significant at p ≤0.05.

4. DISCUSSION

The current study's aim was to assess nurses' level of practice and attitude toward care of patients pre/post laparoscopic cholecystectomy of nurses working in surgical wards. Regarding the personal data of the studied nurses, the existing study illustrated that, about than two-thirds of them were female and more than half of them were at the age of (20-30) years with mean age nurses of was (29.5±3.2). This finding was confirmed by **Alaa, et al (2023)**, indicated that there were primarily females in the study group, and the age range (25–30) of the study group's members was more than three quarters. Nurses' performance has been evaluated for similar result in Baghdad Teaching Hospitals by **Kadhim, (2014)** that disagreed with the current study findings, which indicated that two third of the nursing staff are male. It is true, because of the intensity and number of responsibilities, surgical wards require male nurses.

Concerning education level, the current study simplified that, more than half of them had a technical institute and less than half of them had (5<10) years of experience. About more than two-quarters received related training courses. This result is in harmony with study of **AbdElgil et al. (2020)**, it was carried out in Bab ElSharia and ElHussein Hospital affiliated to Alazhar University and stated that less than half of the study group have a Technical Institute of nursing, while less than half of them have experience ranging from five to ten years. The current study finding was in interfered **with Eldeen, (2016)**, cited that, less than half of the studied nurses had one to three experience years and less than three quarters were bachelor of nursing. The researcher point of view; hospitals implications were dependent upon academic nurses graduated are still low, in contrast to those that that graduate diplomas degrees are high.

As concerns with receiving training courses toward care of patients pre/post laparoscopic cholecystectomy; in pre-operative care phase for patients, results of the current study presented that more than two-quarters of the studied nurses had competent practice toward day care pre-laparoscopic cholecystectomy. This current finding was reinforced by **Salime, & Talaat, (2021)** who enumerated that more than half of the study participant had moderate satisfactory level of practice toward day care pre- laparoscopic cholecystectomy that was carried out in Saied Galal & Elhussien hospital at the Alazhar University Hospitals. In contrast findings with **AbdElgilil, (2020)** who declared that that more than two third of the studied nurses had unsatisfactory level of practice in day pre-operative care for patient pre-laparoscopic cholecystectomy. A competent level of practice was concerned with receiving training programs and the number of academic graduates.

The current study clarified that less than three-quarters of the studied nurses had competent level

of practice toward pain management pre/post operatively for patients undergoing laparoscopic cholecystectomy. This issue supported with **Alaa, et al (2023)**, presented that most of the studied nurses had a competent level of practice regarding pain management toward care of patient pre-laparoscopic cholecystectomy. There was disagreement with this study's result by **(Elsayed, 2021)** illustrating that slightly less than one third of participated nurses had incompetent level of practice regarding pain management for patient pre/post laparoscopic cholecystectomy. A high performance of participants concerned with effective education level, training program, individual motives, and encouragement of hospital academic affairs to staff.

The study' results illustrated that less than three-quarters of the studied nurses had competent level of practice toward post laparoscopic cholecystectomy wound care. This study's findings supported by **Hasan, (2011) and Evans, & Donnelly, (2015)** in both studies presented that most of the studied nurses had a satisfactory level of practice toward wound care post-laparoscopic cholecystectomy. There was opposition to this study's findings by **Elsayed, (2021), & Zeb, et al. 2019)** showed that most of the studied nurses had incompetent level of practice regarding wound management for patient post laparoscopic cholecystectomy. A competent level of participants performance was focused on designed national upgrading policies and procedure to improve nurses practice, desires of participants to upgrade their carrier and promotion. So that; totally less than three quarters of the studied nurses had moderate competent level of practice toward care of patients pre/post laparoscopic cholecystectomy in the study setting.

Concerning the level of the studied nurses' attitude; the current result revealed that nearly two thirds of the studied nurses had a moderate level of positive attitude. This is supported by **Amer, et al. (2015)** they showed that most studied nursesmore than two-thirds had a satisfactory attitude toward care of patients undergoing laparoscopic cholecystectomy. In opposite way, this mentioned finding was contradicted with **Cawich et al. (2019)** that mentioned that the attitudes of the studied nurses in this setting are not favorable with majority of them. In the same way, there was statistically significant correlation between the studied nurses' adequacy level of practice and their level of attitude toward care of patient pre/post laparoscopic cholecystectomy. This may be related to the fact that their undergraduate nursing education curriculum includes enough scientific courses related to cholecystectomy, as well as the fact that there are not enough programs for continuing education and in-service training.

Concerning with the relation between studied nurses' personal data and their total adequacy level of practice toward care of patients pre/post laparoscopic cholecystectomy, the existing study's results presented that, there was a high statistically significant relation between nurses' personal data (age, education level, experience years, & receiving related training courses) and their total adequacy level of practice toward care of patient pre/post laparoscopic cholecystectomy at p value <0.05. This was consistent with **Said, et al. (2018) & Church, (2016)** they concluded that based on their study's results; there was a significant difference between total nurses' competence and their demographic data.

The present study specified that there was a highly statistically significant relation between the

studied nurses' personal data (age, experience years, & receiving related training courses) and their total level of positive attitude toward care of patients pre/post laparoscopic cholecystectomy. This showed result agreed with **Feghhi, (2016) & Lee, et al. (2023)**, declared that there was a significant positive relation between total level of attitude and their demographic data as age, gender, and receiving training program. However, the results were inconsistent with the study's findings by **Haq et al., (2017) and Bahar, & Önler, (2020)**, they found out that there was a non-significant relation in between nurses' attitude level and socio-demographic data between at $p<0.05$) were detected. A competent level of performance, administrative support from the hospital, as well as developing a new national organization as comprehensive health insurance along country have a targeted impact of nurses' behavior and attitude toward care patient pre/post laparoscopic cholecystectomy. Study limitations were clearly assessed pre the study and managed to maintain clarity of the study's aim as turnover time, and changing location of department for rearranged the ward.

5. CONCLUSION AND RECOMMENDATION

According to the findings of the present study, can be concluded that, more than half of studied nurses had moderate adequacy level of practice toward care of patients pre/post laparoscopic cholecystectomy at surgical ward, while less than two third of them had moderate positive attitude level toward care of patients pre/post laparoscopic cholecystectomy at surgical ward. On the same way, there is a highly statistically significant correlation between total nurses' adequacy level of practice and total positive attitude. The following recommendation were designed in concerning with the most current findings: The establishment of individualized training programs (ITP) for nurses toward pre- and post-operative care for patients having laparoscopic cholecystectomy in an advanced and thorough manner is necessary. Improve health services through promotion the positive attitude of nurses. Considering more attention to the material in both higher education and in-service training. Replication on a large sample and in other hospital settings is required for the result to be generalized.

Acknowledgment: The author extended their pressing gratitude and appreciation to the hospital directors, nursing manager, and head nurses for their support and cooperation while implementing the study.

Author Contributions: Data collection and documented methodology, introduction and conceptual framework, interpretation, and conceptualization of the tool were all contributions organized reference, prepare manuscript and submission to journal developed by the researcher.
Conflict of Interest: The current study revealed no conflicts of interest.
Funding Statement: This research did not obtain any grant or financial support for commercial or non-commercial purposes.
Data Availability: The author will provide the data sets created and analyzed during this work upon reasonable request.

6. REFERENCES

[1] AbdElgilil, S. A., Talaat, T., & Mahmoud, B. H. (2020). Nurses Performance Regarding Care of Patients Undergoing Laparoscopic Cholecystectomy. International Journal of Novel Research in Health Care and Nursing (1), 1202-16.

[2] Alaa, S. M., Ahmed, H. A. M., Syam, N. M., & Ali, S. S. (2023). Nurses' Knowledge and practices regarding the Perioperative Care of Patients with Cholelithiasis undergoing Laparoscopic Cholecystectomy: Guidelines Proposal. Alexandria Scientific Nursing Journal, 25(1), 93-101.

[3] Amer, W. M., Taha, N. M. & Zaton, H. K. (2015): Nurses Knowledge and Practice Regarding Gastrointestinal Endoscopy and Suggested Nursing Guidelines. Afro-Egyptian Journal of Infectious and Endemic Diseases, 5(2), 115-130.

[4] Bahar, S., & Önler, E. (2020). Turkish surgical nurses' attitudes related to patient safety: A questionnaire study. Nigerian journal of clinical practice, 23(4), 470-475.

[5] Cawich, S. O., Simpson, L., Wilson, C., Baker, A., Cherian, C., SoTwe, Y., & Thomas, C. (2019). Healthcare workers' attitudes toward laparoscopic surgery for gallbladder disease in the Caribbean. Current Medicine Research and Practice, 9(1), 10-13.

[6] Church, C. D. (2016): Defining competence in nursing and its relevance to quality care. Journal for nurses in professional development, 32 (5), E9-E14.

[7] Eldeen, S.M.G. (2016): Assessment of Nurse's Knowledge about Nursing Management for Patients Undergoing Cholecystectomy in Elmak Nimer University Hospital (Doctoral dissertation, Shendi University.

[8] Elsayed, A. M., Taha, N. M., & Metwaly, E. A. (2021). NursesKnowledge and Practice Regarding Care for Patients Undergoing Cholecystectomy. Zagazig Nursing Journal, 17(1), 13-25.

[9] Evans, R. J. & Donnelly, G. W. (2015): A model to describe the relationship between knowledge, skill, and judgment in nursing practice. In nursing forum (Vol. 41, No. 4, pp. 150-157). Malden, USA: Blackwell Publishing Inc.

[10] Feghhi, F. (2016): Study of relationship between attitude and practice of nurses in the care of drug-dependent patients admitted in public hospitals of the city of yasouj, iran in 2014. Acta medica mediterranea, 32: 1011.

[11] Haq, N., Riffat, Y., Nasim, A., Raiz, S., Haider, S., & Khan, S. (2017): Assessment of Nurse's Knowledge, Attitude and Practice Regarding Hepatitis-B Infection in Tertiary Care Public Hospital in Quetta Pakistan. Value in Health,20 (9), A935.

[12] Harding, M. M., Kwong, J., Roberts, D., Hagler, D., & Reinisch, C. (2020). Lewis's medical-surgical nursing. Amsterdam, The Netherlands: Elsevier Health Sciences.

[13] Hassan, G. (2011). Effect of designed nursing protocol on nurse's knowledge and practice regarding Hemodialysis patients. Submitted for Partial Fulfillment of the Requirements of The Master's Degree in Adult Nursing Faculty of Nursing, Assiut University, Results part, 58.

[14] Ignatavicius, D. D., & Heimgartner, N. M. (2023). Clinical Companion for Medical-Surgical Nursing-E-Book. Elsevier Health Sciences.

[15] Iseda, N., Iguchi, T., Sasaki, S., Itoh, S., Honboh, T., Yoshizumi, T., & Matsuura, H. (2023). Textbook outcome in the surgical treatment of acute cholecystitis.

[16] Kadhim, H. (2014). Assessment of Postoperative Nurses' Interventions for the Patients with Laparoscopic Cholecystectomy at Baghdad Teaching Hospitals. Iraqi National Journal of Nursing Specialties, 1(27), 11-22.

[17] Lee, C. E., Lee, S. J., Moon, J. I., Choi, I. S., Yoon, D. S., Choi, W. J., & Kim, S. G. (2023). Acute cholecystitis in old adults: the impact of advanced age on the clinical characteristics of the disease and on the surgical outcomes of laparoscopic cholecystectomy. BMC gastroenterology, 23(1), 1-8.

[18] Lewis, S.L., Dirksen, S. R., Heitkemper, M.M. & Bucher, L. (2018): Medical-Surgical Nursing in Canada-E-Book. Elsevier Health Sciences.

[19] Mohammed, W. K. (2018): Assessment of Health education which is provided to Postoperative Patients with Gallstone" Obstructive Jaundice". Nursing national Iraqi specialty, 18 (1), 1-10. Published 2018-11-01.

[20] Perry, A. G., Potter, P. A., Ostendorf, W. R., & Laplante, N. (2021). Clinical nursing skills and techniques-E-Book. Elsevier Health Sciences.

[21] Said, S. and Desouky, A. (2018): Comparative Study: Postoperative Nurses' Competency Regarding Cholecystectomy at University and Non-University Hospitals. IOSR Journal of Nursing and Health Science (IOSR- JNHS) e- ISSN: 2320–1959.p- ISSN: 2320–1940 Volume 7, Issue 2 Ver. II (Mar-Apr.2018), PP 40-49

[22] Salime, R., A & Talaat, S. T. (2021). Effect of self-learning package on nurses knowledge and practices regarding patient care undergoing laparoscopic cholecystectomy. Egyptian Journal of Health Care, 12(1), 156-170.

[23] Teshome, Z. B., Aychew, Y., Mitiku, W., & Guta, B. (2022). Level of attitude, knowledge and practice of nurses toward postoperative pain management, cross-sectional study. Annals of Medicine and Surgery, 84, 104902.

[24] Vincent, J. L., Moore, F. A., Bellomo, R., & Marini, J. J. (2022). Textbook of critical care. Elsevier Health Sciences.

[25] Zeb, A., Farhana, Jewewria, Marym, Uzma, (2019): Nurses' Knowledge Regarding Post-

operative Pain Management. J Healthc Comm un-Vol.4 No.1: 1 doi: 10.4172/2472-1654.100151.