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MAGNITUDE OF PATIENT SATISFACTION WITH POSTOPERATIVE PAIN MANAGEMENT AND ASSOCIATED FACTORS AMONG SURGICAL PATIENTS AT TIKUR ANBESSA SPECIALIZED HOSPITAL, FROM FEBR. TO APRIL 2021: CROSS SECTIONAL STUDY

A THESIS SUBMITTED TO DEPARTMENT OF ANESTHESIA, SCHOOL OF MEDICINE, COLLEGE OF HEALTH SCIENCE, ADDISABABA UNIVERSITY IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR MASTER OF SCIENCE IN ANESTHESIA

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ADDIS ABABA, ETHIOPIA

ADDIS ABABA UNIVERSITY
COLLEGE OF HEALTH SCIENCE SCHOOL OF MEDICINE
DEPARTMENT OF ANESTHESIA

MAGNITUDE OF PATIENT SATISFACTION WITH POSTOPERATIVE PAIN MANAGEMENT AND ASSOCIATED FACTORS AMONG POSTSURGICAL PATIENTS AT TIKUR ANBESSA SPECIALIZED HOSPITAL, FROM FEB 1-APR 30, 2021

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Declaration

I, the undersigned, declare that this thesis is my original work in partial fulfillment of the requirements for the MSc. degree in Anesthesia. I understand that plagiarism will not be tolerated and all directly quoted material has been appropriately referenced

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This thesis work has been submitted for examination with my approval as Advisors and Tutors on the MSc.degree in Anesthesia

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Abstract

Background: Assessment of patient satisfaction with postoperative pain management is vital tools for measuring the quality of care in health center. There is a paucity of data regarding to this topic, as it does not previously been studied yet in study area.

Objective: This study aimed to assessing magnitude of patient satisfaction with postoperative pain management and its associated factors among elective surgical patients postoperatively at Tikur Anbessa Specialized Hospital, from Feb to Apr, 2021.

Method: Institutional based cross-sectional study was conducted among 335 adult patients using systematic random sampling technique. Data were collected through structured questionnaires based on the modified APS-POQ to obtain responses from the patients. Both bi-variable and multivariable logistic regression analysis was done to evaluate the association. P-value less than 0.05 considered as statistically significant.

Result: The find of this study revealed that 74.5% of patients were satisfied with overall pain management services. Patients with ASA I (AOR = 2.3; 95%CI: (1.06-5.08), received multimodal analgesics (AOR 4.30; 95% CI: (2.02- 9.18), no perceived pain (AOR =6.7; 95% CI: (1.54-29.7), had pain discussion (AOR = 8.9;95% CI: (3.67-21.90) and waiting for analgesia service less than 30 minute (AOR =6.3;95% CI: (1.34-29.58) were more satisfied with their pain management.

Conclusion: The study shows that patient satisfaction with postoperative pain management was low in our setup as compared with many studies. Thus, there is need to improve perceived quality of postoperative pain management services at study area.

Keywords: Postoperative pain, patients' satisfaction, surgical patients

Acronyms

ASPOQ: American Society of Pain Outcome Questionaries'

ASA: American Society of Anesthesiologists

GA: General Anesthesia

HCP: Health Care Professionals

MMA: Multi Modal Analgesia

MSC: Master of Science

PACU: Post Anesthesia Care Unit

PCA: Patient-Controlled Analgesia

POD: Postoperative Days

RA: Regional Anesthesia

SPSS: Statistical Package for Social Sciences

TASH: Tikur Anbessa Specialized Hospital

VNRS: Verbally Numeric Rating Scale

CHAPTER ONE: INTRODUCTION

1.1. Background

Postoperative pain is ‘acute pain due to surgical trauma with an inflammatory reaction and initiation of an afferent neuronal barrage, result in several unpleasant sensory, emotional and mental experience precipitated by the surgical trauma and associated with autonomic, endocrine-metabolic, physiological and behavioral responses’ (1).

Now day assessment of patient satisfaction becomes an important tool for the health care services to measure outcomes management. The American Pain Society has developed the newly modified ‘Revised American Pain Society Patient Outcome Questionnaires’ in to measure pain management outcomes and patient satisfaction as tools for quality improvement guidelines (2).

Patient satisfaction with postoperative pain management is the result of satisfaction with the care process and care outcome which include waiting time, provision of information, access and adequacy of care (3,4). The patient satisfaction with pain management generally encompassed both psychosocial and technical aspects of care, that strongly associated with effective pain management (5).

Postoperative pain management processes are some of the important aspects affect patient satisfaction. The factors that affecting satisfaction of pain management are adequate pain relief, pain intensity and multiple patient related factors including providing a quick response, engaging patients into their own care, encouraging pain communication, relationship with the healthcare providers also determining the outcome of patient satisfaction (6–8).

1.2. Statement of the problem

Suboptimal patient satisfaction with post-operative pain management is still remains a common problem in health care (9). However, despite persistent pain for most patients in clinical contexts, pain management has received astonishingly little attention from health care professionals, due to unrealistic patient satisfaction to pain management services (10).

The review of abroad literatures reported that conflicting arguments regarding the patient satisfaction to pain management in contradict ways (11–13). In spite of such studies there is still limited clinical information available on association of patient characteristics, patient perceptions of pain experience and patient satisfaction with postoperative pain management (14). Some studies reveal satisfaction with postoperative pain treatment is less associated with the patients' actual pain experience, but rather with appropriateness of care and involvement in pain management (15). The unrealistic expectations about their pain management to may leads to high satisfaction. Thus, identifying factors associated with satisfaction with pain management must be overcome and active patient participation in their care might be an effective way to improve patients' satisfaction (16).

A few prospective cross-sectional studies in our country argues paradoxical high satisfaction with pain management, despite high prevalence of post-operative pain (10,17). However, the expected pattern is the reverse, which leads to mismanagement of postoperative pain. Thus the consequences of mismanagement of postoperative pain can lead to patient`s dissatisfaction to quality of care they received (18). This need further researches to identify other associated factors with pain management.

1.3. Significance of the study

Patients' satisfaction to postoperative pain is crucial to measure performance and success of healthcare institutions. To provide a standard of practice in pain management, and reduce cost of dissatisfaction it is necessary to identify patient outcomes in terms of patients' self-reports of pain management satisfaction (19).

Prior studies our county related to postoperative pain management were mainly focused on the prevalence of postoperative pain intensity. During my search, there was no evidence that shows the magnitude of patient satisfaction with postoperative pain management at study area. The available evidences in different set up and participants might affect the magnitude and associated factors of patient satisfaction.

Identifying related those factors might be improves the effective way to postoperative pain management strategies. Once these magnitudes of problems have been identified and understood, a future strategy to enhance the quality of pain management can be devised.

This study might be supporting the health service management, to understand the magnitude of the problem, and to highlight awareness of the problem areas by concerned bodies. It might play an important role in this case as baseline for next researches to be done in this area, to resolve the problems of patient dissatisfaction. The study also, will give an insight to what the recent status of patient satisfaction with postoperative pain management in our setup looks like.

CHAPTER TWO: LITERATURE REVIEW

2.1. Concept of satisfaction with postoperative pain management

Pain has been frequently studied as it is common problem after major surgery (20). Hence, postoperative pain management is increasingly recognized as an important aspect of high-quality care and an integral part of patient satisfaction (21). A study conducted in the USA by Marie H et.al on postoperative outcome found out that among the study participants, 82% of the patients reported that they experienced pain, and 90% of them reported to be satisfied with their pain management (22).

The cross sectional study in Jordan by Shoqirat.et.al 2019 similarly shows despite high postoperative pain prevalence (87%) following surgery during the first 24 hours, the overall patients satisfaction were also moderately high (66.6%), while male gender and older age adult had better satisfied to their pain management (23).

Study in Netherlands' shows observed high level of satisfaction (88.6%) with pain management even with inadequate management of pain is very relevant. As for the patients' perceptions regarding therapy, their satisfaction was highly dependent on adequate pain assessment by HCPs and their involvement in therapy (24).

A prospective study conducted in Hong Kong hospital on postoperative satisfaction with postoperative pain management, shows 65% of the patients were satisfied with over all postoperative pain management (25).

2.2. Associated factors of satisfaction with postoperative pain management

A cross-sectional study conducted in Lebanon to identifying predictive factors that affect patients' satisfaction regarding pain management detailing the socio-demographic factors and their association with patients' satisfaction shows both genders were equally satisfied. However, being an elderly age over 65 years was associated with more dissatisfaction when compared to a younger age groups (26).

Observational study at Sweden by Svensson I, (2017) was found that Socio demographics, pre-operative expectation and actual experience of pain relief, and the overall pain experience were found to be factors associated with the patient's satisfaction (14).

Study conducted by Botti et al. at North England, UK suggested there are positively associating between patient satisfactions and good communications between patients and care providers (27). In addition, study done by Glenn, et.al 2012 shows pain education increases patient satisfaction and results in improved a better outcome (4).

A single-center, prospective, survey-based study by E. Siu, et.al at Boston hospital, USA shows that the highest associated with satisfaction was the ability to participate in pain management decisions. According to this study positively associated predictor was receiving helpful information about postoperative pain management options and negatively associated factors were pain intensity (28).

The results of study from Indian by Singh, P. Kumar et.al 2019 also show that patient satisfaction with post-operative pain management associated with patients' expectations, intensity of pain, promptness of acute pain service response, effectiveness of treatment and health-care professionals' responsiveness (29).

Prospective and descriptive study done in Taiwan on patient satisfaction on postoperative pain management in a tertiary care Hospital, shows 85.4% of patients reported satisfied. In this study lower VNRS highly associated with satisfaction (AOR= 0.216 :95%:CI=0.14-0.7) (30).

The study done at Beirut, Lebanon by E. Ramie, et.al (2017) on patient's perceptions regarding pain management shows 50% of patients reported severe pain, however, 89.4% of patients were satisfied with their pain management. Participants wait for ≥ 30 minutes before getting the pain medication and pain intensity were predicts factor associated to their satisfaction (31) .

Studies done in Spain by Montenegro.et.al, 2016 on patient satisfaction reveals patients who received postoperative regional analgesic were highly satisfied. It shows those study participants nerve block recipients were satisfied 4 times more likely to be satisfied compared with patients not received nerve block (AOR = 4.12; 95% CI : 2.3–12.8) (32) .

A descriptive cross-sectional study conducted among patients who had undergone abdominal surgeries in Ghana at 2019 shows the satisfaction of patients with the post-operative pain management were (96.5%) satisfied, and type of analgesia and pain relief methods, patient's ability to request more pain relief, patient's access to information about their pain treatment options were the association factors with patients satisfaction (33).

Prospective observational study at Temeke Referral Hospital in Tanzania shows, though high pain intensity, 73.5% of the patients were satisfied with pain management and being male gender and least pain were predictors of satisfaction (34). An other study in Tanzania, by Masumbuko,et.al,2018 reveals analgesia techniques and high level of education were significantly associated with patient satisfaction with POP management (35).

A study conducted in Jimma University by W.Eshete, et.al 2014 on quality of postoperative pain management reported that there were paradoxical high patient satisfactions with postoperative pain management, which argues pain intensity did not predict the level of satisfaction(17,36). The study conducted at the Gondar Referral hospital on patient satisfaction with postoperative pain management services were shows 72.2% overall satisfaction and pain severity, disease status, and analgesia techniques were significantly associated to their satisfaction level of overall conducted (37) .

2.3. Conceptual frame work

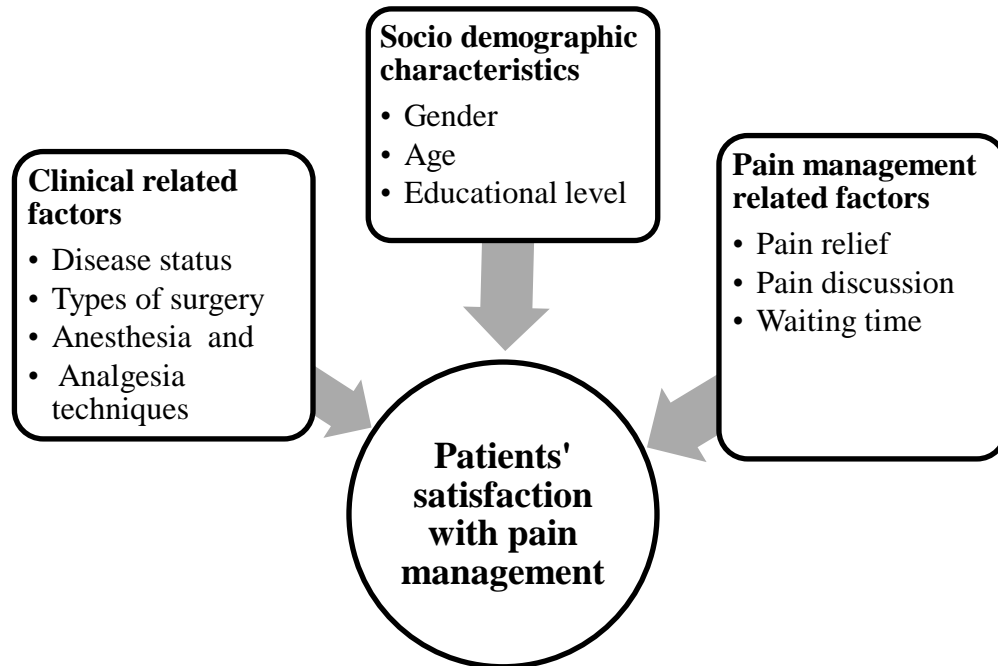


Figure 1: The conceptual frame work of patient's satisfaction with postoperative pain management and associated factors of postsurgical patients at TASH from Feb 1, to Apr 30, 2021 (26-37).

CHAPTER THREE: OBJECTIVE

3.1. General Objective

To assess the magnitude of patient satisfaction with postoperative pain management and associated factors among elective surgical patients at TASH from Feb to Apr.2021

3.2. Specific Objective

- 1) To determine the magnitude of patients' satisfaction with postoperative pain management among postsurgical patients at TASH

- 2) To identify factors associated with patient satisfaction to postoperative pain management among postsurgical patients at TASH

CHAPTER FOUR: METHODOLOGY

4.1. Study Area

The study was conducted at TASH which is the largest, multi-specialist tertiary care teaching hospital located, in Addis Ababa, Ethiopia. It is now the main teaching hospital for clinical and preclinical trainings of most disciplines. It is also an institution where specialized clinical services that are not available in other public or private institutions are rendered to the whole nation. It has about 17 operation theatres and approximately 8000 patients undergone surgery each year. The elective surgery accounts 45% (3600). Out of these patients 70% approx. 2,500 are dedicated to adult elective surgeries each year. In the target hospital, postoperative pain was controlled according to national guidelines, particularly using pethidine, tramadol, and diclofenac which prescribed by the surgeons and provided by nurse wards (38) .

4.2. Study Design: Institutional based cross-sectional study design

4.3. Population

4.3.1. Source population: All adult patients who had undergone elective surgery at TASH during study period.

4.3.2. Study population: Adult patients who had undergone elective surgery during the study period at TASH.

4.4. Inclusion and exclusive criteria:

4.4.1 Inclusion criteria:

- ✓ 18 years old and above post-operative patients

4.4.2. Exclusive criteria:

- Patients who were critically ill and unable to communicate
- Postoperative admission in the intensive care unit was also excluded.

4.5. Sample size and sampling technique

4.5.1. Sample size

Sample size was determined by single population proportion formula with the following assumptions were made: level of confidence 95%; $Z_{\alpha/2}=1.96$, a 5% margin of error ($d=0.05$), and proportion of previous study done in Gondar Hospital were (72.2%) (37).

$$SS = \frac{(Z_{\alpha})^2 p(1-p)}{d^2} \text{ where, } Z_{\alpha} \text{ is } p=0.723, 1-p = q=0.277, d =0.05$$
$$n = \frac{(1.96)^2 (0.723) (0.277)}{(0.05)^2} = 307$$

So, the calculated sample size (307) and, adding for 10% possible non response rate, result in total sample size of 338 patients.

4.5.2. Sampling Technique

Situational analysis from operation log book has been estimated 750 elective adult surgeries were done in last 3 months, and 338 participants were selected with $K^{\text{th}} = 750/338 \sim$ every 2 patient. The total sample size was selected by using systematic random sampling technique at every K value interval using registration list from recovery room as a sampling frame.

4.6. Study variables

4.6.1 Dependent Variable:

- ✓ Level of patient satisfaction with postoperative pain management
 - Satisfied or Dissatisfied

4.6.2. Independent Variables:

- ✓ Socio demographic factors:
 - Sex, Age, and Educational status
- ✓ Clinical related factors:
 - ASA status, Types of surgery, Types of anesthesia and Analgesia modality used
- ✓ Pain management related factors:
 - Information provided regarding pain management (yes/no),
 - pain intensity: (no pain, mild, moderate, and severe) and
 - waiting times for pain medication

4.7. Tool for Data Collection.

The Questionnaires were adapted from Revised American Pain Society Patient Outcome Questionnaire (APS-POQ) and modified to align with the study objectives. The previous results support the internal consistency; validity, and clinical feasibility of this instrument (2).

The study questionnaire consisted of two sections: The first section had questions regarding the participant's demographic details, including age, gender, level of education, & clinical characteristics. The second section used the APS Patient Outcome Questionnaire (APS-POQ), which asks about the patient's pain experience, including: 1) pain intensity within the past 24 hours using a scale of 0 (no pain) to 10 (worst pain); 2) pain interference with daily activities and current pain on the same scale; 3) waiting time for pain medication, 4) satisfaction with 5 aspects of pain management using a 5-item Likert scale ranging from 0 (very dissatisfied) to 5 (very satisfied) (39).

4.8. Data Collection

Three anesthesia students of AAU University School of Medicine were properly trained to approach to collect the required data. Data were collected via patients' chart review, and interviewing. The modified APS-POQ-R survey contained 10 questions asking about the patient's postoperative pain experience were translated to Amharic language and translated back to English by language expert. Pretest was done at Minilik hospital on 34 patients (10% of the estimated sample size) and some amendment was done before the actual data collection. During the study, it was identified that certain questionnaires were confusing to patients; thus, a few changes were made to some words which seemed reflect the same concepts to study participants such as worst pain and pain interfere with their daily activities thus, the question was changed to one question "...the worst amount of pain interfere you staying asleep ...". They use term physicians and nurses interchangeably thus only the concept of "health care providers" was used.

The perioperative anesthetics and pain management of patients were not standardized. The postoperative pain management modalities used (i.e., systemic analgesics, regional techniques) were noted, but the doses of drugs were not recorded. Pain intensity was measured based on verbally responded numerical rating scales (VNRS) with answer options ranging from 0 to 10,

where 0 reflects no pain, 1-3 mild, 4-6 moderate, and 7-10 severe pain. Patient satisfaction was measured using 5- point Likert scale including very dissatisfied, dissatisfied, neutral, satisfied, and very satisfied (2).

4.9. Data quality control

The study was approved by the AAU IRB and the applicable executives of the involved hospitals. The study was done in accordance with the ethical standards as laid down in the 1964 Declaration of Helsinki and its later amendments. The quality of data was ensured before, during and after data collection. Orientation was given for data collectors about the objectives and relevance of the study, each item included in the study tools and the whole process of data collection. During data collection, regularly supervised and follow up were undertaken by supervisors daily and with further cross check by principal investigator for completeness and consistency of data. Data clean up and crosschecking of missing data was done by multiple imputation method before analysis on SPSS.

4.10. Data analysis and interpretation

Data was entered into SPSS version 26.0 for analysis. The frequency, percentage, and cross-tabulation with different variables were determined. Model of fitness were checked by Hosmer-Lemeshow goodness-of-fit test and the magnitude and associated factors were analyzed using binary logistic regression and multivariable logistic regression. Variables with P-value < 0.2 binary logistic regression included in a multivariable logistic regression. Finally, the p value of 0.05 and less was considered as statistically significant. The AOR was used to determine the strength of the association between a dependent variable and independent variables. The patient's satisfaction via 5-point Likert scale was dichotomized in to satisfied and dissatisfied groups based on demarcation threshold formula: $\frac{(\text{total highest score} - \text{total lowest score})}{2} + \text{total lowest scores}$ (40).

4.11. Dissemination of findings

To make this study available for researchers, experts and policy makers the completed paper will be submitted to College of Health Sciences, Department of anesthesia. In addition, a copy of this material will be given to AAU student research office and Ethiopian Association of Anesthetists. The result will also be disseminated through publication in peer reviewed local and international journals and via present to related workshops and seminars.

4.12. Operational definition

Acute postoperative pain: pain present in a surgical patients soon after surgical procedures.

Multimodal analgesia: the combination of systemic analgesic and regional analgesia given for perioperative pain management

Pain management education: providing patients with helpful information about their pain treatment, and allowing patients to participate in decisions about their pain management.

Satisfied: one's expectation score, described as patient satisfaction scores above calculated mean score based on satisfaction tool measurements (41).

Systemic analgesia: opioids and/ or non-opioids analgesic drugs given for postoperative pain

VNRS: is a 'valid pain intensity assessment tool that involves asking a patient to describe his or her pain on verbal descriptor scale with the understanding that 0 is equal to no pain and 10 equal to the severe pain' (42).

Waiting times: (in minutes): it is time takes for the client to be asked and get a pain medication.

5-point Likert scale: A type of psychometric response scale in which respondents specify their level of satisfaction to a statement in five points used to measure satisfaction level (42).

4.13. Ethical consideration

The ethical clearance was obtained from the ethical clearance committee. The objectives and the importance of the study were explained and written informed consent was obtained from each participant. Confidentiality was secured at all levels of the study by using codes to identify the participants. The participant's involvement in the study were on a voluntary basis, participants those who were not willing to participate in the study and those who wish to quit their participation at any time was informed that they are allowed to do so without any restrictions.

CHAPTER FIVE: RESULT

5.1. Demographics and Clinical Characteristics of Study Participants

A total of 335 patients participated in the study with a response rate of 99.1%. Three patients were excluded from data analysis for incompleteness. Most of the respondents, 137 (40.9%) were in the mid age group with the mean age \pm SD was 41.5 \pm 8.51 years. 177 (52.3%) of the participants were female and 107(31.8%) had not received any formal education. Majority of the study participants 68.2% were, ASA I status patients (Table1).

Table 1: **Demographic and clinical characteristics of patients underwent elective surgery at TASH, Addis Ababa Ethiopia, 2021(N= 335).**

Variables	Categories	Frequency (<i>n</i>)	Percentages (%)
Gender	Male	158	47.2
	Female	177	52.8
Age*	18-35	115	34.3
	36-55	137	40.9
	55+	83	24.8
Education	Illiterate	107	31.8
	Literate	218	68.2
ASA status	ASA1	228	68.2
	ASA2	76	22.7
	ASA3	28	8.4

5.2. The clinical characteristics of study participants

Of the total, majority of patients (60.3%) were undergone surgeries under general anesthesia while 39.7% were operated under regional anesthesia. The distributions of surgical procedures were (50.7%) abdominal surgeries following by limb surgeries (36.7%) of participants and the remaining 12.5% were head and neck surgery. In the perioperative period, 192 (57.4 %) of patients received multimodal analgesia with regional block. Post-operatively 256(76.4%) of study participant were experienced at least mild to severe pain (Table 2).

Table 2: clinical characteristic of patients underwent elective surgery at TASH from Feb, to Apr 30, 2021. (n=335)

Variables	Categories	Freq.	Percent (%)
Site of surgery	Limbs	123	36.7
	Head and neck	42	12.5
	Upper abdomen	67	20.1
	Lower Abdomen	103	30.7
Types of anesthesia	GA	202	60.3
	SA	133	39.7
Analgesia modality	Systemic analgesia	143	42.6
	Multimodal	192	57.4
Postoperative pain score (VNRS)	VNRS(0)	78	23.6
	VNRS(1-3)	120	35.8
	VNRS(4-6)	85	25.4
	VNRS(7-10)	52	15.5

5.3. Overall satisfaction with postoperative pain management

In this study the variables used to measure the overall level of satisfaction pain management, and determine the overall level of satisfaction the responses were dichotomized to satisfied and dissatisfied. Respondents who scored mean and above were categorized as satisfied and those who scored below were categorized as dissatisfied. Hence, 278(74.5%) study participants were satisfied with their pain management and 107(24.5%) were dissatisfied, for detail see figure 2.



Figure 2: The overall patient satisfaction to postoperative pain management of elective adult patient at TASH, May 2021

5.4. Factors Associated with Patient's Satisfaction with Pain Management

Binary logistic regression analysis was done to evaluate presence of association between independent variables and dependent variables (overall satisfaction). Among those variables; Age, educational status, disease status, surgery types, pain intensity, analgesia modality, waiting time to get analgesia, and whether they told reporting pain (pain communication) were found to be significantly associated with overall satisfaction at p-value <0.2.

Table 3: Bi-variable logistic regression analysis of patient satisfaction to post operation pain management at TASH Addis Ababa, May 2021 (n = 335)

Variables	Categories	Satisfied N (%)	Dissatisfied N (%)	COR(95% CI)	P value
Age	18-35	63(58.5)	42(41.5)	1.12(.58 -2.14)	.07
	36-55	83(67.6)	36(32.4)	1.1(.54-2.14)	.97
	55+	50(74.1)	28(25.9)	1	1
Gender	M	118(66.1)	38(33.9)	0.62(.37-1.02)	.26
	F	116(72.4)	60(27.6)	1	
Education	Illiterate	83(67.8)	33(32.2)	1.6(.97-2.9)	.06
	literate	151(75.7)	55(24.3)	1	
ASA status	ASA I	182(78.3)	64(22.7)	2.2(1.32-3.64)	.002
	ASA II&III	67(72.3)	40(27.37)	1	
Analgesia technique	Systemic	104(67.0)	61(37.0)	1	
	Multimodal	145(91.2)	25(8.8)	5.3(3.03-9.29)	.000*
Anesthesia types	GA	143(80.2)	57(19.9)	1.12(0.68 -1.8)	0.6
	RA	91(65.4)	41(34.5)	1	
Surgery types	Limbs	83(68.2)	38(31.8)	0.5(0.3-1.2)	.15
	Lower abdomen	86(75.7)	26(24.3)	2.9(1.3 - 6.7)	.01
	Upper abdomen	56(64.7)	20(36.3)	1.18(0.6 - 2.1)	.16
	Head & neck	25(50.5)	24(49.5)	1	1
Pain score	VNRS(0)	72(81.7)	6 (28.7)	26.4(8.3-83.25)	.000*
	VNRS(1-3)	95(73.6)	25(26.3)	5.3(2.6-10.83)	.000*
	VNRS(4-6)	47(52.4)	38(47.6)	1.76(0.85-3.64)	.124
	VNRS(7-10)	24(48.5)	28(51.5)	1	
Waiting time (in minutes)	Less than 30	192(88.6)	24 (11.4)	6.9(2.64-18.03)	.000*
	More than 30	57(48.9)	61 (51.1)	1	
Discuss pain	Yes	154(96.2)	16 (3.8)	11.78(5.8-23.8)	.000*
	No	95(54.6)	75 (45.4)	1	

* P value <0.001, 1=reference group, COR= crude odd ratio

5.5. Multivariable Logistic Regression with overall satisfaction

In the multivariable logistic regression analysis, ASA status, pain severity, analgesic modality, waiting time, getting adequate information on pain, were significantly associated variables for patient satisfaction in postoperative pain management services. The main promising finding was that participants who were informed to reporting pain management(pain discussion) were 8.9 times satisfied than (AOR 8.97; 95%CI: 3.6-21.90) than those who were not informed as shown in table 4.

Table 4: Multivariate analysis result of patient satisfaction with postoperative pain managements assessed at TASH (N=335)

Variables	Descriptive	COR(95%CI)	AOR (95% CI)	P value
ASA status	ASA I	2.2(1.32-3.64)	2.33(1.07-5.08)	0.03
	ASA II& III	1	1	
Pain score (VNRS)	VNRS(0)	26.4(8.37-83.25)	6.7(1.54-29.7)	0.001
	VNRS(1-3)	5.3(2.6-10.83)	4.5(1.65-12.10)	0.03
	VNRS(4-6)	1.76(.85-3.64)	1.44(.516-4.021)	0.48
	VNRS(7-10)	1	1	
Analgesia modality	Systemic	1	1	P<0.001
	Multimodal	5.3(3.03-9.29)	4.30(2.02-9.18)	
Waiting time (in minutes)	Less than 30	6.9(2.64-18.03)	6.30 (1.34-29.5)	0.001
	More than 30	1	1	
Pain discussion	Yes	11.78(5.81-23.8)	8.97(3.68-21.90)	P<0.001
	No	1	1	

1=reference group, COR= crude odd ratio, AOR =adjusted odd ratio, CI = confidence interval.

CHAPTER SIX: DISCUSSION

The overall result of this study showed that 74.5% participant was satisfied with postoperative pain management. This result show that there was slight improvement patient satisfaction as compared to a prospective study conducted in Jimma by W. Esthete and study at the Gondar specialized hospitals that showed only 50.0% and 72.2% of the study participants respectively were satisfied with their management, this might be due to time and working setup difference between the study participants (10,36,37) .

This finding was also low compared with other studies in Malaysia, Pakistan, Ghana, and Tanzania (33,34,43,44). The reason of this finding might be due to difference pain management techniques or superior use of analgesia, good caring attitude of pain management services teams, good level of pain education or demographic characteristic as explained in those studies.

With regard to factors associated with patient satisfaction to postoperative pain management, five variables were statistically identified. The first, ASA status is strongly associated with post-operative pain satisfaction. Patients with ASA I group were 2.3 times more likely satisfied to pain management (AOR; 2.33(1.07-5.08) P=0.03. In agreement with this study, study done by Josef, et.al at Gondar reported that ASA I status was associated with good satisfaction, 3.5 times more likely to be satisfied compared with other groups of patients (AOR =3.55 (1.20–10.55) (37). Another study conducted in Pakistan also supports our study, where ASA I patients were 3.7 times more likely to be satisfied compared with other groups (45).

Secondly, the study shows lower mean pain scores (AOR: 6.7:95% CI ;(1.54-29.7) resulted in higher satisfaction levels. This finding is comparable to previous studies that found decreased patient satisfaction with increased pain scores (18,30,46). The studies reveal the negatively associated factors of patient satisfaction with pain experienced; thus, the more pain intensity, the lower the satisfaction level. In other way this finding is incongruent with studies showing that patients can be pleased with their pain management despite experiencing severe pain(39). The reason for satisfaction might be unrealistic expectations with appropriateness of care rather than actual pain experience.

Thirdly, our finding shows that multimodal analgesia with nerve block recipients were 4 times (AOR: 4.30; 95% CI; (2.02-9.18)) associated with a high level of satisfaction. It is consistent with other studies that reveals, recipients of postoperative nerve block were 9 times satisfied compared with those not received nerve block (28,45). It might be due to administration of multimodal analgesia drugs would be expected to decrease pain scores considerably, thereby increasing patient satisfaction and the fact that regional block has superior analgesia for pain management. This finding is also congruent to the results derived from different studies which reported a higher rate of patient satisfaction with multimodal analgesia recipients (22,43).

Fourthly, the positively associated to patient satisfaction with postoperative pain management were related to patient engagement in the care process to ensure good communications. This study demonstrated that recipient of specific pain communication were 8.9 times satisfied than those did not get involved in pain management decision (AOR: 8.9; 95% CI; (3.68-21.90)). This might be due to participants those had enough information about pain management and able to discuss their fears were more likely to be satisfied compared with those patients not get it.

This result also in line with study done by Botti et al. and Schwenkglen et. al, which suggested that patient satisfied with pain management affected by good communication (15,27). It explained that there was strong association between patient satisfaction and perceived appropriateness of allowed participation in pain treatment decisions.

Lastly, in this study, waiting short time (less than 30 minute) respond to their pain (AOR = 6.3; 95%CI (1.34-29.59)) were positively associated with satisfaction. This finding is comparable to previously reported results that waiting long time decreases the probability of being satisfied(43,44). This is also congruence with study in Lebanon by Tawil, et.al that shows the fact that patients wait for more than 30 minutes before getting the pain medication after requested and did not get any additional analgesic for pain relief were negatively associated with patient satisfaction (26). This finding is comparable to previously reported in India and Malaysia result that waiting long time decreases the probability of being satisfied to overall postoperative pain management(43,44).

Limitation of study

- ✓ The dichotomized Likert data might lead to loss of some information about satisfaction status due to unequal distance within space
- ✓ The study did not include critically ill patients; this issue might have effect on dependent variables so, our findings interpreted with these limitations.

CONCLUSION AND RECOMMENDATIONS

The study reveals that patient satisfaction with postoperative pain management was suboptimal. The associated factors with patient's satisfaction with post-operative pain management such as: ASA status, postoperative pain intensity, analgesic techniques used, and management process were identified significantly. The finding shows that patient satisfaction with postoperative pain management is not only based on the presence or absence of postop pain but also on provider empathy, patient education, and pain communication on pain management.

Based on our study findings, the recommendations forwarded by this study are:-

Acute pain management service team

- ✓ To improve patient satisfaction, attention should be paid to achieving acceptable pain levels, providing patients with helpful information about their pain treatment, and, allowing patients to participate in decisions about their pain management.
- ✓ Regional block as part of multimodal analgesia should be given to all patient postoperatively to improve patient satisfaction.
- ✓ Waiting over an hour to get analgesia is one of the identified factors requiring improvement this highlights the need for timely provision of pain management.

For researchers

- ✓ In a future study, multi-dimensional perspective investigations should be undertaken to gauge the quality of postoperative pain management care using this study as a base line.

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ANNEX: I QUESTIONAREE ENGLISH VERSION

Instruction: For each of the questions, please circle the letter of alternative(s) that fit the response or fill the blank space provided.

Part I: Participant`s Socio demographic details

- 101 Age (in years): _____ in years
- 102 Gender: A. Male B. Female
- 103 Education level: a) No formal education
 b) Primary level
 c) Secondary level
 d) Tertiary level

Part II: Patient clinical characteristic

- 201 ASA status A. ASAI B. ASA II
 C. ASA III D. ASA IV
- 202 Surgical site: A) Limbs B) Head and neck
 C) Upper abdomen D) Lower abdomen
- 203 Anesthesia techniques given: A) GA: B) RA
- 204 Analgesia modalities given: A) systemic: ____ B) Multimodal _____

Part III:-Revised American Pain Society Patient Outcome Questionnaire

Rate with VNRS (0-10)

- 301 On this scale, how much pain you experienced in the past 24 hours? ____
0 1 2 3 4 5 6 7 8 9 10
- 302 How pain has interfered with staying sleep, after surgery? _____
0 1 2 3 4 5 6 7 8 9 10
- 303 On this scale, how much pain you have right now? _____
0 1 2 3 4 5 6 7 8 9 10

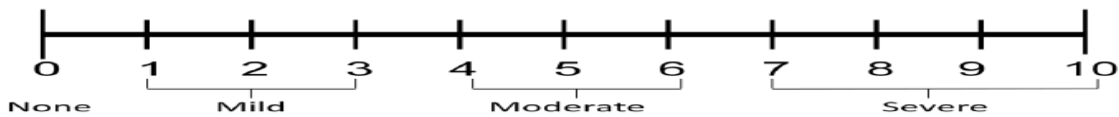
304 What was the longest time you had to wait to get pain medicine?

- | | |
|-----------------------|----------------------|
| 1. Never asked | 4. 30–60 minutes |
| 2. 15 minutes or less | 5. More than an hour |
| 3. 15–30 minutes | 6. Never given |

305 Earlier in your care, did your physicians or nurses discuss with you the fact that they consider treatment of pain very important?

- (A) Yes (B) Yes but not clear (C) No

ANNEX II: VNRS and 5- LIKERT SCALE of satisfaction level (40,42).



Part IV. Patient Responses to level of Satisfaction to pain management

Select the phrase that indicates your satisfaction level Hint: 1) Very dissatisfied 2) Dissatisfied 3) Neutral 4) Satisfied 5) Very satisfied

401 How you satisfied with the way you responded to your reports of pain.

1 2 3 4 5

402 How satisfied with information received about pain management?

1 2 3 4 5

403 How much relief you obtained (no relief to best relief)

1 2 3 4 5

404 Would you recommend the same treatment for yourself and friends?

1 2 3 4 5

405 How satisfy you are with the results of your overall pain treatment?

1 2 3 4 5

Very		Neither		Very
Dissatisfied	Dissatisfied	Satisfied nor	Satisfied	Satisfied
(1)	(2)	(3)	(4)	(5)
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

ANEX III: INFORMATION SHEET

The Research title: is the magnitude of patient satisfaction with postoperative pain management and associated factors among elective surgical adult patients from Feb. to Apr. 2021 at TASH

Name of the principal investigator: Bekele Buli

Name of the organization: AAU, school of medicine, department of anesthesia.

Name of the sponsor: Addis Ababa University.

Introduction: the main concern of this information was prepared with the aim of assessing magnitude of patient satisfaction with postoperative pain management and associated factors among elective surgical adult patients from Feb. to Apr. 2021 at TASH. The research group includes the principal investigator, three data collectors, and two advisors from AAU.

Purpose of the Research project

The main concern of this study was assessing magnitude of post-operative pain management satisfaction among patient undergone surgery at TASH. The finding of this study was expected to be used by decision makers, FMOH, EAA, department of anesthesia and health practitioners.

Procedure

This study including all elective adult patients undergo surgery during the study period. They selected as part of the study participants who were willing to participate in this study and willing to have consent. Anyone can have right to refused to participate in study.

Benefits, Risk or Discomfort: There was no direct benefit to study participants. And the result of this study was used for further improvement of the pain management services. There was no risk of participating in this study.

Confidentiality: The information collected from the study subjects was keep confidential and stored in the file, without their name by assigning a code number to each.

Right to refusal or withdraw

Study subjects will have full right to refuse from participating in this research.

ANNEX IV: STUDY SUBJECTS CONSENT FORM

Addis Ababa University, College of Health Sciences Department of Anesthesia

This is Cross sectional Study on the assessment of patient's satisfaction with the postoperative pain managements and associated factors among patients under gone surgery at TASH, 2021G.C

Hello! My name is _____ I am one of the members of the research team and I am here to ask you some questions and to collect some data from your chart. So, I am kindly requested your participation voluntary. We strictly keep your confidentiality.

If you understood about the objectives of the research and the roles you will have in the research, can we continues? I have agreed to participate **in** the research.

A) Agree B) Disagree

If agrees, the question will be started.

ANNEX V: የጥናቱ የስምምነት ቅፅ

አዲስ አበባ ዩኒቨርሲቲ፣ ጤና ሳይንስ ኮሌጅ አንስቴዝያ ት/ት ክፍል

የተከበራችሁ የጥናቱ ተካፋይ ፡

ጤና ይስጥልን፡ ስሜ _____ ይባላል፡ በአዲስ አበባ ዩኒቨርሲቲ ምርምር ስር ተሳታፊ ነኝ ፈቃደኛ ከሆኑ እርስዎን በጥናቱ ለመሳተፍ ፈልገን ነ በር ስምዎት ከቀዶ ህክምና ተራ አግኝተን ነ ዉ.የ ማንኛውም ግለሰብ ስም አይመዘገብም እንዲሁም ሀሳቡ ብቻዎን ይፋ እንዲዎጣ አይደረግም፡፡ ሙሉ በሙሉ በሚሰጥር የተጠበቀ ነ ወ፡ ፡ ይህ ጥናት ከቀዶ ህክምናው በኋላ የሚሰጥበት ለህመም መዳኒቶች ማስታግሻ እርካታ ለማዎቅ እንዲሁም ስላ ህመም መድሃኒት ማስታግሻ አስተያየት መጥናት ሲሆን የእርስዎን መሳተፍ በፍላጎት ብቻ ነ ወ፡ ፡ የዚህ ጥናት ዓላማውን ብቶኝ በጥናቱ ለመሳተፍ፡

ሀ. ፈቃደኛ ሆኛለሁ ለ. ፈቃደኛ አይደለሁም

በጥናቱ ለመሳተፍ ፈቃደኛ ከሆኑ፡ -

ጥናቱን በተመለከተ ማንኛውም አይነት ጥያቄ ካላችሁ የሚከተለውን አድራሻ ተጠቀሙ፡፡ በዋናነት ምርምሩን የማይካሄደው፡

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