

PERCEPTION OF THE POST-OPERATIVE PATIENTS REGARDING CHEST DRAIN TUBE NURSING CARE IN SIR GANGA RAM HOSPITAL, LAHORE

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Abstract

Background: A chest drain tube is an elastic, hollow tube inserted into the chest to remove air, blood, or fluid from the esophagus, heart, or lungs. Complications can include air trapping under the skin or bleeding. Nurses are responsible for patient care, meeting rising expectations, enhancing care quality, and ensuring safety during hospitalization and treatment.

Objectives: To assess the perception level of patients its association with demographic regarding chest drains tube nursing care.

Methodology: An analytical cross-sectional study at Sir Ganga Ram Hospital in Lahore, Pakistan, collected data from 118 post-operative patients using purposive sampling and a self-structured Likert scale questionnaire with 11 questions. Unconscious patients, those with psychiatric disorders, and those with other medical conditions were excluded. Data analysis was performed using descriptive and inferential statistics on SPSS version 25.

Results: The majority of patients were females (56.8%), illiterate (39.0%), aged 36-45 years (39%), and living in rural areas (67.8%). There is a significant association between area of residence and perception of chest drain tube nursing care ($p = 0.017$), but no significant association with age, education level, or gender. Most patients (98.31%) had a positive perception, while a small percentage (1.69%) had a negative perception regarding chest drain tube nursing care.

Conclusion: The study highlights high satisfaction among post-operative patients with their participation in decision-making, nursing staff feedback, and pain management during chest drains tube care. Rural residents had more positive perceptions than urban ones, though gender, age, and education level showed no significant associations. Effective communication is key to a positive patient experience, but further research is needed to explore additional factors influencing patient perceptions.

Introduction:

A chest drain tube, also known as an intercostal catheter or Bulau drain, is a flexible, hollow tube inserted between the ribs into the pleural cavity to remove air, blood, or fluid from around the lungs, heart, or esophagus, allowing the lungs to fully expand (1). There are two types of chest tubes: mediastinal and pleural. Mediastinal tubes are placed in the extra pleural space after heart surgery to prevent cardiac tamponade from post-operative bleeding. Pleural tubes are inserted into the intrapleural space between the visceral and parietal pleura, which normally contains about 25 ml of lubricating fluid to reduce friction during chest movements.(2).

Chest tube complications may include incorrect placement, injury to nearby organs, subcutaneous air trapping, bleeding from forceful insertion, intercostal nerve pain, fluid accumulation, and, in rare cases, Horner syndrome.(3). The respiratory system is vital for sustaining life by supplying the body with oxygen. We breathe around 20,000 times daily, and the heart beats about 35 million times a year to circulate oxygen-rich blood throughout the body. Therefore, maintaining healthy lungs and heart is essential, as even minor chest issues can become life-threatening. (1)

Nursing staff play a key role in chest tube care, but challenges like understaffing, heavy workloads, limited supplies, and inadequate training can lead to complications. Additionally, some nurses struggle with monitoring drainage accurately or understanding when to clamp the tube.(4). Nurses play a vital role in patient care due to their constant presence, making it crucial for them to promptly identify and manage issues in patients with chest tubes. With the right knowledge and skills, they can educate and support patients, collaborate with healthcare teams, and make timely decisions to ensure quality care and prevent complications (5).

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timely decisions to ensure quality care and prevent complications (5).

Patients preferred digital chest drains for comfort and mobility, especially in chronic cases, though some disagreement remained.(6). Research indicates that larger chest tubes (28-32Fr) are associated with moderate to severe pain in patients. (7). During hospitalization, continuous patient education is another feature that improves surgical patient safety (8).

After surgery, patient handover is a critical care transition for patient safety in post-operative (9). Handover involves patient transfer and care communication, requiring careful management to prevent errors and ensure patient safety (10).

The patient handover process involves intricate cognitive steps, and in literature, the role and importance of information transfer during postoperative handovers have been extensively studied and documented (11). Meeting the increasing expectations of patients and consistently enhancing the quality of care while maximizing safety are essential aspects of hospitalization and treatment. Numerous studies have indicated that verbal postoperative handovers lack structure and often involve frequent omissions of information. The findings of this study can contribute to enhancing patient satisfaction, optimizing nursing practices, and ultimately improving the overall quality of care provided to post-operative patients in the public health sectors.

Material and Methods: An analytical cross-sectional study was conducted over four months at Sir Ganga Ram Hospital, Lahore, to examine the association between demographic variables and perceptions of post-operative patients with chest drain tubes. The sample consisted of 118 patients aged 18-45 years, selected through purposive sampling based on Cochran's formula using a 44.4% anticipated frequency, 8% margin of error, and 92% confidence level. Inclusion criteria included conscious male and female patients receiving post-operative care, while unconscious patients, those with psychiatric disorders, or other medical conditions were excluded. Data was collected via a self-structured questionnaire

comprising demographic questions and an 11-item Likert scale on nursing care, with informed consent and confidentiality assured. Participants had 30 minutes to complete the questionnaire. The responses were digitized and analyzed using

SPSS version 25; descriptive statistics were presented in frequency tables and graphs, while inferential analysis employed Chi-square tests to assess correlations at a significance level of $p < 0.05$.

Results

Table 01: Demographic Data of the patients with Chest Drain Tubes, age, residence, education level and gender			
		Frequency	Percent
Age of patients	18- 26	41	34.7
	27- 35	31	26.3
	36- 45	46	39.0
	Total	118	100.0
Area	Urban	38	32.2
	Rural	80	67.8
	Total	118	100.0
Education level of patients	Illiterate	46	39.0
	Middle	43	36.4
	Higher	29	24.6
	Total	118	100.0
Gender	Female	67	56.8
	Male	51	43.2
	Total	118	100.0
<i>Analyzed by frequency "n" and percentage "%"</i>			

Table 1 shows that among 118 patients, most were aged 36–45 years (39%), female (56.8%), illiterate (39%), and from rural areas (67.8%), with smaller proportions in other age groups, education levels, and urban residency.

Table 02: Perception Patients with Chest Drain Tube				
	n	%	Mean	Standard Deviation
Negative Perception <33 or 60%	2	1.7	45.31	5.721
Positive Perception >33 or 60%	116	98.3		
Total	118	100.0		
Analyzed by frequency "n" and percentage "%"				

Table 2 shows that 98.3% of post-operative patients at Sir Ganga Ram Hospital had a positive perception of chest drain tube nursing care, with a mean score of 45.31 and standard deviation of 5.72, indicating strong overall satisfaction.

Table 03: Perception of post-operative patients regarding chest drain tube nursing care

		n	%
How comfortable were you with the chest drain tube care provided by the nursing staff?	Agree	40	33.9
	Strongly Agree	78	66.1
	Total	118	100.0
Did the nursing staff adequately explain the purpose of the chest drain tube and the care procedures to you?	Neutral	20	16.9
	Agree	11	9.3
	Strongly Agree	87	73.7
	Total	118	100.0
<i>Analyzed by frequency (n) and percentage (%)</i>			

Table 3 shows that most patients were highly satisfied, with 66.1% strongly agreeing they were comfortable with nursing care and 73.7% strongly agreeing that the chest drain tube's purpose and care procedures were well explained.

Table 04: Perception of post-operative patients regarding chest drain tube nursing care			
		n	%
Were you involved in the decision-making process regarding your chest drain tube care?	Agree	31	26.3
	Strongly Agree	87	73.7
	Total	118	100.0
how would you rate the overall responsiveness of the nursing staff to your concerns and questions about the chest drain tube?	Disagree	7	5.9
	Neutral	3	2.5
	Agree	53	44.9
	Strongly Agree	55	46.6
	Total	118	100.0
Did you experience any pain or discomfort during the chest drain tube care? If so, how would you rate the management of your pain?	Strongly Disagree	29	24.6
	Disagree	19	16.1
	Agree	12	10.2
	Strongly Agree	58	49.2
	Total	118	100.0
<i>Analyzed by frequency(n) and percentage (%)</i>			

Table 4 shows that most patients (73.7%) strongly agreed they were involved in decisions about their chest drain care, while the majority also felt nursing staff were responsive to concerns. Nearly half (49.2%) reported no pain during care, indicating generally positive perceptions of patient involvement, staff feedback, and pain management.

Table number 05 Perception of post-operative patients regarding chest drain tube nursing care			
		n	%
Were you satisfied with the cleanliness and hygiene of the chest drain tube site and its surroundings?	Disagree	15	12.7
	Agree	31	26.3
	Strongly Agree	72	61.0
	Total	118	100.0
Did the nursing staff ensure your privacy and dignity during chest drain tube care?	Disagree	24	20.3
	Neutral	24	20.3
	Agree	14	11.9
	Strongly Agree	56	47.5
	Total	118	100

<i>Analyzed by frequency(n) and percentage (%)</i>
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Table 5 shows that 61% of patients were strongly satisfied with the cleanliness of the chest drain site, while 47.5% strongly agreed that their privacy and dignity were respected during care, reflecting high satisfaction with hygiene and moderate satisfaction with privacy.

Table 06: Perception of post-operative patients regarding chest drain tube nursing care			
		n	%
How would you rate the level of emotional support and reassurance provided by the nursing staff during chest drain tube care?	Disagree	9	7.6
	Neutral	10	8.5
	Agree	49	41.5
	Strongly Agree	50	42.4
	Total	118	100.0
Were you given clear instructions on caring for the chest drain tube after discharge, and did you feel confident in your ability to manage it at home?	Strongly Disagree	9	7.6
	Disagree	24	20.3
	Neutral	9	7.6
	Agree	31	26.3
	Strongly Agree	45	38.1
	Total	118	100.0
Did you experience any complications or issues related to the chest drain tube care, and were they promptly addressed by the nursing staff?	Strongly Disagree	10	8.5
	Disagree	9	7.6
	Neutral	38	32.2
	Agree	11	9.3
	Strongly Agree	50	42.4
	Total	118	100.0
<i>Analyzed by frequency (n) and percentage (%)</i>			

Table 6 shows that most patients (42.4%) strongly agreed they received emotional support and reassurance from nursing staff, with 38.1% feeling confident in managing chest drain care after discharge, and 42.4% reporting their concerns were promptly addressed, reflecting overall positive patient experiences.

Table 07: Perception of post-operative patients regarding chest drain tube nursing care			
		n	%
How would you rate your overall experience with the nursing care provided for your chest drain tube?	Very dissatisfied	4	3.4
	Dissatisfied	16	13.6
	Uncertainty	24	20.3
	Satisfied	28	23.7
	Very satisfied	46	39.0
	Total	118	100.0
<i>Analyzed by frequency (n) and percentage (%)</i>			

Table 7 shows that 39% of patients were very satisfied and 23.7% satisfied with nursing care for their chest drain tubes, while smaller percentages were uncertain or dissatisfied, indicating varied levels of patient satisfaction overall.

Table 08: Perception of post-operative patients regarding chest drain tube nursing care		
	n	%
Negative Perception <33 or 60%	2	1.7
Positive Perception >33 or 60%	116	98.3
Total	118	100.0
<i>Analyzed by frequency (n) and percentage (%)</i>		

Table 8 shows that 98.3% of patients had a positive perception of chest drain tube nursing care, while only 1.7% had a negative perception.

Table 09: Association between the age and Perception of patients with chest drain tube				
	Perception patients with chest drain tube		Total	P-value
Age in years	Negative Perception <33 or 60%	Positive Perception >33 or 60%		
18- 26	2	39	41	0.148
27- 35	0	31	31	
36- 45	0	46	46	
Total	2	116	118	
<i>Analyzed by chi square with p less than 0.05</i>				

A contingency table 9 analyzed the association between age and patients' perception of chest drain tubes, categorizing perceptions as positive (>60%) or negative (<60%). A chi-square test yielded a p-value of 0.148, exceeding 0.05, so the null hypothesis of no association was not rejected, indicating insufficient evidence to link age with perception in this sample.

Table 10: Association between the Gender and Perception of patients with chest drain tube				
	Perception patients with chest drain tube		Total	P-value
Gender	Negative Perception <33 or 60%	Positive Perception >33 or 60%		
Female	0	67	67	0.102
Male	2	49	51	
Total	2	116	118	
Analyzed by chi square with p less than 0.05				

The table 10 examines the association between gender and patients' perception of chest drain tubes, with most females showing positive perception and a few males showing negative perception. Although the chi-square test yielded a p-value of 0.102 (not statistically significant), the data suggest females may be more likely to have a positive perception than males.

Table 11: Association between the area and Perception of patients with chest drain tube				
	Perception patients with chest drain tube		Total	p-value
Residential Area	Negative Perception <33 or 60%	Positive Perception >33 or 60%		
Urban	1	37	38	0.017
Rural	0	80	80	
Total	1	117	118	
Analyzed by chi square with p less than 0.05				

This table 11 shows a significant association between patients' residential area (urban or rural) and their perception of chest drain tubes, with a chi-square test yielding a p-value of 0.017, indicating that area influences patient perception.

Table 12: Association between the education level and Perception of patients with chest drain tube				
	Perception patients with chest drain tube		Total	P-value
Education level	Negative Perception <33 or 60%	Positive Perception >33 or 60%		
Illiterate	2	44	46	0.203
Middle	0	43	43	
Higher	0	29	29	
Total	2	116	118	
<i>Analyzed by chi square with p less than 0.05</i>				

This table 12 represents the association between education level (illiterate, middle, and higher) and the perception of patients with a chest drain tube, classified into negative perception (≤ 33 or 60%) and positive perception (> 33 or 60%). The analysis shows no statistically significant association between education level and perception, with a p-value of 0.203, based on chi-square testing. This suggests that there is insufficient evidence to conclude that there is an association between education level and the perception of patients with chest drain tubes.

Discussion: The present study stated that on the base of gender majority (56.8%) were females, most of the patients were illiterate (39.0%), having age between 36 to 45 years (39%) living in rural area (67.8%). However the study of Sayed (1) stated that majority of the study participants fall in the age between 26 and 30 with 45% , most were male (66.67%) and in the report of Alasad and colleagues majority of the patients(76.2%) have high school education with (21.5%) reported as illiterate (12). Furthermore, in the study of Ozsaker and colleagues there is a contrast related

to area of residence as patients living in urban area have positive perception while those from rural area have negative perception and satisfaction related to nursing care (13). More female patients reflect the hospital's demographics, and higher education boosts patient awareness and care expectations.

The study also found a significant link between area of residence and patient perception. According to our findings vast majority of the patients fall above score 33 or 60% which emphasized positive (98.3%) perception. Similarly

in findings of ozsaker and colleague surgical patients have a high level of perception and satisfaction with nursing care (13). Furthermore according to Agbele and colleague , 86.3% responses showed that a high level of positive perception and up to 8.9% responses add a negative perception of the quality of nursing care (14). Both studies in standardized hospitals showed positive patient perceptions due to proper care protocols, similar to our findings. Maintaining updated nursing protocols is recommended to sustain high patient comfort levels, as 66.1% strongly agreed in our study (15). Our study found the majority (87%) of patients were strongly satisfied with the explanation of procedure by the nurse. However karaca and colleagues stated that patients showed low level of satisfaction regarding explanation of test, treatments and what to expect by the nurses(16). Our findings align with previous studies showing patient comfort is linked to nursing care quality, highlighting the need for nurses to provide clear explanations to ensure satisfaction. In our study, 73.7% of patients were actively involved in decision-making, contrasting with Florin et al., who found patients preferred a more passive role. (17). When nurses and patients collaborate, better decisions and outcomes result; thus, shared decision-making should be used to support patient-centered choices. This study showed that over 90% of patients felt nursing staff were responsive to their concerns, aligning with Florin et al., who found high patient satisfaction with nurses' care and attentiveness (17). Findings of current study consistent with previous study indicates that the nurse's communication style is to treat the patients respectfully and friendly. This study illustrated a significant greater number of patients (49.2%) strongly agreed that they did not experience any pain or discomfort during chest drain tube care and they were highly satisfied with the management of pain. However in another study conducted by Findik and colleague they found that the patients who undergone open heart surgery and with underwater chest drains have higher pain levels (15). Effective pain management during chest drain care greatly impacts patient satisfaction,

warranting further research on pain-reducing interventions, especially post-open-heart surgery. Our study found 61% of patients highly satisfied with nursing cleanliness and hygiene practices, contrasting with Seyma et al., who reported inadequate and outdated hygiene information to prevent infections (5). Differences between studies may stem from variations in populations, methods, hygiene practices, and staff training, highlighting the need for standardized cleanliness, education, and patient involvement. Our study and Alasad's found many patients felt their privacy and dignity were well maintained by nursing staff (12). Our findings align with previous studies emphasizing that privacy and dignity are essential rights and core to quality nursing care, warranting further research on nursing behaviors that uphold these values. Additionally, most patients agreed they received emotional support during chest drain care, consistent with Adamson et al., who linked emotional support to overall patient satisfaction and care quality (18). Our study and past research show emotional support boosts patient satisfaction and outcomes, highlighting the need for nurse training in empathetic communication. Nearly half of patients felt well-informed and confident managing chest drains after discharge, aligning with similar findings (19). Preoperative education on pleural drainage enhances patient safety, with 51.7% of patients in our study reporting timely nursing response to complications, unlike Seyma's study where emergency nurses only assisted surgeons without extra care (5). They recommended developing standardized protocols for holistic chest tube care to ensure early problem detection and quality nursing. Our study found 39% of patients very satisfied and 23.7% satisfied with nursing care, aligning with Alasad's 90.67% satisfaction rate. (12) So, it is found that patient's perception of nursing care positively affects the nursing care satisfaction level of patients. It is suggested that proper nursing care and positive perception regarding nursing care leads to the high satisfaction among patients.

Conclusion: The majority of patients were female (56.8%), illiterate (39.0%), aged 36–45 years (39%), and from rural areas (67.8%). Most patients (98.3%) had a positive perception and were comfortable with the nursing care. While patients across all education levels generally expressed satisfaction, only the area of residence showed a significant association with perception; age, education, and gender did not. Overall, patients reported high satisfaction with decision-making involvement, nursing staff responsiveness, and pain management during chest drain tube care, highlighting the importance of effective communication. Further research is recommended to explore additional factors influencing patient perceptions.

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