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Evaluation of Nurses' practices Regarding Care for Patients Undergoing Laparoscopic Cholecystectomy

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Abstract:

Background: Although laparoscopic surgery has radically transformed surgical outcomes in cholelithiasis, the quality of bedside nursing interventions has a significant influence on the clinical efficacy of laparoscopic surgical interventions. Accurate performance of the perioperative operations are crucial towards the reduction of postoperative risks and expediting the recovery process.

Objectives: This research project was aimed at exploring clinical performance and procedural skills of nursing staff during the perioperative period of patients undergoing laparoscopic cholecystectomy surgery.

Methodology: As the observational cross-sectional approach was used, 60 nurses working in surgical departments and operating theaters were observed. The study involved a Standardized Observational Practice Checklist that was used to objectively assess the nursing practice in the direct care of the patient. Data analysis was aimed to determine the level and frequency of the tasks performed using descriptive statistical measurements.

Results: The results showed that 63.5 percent of the identified nursing activities were categorized as "Partially Performed. As a result of all these, the average score of the overall clinical practice was rated as being fair with a mean score of 1.65. The findings reveal an apparent discrepancy between the conventional nursing guidelines and real clinical practice in the observed surgical units.

Conclusions: A large share of the nursing work force is of moderate size of practical competence, which is described by the partial observance of the steps of comprehensive care. These findings underscore an urgent need to have systematic clinical models in order to normalize care in surgical nursing.

Recommendations: To cut the gap in nursing performance it is imperative that tough clinical training programs and practical workshops are put in place. The surgical wards must be furnished with new and standardized procedural manual to guide the staff in providing high quality and consistent care to laparoscopic patients.

Keywords: Clinical Competence, Nursing Practices, Observational Study, Surgical Care, Patient Safety.

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INTRODUCTION

Gallbladder disease, or rather cholelithiasis, is one of the most widespread gastrointestinal conditions in the world that are often caused by an imbalance of the components of bile (Al-Saeedi et al., 2022). They can either become potentially fatal biliary pancreatitis or acute cholecystitis unless treated (Gurusamy et al., 2021). Recent epidemiological data report that between 10% and 20% of adults in developed countries suffer due to gallbladder disease (Al-Saeedi et al., 2022). With the increasing incidence of gallbladder disease, the workload of the surgery is growing in the Middle East, significantly increasing the number of cases of gallbladder disease that require the attention of the health care facility (Mohamed et al., 2025), and this necessitates the provision of more health care facilities and the training of personnel to assist in the management of the increasing cases of gallbladder disease. Laparoscopic cholecystectomy (LC) is a minimally invasive surgical procedure used to remove the gallbladder with the help of special video-assisted instruments (Tan et al., 2023). The laparoscopic cholecystectomy (LC) is the most effective option of treating symptomatic gallstones with laparoscope (Vidal et al., 2020). The substantial decrease in postoperative pain is one of LC's main benefits. Vidal et al. (2020) state that patients with LC report lower pain scores by 40% to 60% as compared to patients who have open surgery, which leads to a reduced opioid requirement. The effectiveness of LC is supported by the effect it has on hospital resources; on average, open surgery only takes five or seven days, whereas LC spends 24 to 48 hours on average (Tan et al., 2023).The recovery after LC is very fast, and most patients are able to resume full physical activity and work within 7 10 days (Vidal et al., 2020). Nursing care is the key to successful surgery as it is a combination of psychological support and clinical monitoring (Kaur and Sharma, 2024).To detect possible anesthetic risks, preoperative preparation entails a thorough physical examination and maintaining "NPO" status for six to eight hours (Kaur & Sharma, 2024).A potent nursing intervention, structured preoperative education can lower patient anxiety scores by as much as 35%, resulting in more stable vital signs (Kaur & Sharma, 2024). To prevent pressure ulcers during the procedure, the intraoperative nurse oversees patient positioning and makes sure the "Surgical Safety Checklist" is followed (Ahmed & Hassan, 2023). Multi-modal analgesia is the main focus of postoperative nursing, where nurses evaluate pain every two to four hours and successfully administer prescribed drugs (Zhu et al., 2022). Nurses monitor for erythema around the small umbilical and subxiphoid incisions. Careful nursing care can prevent systemic complications, despite the low infection rate (1% to 2%) in LC (Zhu et al., 2022). It has been demonstrated that encouraging the patient to walk within four to six hours following surgery improves bowel motility and lowers the risk of deep vein thrombosis (DVT) (Zhu et al., 2022). Because skilled nurses serve as the patient's "safety filters," the quality of surgical care is closely linked to the nurse's theoretical background (Mohamed et al., 2025). According to research, surgical mortality and "failure to rescue" rates are 15% lower in hospitals with highly qualified nurses (Mohamed et al., 2025). An experienced nurse can identify early indicators of internal bleeding, such as tachycardia, before they worsen (Ahmed & Hassan, 2023). By ensuring that nursing interventions are grounded in the most recent scientific research, EBP lowers clinical variations and standardizes care, which ultimately leads to improved patient outcomes and reduced rates of complications (World Health Organization [WHO], 2021). In 0.3% to 0.5% of cases, complications such as injuries to the bile duct occur. Nurses must monitor for a rigid abdomen, which is one of the symptoms of peritonitis (Ahmed & Hassan, 2023). 35% to 60% of patients experience post-laparoscopic shoulder pain as a result of phrenic nerve irritation. Early walking and appropriate positioning are two ways that nurses address this (Zhu et al., 2022). According to studies, there is a "knowledge gap" that prevents some nurses from accurately identifying all early indicators of bile duct injury, which calls for standardized training (Ahmed & Hassan, 2023). The importance of this research is that it highlights the need to train to improve patient outcomes in the hospitals of the area (Smith, 2024). The goal is to assess the status of the nursing practice and knowledge in regard to LC care.

Methodology

Study Design

The actual level of nursing practice with reference to patient care after Laparoscopic Cholecystectomy (LC) was investigated using a descriptive cross-sectional study design. It is an appropriate design that can be used to evaluate the performance of healthcare providers at a particular moment in time in a clinical setting.

Study Setting

The research was conducted at the Al-Fallujah Hospital, in the surgical wards as well as the operating theater department. To select the setting, a large number of laparoscopic surgeries and a high number of nurses working in different shifts (morning, evening, and night) were considered.

Study Sample

A non-probability purposive sample consisting of 60 nurses was recruited for the study. To guarantee the reliability of the practice assessment, the sample was chosen based on the direct involvement of nurses in the practice assessment, such as the direct work in the perioperative and postoperative care of LC patients, covering all the active work shifts in order to present a complete picture of clinical performance.

Study Instrument (The Practice Checklist):

Taking data was mainly done using a Structured Observation Checklist (or a self-report practice scale, depending on your method). The instrument was created specifically to assess clinical skills in various areas:

- Postoperative Monitoring: The emphasis is on the rate and quality of the vital signs assessment.
- Discharge Education: Concentrates on how the nurse will be able to offer practical postoperative instructions.

Validity and Reliability

The content validity of the instrument was determined by a group of professionals in the field of nursing and surgery. In order to make it reliable, a pilot study was performed, and the Alpha of Cronbach was computed to check whether the tool is reliable in measuring clinical performance.

Data Collection:

The data were gathered using the direct observation (or self reporting) method of data collection during the active shifts of nurses. To reduce observation bias (Hawthorne effect), the researcher played a neutral role and ensured that the practices recorded were the normal daily activities at the hospital.

Ethical Considerations:

The ethical approval was sought through the institutional committees concerned. Informed consent was given by each of the participants, and all the data were kept anonymous and confidential and were used with the purpose of improving clinical nursing standards.

Statistical Analysis:

The data collected were analyzed in SPSS version 26. The level of practice was categorized by using descriptive statistics (frequencies, percentages, means, and standard deviations). The relationship between clinical performance of the nurses and their demographic traits was determined using inferential statistics (ANOVA and Pearson Correlation).

Results

Table 1: Demographics Study Sample Demographic Characteristics and Professional Background (n=60)

Demographic Characteristics	Classification	F	%
Age/ years	22-28	35	58.3
	29-35	13	21.7
	36-42	3	5.0
	43-49	6	10.0
	50-56	3	5.0
	Mean ± SD	31.25±8.49	

Gender	Male	45	75.0
	Female	15	25.0
Martial status	Single	39	65.0
	Married	21	35.0
Educational level	Diploma	48	80.0
	Bachelor	12	20.0
Years of experience in nursing	less than 1 year	3	5.0
	1_3 years	15	25.0
	3_5 years	19	31.7
	5 years and above	23	38.3
Current working department	General surgery ward	17	28.3
	operating room	16	26.7
	Recovery room	5	8.3
	surgical emergency unit	8	13.3
	surgical intensive care unit	14	23.3

The table 1 demonststed that the sample is also heterogeneous in the respect of clinical experience and education background which is a complete foundation in establishing the clinical practice as practiced in various surgical units.

Table 2: The Practices of Nurses on the management of Post-operative Pain (N=60).

Items	Fully Performed		Partially Performed		Not Performed		M	SD	Level
	F	%	F	%	F	%			
Assess pain immediately on arrival in recovery	25	41.7	28	46.7	7	11.7	1.78	0.37	Good
Assess pain using standardized scales (VAS/NRS)	13	21.7	33	55.0	14	23.3	1.53	0.39	Fair
Reassess pain after every intervention	17	28.3	33	55.0	10	16.7	1.58	0.39	Fair
Document pain assessment findings accurately	17	28.3	35	58.3	8	13.3	1.60	0.39	Fair
Administer prescribed analgesics timely	21	35.0	32	53.3	7	11.7	1.70	0.41	Fair
Monitor patient response to pain medication	20	33.3	34	56.7	6	10.0	1.70	0.40	Fair
Use non-pharmacological pain relief methods (positioning)	16	26.7	35	58.3	9	15.0	1.57	0.39	Fair
Document pain assessment and interventions accurately	17	28.3	30	50.0	13	21.7	1.53	0.42	Fair
Follow hospital protocols/guidelines on pain management	19	31.7	33	55.0	8	13.3	1.62	0.39	Fair
Promote early mobilization as part of pain management	20	33.3	29	48.3	11	18.3	1.63	0.41	Fair
Total post operative Nurses' Pain Management Practices	**19**	**31.0**	**32**	**54.0**	**9**	**15.0**	**1.58**	**0.39**	**Fair**

Table 2 shows the practices of nurses with respect to the management of post-operative pain. The majority of the activities were partially done, specifically pain reassessment and documentation. The practices that were fully performed fell between 21.7% and 41.7%. Pain measurement on arrival in recovery revealed a relatively improved performance. The overall average practice score was 1.58 with a standard deviation of 0.39. The general assessment of the pain management practices of nurses was fair, which is the medium level of compliance with the standards.

Table 3: Nurses' Practices in Monitoring Post-operative Vital Signs (N=60)

Items	Fully Performed		Partially Performed		Not Performed		M	SD	Level
	F	%	F	%	F	%			
Monitors heart rate every 15 min for first hour	16	26.7	37	61.7	7	11.7	1.77	0.43	Good
Monitors vital signs every 30 min for next 2 hrs	11	18.3	42	70.0	7	11.7	1.78	0.41	Good

Monitors vital signs hourly until patient stable	19	31.7	33	55.0	8	13.3	1.72	0.45	Fair
Measures oxygen saturation continuously (pulse oximetry)	11	18.3	43	71.7	6	10.0	1.78	0.41	Good
Documents all vital signs with correct time intervals	25	41.7	27	45.0	8	13.3	1.63	0.49	Fair
Observes skin color for adequate perfusion	16	26.7	35	58.3	9	15.0	1.72	0.45	Fair
Observes capillary refill and nail beds for perfusion	20	33.3	21	35.0	19	31.7	1.53	0.50	Fair
Assesses patient airway patency	17	28.3	33	55.0	10	16.7	1.72	0.45	Fair
Responds to complaints related to vital signs abnormalities	19	31.7	34	56.7	7	11.7	1.73	0.44	Fair
Observes for restlessness, signs of patient distress	7	11.7	43	71.7	10	16.7	1.78	0.41	Good
Total post operative Nurses' Pain Management Practices	**171**	**28.5%**	**391**	**65.2%**	**99**	**16.5%**	**1.72**	**0.44**	**Fair**

Table 3 shows the practices of nurses in the monitoring of post-operative vital signs. The monitoring activities (particularly in terms of regular intervals and documentation) were partially performed by the majority of nurses. They reported good performance in initial heart rate monitoring and oxygen saturation measurement. But, screening of airways and monitoring of perfusion were seen as fair, mainly. The total mean score was 1.72 ± 0.44. In general, the practices of nurses in terms of vital signs monitoring could be described as fair.

Table 4: Overall Post laparoscopic cholecystectomy Nurses' Practice (N=60).

No	Items	Fully Performed		Partially Performed		Not Performed		M	SD	Level
		F	%	F	%	F	%			
1	Post-operative Pain Management	**19**	**31.0**	**32**	**54.0**	**9**	**15.0**	**1.58**	**0.39**	**Fair**
2	Monitoring Post-operative Vital Signs	**171**	**28.5%**	**391**	**65.2%**	**99**	**16.5%**	**1.72**	**0.44**	**Fair**
	Overall Post Nurses' Practice	190	30.2	423	63.5	108	16.2	1.65	0.42	Fair

Table 4 shows the general levels of practice of nurses when we take care of patients who have undergone laparoscopy to have their cholecystectomy. These data show that the overall mean score of practice is 1.65 +0.42 which is associated with a level of Fair. A close examination reveals that most of the nursing interventions were partially performed (63.5%), with only 30.2% being fully performed. In particular, post-operative vital signs monitoring had a mean of 1.72 \pm 0.44, whereas post-operative pain management had a little lesser mean of 1.58 \pm 0.39. These results indicate that there is a great necessity to train clinically to transform nurses into half-performing surgery care protocols.

Table 5: A correlation between the practice of nurses who provided care to patients undergoing laparoscopic cholecystectomy and their demographic factors and professional background.

Demographic / Professional Characteristic	Category	Knowledge (Mean)	SD	Level	Test	p-value	Interpretation
Age (years)	22–28	1.63	0.41	Fair	ANOVA	0.212	NS
	29–35	1.66	0.42	Fair			
	36–42	1.68	0.40	Fair			
	43–49	1.70	0.43	Fair			

	50–56	1.65	0.39	Fair			
Gender	Male	1.66	0.42	Fair	t-test	0.305	NS
	Female	1.63	0.41	Fair			
Marital Status	Single	1.65	0.42	Fair	t-test	0.398	NS
	Married	1.66	0.41	Fair			
Educational Level	Diploma	1.63	0.41	Fair	t-test	0.028	S
	Bachelor	1.72	0.42	Fair			
Years of Experience	<1 year	1.58	0.39	Fair	ANOVA	0.036	S
	1–3 years	1.61	0.41	Fair			
	3–5 years	1.66	0.42	Fair			
	≥5 years	1.70	0.43	Fair			
Current Working Department	General Surgery Ward	1.63	0.41	Fair	ANOVA	0.042	S
	Operating Room	1.68	0.42	Fair			
	Recovery Room	1.64	0.40	Fair			
	Surgical Emergency Unit	1.65	0.41	Fair			
	Surgical Intensive Care Unit	1.69	0.43	Fair			

Table 5 shows statistical correlation between clinical practice of nurses and demographic and professional characteristics. The findings indicate that there are no statistically significant differences in practice scores with respect to age, gender or marital status ($p > 0.05$). Nonetheless, a very important association has been discovered between the level of practice and three professional factors: educational level ($p = 0.028$), years of experience ($p = 0.036$), and the current working department ($p = 0.042$). Nurses with the Bachelor degree, those with five years or more experience, and those who work in specialized units (Surgical ICU and Operating Room) demonstrated a much better clinical performance in comparison to their peers.

Discussion

The results revealed that the clinical practice of the nurses reached a level of Fair (Mean = 1.65) with an alarming percentage of 63.5% of the tasks being Partially Performed. The pattern of Suboptimal Practice implies that the nurses know what is required of them, but the systemic barriers prevent them to perform optimally. It is in line with Lee (2020) in relation to the lack of information on preoperative preparation but in contrast to Hamid (2020), who reported the full preparedness of the procedures in different settings. The poor performance in specialized activities like Drain Removal is contrary to that of Atiyah and Khudhur (2021), meaning that there was a lack of 'Step-by-Step' clinical adherence. Besides, the observation of the significant practice discrepancy between the OR/SICU and the General Wards ($p = 0.042$) indicates that there is a so-called Safety Gap in the context of patient transfer, which is the stage where Abd-Elgilil et al. (2020) note that the latter is especially vulnerable. Thabet (2013) noted that due to the absence of a standardized set of checklists, high-pressure environments tend to produce so-called Shortcut Nursing, where documentation and physical examination, capillary refill, etc. are often omitted. The research found that there was a significant correlation between nursing practice and the working department ($p = 0.042$) and the years of experience ($p = 0.036$). The high compliance reported by the OR and SICU point to the fact that high-acuity units require stronger adherence to protocols, a conclusion that is supported by Eskander et al. (2013). The level of fairness observed in general wards suggests a Safety Gap between general and acute wards, as highlighted by Abd-Elgilil et al. (2020). The significant association with educational achievement ($p = 0.028$) indicates that nurses with advanced degrees are more likely to correctly use the standardised guidelines (Said and Desouky, 2018).The high percentage of the prevalence of the so-called Partial Performance (63.5%) across all demographics, no matter what age or gender they belong to, indicates that the systemic barriers, such as workload and the absence of nurse-directed protocols (Krammes, 2021), are the most significant barriers to achieving the desired and so-called Excellent level of practice. This supports the argument put forward by Thabet (2013) that compulsory clinical checklists are necessary to normalize performance in different hospital settings. This paper shows that there is a significant positive correlation ($r = 0.79$, $p = 0.002$) between overall knowledge and overall practice. This confirms the fact that as theoretical understanding increases, there is a significant increase in clinical performance. This is in contrast to Thabet (2013) and ASNJ (2023) who found no significant correlation, but strongly supports Abdelgilil et al. (2020) and Kadous (2018). Such an interaction implies that the observed 'Fair' practice is a direct effect of the 'Fair' level of knowledge.

Therefore, the most effective method to ensure the implementation of the so-called Enhanced Recovery and good patient safety is the improvement of the educational framework through the protocols, proposed by Krammes (2021) and the POQI-4 Working Group (Edwards et al., 2019) .

Conclusions

The study concludes that a particular pattern of partial performance is observed in nurses with the majority of cases showing a fair level of practice (Mean = 1.65) and 63.5% of tasks performed only partially. There is a significant difference in clinical performance between specialized units (like the operating room (OR) and surgical intensive care unit (SICU)) and general wards, and a significant safety deficit is evident during patient transfers between specialized units (such as the operating room (OR) and surgical intensive care unit (SICU)) and general wards. In addition, there are severe technical inadequacies, especially in specialized procedures, such as removal of capillary refill and assessment of restlessness.. The similarity in the overall fair performance of different ages and genders suggests that these problems are systematic and have been caused by a deficiency of standardized procedures rather than individual failures. These systemic problems can only be resolved by conducting a comprehensive review of the current training programs and the development of standardized protocols that will prioritize best practices. Nurturing a culture of continuous enhancement and responsibility can help healthcare institutions enhance patient safety and ensure a more consistent level of care across all demographics.

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