

## Health Illiteracy and Satisfaction with the Quality of Nursing Care among Patients Undergoing Cardiothoracic Surgeries

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### Abstract

**Background:** Cardiothoracic surgery involves complex, high-risk procedures requiring optimal patient engagement and understanding. Limited health literacy may impact patient outcomes and satisfaction in this critical care setting.

**Design:** A descriptive research design was utilized. **Setting:** The study was conducted at the Cardiothoracic Surgery Ward of Assiut Cardiac University Hospital, Egypt. **Sample:** A convenience sample of 230 adult patients aged 20–65 years admitted for cardiothoracic surgery was included. **Tools:** Data were collected using two tools: (1) a patient interview questionnaire comprising demographic data and medical assessment, and (2) the Health Literacy Questionnaire (HLQ). **Results:** Half (50%) of participants were aged 40–<50 years (mean age not reported), and 67.4% were male. Nearly half (48.3%) underwent coronary artery bypass grafting (CABG), 36.5% had valve surgery, and 15.2% underwent chest surgery. Over half (57.8%) demonstrated inadequate health literacy, while 42.2% had adequate levels. Despite this, 71.3% reported satisfaction with nursing care quality, and 52.1% found navigating the healthcare system "very easy." **Conclusion:** Inadequate health literacy is prevalent among cardiothoracic patients, potentially influencing satisfaction and healthcare navigation. Educational interventions are needed to address this gap and enhance patient-centered care. **Recommendations:** Develop tailored educational programs targeting health literacy and patient satisfaction in cardiothoracic surgical settings.

**Keywords:** Cardiothoracic, CABG surgery, health literacy & Satisfaction.

### Introduction

Cardiothoracic surgery is a complex and dynamic field that addresses conditions involving the heart, lungs, and, in some institutions, the esophagus. Since the first successful heart surgery in 1953, this specialty has evolved significantly, now encompassing a wide variety of procedures. Among the most frequently performed are coronary artery bypass grafts (CABG), valve repairs or replacements, as well as lung surgeries such as lobectomy and pneumonectomy.

(Kaiser et al., 2024).

Open-heart surgery involves opening the chest cavity to operate on the heart's structures such as muscles, valves, or arteries. The term "open" pertains to the chest, not necessarily the heart itself, which may remain closed depending on the procedure. A cardiopulmonary bypass machine, also known as the heart-lung machine, is typically employed during standard open-heart operations. Globally, the most commonly conducted cardiac surgeries include coronary artery bypass grafting (CABG) and various types of valve surgery. (Strobel, 2024).

Open-heart surgery is a key component in treating a broad spectrum of cardiovascular diseases, often involving patients with high levels of clinical severity and complexity. Among the most frequently performed cardiac procedures worldwide are coronary artery bypass grafting (CABG) and heart valve surgeries. Globally, approximately 800,000 cardiac surgeries are conducted each year (Khan et al., 2022).

Health literacy refers to a person's ability to obtain, comprehend, and utilize health-related information in ways that support and maintain overall well-being. Although general literacy enables individuals to read and communicate, it becomes health literacy when these skills are specifically applied within healthcare settings. Notably, even well-educated individuals may lack sufficient understanding in health matters. Enhancing health literacy is a vital strategy to empower patients and reduce disparities, fostering a society that is healthier, safer, and more informed (Hepburn, 2021).

Patient satisfaction plays a crucial role in influencing clinical outcomes, maintaining patient loyalty, and reducing the risk of malpractice litigation. It also

contributes to the effective, timely, and patient-centered provision of healthcare services. While it is an indirect measure, satisfaction remains a strong indicator of both physician and hospital performance. Enhancing patient education has been shown to boost satisfaction, improve adherence to treatment plans, and lead to better health results. A variety of educational strategies—such as verbal explanations, printed materials, group sessions, audio and video resources, digital tools, and online platforms—can be utilized to inform patients about their health conditions (Park, 2018).

Nurses hold a vital responsibility in managing the care of individuals who undergo cardiothoracic surgical procedures. They are responsible for monitoring vital signs, administering medications, and providing pre- and post-operative care. In addition, they offer emotional support to patients and their families, ensuring that patients understand their recovery process. The nurse's role is essential in ensuring the patient's safety and comfort throughout their journey (McCance, & Huether, 2019).

### Significance of the study:

Cardiothoracic surgeries represent a significant aspect of modern healthcare, particularly in Egypt, where they are among the most frequently performed operations. According to the statistics from Assiut Heart Hospital, in 2022, a total of 781 cardiothoracic surgeries were conducted, including 489 valve surgeries, 129 coronary artery bypass graft (CABG) surgeries, and 163 chest surgeries. In the first ten months of 2023 alone, 582 surgeries have already been performed, comprising 364 valve surgeries, 112 CABG surgeries, and 106 chest surgeries (Assiut Heart Hospital Statistics, 2023). These figures underscore the growing demand for such procedures and highlight their importance in addressing cardiovascular diseases.

Despite the high overall survival rates associated with open-heart surgeries, post-operative complications remain a critical concern. Respiratory issues, wound infections, excessive bleeding—particularly from chest tubes—and renal dysfunctions are among the most common complications reported. These challenges not only affect the recovery process but also impose a significant burden on patients and their families (World Health Organization Records, Egypt, 2014).

### Aim of the study

This study aims to assess health illiteracy and satisfaction with the quality of nursing care among patients undergoing cardiothoracic surgeries.

### Research Questions:

1. What is the level of health illiteracy among patients undergoing cardiothoracic surgeries?

2. Are patients satisfied with the quality of nursing care following cardiothoracic surgeries?

## Subjects and Methods

### Research design:

A descriptive research design was used to explore and describe the phenomena under investigation.

### Setting:

The study was conducted at Cardiothoracic Surgery ward in Assiut Cardiac University Hospital, which is a tertiary care facility affiliated with Assiut University. The ward includes 34 beds and provides both preoperative and postoperative care for patients undergoing various types of cardiothoracic surgeries, such as open-heart surgery, valve replacement, and thoracic procedures. The hospital serves a large population from Upper Egypt and is considered one of the main referral centers in the region.

### Sample:

A convenience sample of 230 patients admitted to the Cardiothoracic Surgery Ward was included. The patients were adult males and females aged 20–65 years old with cardiothoracic problems requiring surgery.

### Exclusion criteria:

- Unconscious patients.
- Patient complains from psychiatric problems.

### Sample size

The sample was 230 patients was selected by using the following equation according to Steven K. Thompson (2012):

$N$  = total patient population size of 582 during year 2023

$Z$  = confidence levels is 0.95 and is equal to 1.96

$D$  = The error ratio is = 0.05

$P$  = The property availability ratio and neutral = 0.50

$$n = \frac{N \times p(1-p)}{\left[ \frac{N-1}{d^2 \div z^2} \right] + p(1-p)}$$

### Tools of Data Collection:

The following three tools were utilized to conduct this study:

**Tool (I): patients interview questionnaire included two parts:**

**Part (I): Demographic data:** developed by the researcher after reviewing national and international literature, it included name, age, gender, marital status, occupation, and level of education.

**Part (II): Medical assessment:**

It included medical diagnosis, type of operation, chronic disease assessment, family history of the disease, and previous surgeries.

**Tool (II) : Health Literacy Questionnaire (HLQ):**

Developed by (Osborne et al., 2013). This comprehensive tool is structured to offer healthcare professionals, institutions, and policymakers detailed

insights into the health literacy capabilities and limitations of both individuals and communities. The information gathered supports the formulation and implementation of targeted interventions aimed at enhancing equity in healthcare access and improving health outcomes (Hawkins et al, 2017).

The Health Literacy Questionnaire (HLQ) comprises 44 items distributed across nine distinct domains, each capturing a unique aspect of the broader concept of health literacy. These domains include feeling supported and understood by healthcare professionals, access to adequate information for health management, proactive health behaviors, social support related to health, critical evaluation of health information, effective interaction with healthcare providers, navigating the healthcare system, locating reliable health resources, and comprehending health information sufficiently to take appropriate action (Morris et al., 2021).

Each domain within the HLQ includes between four and six items. Depending on the research objectives, users may apply the full questionnaire or select specific scales. The first five domains assess respondents' level of agreement using a four-point Likert scale ranging from "strongly disagree" to "strongly agree." In contrast, domains six through nine evaluate self-perceived abilities, with response options ranging from "cannot do" to "very easy." Each of the nine scales yields a separate average score, reflecting performance within that domain. A total composite score is not provided, as it may obscure distinct literacy challenges across different health dimensions (Batterham et al., 2016).

#### **Scoring System of the HLQ:**

The HLQ generates individual scores across nine distinct scales, which, when viewed collectively, create a comprehensive picture of a person's health literacy profile. While each score highlights specific areas of strength or weakness, analyzing them together provides a more complete understanding. Group-level average scores help identify population-wide health literacy capabilities and challenges. Employing techniques like cluster analysis or latent class analysis is advised to categorize individuals into specific literacy profiles. This method reveals sub-groups with either particular strengths to enhance or limitations that indicate areas needing targeted support (Leslie et al, 2020).

#### **Tool III: The patient Satisfaction with nursing care quality Questions:**

Originally developed by (Laschinger et al., 2005), the PSNCQQ was designed to evaluate patient satisfaction based on the quality of nursing care received. It employs a 5-point Likert scale and consists of 19 items adapted from the Patient

Judgment of Hospital Quality survey (Karaca, & Durna, 2019).

Each question features a "signpost" — a brief phrase summarizing the topic — followed by a "descriptor," which offers a more detailed inquiry. For example, the first item begins with "information you were given" and continues with "How clear and complete the nurses' explanations were about tests, treatments, and what to expect." The questionnaire covers multiple care dimensions: Items 1 and 2 relate to admissions; Items 3 to 6 focus on information provided; Item 8 addresses medical care; Items 7 and 9 to 13 cover nursing and daily care; Items 14 to 16 assess ancillary staff and the environment; Items 17 and 18 concern discharge processes; and Items 19.1 to 19.4 evaluate overall satisfaction with care quality (Laschinger, 2021).

#### **Scoring System of the PSNCQQ:**

Each PSNCQQ item is rated using a 5-point Likert scale, ranging from poor to excellent. The individual item scores can be aggregated to generate an overall score representing the general outcomes for each patient. To ensure precise feedback and facilitate practical interpretation of the data, both the mean scores and standard deviations for each item can be computed (Laschinger, 2021).

#### **Validity:**

The tools were reviewed by five experts from the Department of Medical –Surgical Nursing and Cardio thoracic Surgery at Assiut University to assess and evaluate the validity of the tools. Modifications were made based on expert feedback.

#### **Reliability:**

The instruments measuring patient knowledge, health literacy, and patient satisfaction were evaluated for reliability. Test-retest analysis using Cronbach's alpha coefficient indicated strong internal consistency for all scales, with correlation values of 0.95, 0.87, and 0.94, respectively.

#### **Ethical Consideration**

1. The research proposal was approved by the Ethical Committee in the Faculty of Nursing on 23/1/2024 and no (1120240752).
2. There was no risk for study subjects during the application of the research.
3. Confidentiality and anonymity were assured.
4. Oral consent was obtained from patients or guardians willing to participate in the study after explaining the nature and purpose of the study.
5. Study subjects had the right to refuse to participate or withdraw from the study at any time without penalty.
6. Study subject privacy was considered during data collection.
7. The study followed common ethical principles in clinical research.

**Pilot Study:**

The pilot study was conducted on 23 patients with Cardio Thoracic Surgery to evaluate the feasibility, applicability, and clarity of the research tools and to estimate the time needed for data collection. There was no modification needed based on the results of the pilot.

**Field work:**

The researcher began collecting data from March to October 2024. All patients admitted to the ward in three shifts after cardiothoracic surgery were approached. After receiving oral permission to perform the study. The researcher introduced himself, described the study's goals, and received verbal consent from the patients to participate voluntarily. Each patient was interviewed individually in their room, and the questionnaire was completed by the researcher asking questions and documenting answers. Each interview took 20–30

minutes. Every patient aged 20–65 years or older who underwent CABG, valve replacement, or chest surgery was included in the study.

**Statistical analysis:**

Data entry and analysis were conducted using SPSS software version 26 (Statistical Package for the Social Sciences). The data were summarized using frequencies, percentages, means, and standard deviations. The Chi-square test was employed to examine associations between categorical variables. For comparisons of continuous variables between two groups, an independent samples t-test was applied, whereas one-way ANOVA was utilized for comparisons involving more than two groups. Pearson's correlation coefficient was calculated to assess the relationships between quantitative variables. A p-value less than 0.05 was considered statistically significant.

**Results****Table (1): Distribution of demographic data among patient participant (n=230)**

Variables	Number	Percent %
<b>Age</b>		
18< - 30	8	3.5
30- > 40	39	16.9
40 >- 50	112	48.7
50 - 65	71	30.9
Mean $\pm$ SD	47.11 $\pm$ 11.03 (18-65)	
<b>Sex</b>		
Male	155	67.4
Female	75	32.6
<b>Marital status</b>		
Single	28	12.2
Married	193	83.9
Widow	9	3.9
<b>Level of education</b>		
Illiterate	20	8.7
Reading and writing	11	4.8
Primary education	12	5.2
Preparatory education	18	7.8
Secondary education	94	40.9
University	75	32.6
<b>Occupation</b>		
Non-working	44	19.1
Farmer	25	10.9
Student	8	3.5
Skilled worker	62	27.0
House wife	38	16.5
Worker.	53	23.0
<b>Type of operation</b>		
CABG surgery.	111	48.3
Valve surgery	84	36.5
Chest surgery	35	15.2

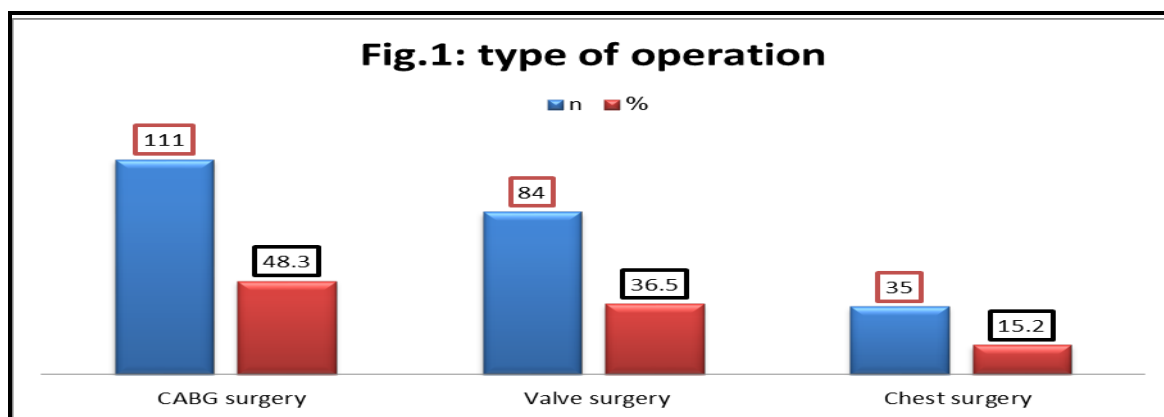


Figure (1) : Distribution of studied patient regarding to their Type of Operation at Cardiothoracic Surgery Department, Heart Hospital Assiut University (n=230)

Table (2A): Distribution of studied patients regarding health literacy with quality nursing care in the Cardiothoracic Surgery (n=230)

Variables	strongly disagree		Disagree		Agree		strongly agree		Mean $\pm$ SD
	N	%	N	%	N	%	N	%	
1. Feeling understood and supported by healthcare providers	0	0.0	2	0.9	99	43.04	129	56.08	14.20 $\pm$ 1.95
2. Having sufficient information to manage my health	6	2.6	36	15.60	128	55.60	60	26.08	12.20 $\pm$ 2.61
3. Actively managing my health	36	15.6	86	37.30	88	38.26	20	8.60	12.00 $\pm$ 3.72
4. Social support for health	4	1.7	7	3.04	69	30.00	150	65.21	18.20 $\pm$ 2.23
5. Appraisal of health information	56	24.3	58	25.20	71	30.80	45	19.50	12.27 $\pm$ 4.13
<b>Total health Literacy (23-92 marks)</b>	<b>20</b>	<b>8.60</b>	<b>38</b>	<b>16.50</b>	<b>91</b>	<b>39.50</b>	<b>81</b>	<b>35.20</b>	<b>68.89<math>\pm</math>11.83</b>

Table (2B): Distribution of studied patient s regarding the capabilities to cope with health care providers at Cardiothoracic Surgery (n=230)

Variables	Cannot do		Very difficult		Quite difficult		Quite easy		Very easy		Mean $\pm$ SD
	N	%	N	%	N	%	N	%	N	%	
6. Ability to actively engage with healthcare providers.	6	2.6	3	1.30	27	11.7	102	44.3	92	40.0	21.08 $\pm$ 3.4
7. Navigating the healthcare system.	9	3.9	4	1.70	28	12.1	120	52.1	69	30.0	24.70 $\pm$ 3.5
8. Ability to find good health information.	25	10.8	16	6.9	63	27.3	92	40.0	34	14.7	17.03 $\pm$ 4.50
9. Understanding health information well enough to know what to do.	22	9.5	31	13.4	53	23.0	63	27.3	61	26.5	17.40 $\pm$ 5.25
<b>Total capabilities (21- 105 marks)</b>	<b>15</b>	<b>6.5</b>	<b>14</b>	<b>6.08</b>	<b>43</b>	<b>18.6</b>	<b>94</b>	<b>40.8</b>	<b>64</b>	<b>27.8</b>	<b>80.22<math>\pm</math>15.0</b>

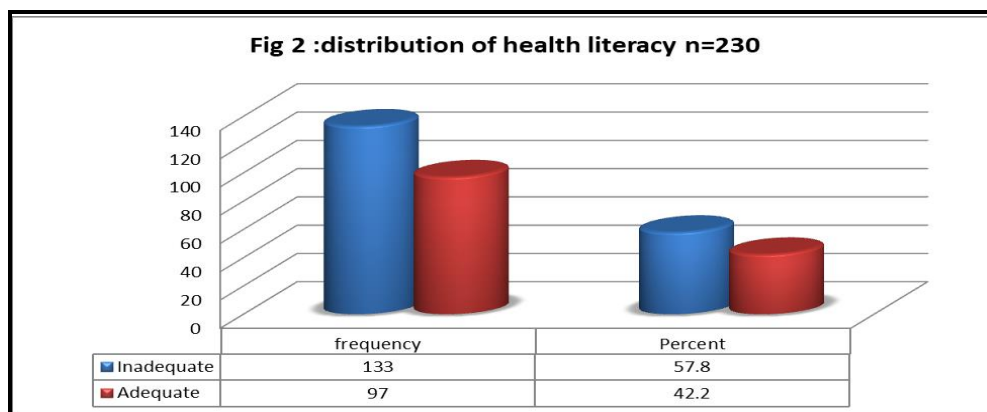


Figure (2): Distribution of studied patient s regarding health literacy at Cardiothoracic Surgery (n=230)

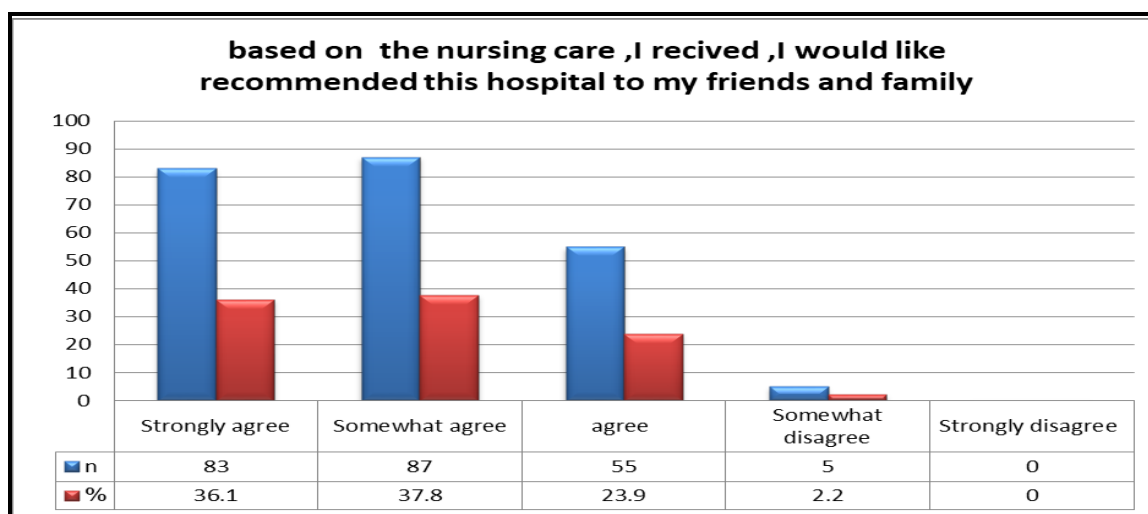


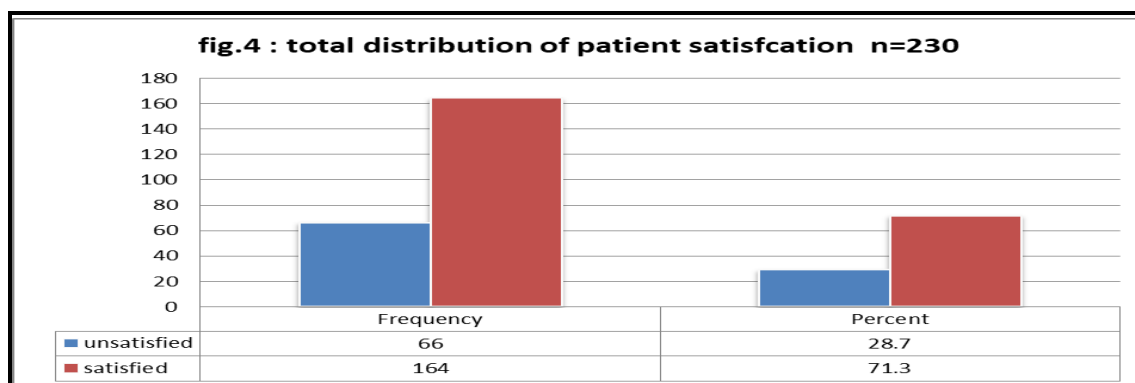
**Table (3A): Distribution of patient's satisfaction regarding nursing care quality at Cardiothoracic Surgery (n=230)**

Variables	Poor		Fair		Good		Very good		Excellent	
	N	%	N	%	N	%	N	%	N	%
1. Information you were given	4	1.7	9	3.9	43	18.7	99	43.0	75	32.6
2. Instructions	2	0.9	9	3.9	39	17.0	108	47.0	72	31.3
3. Ease of getting information	2	0.9	11	4.8	46	20.0	86	37.4	85	37.0
4. Information given by nurses	2	0.9	10	4.3	44	19.1	77	33.5	97	42.2
5. Informing family or friends	1	0.4	17	7.4	46	20.0	81	35.2	85	37.0
6. Involving family or friend in your care:	1	0.4	18	7.8	48	20.9	88	38.3	75	32.6
7. Concern and caring by nurses	0	0.0	10	4.3	47	20.4	97	42.2	76	33.0
8. Attention of nurses to your condition:	0	0.0	8	3.5	52	22.6	108	47.0	62	27.0
9. Recognition of your opinions:	0	0.0	10	4.3	58	25.2	97	42.2	65	28.3
10. Considerations for your needs:	0	0.0	10	4.3	51	22.2	101	43.9	68	29.6
11. The daily routine of the nurses:	0	0.0	15	6.5	51	22.2	88	38.3	76	33.0
12. Helpfulness	0	0.0	11	4.8	40	17.4	104	45.2	75	32.6
13. Nursing staff response to your call:	0	0.0	10	4.3	41	17.8	97	42.2	82	35.7
14. Skill and competence of nurses:	0	0.0	3	1.3	36	15.7	104	45.2	87	37.8
15. Coordination of care	0	0.0	8	3.5	46	20.0	116	50.4	60	26.1
16. Restful atmosphere provided by nurses	0	0.0	9	3.9	52	22.6	84	36.5	85	37.0
17. Discharge instructions:	0	0.0	8	3.5	43	18.7	69	30.0	110	47.8
18. Coordination of care after discharge	0	0.0	13	5.7	58	25.2	61	26.5	98	42.6

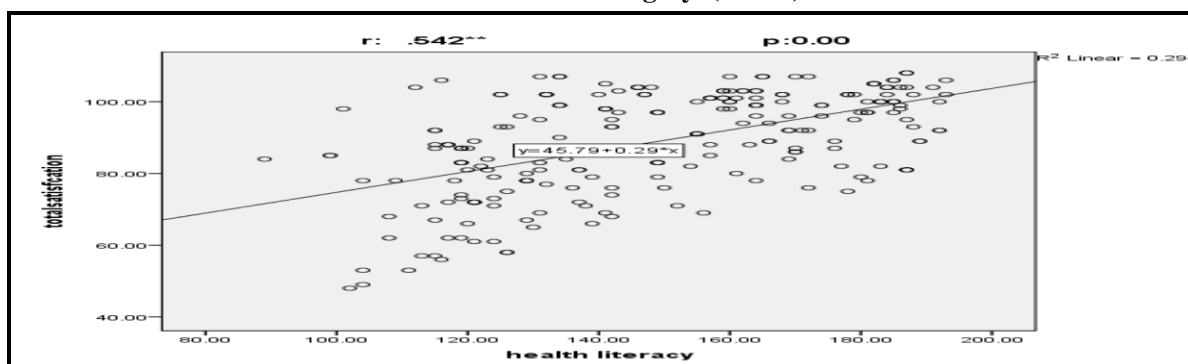
**Table (3B): Distribution of patient's satisfaction regarding nursing care quality at Cardiothoracic Surgery (Cont. n=230)**

<b>19. Overall perception:</b>										
19.1 Overall quality of care and services you received during your hospital stay	0	0.0	10	4.3	47	20.4	101	43.9	72	31.3
19.2 Overall quality of nursing care you received during your hospital stay.	0	0.0	4	1.7	44	19.1	114	49.6	68	29.6
19.3 In general, would you say your health is?	0	0.0	7	3.0	48	20.9	106	46.1	69	30.0

**Figure (3): Distribution of patient's satisfaction regarding quality of nursing care at Cardiothoracic Surgery (n=230)**



**Figure (4): Show the total distribution of patients satisfaction regarding nursing care quality at Cardiothoracic Surgery (n=230)**



**Figure (5): Correlation between health literacy and patients satisfaction with the quality of nursing care (n=230)**

**Table (1):** Show the distribution of studied patient regarding to their demographic data. It was found that half (50%) of the patients were aged between 40–<50 years, and more than half (67.4%) of them were male, compared to 32.6% who were female. Most patients (83.9%) were married, while the remaining 16.1% were either single, or widowed. Related to education, 40.9% had attained secondary education. Regarding occupation, 27.0% were classified as skilled workers. Concerning surgical interventions, 48.3% underwent CABG surgery, 36.5% had valve surgery, and only 15.2% underwent chest surgery. Overall, this table highlights a predominantly middle-aged, married male cohort with varying educational and occupational backgrounds, where CABG and valve surgeries were the most common procedures performed.

**Figure (1):** Show the distribution of studied patient regarding to their type of operation. Nearly half 48.3 % of the patients had CABG surgery. 36.5 % of them had Valve surgery and only 15.2% had Chest surgery.

**Table (2A):** The distribution of studied patients regarding health literacy and its association with quality nursing care in the Cardiothoracic Surgery revealed that 56.08% of patients strongly agreed that they feel understood and supported by healthcare providers. Additionally, 55.6% agreed that they have sufficient information to manage their health, while

38.6% expressed agreement with actively managing their health. Concerning social support for health, approximately two-thirds (65.21%) strongly agreed that they have adequate social support, such as someone who can accompany them to medical appointments. Lastly, 30.8% of the patients agreed with their ability to appraise health information critically. It cleared that; the total Mean and SD 68.89%  $\pm$  11.83 of health literacy among studied patients. These findings highlight varying levels of health literacy and patient engagement within the department.

**Table (2B):** The distribution of studied patients regarding their capabilities to cope with healthcare providers at the Cardiothoracic Surgery, shows that 52.1% of patients found navigating the healthcare system to be very easy, while 40.0% reported it as quite easy to find good health information. Additionally, 27.3% indicated that understanding health information well enough to know what to do was manageable for them. Overall, when considering their total capabilities, 40.8% of patients found interactions with healthcare providers quite easy, 27.8% considered it very easy, 18.6% experienced some difficulty, and only 6.08% found it very difficult. The overall total capabilities had a mean score of 80.22  $\pm$  15.01, reflecting the varying degrees

of proficiency among patients in these critical areas of healthcare engagement. These results highlight the varying levels of ease and challenge patients face in engaging with healthcare services and information.

**Figure (2):** Cleared the distribution of studied patient's regarding health literacy at Cardiothoracic Surgery for the studied patients, 57.8% demonstrated inadequate health literacy, while 42.2% exhibited adequate health literacy levels.

**Table (3A):** The distribution of patient satisfaction regarding nursing care quality at the Cardiothoracic reveals varying levels of contentment across different aspects of care. A significant portion of patients rated their experiences as "very good," with 43.0%, 47.0%, and 37.0% providing this rating for the information given, instructions, and ease of obtaining information, respectively. Additionally, many patients perceived certain areas as "excellent," particularly in terms of instructions (42.2%), information provided by nurses (37.0%), informing family or friends (47.8%), discharge instructions (42.6%), and coordination of care after discharge. Further, patient perceptions of "very good" care were evident in categories such as concern and caring by nurses (42.2%), attention to their condition (47.0%), recognition of opinions (42.2%), consideration of needs (43.9%), helpfulness and skill of nurses (45.2%), and overall quality of care and services received during their stay. Notably, when asked about recommending the hospital based on the nursing care they received, 36.1% strongly agreed, 37.8% somewhat agreed, 23.9% agreed, and only 2.2% somewhat disagreed, indicating a generally positive perception of the nursing care provided.

**Table (3B):** The distribution of patient satisfaction regarding nursing care quality at the Cardiothoracic reveals varying levels of contentment across different aspects of care. Overall, these results suggest that patients largely appreciate the quality of nursing care, with particular strengths in communication, attentiveness, and coordination, although there is still room for improvement in specific areas.

**Figure (3):** The distribution of patient satisfaction regarding the quality of nursing care was assessed using the statement: "Based on the nursing care I received, I would recommend this hospital to my family and friends." The results showed that 36.1% of the studied patients strongly agreed, 37.8% somewhat agreed, 23.9% agreed, and only 2.2% somewhat disagreed with the statement.

**Figure (4):** Illustrated that the total distribution of patient's satisfaction regarding nursing care quality at Cardiothoracic surgery Department. It cleared that 71.3% of the studied patients were satisfied regarding nursing care quality while only 28.7% of them were unsatisfied.

**Figure (5):** Shows a significant correlation between health literacy and patient satisfaction concerning the quality of nursing care. A high positive correlation was observed, indicating that as health literacy increases, so does patient satisfaction with nursing care quality. This relationship is statistically significant, as evidenced by an  $r$  value of 0.54 and a  $p$  value of (0.0001 \*\*\*), suggesting that enhancing health literacy could play a crucial role in improving patients' satisfaction with the quality of nursing care they receive, highlighting the importance of health literacy in enhancing patient experiences within this specialized department.

## Discussion

Cardiothoracic surgery involves procedures that address conditions affecting the heart and chest, such as heart bypass surgery, valve replacements, and lung surgery. These operations are complex and require careful planning and precision (Yuh et al., 2020).

Nurses are essential contributors to the comprehensive care provided to patients undergoing cardiothoracic surgery. They are responsible for monitoring vital signs, administering medications, and providing pre- and post-operative care. In addition, they offer emotional support to patients and their families, ensuring that patients understand their recovery process. The nurse's role is essential in ensuring the patient's safety and comfort throughout their journey (McCance, & Huether, 2019).

The majority of patients were male, while about three quarter were married. It may be due to the most of men are heavy smoking and had Skilled hard work. These results agreed with Zhu et al., (2024) who found that Cardiac diseases are more common in married patients. Also, This finding supported by Aiken et al., (2019) who reported that more than sixty five percent of patients undergoing cardiac surgery were male. Smith et al., (2020) & Johnson et al., (2019) reported that a higher prevalence of Cardiovascular Disease among males and married individuals.

Regarding level of education and occupation; nearly half of patients had secondary education, and nearly one third of them were skilled workers. However, the results disagree with Lee et al., (2020) who found that patients with higher levels of education were more likely to undergo CABG surgery.

Regarding to type of cardiac surgery, the results indicate that nearly half of studied patients underwent (CABG) surgery, while about one third of them underwent Valve Surgery, and nearly one quarter underwent Chest Surgery. These findings are similar to those reported by Kim et al., (2019), who found that CABG surgery was the most common type of cardiac surgery performed.



Health literacy among studied patients regarding quality nursing care at the Cardiothoracic Surgery . The results show that the majority of patients strongly agreed with the statement "I have at least one healthcare provider I can discuss my health with him, I have the healthcare providers I need to help me work out, I have at least one healthcare provider who knows me well and I can rely on at least one healthcare provider ", indicating a high level of feeling understood and supported by healthcare providers.

The results were confirmed with a study by **Hibbard et al., (2020)** who conducted the "Patient Activation and Health Outcomes" which found that more than half of patients reported having a healthcare provider they could discuss their health with them. Additionally, more than half of patients agreed with the statement " I have enough information to help me deal with my health problem and I have all the information I need to look after my health", suggesting that patients generally feel they have sufficient information to manage their health. Also regarding the scale of actively managing my health, more than half of patients agreed with the statement "I set my own goals about health and fitness", indicating a moderate level of self-management.

Moreover, a high proportion of patients nearly three quarter strongly agreed with the statement "I have at least one person who can come to medical appointments with me, If I need help, I have plenty of people I can rely on, When I feel ill, the people around me really understand what I feel and I have strong support from friends and family.", indicating a high level of social support for health. Finally, nearly half of patients strongly agreed with the statement "I ask healthcare providers about the quality of health information", suggesting a moderate level of appraisal of health information.

These findings suggest that patients generally have a positive perception about the quality of nursing care they receive, and feel supported and informed about their health. However, there may be room for improvement in terms of self-management and appraisal of health information. In terms of previous studies, these findings are agreeing with **Hibbard et al., (2017)** who observed that patients who feel supported and informed about their health are more likely to have positive health outcomes. Finding was in the same line with **Cohen et al., (2015)** who noticed that the importance of social support for health, which has been shown to be a critical factor in health outcomes.

The results of the current study show that patients generally have a positive perception of the quality of nursing care they receive, and feel supported and informed about their health. However, there may be

room for improvement in terms of self-management and appraisal of health information. These findings are consistent with **Hibbard et al., (2020)** who noticed that patients who feel supported and informed about their health are more likely to have positive health outcomes. Additionally, a study by **Lee et al., (2022)** who demonstrated that nearly two third of patients reported feeling informed about their health, which is similar found in this study. However, the results of this study differ from those of **Kim et al., (2022)**, who found that more than two third of patients reported being actively engaged in managing their health, compared to more than half in this study. This discrepancy may be due to differences in the populations studied or the measures used.

The current study illustrated that the distribution of health literacy among studied patients regarding quality nursing care at the Cardiothoracic Surgery department. The results show that more than half of the patients strongly agreed with the statement "feeling understood and supported by healthcare providers", indicating a high level of satisfaction with the care provided. This finding was supported by **Hibbard et al., (2020)** who clarified that more than half of patients reported feeling supported by their healthcare providers.

Additionally, more than half of patients agreed with the statement "having sufficient information to manage my health", suggesting that patients generally feel informed about their health. However, more than one third of patients agreed with the statement "actively managing my health", indicating a need for improvement in patient engagement and self-management. However, nearly two-thirds of patients strongly agreed with the statement "Social support for health", highlighting the importance of social support in patient care. Finally, more than one third of patients agreed with the statement "appraisal of health information", suggesting a need for improvement in patient education and health literacy. These findings are supported with **Hibbard et al., (2020)** who reported that patients who feel supported and informed about their health are more likely to have positive health outcomes. However, the results incongruent with **Lee et al., (2022)**, who revealed that nearly two third of patients reported feeling informed about their health.

According to patients' Satisfaction with quality of nursing care among patients. The results show that patients generally reported ease in engaging with healthcare providers, navigating the healthcare system, finding good health information, and understanding health information. This finding was in agreement with a study by **Kutney-Lee et al., (2020)**, found that forty five of patients reported

feeling confident in their ability to communicate with healthcare providers.

Regarding the domain "Ability to actively engage with healthcare providers", nearly half of patients reported that it was "quite easy" to discuss things with healthcare providers until they understood, and also reported that it was "very easy" to make sure that healthcare providers understood their problems. In terms of navigating the healthcare system, more than half of patients reported that it was "quite easy" to find out what healthcare services they were entitled to, and more than third of them reported that it was "very easy" to find the right healthcare system.

Regarding the domain "Ability to find good health information", nearly half of patients reported that it was "quite easy" to get health information in words they understood. Finally, in terms of understanding health information, more than two fifth of patients reported that it was "quite easy" to accurately follow the instructions from healthcare providers, and more than one third of them reported that it was "very easy" to understand what healthcare providers were asking them to do.

These findings suggest that patients generally have a good level of health literacy, but there may be need for improvement in terms of navigating the health care system and understanding health information. These results are agree with **Hibbard et al., (2020) & Lee et al., (2022)**, reported that "importance of health literacy in achieving positive health outcomes" Regarding their capabilities to cope with healthcare providers at the Cardiothoracic Surgery Department .The present study reported that patients generally reported ease in navigating the healthcare system and finding good health information.

More than half of studied patients reported that navigating the healthcare system was "very easy", indicating a high level of confidence in their ability to navigate the system. Additionally, more than one third of them reported that finding good health information was "quite easy", suggesting that patients generally have access to reliable health information. This is consistent with a study by **Aiken et al., (2019)**, "who found that patients with higher levels of education were more likely to have higher levels of health literacy.

However, the results also show that understanding health information well enough to know what to do was a challenge for some patients, with only nearly one quarter reporting that it was "quite easy". It may be due to need for additional support and education to help patients understand and act on health information. Overall, the total capabilities of patients to cope with healthcare providers were reported as follows more than two fifth "quite easy", twenty seven point eight "very easy", eighteen point six

"quite difficult", and only six "very difficult". These findings suggest that patients generally have a good level of capability to cope with healthcare providers, but there may be need for improvement in terms of understanding and acting on health information. (**Shahid et al., 2022**)

The results show that patients generally reported a moderate to high level of capability to deal with the healthcare system and actively engaging with healthcare providers. From the researcher point of view, these findings suggest that patients generally have a good level of capability to cope with healthcare providers, but there may be room for improvement in terms of finding and understanding health information.

Similar results by **Hibbard et al., (2020); Lee et al., 2022)** who reported that have the importance of health literacy and patient engagement in achieving positive health outcomes. However, the results also suggest that patients may need additional support and education to improve their health literacy and capability to cope with healthcare providers.

The current study demonstrated that patients generally reported high levels of satisfaction with the nursing care they received. More over a significant proportion of patients rated the nursing care as "excellent" in several areas, including instructions, information given by nurses, informing family or friends, discharge instructions, and coordination of care after discharge. This results in line with a study by **Kutney-Lee et al., (2020)**, who found that older patients were more likely to report higher levels of satisfaction with nursing care.

Additionally, patients reported high levels of satisfaction with the concern and caring shown by nurses, attention to their condition, recognition of their opinions, consideration of their needs, and the helpfulness, skill, and competence of nurses .The results also show that nearly half patients were generally satisfied with the overall quality of care and services they received during their hospital stay and the overall quality of nursing care they received .Finally, a significant proportion of patients strongly agreed that they would recommend the hospital to their family and friends based on the nursing care they received. From my point of view as a researcher, these findings emphasize the importance of effective nursing communication and individualized care. When nurses demonstrate empathy, attentiveness, and professionalism, patient trust and satisfaction improve significantly. This agrees with the findings of **Alhowaymel et al., (2022)**, who highlighted the impact of nursing responsiveness and communication on patient satisfaction.

Health literacy is a critical factor in improving patient satisfaction with healthcare services **Berkman et al.,**

(2022). These findings suggest that patients are generally satisfied with the nursing care they receive at the cardiothoracic Department, and that nurses are providing high-quality care that meets patient needs. These results are similar to the present finding with **Aiken et al., (2019) & Kutney-Lee et al., (2020)** who observed that the importance of patient satisfaction with nursing care in achieving positive health outcomes.

Regarding correlation between health literacy, patient satisfaction and quality nursing care. The results show a high positive correlation between health literacy and patient satisfaction. This finding suggests that patients with higher levels of health literacy tend to report higher levels of satisfaction with the quality of nursing care they receive. This correlation highlights the importance of health literacy in shaping patient experiences and outcomes. The strength of the correlation indicates a moderate to strong relationship between health literacy and patient satisfaction. The statistically significant difference confirms that this relationship is unlikely to be due to chance. These results are agreeing with **Baker et al., (2019) & Haun et al., (2020)** who reported that shown a positive correlation between health literacy and patient satisfaction. Overall, provides a clear and concise visual representation of the positive correlation between health literacy and patient satisfaction, highlighting the need for healthcare providers to prioritize health literacy in their practice.

### Conclusion:

This study revealed that patients undergoing cardiothoracic surgeries demonstrated varying levels of health literacy, which significantly influenced their satisfaction with nursing care. The findings showed a clear positive relationship between higher health literacy and greater satisfaction, particularly in areas related to communication, information understanding, and trust in healthcare providers. These results answer the research questions affirmatively and support the research hypothesis that improved health literacy correlates with higher levels of patient satisfaction. Therefore, enhancing health literacy should be considered a strategic priority in cardiothoracic nursing care to optimize patient outcomes and satisfaction.

### Recommendations:

**In light of results of this study, the following recommendation(s) are suggested:**

- Develop and implement comprehensive educational programs and materials aimed at enhancing health literacy among cardiothoracic surgical patients.

- Train health care providers, particular nurses, in effective communication techniques that ensure patients comprehend health – related information.
- Incorporate routine health literacy assessment into pre-operative evaluations to identify patients who may need additional support and education regarding their condition and treatment.

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