



**ADDIS ABABA UNIVERSITY SCHOOL OF MEDICINE, COLLEGE OF
HEALTH SCIENCE, TIKUR ANBESA SPECIALIZED HOSPITAL**

**PATIENT SATISFACTION STUDY WITH ANESTHESIA
SEDATION SERVICE FOR PATIENTS UNDERGOING
ENDOSCOPY IN TIKUR ANBESA SPECIALIZED HOSPITAL
ADDIS ABABA ETHIOPIA FROM NOVEMBER 2023 TO APRIL
2024**

ADDIS ABABA ETHIOPIA

MAY, 2024



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Acronyms and Abbreviations

AAU: Addis Ababa University

ACCPM: Anesthesia, critical care and pain medicine

ANOVA: Analysis of variances

ASA: American society of anesthesiologists

CI: Confidence interval

GC: Gregorian calendar

PSSI: Patient sedation satisfaction instrument

TASH: Tikur Anbessa specialized hospital

Abstract

Background- The diagnostic and therapeutic potential of endoscopy has been significantly increased. Nowadays non-operative room anesthesia service also incorporate provision of anesthesia service for endoscopic procedures it the one of the determinant factor for patient tolerance of the procedure

Objective- The aim of this study is to determine patient satisfaction with sedation service and associated factors in adult patients undergoing upper GI endoscopy at Tikur Anbessa specialized hospital Addis Ababa Ethiopia from November 1, 2023 to April 30, 2024 GC.

Method- Institutional based cross-sectional survey was used. The study period was from November 1, 2023 to April 30, 2024 in Addis Ababa University School of Medicine College of health sciences using patient sedation satisfaction questionnaire. The data collected by using a phone call within 48-72 hours of the procedure. Data was analyzed by using SPSS version 27 software. By using mean split technique rate of satisfaction was classified satisfied patients and unsatisfied patients. Bivariate and Multivariate Binary logistic regression was done for categorical variables and Pearson correlation and linear regression was done for continuous variables.

Results: A total of 107 individuals participated in the study with a 97.1% respondent rate. Majority of participants had not got information about sedation (66.3%). The mean satisfaction score was 9.1 ± 1.0 . Satisfaction rate was 77.9 and satisfaction rate is not associated with age, sex or level of education

Conclusion: compared with similar studies, the satisfaction rate with sedation for endoscopy is low in this study. Unlike other studies patient satisfaction has no significant relation with age and educational level. There is also a huge gap in information provision regarding sedation and what is expected during the procedure, we recommend for the physician to provide adequate information.

1. Introduction

1.1 Background

In GI departments endoscopic procedures become one of a routine practice. It is a diagnostic procedure used to examine the internal part of a gastro intestinal system by using a flexible cored which incorporate a fiber optic camera and a light source. Currently many endoscopic procedures performed and provision of anesthesia service in endoscopic unit increasing. The provision of anesthetic and analgesic agents during endoscopy helps the patient to reduce unpleasant sensation and also helps them to be adherent to necessary follow. In united states more than 50 million endoscopic procedures done per year from this more than 90% of the procedure done by using sedation. [6, 15] In Africa less than 50% of procedures was done by using either midazolam or propofol sedation. [16]

Patient satisfaction can indicate a response of patients to their care. Patient satisfaction is also one of the components of quality indicator it can measure many aspects of health care services that cannot be measured by any other methods. [2]

1.2 Problem statement

During endoscopic procedures many factors can contribute to patient dissatisfaction this includes a poor knowledge about sedation and they are expecting that they are deeply sedated to the extent not to have procedural recall. Pre procedural use of chronic narcotic abuse and also education status contribute to dissatisfaction. [3]

In Ethiopia a lot of endoscopic procedures are performed particularly at Tikur Anbessa specialized hospital. Despite the fact that some of endoscopic procedures performed by using anesthesia service; there is no adequate data about rate of patient satisfaction.

1.3 Significance of the study

This study will contribute evidence about patient satisfaction and support department of anesthesiology to try to make some changes that improve patient satisfaction.

According to on-site registry anesthesia providers do more than thirty sedation service each month for endoscopic procedures. However Satisfaction rate and factors contributing to

satisfaction in patients undergoing endoscopy with sedation at Tikur Anbessa specialized hospital is not known.

2. Literature review

A study published in *World Journal of Gastroenterology* by Abraham N. et al on ‘How to improve patient satisfaction during midazolam sedation for gastrointestinal endoscopy?’ found that 3.0% of patients were dissatisfied during midazolam sedation during endoscopy. [11]. On the other hand there is study done in Asia about effectiveness of sedation for upper GI endoscopy on their research they found that satisfaction rate was in total 90.6%. 100 % of patients were comfortable and 94 % reported that they were willing to repeat if needed. [9].

Another study also done in Asia included 561 procedures and showed that there was a 91% patient satisfaction rate. From the participants, 96% of patients who received sedation reported minimal or no discomfort at all. None of the study participants complained of moderate or severe pain. [5]

Another study from the USA included 101 patients and demonstrated that 17% participants were not satisfied with sedation service during the procedure. The study also demonstrated that deep sedation doesn’t increase satisfaction rate when compared with moderate sedation. [7] In addition to this, a Canadian study assessed the cost out-come of procedures which were done with sedation (Midazolam and Meperidine) and showed that majority of them were comfortable during endoscopy. [10].

In some study they try to demonstrate factors that contribute to high satisfaction rate one of the study was using midazolam sedation and indicate that older age groups has significantly higher satisfaction rate [11] one European research which includes 307 patients, indicates absence of pain is the major determinant factor for patient satisfaction with a p value of 0.001. in this study they also demonstrate propofol sedation significantly reduce pain during the procedure ($p < 0.001$). [17,12] in some researches they state that the most common complication during the endoscopic procedures by using sedation was hypotension [9]

Another Canadian studied factor associated with patients undergoing sedation for endoscopies. This study included 529 participants. The study demonstrated that in addition to absence of pain the experience of the endoscopists has a major role for patient satisfaction

rate. On their research they stated that experience of previous endoscopy associated with high level of satisfaction (OR2.4). [12]

Additionally, a prospective, study done in Asia and includes more than 750 participants revealed satisfaction rate related to neither patient's gender nor patient's age but educated patients had better satisfaction rate ($p < 0.001$). [13]

When we see major adverse events during upper GI endoscopy by using sedation, meta-analysis study from the Gastroenterology Journal which included thirty six studies the commonest adverse event was post procedural nausea which occur in 26% of the participants next to desaturation less than 90% occur in 10% of them and hypotension was the third one with the incidence of 5%. In this meta-analysis study the satisfaction rate was 90%.

They also stated that the incidence of hypotension and desaturation has no significant association with the type of anesthesia medication used. [18]

3. Objectives

3.1 General objectives

To determine rate of patient satisfaction with sedation service in adult patients undergoing upper GI endoscopy in Tikur Anbessa hospital from November 1 2023 to April 30, 2024.

3.2 Specific objectives

- To determine the level of patient satisfaction with sedation for endoscopy in adult patients undergoing upper GI endoscopy at TASH from November 1 2023 to April 30, 2024.
- To identify factors related to satisfaction rate with sedation service for upper GI endoscopy at TASH from November 1 2023 to April 30, 2024.

4. Methodology

4.1 Study area and period

The study was carried out at Addis Ababa University, Tikur Anbessa specialized hospital. It was carried out from November 2023- April 2024

4.2 Study design

An institution based descriptive cross sectional study was carried out to determine degree of patient satisfaction with sedation service in adult patients undergoing endoscopy in Tikur Anbessa specialized hospital, Addis Ababa Ethiopia

4.3 Source population

All adult patients who underwent an endoscopy for either diagnostic or therapeutic purposes during the study period were included.

Study population

All adult and patients for whom the procedure was done with moderate to deep sedation during the study period were included in the study.

Eligibility

Inclusion criteria

All adult and patients for whom the procedure was done with moderate to deep sedation during the study period were participated in the study.

Exclusion criteria

- Patient unwilling to give consent
- Patients who are unable to have verbal communication
- Patients younger than 18 years.

4.4 sample size

Single proportion population formula was used to determine sample size (n). Sample size (n) will be determined by taking the rate of satisfied patient who score high satisfaction rate from the research done in Asia [9]

$$N = \frac{z_{1-\alpha/2}^2 \times p \times (1-p)}{d^2} = \frac{(1.96)^2 \times 0.89 \times (1-0.89)}{(0.05)^2} \approx 150$$

$$nf = \frac{ni}{1 + ni/N} \quad \text{Where } nf - \text{final sample size}$$

ni – initial sample size

N – Sampled population

$$nf = \frac{150}{1 + 150/180} = 78$$

$$nf = 86$$

Adding 10% non-respondent final sample size = 86

4.5 data collection tool and data collection procedure

The data was collected by using PSSI(patient sedation satisfaction instrument) questionnaire since its prediction value for patient satisfaction for endoscopy and colonoscopy was tested to be good in 2009.¹³ this tool has 11 continuous items all scale from 0- 10. From this eleven continuous item questions, two questions assess anesthesia factors, four questions assess procedural recall and five questions assess side effects. Reliability test for the scale items in the questionnaire was done to check for internal consistency using Cronbach's α coefficient after reverse coded so that the higher score indicate greater satisfaction. Socio-demographic and clinical data collected immediately on the recovery area and the rest of the data was collected over the phone between 48 and 72 hours after the procedure.

4.6 study variables

Dependent variables

Satisfaction level with sedation service

Independent variable

Socio-demographic factors:

Clinical factors:

Procedure related factors: choking, pain during endoscopy,

Anesthesia related factors: anesthesia drug type, pain, drowsiness, post procedure nausea and vomiting, tiredness

4.7 operational definitions

Sedation- Moderate and deep sedation was considered as sedation service.

Satisfaction with sedation- perception of patients regarding sedation they receive for endoscopy

High satisfaction- the level of satisfaction when they score above the mean value

Low satisfaction- the level of satisfaction when they score below the mean value

Hypotension- a blood pressure which decrease more than 20% from the baseline

Desaturation- a decrease in SpO₂ <90%

4.8 data analysis procedures

Once the data had been thoroughly checked for completeness; it was imported to SPSS 27 software for analysis. To determine the degree of association between satisfaction rate and categorical independent variables, Bi-variant and multi-variant logistic regressions were used to. For continuous variables Pearson correlation and linear regression was done. The association was considered significant when a p value is less than 0.05 at 95% confidence interval.

4.9 ethical considerations

Department of anesthesiology, critical care and pain medicine granted the study ethical clearance

. After the participants were provided with adequate information they are enrolled to study population.

5. Result

Reliability of the total scale items of the pssi tool was determined to be good in this research (Cronbach's $\alpha = 0.89$). One hundred seven individuals participated in this research with a 97.1% respondent rate. And there was no missing data.

5.1 Patient characteristics

Descriptive statistics shows that 32(30.8%) of the study participants were female and the rest 72(69.2%) were males from this 37.5% fall under the age group 26-35 year And the mean age was 36.73 ± 11.7 . of the total participant 33(31.7%) completed secondary school and 14(13.5%) completed primary school

Table 1: Socio-demographic characteristics of patients who underwent endoscopy with sedation

Variable		Frequency	Percent
Sex	Male	72	69.2
	Female	32	30.8
Age	18-25	16	15.4
	26-35	39	37.5
	36-45	28	26.9
	46-55	13	12.5
	>55	8	7.7
Level of education	No education	26	25.0
	Primary	14	13.5
	Secondary	33	31.7
	Above secondary	31	29.8

5.2 Clinical data

From the participants 78.8 % of patients classified as ASA 1, 6.7% of the patient had hypertension and 1.9% of them were diabetic patients. And from the study population 39 of them (37.5%) of them had history of previous endoscopy from this 76.9% were with sedation. Majority of endoscopies were done with propofol and fentanyl sedation (92.3%). When we see

the type of procedures: - 2 endoscopies were diagnostic, 1 biopsy and the rest procedure was band ligation.

When we look at the common complications that occurred: - 6 participants (5.8%) had desaturation less than 90%, three of them (2.9%) had hypotension and one participant (1%) bradycardia.

Table 2: clinical data of patients who underwent endoscopy with sedation

Variables		Frequency	Percent
ASA classification	ASA1	82	78.8
	ASA2	22	21.2
Previous endoscopy	Yes	39	37.5
	No	65	62.5
Drugs for sedation	Propofol with fentanyl	95	91.3
	Ketamine with fentanyl	6	5.8
	Propofol only	1	1.0
	Ketofol with fentanyl	2	1.9
Type of procedure	Diagnostic	2	1.9
	Band ligation	101	97.1
	Biopsy	1	1.0
Complications	Desaturation	6	5.8
	Hypotension	3	2.9
	Bradycardia	1	1.0

5.3 Patient satisfaction

Patient satisfaction with sedation for endoscopy rated from 0-10 and a mean is calculated with three components:

The mean score of satisfaction for the three components demonstrated on table 3 the total satisfaction score was 9.1 ± 1.1 . By using mean split technique patient satisfaction with sedation service for endoscopy was classified into high and low satisfaction. The percentage of study population who score more than the mean to be 77.9%

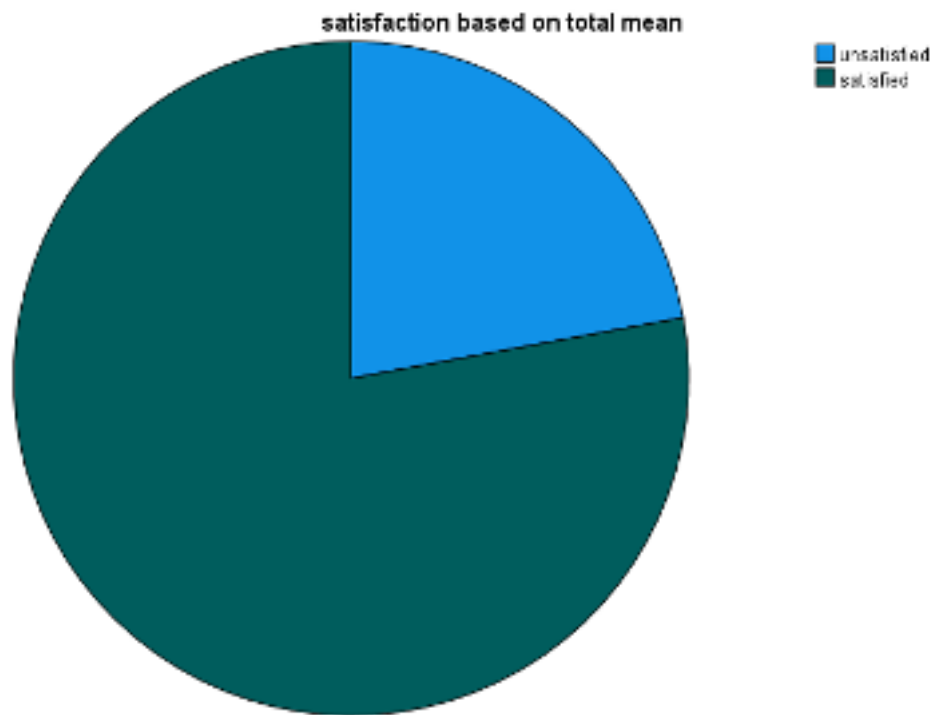


Figure 1: satisfaction rate of Patients who Received sedation for endoscopic procedures In Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia, 2024. (N=104)

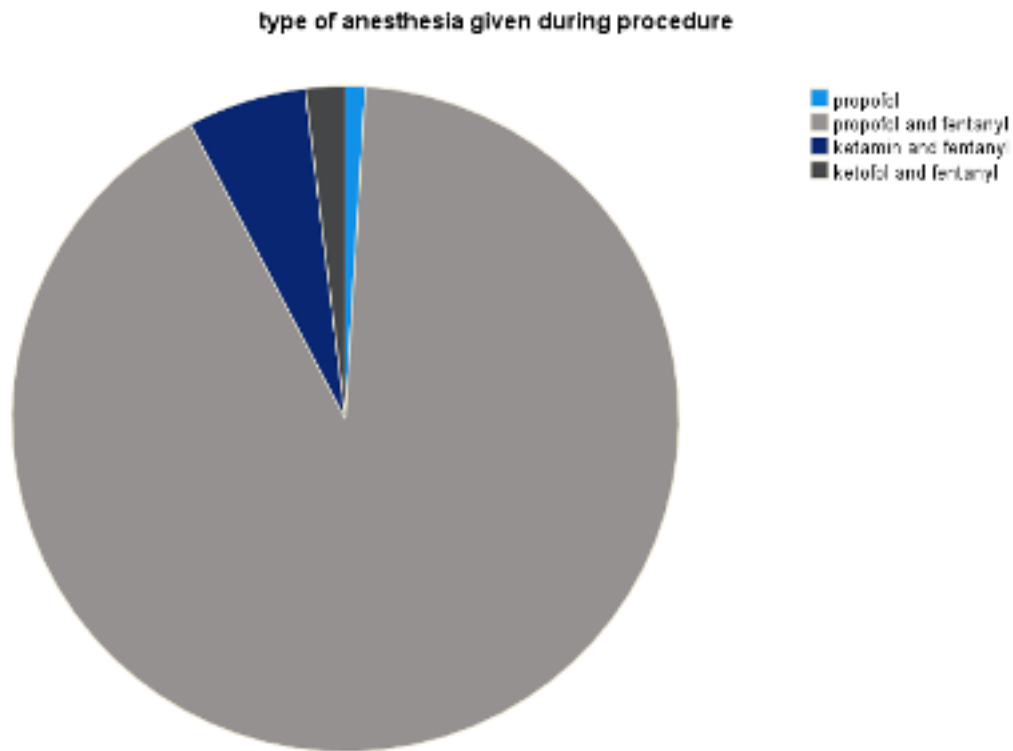


Figure 2: Type of anesthesia given during endoscopic procedures In Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia, 2024. (N=104)

Table 3: Patient satisfaction in details

Gender	Anesthesia delivery	Procedural recall	Side effect	Total satisfaction
Male	9.0 ±1.4	9.5 ±1.1	9.0 ±1.5	9.2 ±0.1
Female	8.7 ±1.4	9.7 ±0.7	8.9 ±1.3	9.1 ±0.1
Total	8.9 ±1.4	9.6 ±1.0	8.9 ±1.5	9.1 ±1.1

5.4 Predictor of satisfaction

Mean and standard deviation was calculated for 11 item questions which are continuous variables. Data normality test was done for the dependent variable with Shapiro-Wilk test which indicates the data is normally distributed so to identify the factors that predict patient satisfaction. And Pearson correlation and linear regression was done. To determine the association of categorical variables with the dependent variable Bivariate logistic regressions

was used and significant values in this category further analyses by using multivariate binary logistic regression statistics.

There was one question which asked a patient whether information about sedation given prior to the procedure. Adequate information about sedation service was not given for about 66.3% of study participants, the rest got adequate information. However the satisfaction rate is similar with both groups; 9.1 ± 0.5 and 9.1 ± 1.4 respectively

On Pearson correlation absence of choking, absence of shortness of breath, absence of pain during drug injection, absence of pain during endoscopy, absence of tiredness after procedure and absence of nausea and vomiting after procedure has significant correlation. And on linear regression absence of choking (p value 0.044, correlation coefficient 0.218, CI (0.072, 0.170), absence of pain during drug injection (p value 0.032, correlation coefficient 0.383, CI (0.177, 0.260)) and absence of pain during endoscopy (p value 0.041 correlation coefficient 0.381, CI (0.243, 0.409)) has significant association. Otherwise categorical factors like age, sex educational level and previous endoscopy has no relationship with level of patient satisfaction on bivariate and multivariate binary logistic regression.

Table 4: bivariate and multivariate binary logistic regression of independent variables with satisfaction during sedation for endoscopy in Tikur Anbessa specialized hospital Addis Ababa Ethiopia 2024 (N=104)

Variables	Categories	Satisfaction rate		P value	COR(95%CI)
		High satisfact ion	Low satisf action		
Sex	Female	22	10	0.098	2.273(0.861, 6.002)
	Male	60	12		1.0(Ref.)
Age	18-25	9	7	0.152	5.444(0.537, 55.203)
	25-35	32	7	0.710	1.531(0.162, 14.517)
	36-45	23	5	0.721	1.522(0.151, 15.296)
	46-55	11	2	0.855	1.273(0.096, 16.809)
	>55	7	1		1.0(ref.)
Education level	No education	22	4	0.228	0.444(0.119, 1.660)
	Primary	12	2	0.297	0.407(0.075, 2.199)
	Secondary	26	7	0.472	0.658(0.221, 2.056)
	More than secondary	22	9		1.0(Ref.)
ASA class	ASA 1	65	17	0.739	0.824(0.264, 2.569)
	ASA 2	17	5		1.0(Ref.)
Previous endoscopy	Yes	32	7	0.536	0.729(0.268, 1.984)
	No	50	15		1.0(Ref.)
Awareness before procedure	Yes	30	5	0.272	0.510(0.558, 1.458)
	No	52	17		1.0(Ref)

Table 5: Mean and standard deviation for continuous items for patients who underwent endoscopy with sedation in Tikur Anbessa specialized hospital, Addis Ababa, Ethiopia, 2024

Variable	Score			
	Minimum	Maximum	mean	SD
Absence of choking	0	10	9.6	1.4
Absence of shortness of breath	1	10	9.5	1.2
Absence of pain during drug injection	1	10	8.6	1.6
Absence of pain during endoscopy	5	10	9.8	0.7
Drowsiness during endoscopy	9	10	9.8	0.1
Amount you remember about the procedure	1	10	9.8	1.0
Absence of abdominal pain after procedure	4	10	9.5	1.0
Absence of drowsiness after procedure	3	10	9.3	1.2
Absence of tiredness after procedure	1	10	8.8	2.0
Ability to think clearly after procedure	0	10	9.0	1.9
Nausea and vomiting after procedure	0	10	9.1	2.3

Table 6: Pearson product moment correlation and multiple linear regressions for continuous variables for patients who underwent endoscopy with sedation in Tikur Anbessa specialized hospital, Addis Ababa, Ethiopia, 2024

List of continues variables					
	Correlation coefficient	P value	Correlation coefficient	CI 95%	P value
Absence of choking	0.640	<0.001	0.218	(0.072, 0.170)	0.044
Absence of shortness of breath	0.719	<0.041	0.136	(0.315, 1.246)	0.678
Absence of pain during drug injection	0.728	<0.001	0.383	(0.177, 0.260)	0.032
Absence of pain during endoscopy	0.828	<0.001	0.381	(0.243, 0.409)	0.041
Drowsiness during endoscopy	0.029	0.709			
Amount you remember about the procedure	0.728	<0.011	0.256	(0.569, 2.380)	0.078
Absence of abdominal pain after procedure	0.015	0.874			
Absence of drowsiness after procedure	0.118	0.093			
Absence of tiredness after procedure	0.533	<0.001	0.144	(0.352, 1.560)	0.091
Ability to think clearly after procedure	0.119	0.129			
Absence of Nausea and vomiting after procedure	0.766	<0.001	0.140	(0.190, 1.181)	0.067

6. Discussion

The overall proportion of patient satisfaction rate with sedation for endoscopy was 77.9% (CI 95%), despite the fact that majority of patients did not receive adequate information prior to the procedure. When compared with other researches done in India and Thailand, where the satisfaction rate was 91% and 90.6% respectively, the result in this study is significantly lower.^{5, 9, 11} the fact that the satisfaction rate become lower can be explained by the difference on socio-cultural characteristics of the participants in the different countries.

On the contrary, the result of this study is comparable with a research that was done in Canada. The reason being in this study all participants were given meperidine with midazolam and the level of sedation was moderate sedation but in our study majority of sedation was done with propofol and fentanyl and 100% of them were deep sedation. The other study which was done in USA in 1994 also shows the satisfaction rate was 83%.^{10, 7}

When we compare the mean value for anesthesia delivery, procedural recall, anesthesia side effect and total satisfaction with a research which was done in Iran the mean value of all the components are comparable.¹³

In this research age had no relation with level of satisfaction; this finding is similar with some researches done in Europe.^{9, 10, 13} on the contrary one research done in Asia shows older age is one of determinant for high satisfaction and they stated its unclear why elderly patients appear to be better satisfied.¹¹

Adequate information about sedation service was not given for the majority of study population. These results showed that there was a communication gap between health care providers and patients. Together with the lower rate of patient satisfaction when compared with other researches, this might be one of the contributing factors.

The other interesting result found in research is educational level has no relation with rate of satisfaction, which was different from research which was done in Iran. In their research, they found that educated participants had high level of satisfaction. The reason being educated patients usually do some research about the issue and speak with their physician about the procedure itself and what may happen during this procedure as well as why it is necessary for

their health to do this unpleasant procedure, and this will prepare them to tolerate about what is going to happen.¹³

Similar with researches that was done in Germany and Canada absence of pain during endoscopy has significant association with patient satisfaction.^{12, 17} In this study it was impossible to determine impact of level of sedation on satisfaction rate but in another study level of sedation has no impact on satisfaction rate.⁷

6.1. Limitation of the study

There is few limitation of the study. The first one is that the sample size is relatively smaller; this may hinder the representation of the whole population. The other limitation is being a single center study. In addition to this, the level of sedation was deep in 100% of the cases, so it can't be applicable for procedures which are done with moderate sedation. The other limitation is that the study did not include the relation of length of procedure with level of satisfaction.

The other confounding factors including the experience of endoscopist, manner of staffs as well as patient waiting time is not included in this research.

6.2 strengths of the study

This study uses standard assessment tool after confirming the reliability and also the first in this hospital.

7. Conclusion and recommendation

7.1 Conclusion

Nowadays, patient satisfaction becomes one of the quality indicators in the health system. Compared with similar studies, the satisfaction rate with sedation for endoscopy is low in this study. Unlike other studies, there is no significant relation with patient satisfaction with age and educational level. The absence of choking during procedure, absence of pain during drug injection and absence of pain during endoscopy had significant relation with the level of patient satisfaction with sedation for endoscopy. There is also a huge gap in information provision regarding sedation and what is expected during and after the procedure.

7.2 Recommendation

With the aim of patient satisfaction, anesthesia providers should inform patients about sedation. This pre procedure counseling should incorporate; why sedation is mandatory for endoscopy, what is expected during the procedure as well as what common side effects are expected. Also as we see from this study, one of the determinant factors for patient satisfaction was absence of choking during procedure. So, it's important to incorporate topical pharyngeal anesthesia in routine practice.

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Annex 1: Subject information sheet

Addis Ababa University

School of medicine

Subject information sheet

Hello, my name is -----, I am here in behalf of Dr. Zelalem Teshale, a student in Addis Ababa University, School of medicine. He is undertaking a study a research on Patient satisfaction with sedation in adult patients undergoing endoscopy in Tikur anbesa specialized hospital. He has received permission from Addis Ababa University, School of medicine, Tikur Anbessa Specialized Hospital officials to conduct the study.

You have been chosen to take part in this study because you are currently having an endoscopy. Your participation in this study will only be based on your willingness to participate. You have the option to decline taking part in this study. If you are willing, you have the option to stop at any time or withdraw without giving any reason which you will not be subjected to any ill-treatment. Participation in this study won't directly benefit you but in future information gathered by this study will helps policy makers, programmers and researchers to give appropriate attention on issues of interest and design specific treatment options.

The information that you provide will be kept confidential by using only code numbers and locking the data. Only the members of the study team will have the access to the non-coded data and the data will not be used for purposes other than the study. Your willingness and active participation is very important for the success of this study.

If you need any further information or explanation regarding to the study, you can have this address to contact.

Name: Dr. Zelalem Teshale
zele.te2005@gmail.com

Tel- +251 921122419

Email-

Annex 2: informed consent form

Consent Form

TITLE OF STUDY

Patient satisfaction with sedation in adult patients undergoing endoscopy in Tikur anbesa specialized hospital

PRIMARY RESEARCHER

Name - Dr Zelalem Teshale ACCPM resident

Primary Advisor- Dr. Tseganesh Berhanu

Department - ACCPM

Address – Addis Ababa

Phone – +251 921122419

Email – zele.te2005@gmail.com

PURPOSE OF STUDY

The purpose of this study is to assess patient satisfaction with sedation in adult patients undergoing endoscopy in Tikur Anbessa hospital and to identify other factors related to patient satisfaction

PROCEDURES

Cross sectional study, patients undergoing endoscopy with sedation will be asked to take part in this study.

RISKS

There is no anticipated risk to you if you participated in this study

BENEFITS

You will be contributing to the development of good out of operation room anesthesia management.

CONFIDENTIALITY

Every effort will be made by the researcher to preserve your confidentiality including the following by assigning code names/numbers for participants that will be used on all research notes and documents

CONTACT INFORMATION

If you have questions at any time about this study, you may contact the researcher whose contact information is provided above.

VOLUNTARY PARTICIPATION

Your participation in this study is voluntary. If you decide to take part in this study, you will be asked to sign a consent form. After you sign the consent form, you are still free to withdraw.

CONSENT

I have read and I understand the provided information and have had the opportunity to ask questions. I consent to take part in the research study of patient satisfaction with sedation for endoscopy at Tikur Anbessa hospital Addis Ababa Ethiopia.

Participant's Signature _____ **Date** _____

Researcher's Signature _____ **Date** _____

Questionnaire

Part I Characteristics of Study Population

1. Sex M_____ F_____
2. Age_____
3. Level of education.

Part 2 Pre-operative factor

4. Smoking status none_____ current_____ past_____
5. Alcohol use none_____ current_____ past_____
6. Past medical history
 - a. Cardiovascular disease yes_____ No_____
 - b. Neurologic illness yes_____ No_____
 - c. Pulmonary disease yes_____ No_____
 - d. Kidney/liver disease yes_____ No_____
 - e. Diabetes yes_____ No_____
 - f. Other _____
7. ASA class _____
8. Previous endoscopy yes_____ no_____
9. If yes
with sedation_____ without sedation_____

Part 3 procedure factors

10. Length of the procedure_____
11. Anesthetic drugs given with dose
 - propofol_____ ketamine_____
 - fentanyl_____ other_____
 - diazepam_____
12. During sedation

a. Feel as if you were choking

0	1	2	3	4	5	6	7	8	9	10
No choking at all										Severe choking

b. Have any problems breathing

0	1	2	3	4	5	6	7	8	9	10
Absence of dyspnea										Worst possible shortness of breath

c. Experience any pain during anesthesia drug injection

0	1	2	3	4	5	6	7	8	9	10
No pain										Worst pain

d. Experience any pain during the procedure

0	1	2	3	4	5	6	7	8	9	10
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No pain										Worst pain
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e. Amount of drowsiness with the medication

0	1	2	3	4	5	6	7	8	9	10
Fully alert										Completely exhausted

f. Do you remember anything from the procedure

0	1	2	3	4	5	6	7	8	9	10
Do not remember anything										Remember everything

2 after procedure

g. Abdominal discomfort after the procedure

0	1	2	3	4	5	6	7	8	9	10
No pain										Worst pain

h. Drowsiness after the procedure

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

Fully alert										Completely exhausted
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i. How tired you felt after the procedure

0	1	2	3	4	5	6	7	8	9	10
Don't feel tired										Worst tiredness

j. Ability to think clearly after procedure

0	1	2	3	4	5	6	7	8	9	10
I can think clearly										I don't remember anything

k. Nausea or vomiting with in 24 hour of the procedure

0	1	2	3	4	5	6	7	8	9	10
No nausea										Severe nausea

13. How long did it take before you felt as if you could resume your usual duties?

a. The same day_____ The next day_____ Within 2 days_____

14. Do you feel that you would recommend sedation to others?

Yes_____ No_____