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Knowledge, attitudes and practices on conjunctivitis among outpatients at Hung Vuong general Hospital in 2024

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ABSTRACT

***Objective**: Describe patients' knowledge, attitudes and practices on conjunctivitis among outpatients at Hung Vuong General Hospital in 2024 and related factors. **Participants and methods**: A cross-sectional descriptive study was conducted on 203 patients at Hung Vuong General Hospital from June to August 2024. The instrument was a structured interview questionnaire consisting of four parts: Part I: Demographic characteristics. Part II: Knowledge about conjunctivitis. Part III: Attitudes about conjunctivitis. Part IV: Conjunctivitis practice. Data were analyzed using SPSS 25.0 software. Descriptive statistics, including frequency and percentage, were used, and the relationship between variables was tested using the Chi-Square test, with a p-value of < 0.05 considered statistically significant. **Results**: The study found high levels of knowledge about conjunctivitis, with 83.3% of participants aware of its causes and 88.7% understanding its definition. However, knowledge about disease prevention was low, with only 17.7% of participants demonstrating adequate understanding. A majority of participants (74.4%) had positive attitudes toward the disease, viewing it as manageable, while 94.1% were aware of the importance of preventing complications. Over 80% demonstrated proper practices regarding medication use and eye hygiene. Significant associations were found between KAP and factors such as gender, place of residence, age, and occupation. **Conclusion:** The study found satisfactory levels of knowledge, attitudes, and practices regarding conjunctivitis among patients. However, there is a need for comprehensive health education programs to address the limited understanding of preventive measures and to reduce the risk of disease and vision loss. Targeted educational interventions and public health communication strategies are essential to improve patient awareness and treatment outcomes across all healthcare levels. Health education programs should focus on rural populations, male participants, and younger individuals to improve KAP and reduce the burden of conjunctivitis.*

***Keywords:** Conjunctivitis, knowledge, attitude, practice*

INTRODUCTION

Conjunctivitis, commonly referred to as "red eye," is a prevalent condition observed across all age groups, characterized by the inflammation of the conjunctiva, which leads to the congestion of its blood vessels. It is one of the most common reasons patients seek care at ophthalmology

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clinics[1]. Redness of the eye, a hallmark symptom of conjunctivitis, results from the dilation of blood vessels within the conjunctiva [2]. However, there is limited data on conjunctivitis's current prevalence and clinical impact. Farokhfar and colleagues documented a similar lack of awareness among patients with red eye in Iran [3]. Furthermore, Bodunde and colleagues found that although 81% of high school students in Southwest Nigeria were aware of the symptoms of red eye, their knowledge and management practices were suboptimal [4].

At Hung Vuong Hospital, during the conjunctivitis outbreak from August to October 2023, a total of 1,530 cases were recorded, with an average of 17 cases per day. Approximately 30% of these cases developed complications, including corneal involvement. In March 2024, the number of patients coming for examination was 552, of which the number of patients with conjunctivitis was 100, an average of 3.3 cases per day. Most patients sought medical attention only when their condition worsened, often due to self-medication at home. As a result, treatment was prolonged, leading to increased healthcare costs and complications affecting the cornea and other ocular structures. There is a paucity of data on public awareness, attitudes, and practices related to conjunctivitis and its timely management. Therefore, this study aims to describe the knowledge, attitudes, and practices of patients regarding conjunctivitis and to investigate associated factors at Hung Vuong General Hospital.

RESEARCH PARTICIPANTS AND METHODS

Research participants: Patients who visited the Ophthalmology Department at Hung Vuong General Hospital from April to August 2024.

Inclusion criteria:

- Diagnosed with conjunctivitis by a physician.

- Patients aged 18 years or older.

- Patients who provided informed consent to participate in the study.

Exclusion criteria:

- Patients with eye injuries.

- Patients seeking care for vision assessment or other eye conditions.

- Patients who are illiterate or unable to read and write.

Study duration and location:

Data collection was conducted from April to August 2024 at the eye clinic of Hung Vuong General Hospital.

Study design: Cross-sectional descriptive study design.

Sampling method: Convenience sampling technique.

The sample size for the study was determined using the following formula:

$$n = \frac{Z^2_{1-\alpha/2} \times p(1-p)}{d^2}$$

Where:

- n: Required sample size.

- α: Statistical significance level (α = 0.05, corresponding to a 95% confidence level; from the standard normal distribution table, $Z_{(1-\alpha/2)} = 1{,}96$).

- p: 0.846 (Proportion of individuals with incorrect knowledge about conjunctivitis reported by Muthusundari Arunachalam and colleagues in Tamil Nadu, India [5]).

- d: 0.05 (Desired margin of error between the sample and the population).

Substituting into the formula, we obtain n = 199, which is rounded to 200.

Thus, the sample size selected for the study is 200.

Data collection instrument:

The Knowledge, Attitude, and Practice (KAP) questionnaire on conjunctivitis was employed as the primary data collection tool. This instrument was standardized based on the guidelines from the Ministry of Health and previous research by S. Nithya et al [6], which reported that 74% of participants had accurate knowledge of conjunctivitis. The questionnaire was translated and adapted into Vietnamese to align with the local context, aiming to assess participants' knowledge, attitudes, and practices regarding conjunctivitis and associated factors. The questionnaire consisted of four sections:

Part 1: Demographic characteristics, which included 7 questions evaluating variables such as age, gender, education level, occupation, place of residence, the frequency of infections, and family members affected by conjunctivitis.

Part 2: Knowledge about conjunctivitis, comprising 10 questions. Each correct answer received 1 point, while incorrect answers or no response were assigned 0 points. For multiple-choice questions, all options had to be selected correctly to receive full credit. Knowledge was classified as satisfactory (≥ 7 points) or unsatisfactory (< 7 points).

Part 3: Attitudes towards conjunctivitis prevention, with 10 questions. The scoring system was similar, with correct answers receiving 1 point, and incorrect answers or no response receiving 0 points. Attitudes were considered satisfactory (≥ 7 points) or unsatisfactory (< 7 points).

Part 4: Practices related to conjunctivitis, consisting of 10 questions. Each correct answer received 1 point, and incorrect answers or no response were scored 0 points. For multiple-choice questions, full credit was given only if all options were correct. Practices were evaluated as satisfactory (≥ 7 points) or unsatisfactory (< 7 points).

Data collection method:

The research team visited the Ophthalmology Department at Hung Vuong General Hospital during regular working hours to explain the study's objectives to the participants. The survey forms were then distributed to each participant, and any questions or uncertainties were addressed. Upon collecting the completed forms, the investigator verified that all required information was provided. If any details were missing, participants were asked to supply the necessary information.

Data processing and analysis methods: Data were analyzed using Stata 25.0 software. Descriptive statistics, including frequencies and percentages, were calculated, and the Chi-Square test was applied to examine the relationships between variables. A p-value of < 0.05 was considered statistically significant.

Research ethics:

The study was approved by the Ethics Committee of Hung Vuong General Hospital under Decision No. 227/QD/2024-BVHV, dated February 5, 2024. All research participants were informed about the study's objectives and voluntarily consented to participate. Confidentiality of the participants' information was strictly maintained throughout the study.

RESULTS

Table 1. Demographic characteristics of participants (n = 203)

		n	%
Age, Mean ± SD ; (Min – Max)		41.6 ± 0.24; (18 – 88)	
Age group	≤ 30	53	26.1
	31 ≤ 50	90	44.3
	≥ 50	60	29.6
Gender	Male	87	42.9
	Female	116	57.1
Qualification	Intermediate	17	7.8
	College	22	10.8
	University	40	19.2
	High School	124	61.5
Occupation	Public servant	41	20.2
	Farmer	68	33.5
	Self-employed	60	29.6
	Retirement	8	3.9
	Worker	26	12.8
Place of residence	Rural areas	151	74.4
	Urban areas	52	25.6
Number of infections	< 3	157	77.3
	≥ 3	46	22.7
Frequency of infections among family members	Not infected	187	92.1
	Already infected	16	7.9

Among the 203 patients participating in the study, the mean age was 46.1 years, with the largest age group being 31-51 years (44.3%), and the majority of participants were female (57.1%). The majority of the patients resided in rural areas (74.4%) and had a high school education (61.5%). The number of patients who had been infected less than 3 times accounted for a high percentage (77.3%), and those with family members who had been infected accounted for 7.9%

Table 2. Knowledge about conjunctivitis (n = 203)

Knowledge	Correct		Incorrect	
	n	%	n	%
Definition	180	88.7	23	11.3
Causes	169	83.3	34	16.7
Location of conjunctivitis	164	80.8	39	19.2
Mode of transmission	159	78.3	44	21.7
Commonly affected individuals	162	79.8	41	20.2
Prevention of conjunctivitis	161	79.3	42	20.7
Symptom	165	81.3	38	18.7
Complications	170	83.7	33	16.3
Prevention	167	82.3	36	17.7
Risk factors for complications	145	71.4	58	28.6

A total of 180 participants, accounting for 88.7%, correctly understood the definition of conjunctivitis. 169 participants, or 83.3%, were aware of the causes of the disease. 164 participants, representing 80.8%, correctly identified the location of conjunctivitis, while 159 participants (78.3%) understood its mode of transmission. 161 participants, or 79.3%, were familiar with preventive measures for the disease. Additionally, 162 participants (79.8%) recognized individuals at high risk, and 165 participants (81.3%) understood the disease's symptoms. 170 participants, accounting for 83.7%, were aware of the potential complications, while 167 participants (82.3%) believed the disease could be prevented. However, only 145 participants, or 71.4%, correctly identified the factors that increase the risk of complications.

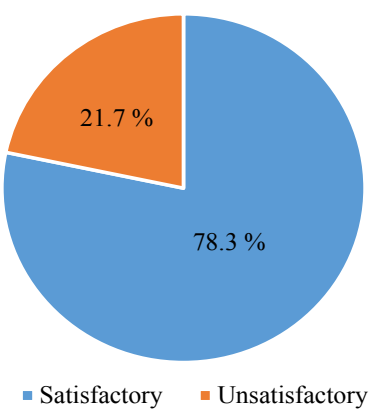

Figure 1. General knowledge level of conjunctivitis (n = 203)

As shown in Figure 1, the general knowledge level about conjunctivitis was 78.3%, with 21.7% of participants demonstrating unsatisfactory knowledge.

Table 3. Patients' attitudes towards conjunctivitis (n = 203)

Attitude	Agree		Disagree	
	n	%	n	%
Rub eyes with hands	163	80.3	40	19.7
Self-medication	176	86.7	27	13.3
No treatment required	186	91.6	17	8.4
Visit and receive treatment at medical facilities	198	97.5	5	2.5
The disease is contagious and often recurs.	185	71.1	17	8.9
Impact on life	199	98	4	2
It is an infectious disease.	190	93.6	13	6.4
Progression to chronic disease	186	91.6	17	8.4
Simple disease, easy to cure	151	74.4	52	25.6
Complications can be prevented	191	94.1	12	5.9

Table 3 indicates that 25.6% of patients disagreed with the statement that conjunctivitis is a simple and easy-to-treat disease. Additionally, 19.7% expressed disagreement with rubbing eyes, and 13.3% disagreed with self-medication. The lowest proportions of disagreement were observed for the impact of the disease on life (2%) and the need to visit medical facilities for examination and treatment (2.5%).

Table 4. Practices on preventing conjunctivitis (n = 203)

Practice	Correct		Incorrect	
	n	%	n	%
Administering eye drops	182	89.7	21	10.3
Timing for administering medication	179	88.2	24	11.8
Administering medication to children	153	75.4	50	24.6
Managing when eyes are excessively wet or have significant discharge	185	91.1	18	8.9
Preventing transmission	180	88.7	23	11.3
Preventing infection	146	71.9	57	28.1
Relieving symptoms	178	87.7	25	12.3
Maintaining eye hygiene	178	87.7	25	12.3
Responding when the eye shows signs of infection	153	75.4	50	24.6
Managing when the disease has not yet resolved	167	82.3	36	17.7

Over 75% of patients demonstrated correct practices in using medication. Additionally, more than 70% of patients correctly implemented practices for preventing disease transmission. Eye hygiene practices were followed correctly by over 85% of patients. A total of 167 patients, accounting for 82.3%, demonstrated proper practices when the disease had not yet resolved, while 153 patients, accounting for 75.4%, practiced correctly in managing eyes showing signs of infection.

Table 5. Association between knowledge and demographic characteristics of participants (n = 203)

Characteristics		Knowledge				χ^2 p-value
		Satisfactory		Unsatisfactory		
		n	%	n	%	
Age group	≤ 30	37	20.2	15	8.2	0.205
	31 ≤ 50	65	35.5	16	8.7	
	≥ 50	38	20.8	12	6.6	
Gender	Male	61	30	26	12.8	0.014
	Female	98	48.3	18	8.9	
Qualification	High school	97	47.8	27	13.3	0.186
	Intermediate	14	6.4	3	2	
	College	14	6.9	8	3.9	
	University	35	17.2	5	2.5	
Place of residence	Urban areas	35	17.2	17	8.4	0.025
	Rural areas	124	61.1	27	13.3	
Occupation	Farmer	57	28.1	11	5.4	0.115
	Worker	19	9.4	7	3.4	
	Public servant	36	17.7	5	2.5	
	Self-employed	42	20.7	18	8.9	
	Retirement	5	2.5	3	1.5	
Number of infections	< 3	123	60.6	34	16.7	0.990
	≥ 3	36	17.7	10	4.9	
Frequency of infections among family members	Not infected	149	73.4	38	18.7	0.109
	Already infected	10	4.9	6	3	

The results in Table 5 indicate that there is no statistically significant difference in knowledge across age groups, qualification, occupation, number of infections and frequency of infections among family members ($p > 0.05$). However, a statistically significant association was observed between knowledge and gender, as well as place of residence among the study participants ($p < 0.05$).

Table 6. Association between practice and demographic characteristics of participants (n = 203)

Characteristics		Practice				$\chi 2$ p-value
		Satisfactory		Unsatisfactory		
		n	%	n	%	
Age group	≤ 30	36	17.7	17	8.4	0.000
	31 ≤ 50	84	41.4	6	3	
	≥ 50	52	25.6	8	3.9	
Gender	Male	70	34.5	17	8.4	0.143
	Female	102	50.2	14	6.9	
Qualification	High school	109	53.7	15	7.4	0.099
	Intermediate	12	5.9	5	2.5	
	College	16	7.9	6	3	
	University	35	17.2	5	2.5	
Place of residence	Urban areas	42	20.7	10	4.9	0.357
	Rural areas	130	64	21	10.3	
Occupation	Farmer	60	29.6	8	3.9	0.038
	Worker	22	10.8	4	2	
	Public servant	39	19.2	2	1	
	Self-employed	46	22.7	14	6.9	
	Retirement	5	2.5	3	1.5	
Number of infections	< 3	132	65	25	15.3	0.633
	≥ 3	40	19.7	6	3	
Frequency of infections among family members	Not infected	160	78.8	27	13.3	0.260
	Already infected	12	5.9	4	2	

The results in the table 6 indicate that there is no significant difference in practice across gender, place of residence, qualification, number of infections, and frequency of infections among family members ($p > 0.05$). However, there is a significant difference in practice across age groups, occupation among the study participants ($p < 0.05$).

Table 7. Association between attitude and demographic characteristics of participants (n = 203)

Characteristics		Attitude				χ^2 p-value
		Satisfactory		Unsatisfactory		
		n	%	n	%	
Age group	≤ 30	47	23.2	6	3	0.970
	31 ≤ 50	81	39.9	9	4.4	
	≥ 50	54	26.6	6	3	
Gender	Male	78	38.6	8	4	0.646
	Female	103	51	13	6.4	
Qualification	High school	113	55.7	11	5.4	0.394
	Intermediate	14	6.9	3	1.5	
	College	18	8.9	4	2	
	University	37	18.2	3	1.5	
Place of residence	Urban areas	45	22.2	7	3.4	0.409
	Rural areas	137	67.5	14	6.9	
Occupation	Farmer	61	30.2	6	3	0.009
	Worker	21	10.4	5	2.5	
	Public servant	41	20.3	0	0	
	Self-employed	53	26.2	7	3.5	
	Retirement	5	2.5	3	1.5	
Number of infections	< 3	140	69	17	8.4	0.658
	≥ 3	42	20.7	4	2	
Frequency of infections among family members	Not infected	168	83.2	18	8.9	0.209
	Already infected	13	6.4	3	1.5	

The results in the table 7 indicate that there is no difference in attitude between gender, qualification, place of residence, number of infections and frequency of infections among family members ($p > 0.05$). There is a significant difference in attitude across occupation, age group among the study participants ($p < 0.05$).

DISCUSSION

General knowledge about conjunctivitis: In this study, 83.3% of participants demonstrated knowledge about the causes of conjunctivitis, exceeding the 63% reported by Arunachalam et al [5] and the 10% observed by S. Nithya et al[7]. Similarly, 88.7% of participants were

aware of the definition of conjunctivitis, compared to 45% in S. Nithya et al.'s study [6]. This higher awareness may stem from the common nature of the disease and the increasing accessibility of information due to technological advancements. Knowledge about the anatomical location of conjunctivitis was accurate in 80.8% of participants, possibly reflecting personal or familial experiences with the condition. Additionally, 79.3% of participants understood prevention methods, which may be attributed to their direct or indirect experiences with the disease and exposure to educational materials. Knowledge of disease symptoms was observed in 81.3% of participants, higher than the 46% reported by S. Nithya et al [6] and slightly lower than the 82% recorded in Nuha Mohamed Fathelrahaman Mahjoub's study post-training [7]. Regarding complications, 83.7% of participants demonstrated awareness, surpassing the 80% recorded in prior post-intervention studies [7]. Correct understanding of transmission routes was noted in 78.3% of participants, likely facilitated by enhanced access to information. Additionally, 79.8% of participants identified high-risk groups, higher than the 10% in S. Nithya et al.'s findings [6]. Lastly, 82.3% of participants believed conjunctivitis could be prevented, and 71.4% understood risk factors for complications. These findings highlight the critical role of ongoing education and communication in improving public understanding and management of conjunctivitis.

Patient attitudes on conjunctivitis: In this study, 74.4% of patients had a positive attitude toward conjunctivitis as a simple and easily treatable condition, higher than the 45% reported by S. Nithya et al [6]. Additionally, 94.1% of patients expressed appropriate attitudes toward preventing complications of conjunctivitis, exceeding the 76.9% observed in Le Thao Nhat Hoang's study [8]. Regarding awareness of complications, 91.6% of patients understood the potential severity of conjunctivitis, contrasting with a previous study where 49% did not believe the condition could cause blindness [8]. Notably, over 80% of patients displayed a positive attitude toward self-medication and felt no need for medical treatment, differing from the 64.6% in a prior study who viewed conjunctivitis as self-limiting and believed over-the-counter eye drops were sufficient [5]. Encouragingly, more than 97% of patients stated they would visit medical facilities upon experiencing symptoms, significantly higher than the 12% reported in Arunachalam's study [5]. It is recommended to implement targeted health education programs and public health campaigns to address misconceptions about conjunctivitis, emphasize the risks of self-medication, and highlight the importance of seeking timely medical attention.

Patient practice on conjunctivitis: Over 80% of patients demonstrated proper practices in medication use, contrasting with the 42.2% who relied on non-prescription drugs in the study by Arunachalam et al [5]. This discrepancy may stem from patients' prior experience with conjunctivitis, their frequent access to disease-related information, and improved healthcare accessibility. Correct practices in infection prevention were observed in 88.7% of participants, surpassing the 48% reported by S. Nithya et al [6], underscoring the need for continued education and outreach efforts on prevention and complications.

Proper eye hygiene was reported by over 85% of patients, exceeding the 76% observed in the study by Nuha Mohamed

Fathelrahaman Mahjoub following training[7]. The rate of correct practices in symptom reduction reached 87.7%, while only 75.4% of patients adhered to appropriate practices when infection symptoms appeared, lower than the 90% reported post-training in the same study [7], indicating the necessity of enhanced education on managing eye infections.

Furthermore, over 70% of patients practiced correctly to alleviate conjunctivitis symptoms, which was lower than the 87% post-training rate reported by Nuha Mohamed Fathelrahaman Mahjoub [7]. However, the rate of correct practices when the disease persisted was 82.3%, significantly higher than the 14.2% observed in Arunachalam's study, where patients required medical staff intervention [5]. These findings highlight the importance of targeted health education programs to improve practices related to conjunctivitis management.

Association of KAP with Demographic Characteristics: The study identified significant associations between knowledge about conjunctivitis and certain demographic factors. Specifically, knowledge varied by gender and place of residence ($p < 0.05$), with female participants demonstrating better knowledge than males. This difference may be due to gender-related disparities in accessing and retaining health information. Similarly, urban residents showed higher knowledge levels compared to rural residents, potentially reflecting better access to healthcare information and services in urban areas. However, no significant correlations were found between knowledge and age group, educational level, or occupation ($p > 0.05$). The widespread prevalence of conjunctivitis and the availability of information through multiple channels may explain the uniform knowledge levels across these groups. These findings differ from Naglaa Ezzat Mohamed et al.'s study, which highlighted the influence of factors such as education and income on health knowledge [9].

For practices related to conjunctivitis, significant differences were observed across age groups and occupations ($p < 0.05$). Older individuals demonstrated better practices than younger participants, which may reflect greater experience with managing health conditions or increased reliance on healthcare providers. Similarly, occupational differences in practice may stem from varying exposure to health education or time constraints for seeking care. In contrast, no significant associations were found between practices and gender, place of residence, or educational level ($p > 0.05$). This lack of variation may be attributed to the common nature of conjunctivitis and the role of prior experience, mass media, and familial knowledge in shaping patient practices.

Attitudes toward conjunctivitis showed significant differences by occupation and age group ($p < 0.05$). Older participants and those in less demanding occupations exhibited more proactive attitudes, possibly due to greater time availability and health awareness. However, no significant differences in attitude were observed across gender, place of residence, educational level, or prior illness episodes ($p > 0.05$). This uniformity may reflect a shared perception of conjunctivitis as a manageable condition with minimal health impact. These findings differ from Arunachalam et al.'s study, which reported variations in attitude based on educational level and age [5]. Differences in study settings and survey design may account for these discrepancies.

Based on these findings, health education programs should prioritize rural populations, male participants, and younger individuals, addressing their lower knowledge levels and barriers to proper practices. Targeted efforts should focus on accessible information channels, community outreach, and practical guidance on infection prevention and timely medical consultation. Integrating conjunctivitis education into public health initiatives can help standardize knowledge and attitudes across all demographic groups, ensuring effective disease management and prevention.

This study has certain limitations. Firstly, the use of a convenience sampling method may limit the generalizability of the findings to the broader population, as participants were selected from a single hospital. Secondly, self-reported data from the KAP questionnaire could introduce response bias, as participants may provide socially desirable answers rather than reflecting their true knowledge, attitudes, or practices. Lastly, the cross-sectional design captures data at a single point in time, which precludes any causal inferences between demographic factors and the KAP outcomes related to conjunctivitis. Future studies should consider a larger, more diverse sample and employ longitudinal designs to validate and expand upon these findings.

CONCLUSION

In conclusion, the study reveals a generally high level of knowledge and positive attitudes toward conjunctivitis, though certain groups, such as males, rural residents, and younger individuals, exhibit gaps in knowledge and practices. Knowledge and practices were significantly associated with gender, place of residence, and age, highlighting the need for targeted interventions. It is recommended that health education programs prioritize these vulnerable groups, focusing on accessible information channels, community outreach, and emphasizing the importance of timely medical consultation and proper infection prevention practices.

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Factors associated with postoperative pain among patients with upper limb fracture fixation surgery at Nghe An Trauma and Orthopedics hospital

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ABSTRACT

Objective: *This study aimed to identify some factors associated with postoperative pain in patients undergoing upper limb fracture fixation surgery at Nghe An Trauma and Orthopedics Hospital in 2024.* ***Participants and methods:*** *A cross-sectional descriptive study was conducted on 150 patients who underwent upper limb fracture fixation surgery at the Upper Limb Department, Nghe An Trauma and Orthopedics Hospital, from April to June 2024. The Brief Pain Inventory (BPI) was used to assess postoperative pain levels. Anxiety levels were measured using the Hospital Anxiety and Depression Scale-Anxiety Subscale (HADS-A). Social support was evaluated using the ENRICHD Social Support Instrument (ESSI). Data were analyzed using SPSS 22.0. Descriptive statistics were used to summarize patient characteristics. Independent t-test was applied to compare differences between groups. Additionally, Pearson correlation analysis examined linear relationships between variables. The statistical significance was set at $p < 0.05$.* ***Results****: The proportion of male and female participants was 67.3% and 32.7%, respectively. The mean patient age was 45.7 ± 15.8 years, ranging from 18 to 77 years. A majority of patients (66.7%) had a high school education. Factors significantly associated with postoperative pain included surgical incision length, gender, duration of surgery, anxiety levels, and social support ($p < 0.05$) at 24, 48, and 72 hours postoperatively.* ***Conclusion****: Minimizing postoperative pain requires a multidisciplinary approach, including optimizing surgical techniques, implementing multimodal analgesia strategies, and enhancing psychological support. These measures are essential for reducing tissue trauma, improving pain management, and enhancing the quality of life for postoperative patients.*

Keywords: *Postoperative pain, upper limb fracture fixation, pain management.*

INTRODUCTION

Postoperative pain is a common complication following fracture fixation surgery and plays a critical role in patient recovery. Multiple factors contribute to pain severity, including surgical factors (type, duration, and location of the incision), patient-related factors (age, underlying health conditions, and response to pain medication), and wound-related factors (severity of injury, infection, and inflammation) [1].

In the case of upper limb fracture fixation surgery, postoperative pain extends

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