ADDIS ABABA UNIVERSITY, COLLEGE OF HEALTH SCIENCES, SCHOOL OF MEDICINE, DEPARTMENT OF ANESTHESIA

Assessment of Preoperative Fasting Time and Associated Discomfort in Adult Patients Undergoing Elective Surgery in Public Hospitals of Addis Ababa, Ethiopia, 2021.

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Declaration

I, undersigned, declare that this thesis is my original work in the partial fulfillment of the requirement for Master of Science in clinical anesthesia. I understand that plagiarism will not be tolerated and all directed quoted material has been appropriately referenced.

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Date of submission: _____

This thesis work has been submitted for examination with my approval as advisors and Tutors on the Master of Science in anesthesia.

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Acronyms and Abbreviations

AAGBI - Association of Great Britain and Ireland

ASA - American Society of Anesthesiologists

BMI - Body Mass Index

Bsc - Bachelor of science

ENT - Ear Nose Throat

ESA - European society of Anesthesiologists

H - Hour

NPO - Nil per os/ nothing by mouth

Msc - Master of Science

POF - Preoperative fasting

PONV - Postoperative nausea and vomiting

RCN - Royal college of Nursing

RCOA - Royal College of Anesthetists

SPHMMC - St.Paul's Hospital millennium medical college

SPSS - Statistical package for social sciences

TASH - Tikur Anbessa Specialized hospital

Abstract

Introduction: Preoperative fasting is necessary to lower the risk of aspiration during anesthesia. The period of fasting is usually prolonged beyond the recommended time for various reasons and affects patient's comfort. Current guidelines recommend a more relaxed policy which allows fluid intake up to 2 hours before surgery.

Objective: To assess preoperative fasting time and associated discomfort in adult patients undergoing elective surgery in public hospitals of Addis Ababa, Ethiopia, 2021.

Method: A hospital-based cross-sectional study was conducted on 422 adult patients who underwent elective surgery at selected public hospitals of Addis Ababa. Data was collected from February 20 – May 10, 2021 from medical records and patients by using structured questionnaire. The collected data was entered into statistical package for social sciences (SPSS) software version 24 for analysis. Spearman correlation was used to assess relationship between preoperative fasting time and discomforting factors. P values of less than 0.05 were considered statistically significant.

Results: The mean preoperative fasting time was 14.26 ± 2.35 h (range 8 - 22 hr) for solids and 13.89 ± 2.37 h (range 8 - 21 hr.) for clear fluids. Immediately before surgery 64% of participants stated that they felt discomfort and factors contributing to discomfort were thirst (58.1%), hunger (49%), mouth dryness (49%), lengthy wait prior to surgery (16.4%), headache (22%) and tiredness 38.6%. There was a moderate positive correlation between preoperative solid fasting time and severity of hunger ($rs\ (420) = .37$, $p < .oo1$), thirst ($rs\ (420) = .46$, $p < .oo1$) and mouth dryness ($rs\ (420) = .32$, $p < .oo1$) in this study.

Conclusion: The mean fasting time was 6.95 times longer for clear liquid and 2.38 times longer for solids than the American Society of Anesthesiologist recommendation. Preoperative fasting duration had association with Preoperative discomforting factors.

Keywords: Anesthesia; Elective surgery; Preoperative

1. Introduction

1.1 Background

General anesthesia cause depression of the gag, cough and swallow reflexes which protect the airway and predisposes to pulmonary aspiration (1). Preoperative fasting is prescribed before surgery to decrease gastric volume, acidity and to lower the risk of pulmonary aspiration during anesthesia (2).

The first written recommendation on preoperative fasting was published in 1883 by Joseph Lister, he advised, "While it is desirable that there should be no solid matter in the stomach when chloroform is administered, it will be found very salutary to give a cup of tea or a beef-tea about two hours previously"(3). Dr. Curtis Mendelson's in 1946 further discovered that patients who consumed food immediately prior to their surgical procedure were more likely to regurgitate their stomach contents with severe consequences (4).

After this finding "Nil per os"/ nothing by mouth (NPO) from midnight is a common fasting policy (5) that is easy to prescribe, allows to change the order of the operative list, and often easily taken by staff and patients (1).The incidence of pulmonary aspiration is low (≈1 in 7000) with morbidity and deaths very much lower (≈1 in 1700 and ≈1 in 100,000, respectively) (6). However, the concern of aspiration and the idea of fasting for long period safer for the patient, led to unnecessary preoperative food and fluid restriction (7).

Preoperative fasting restrict patients from nutrition and hydration in addition to that when the duration of fasting prolongs may cause adverse effects such as distress, confusion, instability, hypoglycemia, headache, dehydration, electrolyte imbalance postoperative nausea and vomiting (PONV), and increased insulin resistance (8). Insulin resistance is an essential predictor of the patients duration of hospital stay after elective surgery (9).

Studies showed that for healthy patients scheduled for elective procedures oral intake of clear fluids up to 2 h before the beginning of anesthesia doesn't increase the risk of aspiration compared with the standard NPO after midnight fasting policy (2,10–15). The European Society of Clinical Nutrition and Metabolism recommends that carbohydrate loading two hours before surgery has been suggested to prevent thirst, hunger, the anxiety caused by surgery (16) .

American Society of Anesthesiologist (ASA) developed guidelines that support more liberal preoperative fasting protocol, that specifically address healthy patients of all ages scheduled for elective procedures in which general anesthesia, regional anesthesia, or sedation will be administered. They recommend the minimum fasting time for Clear liquids 2 h, a light meal or nonhuman milk may be ingested for up to 6 h and additional fasting time (8 or more hours) may be needed in cases of patient intake of fried foods, fatty foods, or meat (2).

Preoperative fasting instructions (POF) are delivered by nurses, physicians, anesthetists, or surgeons (5). The instructions should be clear including the aim of POF, duration, and the expectations as well as the outcome of non adherence. Nurses play great role in providing POF instructions and care, and patient knowledge level is indicator of the quality of interventions (17). Absence of individualized fasting prescription and patient preference being the main contributing factors for prolonged preoperative fasting (18).

The reasons for long preoperative fasting may be patients´ lack of knowledge regarding the rationale for preoperative fasting, rapidly changing surgical schedules, the absence of a formal fasting policy or staff members´ inadequate knowledge of the policy, general mistrust on the part of practitioners that patients will understand and comply with a fasting policy (19).

1.2 Statement of the problem

Preoperative fasting is mandatory before anesthesia to decrease the risk of aspiration. For elective patients a minimum of 2 hour fasting for clear liquids and 6-8 hours for solid foods required before induction of anesthesia. But, the instructed 6-8 h of fasting is usually extended to 12-16 h for various reasons (20) and prolonged preoperative fasting time is still common practice in most studies (16).

Fasting for long periods prior to elective surgery causes discomfort in patients and known to have deleterious effects (21). Many studies show that preoperative fasting affects preoperative thirst (10,11,14,22)hunger,(10,11,22,23), anxiety, postoperative pain (11,22), nausea(11,22,24) and vomiting (11,24). It also triggers a metabolic response that precipitates gluconeogenesis and increases the organic response to trauma (20).

Several randomized controlled studies (10–14) and metaanalyses (2,15) in healthy adults scheduled for elective surgery have documented that oral intake of water and other clear fluids up to 2 h before induction of anesthesia doesn't increase gastric fluid volume or acidity(20), the risk of aspiration, regurgitation or related morbidity compared with the standard fasting policy (16). Therefore, many anesthesia societies have changed their guidelines and recently recommend intake of clear fluids up until 2 h before surgery and anesthesia (25,26).

If nothing else to be taken by mouth, water is a good first step, preventing not only dehydration but improving patient satisfaction and well-being (10,11). Despite the current guidelines on this issue, in practice, preoperative fasting policies are different in different countries, hospitals and even in different surgical departments, and patient comfort is neglected (27).

1.3 Justification

Recent studies showed that NPO after midnight instruction for patients came for elective surgery is a common practice instead of individualized fasting instructions for clear liquids and solids. Due to this instruction patients fasted for unnecessary long periods than the recommended hours prior to elective surgery. Prolonged preoperative fasting affects patients' comfort and perioperative outcome.

Knowing preoperative fasting duration and factors contributing for patents discomfort due to prolonged fasting will guide us to improve our clinical intervention. It also helps to establish formal fasting policy in accordance with current guidelines developed by an evidence-based approach. For a medical and nursing staff shows the problem and guides to improve their quality of care for patients' well being, hydration, comfort and perioperative outcome.

There are two studies done about preoperative fasting in Ethiopia. The first study conducted in Gondar on 2014 involving 43 surgical patients has limitation on studying children and adults separately and also include limited number of patients. The second study done in Addis Ababa was involving pediatric age groups. But, there are no studies on preoperative fasting time and associated discomfort in adult patients came for elective surgery in our setup. This study will be used as a baseline data for further studies.

2. Literature review

2.1. Preoperative fasting times and patient discomfort

ASA developed guidelines that support more liberal preoperative fasting protocol, that specifically address healthy patients of all ages scheduled for elective procedures in which general anesthesia, regional anesthesia, or sedation will be administered. ASA recommends minimum fasting time for clear liquids 2 h, a light meal or nonhuman milk may be ingested for up to 6 h and additional fasting time (8 or more hours) may be needed in cases of patient intake of fried foods, fatty foods, or meat (2) .

A systematic literature review of preoperative fasting time in adult elective general surgery patients by Asiye Gül and colleagues studies found long preoperative fasting period is still a routine practice in the most studies. The median duration of fasting is 14 h for solid, 12 h for liquid (16).

A study done in Turkey on 2015 among 99 adult patients undergoing elective laparoscopic cholecystectomy, the mean time of preoperative fasting and fluid limitations were, respectively, 14.70 ± 3.14 and 11.25 ± 3.74hr. Patients fasting 12 hr or longer had higher hunger, thirst, nausea and pain scores (27).

Another study in Turkey on 2018 among 164 adult elective surgical patients the mean preoperative fasting times were 13.34 ± 3.07 h for solids and 12.44 ± 2.82 h for fluids. They found 6.1% of patients were extremely thirsty, 5.5% were hungry, and 39% had mild dryness of the mouth immediately before surgery. They found a weak positive correlation between total duration of solid fasting and thirst, hunger, mouth dryness, and weakness immediately before surgery. They conclude that long fasting before surgery was associated with patients' discomfort (28).

A prospective study done in South Africa by Lamacraft et al., (2017) in 105 patients aged 14 - 60 years found the median duration of fasting for food and fluids was 14 h and 45 minute, 13 h and 25 minutes respectively. The authors reveled most patients fasted longer period than the recommended due to patients abstained from food and liquid too early (29).

In a study done in Sri Lanka on 2010, among 235 patients and 118 healthcare workers, the mean duration of fasting was 13.86(8-18) hours for solids and 12.68(4-18) hours for liquids. The author's found 70.2% of patients felt discomfort before surgery and the discomforting factors were thirst (57.6%), hunger (48.5%), anxiety (63.6%), lengthy wait prior to surgery (15.2%), and nausea/ vomiting (12.1%) (30).

A study conducted in Botswana by Abebe et al., (2016) among 260 patients, the mean fasting time was 15.9±2.5 h (range 12.0-25.3 h) for solids and 15.3±2.3 h (range 12.0-22.0 h) for liquids. There was a significant mean difference of fasting time between patients operated before and after midday. They conclude the mean fasting time for clear liquid and solids were 7.65 and 2.5 longer than the ASA recommendation respectively (31).

A study done in Kenya on 2017 involving 65 adult surgical patients and they found 73.8% patients fasted > 15 hours. They showed that preoperative fasting outcomes were moderately challenging due to; prolonged wait for surgery 44.6%, thirst 43.1%, hunger 36.9%, and anxiety 29.2% (17).

An audit of preoperative fasting in Gondar North Ethiopia conducted by Gebremedhn et al., (2014) in a total of 43(35 adults' and 8 children's) elective surgical patients found most patients fasted from both food (92 %) and fluid (95 %) longer than the recommended time (32).

2.2. Consumption of Clear Liquids Prior to Anesthesia

Hausel et al., (2001)proposed that in patients having a laparoscopic cholecystectomy, intake of carbohydrate rich oral liquids reduces preoperative thirst and dryness of mouth and alleviates anxiety by reducing hunger, as opposed to having nothing by mouth after midnight (22).

Cochrane review (2003) of 38 randomized controlled trials (made within 22 trials) concluded that there was no evidence to suggest that shortened fluid fasting results in an increased risk of aspiration, regurgitation, or related morbidity compared with the standard fasting policy of "nil by mouth from midnight (1).

A systematic literature review of preoperative fasting time in adult elective general surgery patients on 2013, they showed preoperative drinking doesn't increase the risk of aspiration, regurgitation or related morbidity compared with the standard fasting policy. Preoperative carbohydrate-rich fluids improved preoperative thirsty, hunger, and anxiety in patients and enhanced patient comfort. They conclude appropriate preoperative fasting improves postoperative outcome (16).

2.3. Adherence to preoperative fasting

An audit of preoperative fasting compliance at a major tertiary referral hospital in Singapore conducted by Lim, Lee and Ji, (2014) in a total of 130 patients found patient understanding was poor, with only 44.6% of patients knowing the rational for fasting, and 10.8% of patients believe that preoperative fasting did not include abstinence from beverages and sweets (33).

A systematic literature review on 2013 shows education is important for staff members, patients and their family members for improving preoperative fasting guidelines (16).

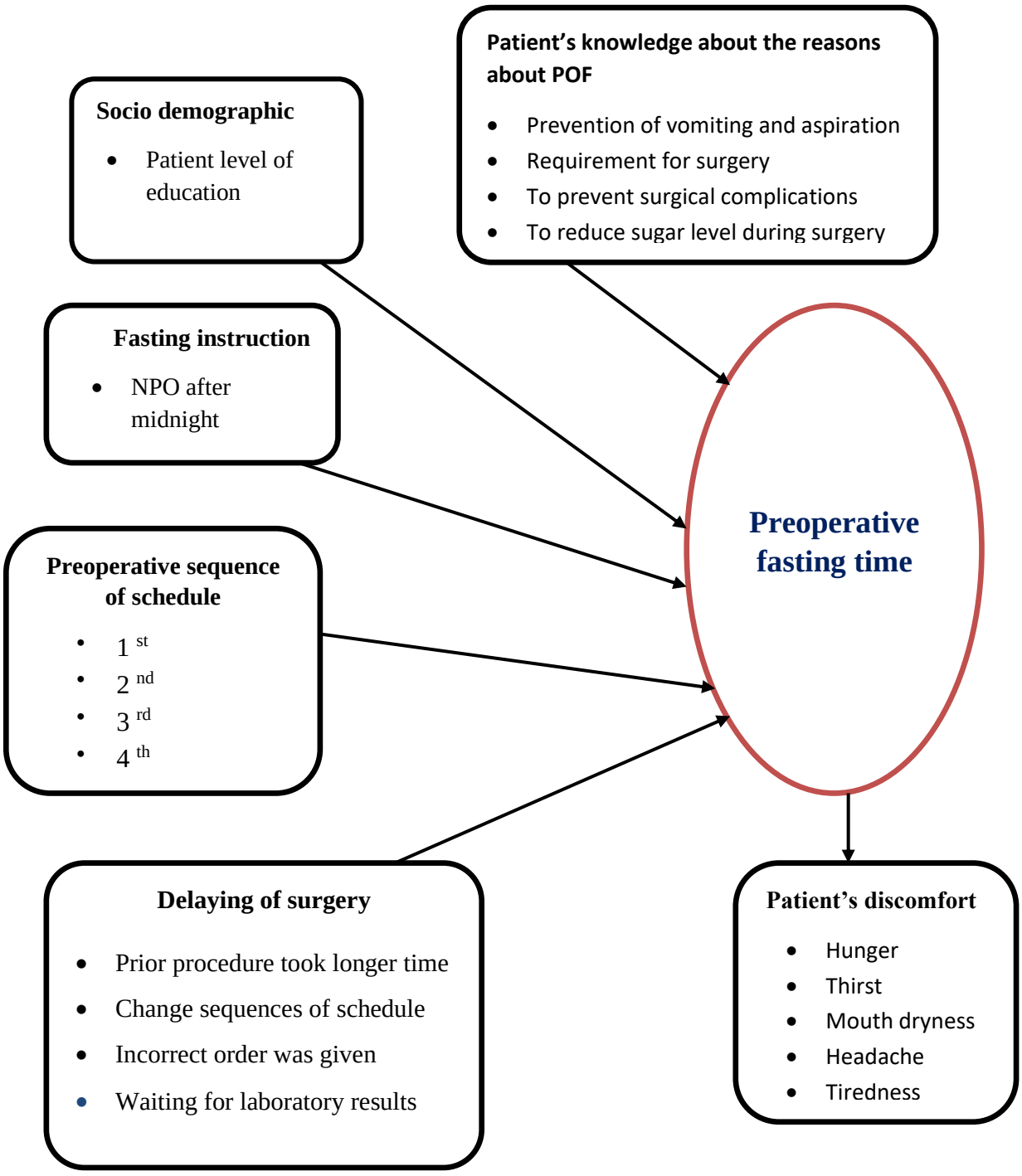
Gunawardhana, et al., 2010 conclude failure of implementation of guidelines is mainly due to inadequate knowledge and poor attitude among ward staff (30).

Abebe et al., (2016) revealed majority of patients (98.1%) were ordered to fast from midnight. Fifteen patients (5.8 %) stated that they were told the significance of preoperative fasting (31).

Njoroge et al., (2017) found 93.8% of patients lacked knowledge on the correct reasons for POF. POF prescription was delivered by nurses 80%, anesthetists 15%, and surgeons 5%. The authors conclude nurses are critical in delivering POF prescription and patient knowledge level is a mirror reflection of the quality of interventions (17).

Gebremedhn et al., (2014) conclude the anesthetists, surgeons, and nurses need to revise patient schedule every day and resuscitate the patients when surgery is delayed for various reasons (32).

2.4. Conceptual frame work



3. Objective

3.1. General Objective

- To assess preoperative fasting time and associated discomfort in adult Patients Undergoing Elective Surgery in Public Hospitals of Addis Ababa, Ethiopia, 2021.

3.2. Specific Objective

- To assess the duration of patients' fasting for foods and liquids prior to surgery.
- To determine the relationship between the duration of preoperative fasting and discomforting factors.

4. Methods and Materials

4.1 Study Area

This study was taking place at Addis Ababa which is the capital city of Ethiopia. The average elevation is around 2355 meters. As of the latest 2007 population census conducted by the Ethiopian national statistics authorities, it has a total population of 2,139,551 but currently according to UN report the population is 4,794,000. There are 79 government owned health facilities in the city administration: 13 hospitals, 23 health centers, 9 clinics and 34 health posts. This study was conducted in five government hospitals namely Tikur Anbessa Specialized Hospital (TASH), St.Paul's Hospital Millennium Medical College (SPHMMC), Zewditu hospital, Ras Desta hospital and Menelik II referral hospital. These hospitals had been chosen because TASH and SPHMMC are the first and second largest referral hospitals in the country respectively which serves as a referral centre for patients from Addis Ababa and all over the country. The other three hospitals also referral hospitals and give service to adult patients came for elective surgery.

4.2. Study design and Study period

A hospital-based cross-sectional study design was conducted from February 20 to May 10, 2021.

4.3. Source Population

All Adult Patients Who Undergo Elective Surgery in Public Hospitals of Addis Ababa

4.4. Study Population

Adult Patients Who Undergo Elective Surgery at Selected Public Hospitals of Addis Ababa and Selected for the study.

4.5. Eligibility criteria

4.5.1. Inclusion criteria

- Adult patients falling in classification of ASA I and II.
- Age above 18 years were included for this study

4.5.2. Exclusion criteria

- Patients with conditions that can affect gastric emptying or fluid volume (e.g., pregnant women, obesity, gastro-esophageal reflux disease, hiatus hernia, bowel obstruction, enteral tube feeding etc.).

4.6. Sample size Determination

4.6.1. Sample size calculation

The sample size was determined using the single population proportion method since no related study was found in Ethiopia, by assuming the prevalence as 0.5 and 5% margin of error at 95%confidence interval using the following formula;

$$n = \frac{z^2_{\alpha/2} p(1-p)}{w^2}$$

Where; n = sample size, z= standard normal score, at 95% confidence level, which is 1.96, p= prevalence, 0.5, w= margin of error, 0.05 & ἀ= 5%

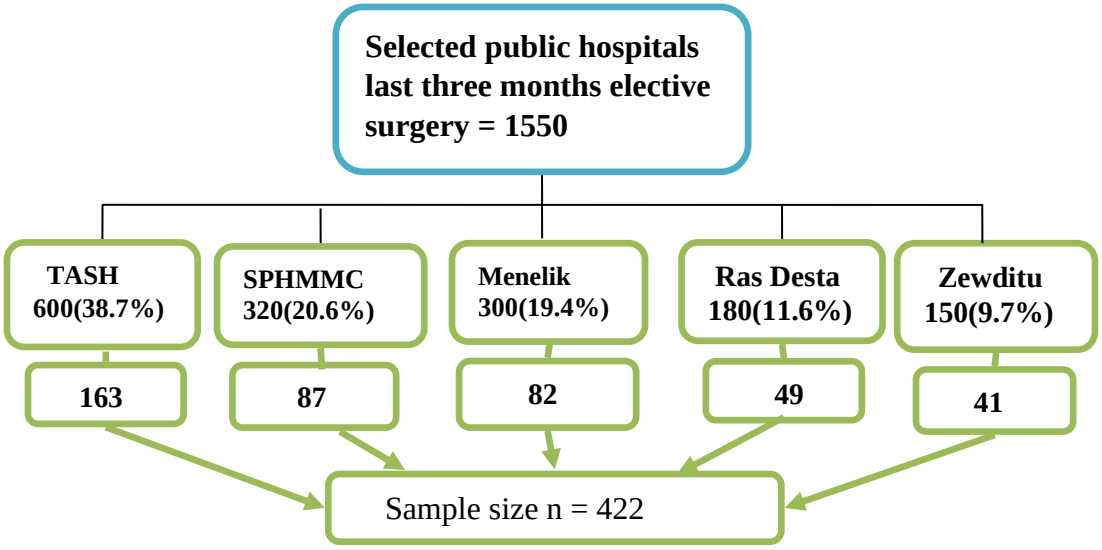
So, $n = \frac{(1.96)^2 \times 0.5\ (1-0.5)}{(0.05)^2}$ = 384

We added 10% of n for non-response rate; (i.e., 384+ 38.4 = 422);

Therefore, a total sample size of 422 elective patients came for elective surgery was participated in this study.

4.6.2. Sampling technique

A log book review showed that during the last three month period a total of 1550 adult patients underwent elective surgery at selected five hospitals. The sample size for each hospital was determined by proportion using the last three month performance and each sample from each hospital was selected by systematic random sampling technique on daily operation schedule. The first patient was selected by lottery method then every fourth patient was selected for the study.



Adult patients proportion over the study period from the calculated sample size at selected public hospitals of Addis Ababa.

4.7. Study variables

4.7.1. Dependent Variable

- Preoperative fasting time
- Patient's discomfort

4.7.2. Independent variable

1. Socio-demographic variables (age, sex, weight, height, level of education, ASA physical status)
2. Types of surgery
3. Fasting instructions given
4. Source of information for POF (nurses, physicians, anesthetists, others)
5. Sequence of cases schedule
6. Patient knowledge about the reason for fasting

4.8. Operational Definition

The following definitions are applied to this study.

- Adult: A patient age greater than18 years old.
- Discomfort: a feeling of uncomfortable experienced/perceived by patients due to preoperative fasting (e.g. thirst, hunger, mouth dryness, tiredness)
- Elective surgery: A surgical procedure which is scheduled in advance and is not considered an emergency.
- Fasting: The act of abstaining from food, drink or both.
- Preoperative fasting time: defined as the time in hours from the last meal received by the patient to the time of the initiation of the anesthetic procedure, as recorded on the anesthetic sheet.
- Prolonged fasting: when patients fasted from both food and fluid longer than the fasting time recommended by the ASA (31).
- ASA physical status: is a method of categorizing patients' physical state developed by the ASA taskforce which classify patients according to their physical status (systemic wellbeing). It is classified into six classes (34).

American Society of Anesthesiologists (ASA) physical status:

ASA 1: Normal healthy patient

ASA 2: Patient with mild systemic disease (nofunctional limitations)

ASA 3: Patient with severe systemic disease (somefunctional limitations)

ASA4: Patient with severe systemic disease that is a constant threat to life (functionalityincapacitated)

ASA 5: Moribund patient who is not expected tosurvive without the operation

ASA 6: Brain-dead patient whose organs are beingremoved for donor purpose

- Preoperative Fasting Recommendations of the American Society of Anesthesiologists for Healthy Patients Undergoing Elective Surgery.

Liquid and food intake	Minimum fasting period
Clear liquids (water, tea, black coffee, fruit juice without pulp, carbonated beverages)	2 hours
Nonhuman milk	6 hours
Light meal (e.g., toast and clear liquids)	6 hours
Regular or heavy meal (may include fried or fatty food, meat)	8 hours

Source: adopted from American Society of Anesthesiologists Committee, 2017.

4.9. Data collection

Data was collected from February 20 to May 10, 2021 from medical records and patients by using structured questionnaire. Half day training was given for BSc. anesthetists, who were involved in the data collection process.

Structured questionnaire was tested on 5% of the sample size at TASH. After that informed consent was obtained from patients coming to the theatre per day for elective surgery that met the inclusion criteria and selected for the study. Data was collected at the waiting room by the trained anesthetists immediately before they'll entered to the operation room and recorded on the structured questionnaire.

The questionnaire consists of patients' sociodemographic characteristics, fasting instructions given, reasons for POF, discomfort about POF, source of POF instructions, the order of the operation schedule lists, time of the last meal and drink ingested and the time anesthesia started. Socio- demographic data like the patient's age, sex, ASA physical status and the time anesthesia started was obtained from the patients' medical records.

4.10. Data quality assurance

To assure the quality of data, training on the objectives and relevance of the study and brief orientations on the assessment tools were provided for data collectors. During data collection, each questionnaire was revised by the investigator for being complete and appropriate. The data collectors were instructed to write card number on the questionnaire during the data collection if further cross check is needed.

4.11. Data processing and analysis

Data with complete information was entered to SPSS version 24 manually for analysis. Descriptive statistics: Mean, Standard deviations, frequency and percentages was used and discussed to provide a summary of participants' characteristics. Continuous data were initially analyzed for normality by Skewness and kurtosis. Spearman correlation was used to assess associations between total fasting time and discomforting factors. An independent t-test was used to compare the mean fasting time between operations before and after midday. The p-value of less than 0.05 was considered as statistically significant. The result was presented using text, tables and charts.

4.12. Ethical consideration

The study was conducted after approval by Addis Ababa University, Ethical review board to conduct the study. A legal letter were submitted to, Tikur Anbessa Specialized hospital, St.Paul's Hospital millennium medical college, Zewditu hospital, Ras Desta hospital and Menelik II referral hospital where the study was take place. Verbal informed consent was obtained from all adult Patients Undergoing Elective Surgery after full explanations of the goals of the study. After taking permission from the hospitals and study participant the data collection was conducted.

4.13. Result Dissemination plan

The result of the study will submitted to the collage of medical and health science of Addis Ababa University, Addis Ababa city and federal health bureau, Ethiopian Anesthetist Association and other responsible bodies. The result will be presented at college of medical and health science in different seminars, meeting, conferences and workshops. Moreover, efforts will be done to publish the findings of the study.

5. Results

5.1. Demographic characteristics of study participants

A total of 422 adult patients presenting for elective surgery were included in this study. The mean age of participants was 40.8±14.3 (range 18-75) years. More than half 224(53.1%) of the participants were female and 256 (60.7%) had no known comorbidities (Table 1).

Table1: Sociodemographic characteristics of study participant underwent elective surgery at selected public hospitals of Addis Ababa, Ethiopia, from February 20- May10, 2021 (n= 422).

Characteristics		Frequency (n) (%)
Sex	Female	224(53.1%)
	Male	198(46.9%)
ASA classification	I	256(60.7%)
	II	166(39.3%)
Education	No formal education	113(26.8%)
	Primary school	130(30.8%)
	Secondary school	108(25.6%)
	College /University	71(16.8%)
Age in years (Mean ± SD)		40.8 ± 14.3
BMI (Mean ± SD)		22.9 ± 2.86

Note: n (%) = number (proportion), Mean ± SD = Mean ± standard deviation.

5.2. Anesthesia and surgery related characteristics of study participants

Regarding the type of anesthesia used, 60.2% of patients were undergoing surgery using general anesthesia and the rest were undergoing operation with spinal anesthesia.

Among the various types of surgical procedures performed in this study, majority of the study participants underwent general surgery followed by urology; 190 (45%) and 85 (20.1%) respectively (Figure 1).

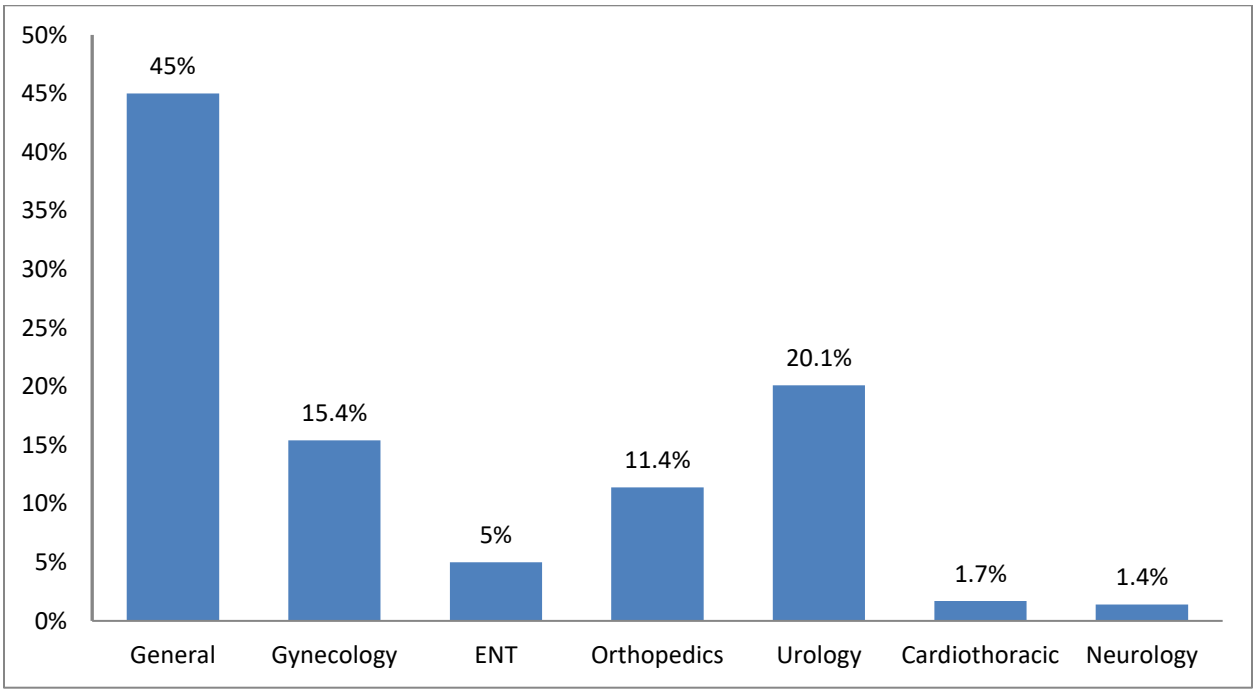


Figure 1: Types of surgical procedures performed among study participants underwent elective surgery at selected public hospitals of Addis Ababa, Ethiopia, from February 20- May10, 2021 (n= 422).

5.3. Participants knowledge on preoperative fasting

The majority 411 (97.4%) participants were instructed to abstain from both liquids and solids from midnight and the remaining 11(2.6%) participants had instructed no eating or drink after dinner. The correct instruction was given for 156 (37%) of participants for solid foods but only 8 (5%) participants were followed the prescribed time.

From the total of 422 of participants, only five participants gave the correct reason for preoperative fasting, namely, to prevent regurgitation and aspiration. The majority of the participants (67.8%) didn't know the reason; while others gave irrelevant answers such as requirement of surgery 106 (25.1%) and to prevent anesthetic complications 18(4.3%) (Figure2).

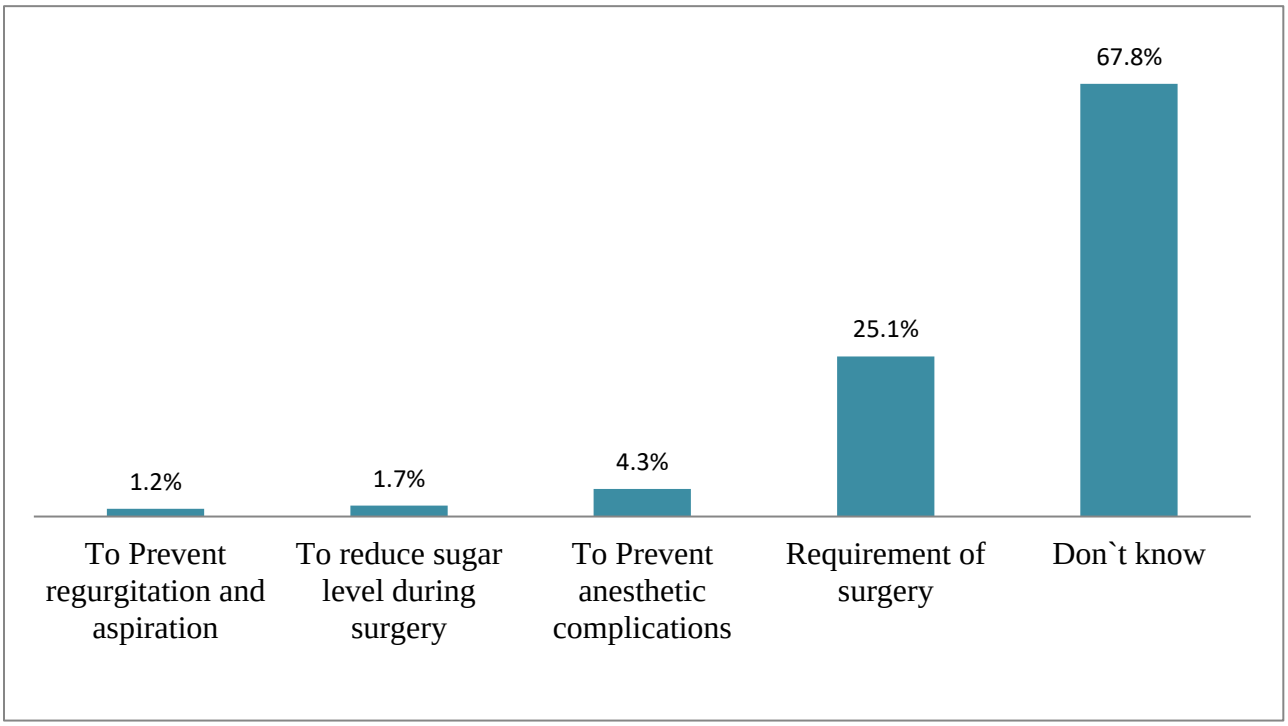


Figure 2: Knowledge on preoperative fasting of study participants who underwent elective surgery at selected public hospitals of Addis Ababa, Ethiopia, from February 20- May10, 2021 (n= 422).

5.4. Source of preoperative fasting instructions among participants

Fasting instructions were delivered to all participants included in the study. More than half 242(57.3%) of patients were delivered by ward nurses followed by interns 98(23.2%), and the remaining were delivered by surgeons and anesthetists (Figure 3).

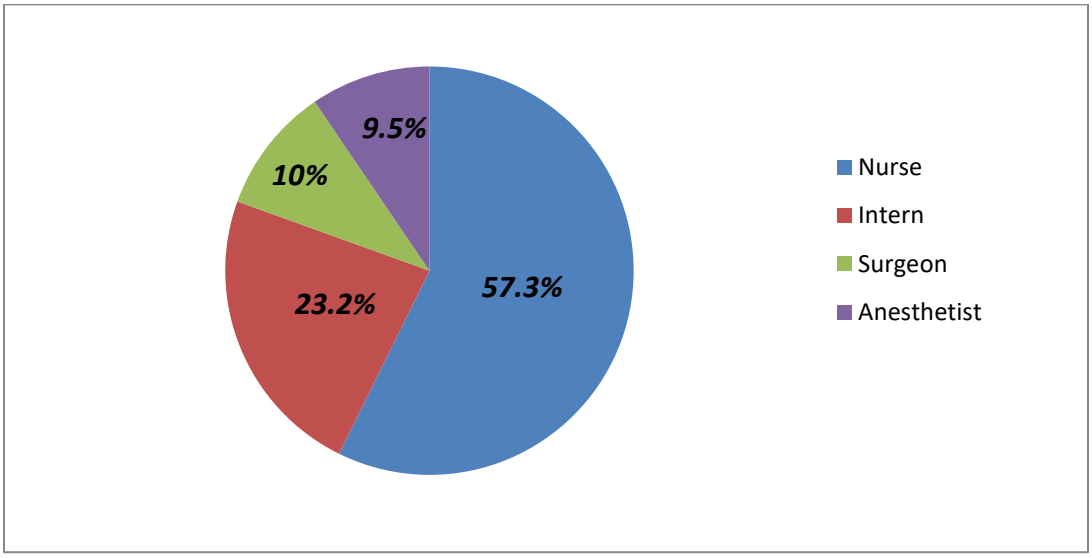


Figure 3: Source of preoperative fasting instructions among the study participants underwent elective surgery at selected public hospitals of Addis Ababa, Ethiopia, from February 20-May10, 2021 (n= 422).

5.5. Sequence of schedule and reasons of delaying to surgery

From the total 422 participants, 156 (37%) were scheduled as 1st case, 160 (37.9%) as 2nd cases, 79(18.7%) as 3rd and 27(6.4%) as 4th in daily procedures. Out of the total study participants, 181(42.9%) of the surgery was done based on the sequence of the schedule.

In this study surgeries were delayed due to prior procedures took longer times in 92(21.8%), changing sequence of schedule in the morning in 65 (15.4%), waiting for Covid -19 result 47(11.1%) of participants (Figure 4).

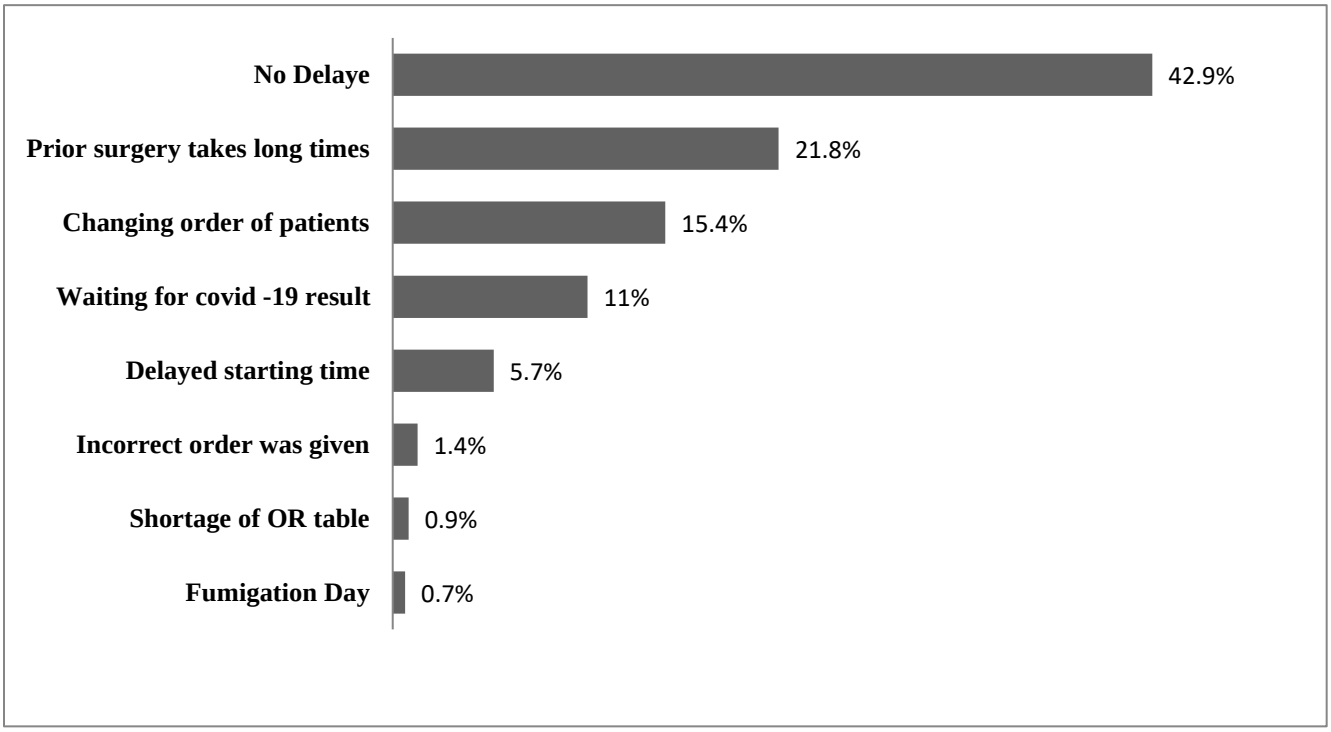


Figure 4: Reasons of delaying to surgery among study participants underwent elective surgery at selected public hospitals of Addis Ababa, Ethiopia, from February 20- May10, 2021 (n= 422).

5.6. Preoperative fasting time for food and clear fluid of the study participants

Preoperative fasting time was calculated in hours from the last meal received by the patient to the induction of anesthesia. The mean preoperative fasting times were 14.26 ± 2.35 hr for solids and 13.89 ± 2.37 h for clear fluids (Table 2).

From 422 participants 414(98.1%) were operated after 8hr or more hours of fasting and from those 329(78%) operated after more than 12 hr. Only 8(1.9%) patients were operated after a fasting time equal to 8hr.

Table 2: Preoperative fasting time for food and clear fluid of the study participants underwent elective surgery at selected public hospitals of Addis Ababa, Ethiopia, from February 20-May10, 2021 (n= 422).

		Minimum	Maximum	Mean ± SD
Preoperative fasting hours	Clear fluid	8	21	13.89 ± 2.37
	Solid food	8	22	14.26 ± 2.35

Note. Mean ± SD = Mean ± Standard Deviation.

5.7. Discomfort due to Preoperative fasting among the study participants

From 422 participants 64% stated that they felt discomfort during the preoperative period and the discomforting factors were thirst (58.1%), hunger (49%), Mouth dryness (49.8%), lengthy wait prior surgery (16.4%), headache (22%) and tiredness 38.6%. In ascending order of their severity, the discomforting factors were grouped into; none, mild, moderate, and severe (Figure 5).

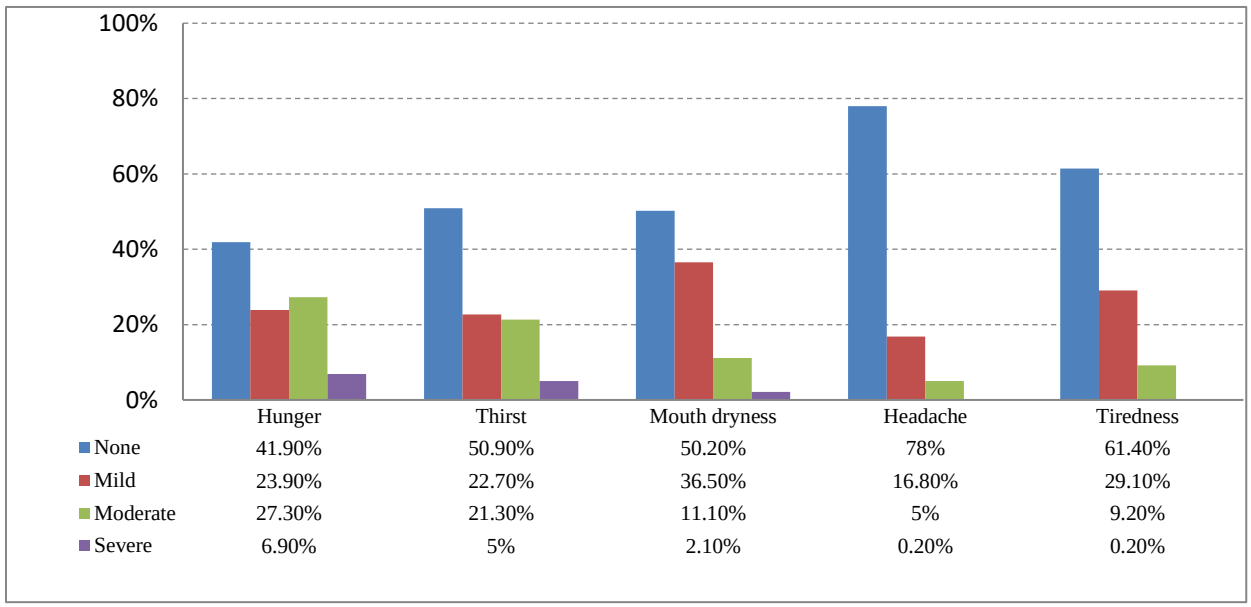


Figure 5: Severity of discomfort due to preoperative fasting among study participants underwent elective surgery at selected public hospitals of Addis Ababa, Ethiopia, from February 20-May10, 2021 (n= 422).

5.8. Comparing the preoperative fasting time among study participants

An independent t-test was conducted to compare the preoperative fasting time for participants who were operated before and after midday. There was statically significant difference in mean duration of liquid fasting for participants operated before midday (12.63 ±1.88 hr.) and operated after midday (15.81 ± 1.65 hr.), (p<0.001) (Table3).

Table 3: The mean fasting time difference between participants operated before and after midday at selected public hospitals of Addis Ababa, Ethiopia, from February 20- May10, 2021 (n= 422).

Preoperative fasting time	Time of operation	Mean ± SD	P- value
Preoperative fasting for clear fluids	Before midday	12.63 ± 1.88	< 0.001
	After midday	15.81 ± 1.65	< 0.001
Preoperative fasting for solids	Before midday	13.04 ± 1.84	< 0.001
	After midday	16.1 ± 1.77	< 0.001

Note: An independent t-test result.

5.9. Bivariate analysis

5.9.1. Relationship between the duration of fasting and participants Age, level of education and sequence of schedule

A spearman rank order correlation was run to determine the relationship between duration of fasting and participant's age, level of education and sequence of schedule. There was a statistically significant, strong positive correlation between total solid and liquid fasting time and sequence of patient's schedule *(r_s (420) = .51, p < .oo1), (r_s (420) = .57, p < .oo1)* in this study respectively (Table 4).

5.9.2. Relationship between the duration of fasting and discomforting factors

A spearman rank order correlation was run to determine the relationship between duration of fasting and discomforting factors for 422 study participants.

There was a statistically significant, moderate positive correlation between preoperative solid fasting time and severity of hunger (*rs (420) = .37, p < .oo1*), thirst (*rs (420) = .46, p < .oo1*) and mouth dryness (*rs (420) = .32, p < .oo1)* in this study. The remaining two Preoperative discomfort factors headache and tiredness were weakly associated with total preoperative fasting time (Table 4).

Table 4: A relationship between the duration of fasting and discomforting factors among study participants underwent elective surgery at selected public hospitals of Addis Ababa, Ethiopia, from February 20- May10, 2021 (n= 422).

	Solid fasting duration		**Fluid fasting duration**	
	r_s	*p*	r_s	*p*
Age	0.09	0.85	- 0.01	0.82
Level of education	- 0.16*	0.001	- 0.17*	< 0.001
Sequence of patient's schedule	0.51*	< 0.001	0.57*	< 0.001
Thirst	0.46*	< 0.001	0.44*	< 0.001
Hunger	0.37*	< 0.001	0.34*	< 0.001
Dry mouth	0.32*	< 0.001	0.36*	< 0.001
Headache	0.11*	0.03	0.16*	0.001
Tiredness	0.22*	< 0.001	0.26*	< 0.001

Note. *correlation is significant at the 0.05 level (2-tailed), $r_{s=}$ spearman rank -order correlation coefficient.

6. Discussion

This study was conducted to assess the preoperative fasting time and associated discomfort in adult patients who underwent elective surgery in public hospitals of Addis Ababa. There was no established formal preoperative fasting policy in the study hospitals when the study was conducted, but the health professionals were used NPO after midnight instruction for the patients scheduled for elective surgery.

In our study, we found that patients who underwent elective surgery had long fasting time with the mean preoperative fasting of 14.26 ± 2.35 h for solids and 13.89 ± 2.37 h for fluids based on the ASA recommendations. Our finding is comparable with a survey conducted in Turkey showed the mean fasting time of 14.70 + 3.14 h for solids (27).

In contrary to our finding, the mean fasting period was higher 15.9 ± 2.5 h for solids and 15.3 ± 2.3 h for liquids, in a study done in Botswana than the results we found (31). Other studies done in Sri Lanka and Turkey found lower mean duration of fasting time compared to our result; 13.86 (8-18) hours for solids and 12.68 (4-18) hours for liquids (30); 13.34 ± 3.07 h for solids and 12.44 ± 2.82 h for fluids respectively (28).

The result of our study showed that, 97.4% of patients were instructed to remain NPO after midnight. The instructions given for fasting were the same for liquids and solids, even though liquids have a fast gastric emptying time from solids and recommended for a minimum of 2h fasting (2). Studies showed that for healthy elective patients oral intake of clear fluids up to 2 h before the beginning of anesthesia doesn't increase the risk of aspiration compared with the standard NPO after midnight fasting policy (2,10–15).

Our result is comparable with a study done by Abebe et al., which revealed majority of patients (98.1%) were instructed to fast from midnight and due to these fixed instructions patients who underwent surgery in the afternoon fasted from solids or fluids for longer periods compared with those who had surgery in the morning (31).This was showed in our study by the significant difference in the mean duration of fasting among patients who was operated before and after midday.

The results of this study also showed that there was strong positive correlation between the sequence of the patient's schedule and preoperative fasting time. This indicates that due to absence of individualized fasting instruction, patients scheduled late in the daily list had longer fasting duration than early cases.

Our study showed that 98.8% of patients lacked knowledge on the correct reason for POF and how long to fast for solids and clear liquids before surgery wasn't delivered to all patients. This probably affected patients' adherence to the instruction and showed in our study by 37% of patients were received the correct fasting instruction for solid food but only 5% of them was followed the prescribed time.

Almost similar to our finding, Njoroge et al., found that 93.8% of patients lacked knowledge on the correct reasons for POF. The fasting prescription should be clear including the aim, duration, and the expectations as well as the outcome of non- adherence (17). Studies have shown that patient education about the importance of POF improves adherence to fasting instruction (16). Another study showed that absence of individualized fasting prescription and patient preference being the main contributing factors for prolonged preoperative fasting (18).

In our study, the preoperative fasting instructions were delivered by nurses, interns, anesthetists, and surgeons. More than half (57.3%) of patients were instructed by nurses. This shows nurses are critical personnel for providing pof instructions in our study hospitals. Nurses play great role in providing POF instructions and care, and patient knowledge level is indicator of the quality of interventions (17).

Our study also demonstrates that 57% of patients fasting time was prolonged due to surgeries were delayed by different factors. Most of the study hospitals are teaching hospitals due to that surgery took more than the expected hours and unexpected intraoperative findings may also prolong surgery time. Waiting the result of Covid-19 and changing the order of patients in the day of surgery without adjusting the fasting time of patients were the other causes of prolonged fasting in our study.

A good communication between nurses, surgeons, and anesthetists are needed to reduce the fasting time of the patient's when surgery is delayed or postponed due to various reasons (27,32,35). Fasting for long periods prior to elective surgery causes discomfort in patients and known to have deleterious effects (21). It also triggers a metabolic response that precipitates gluconeogenesis and increases the organic response to trauma (20). If nothing else to be taken by mouth, water is a good first step, preventing not only dehydration but improving patient satisfaction and well-being (10,11).

In Our study, majority (64%) of patients stated that they felt discomfort during the preoperative period and factors contributing to discomfort were thirst (58.1%), hunger (49%), mouth dryness (49%), lengthy wait prior surgery (16.4%), headache (22%) and 38.6% feel tired.
Our result is comparable with other studies, Gunawardhana et al., found 70.2% of patients felt discomfort during the preoperative period and factors contributing to discomfort were thirst (57.6%), hunger (48.5%), anxiety (63.6%), lengthy wait prior to surgery (15.2%), and nausea/ vomiting (12.1%) (30).

A study in Kenya also showed that preoperative fasting outcomes were moderately challenging as follows; prolonged wait for surgery 44.6%, thirst 43.1%, hunger 36.9%, and anxiety 29.2% (17). Gul A et al., found that preoperatively patients had mild hunger 32.3%, thirst 29.3%, malaise 39.6%, dry mouth 39% and weakness 36.6 (28). Gebremedhn et al., found that 49% of patients experienced slight to severe thirst because of prolonged fasting from fluid and 37.2% from food (32).

In this study, we found a moderate positive correlation between preoperative fasting duration with hunger, thirst, and mouth dryness. Preoperative discomforting factors headache and tiredness were weakly associated with preoperative fasting duration. When preoperative fasting time increases participants severity of discomfort also increases, this indicates prolonged fasting increase patient's discomfort.

A similar study in Turkey found preoperative thirst, hunger, mouth dryness, and weakness were weakly associated with total solid fasting time. The current hunger and mouth dryness, were weakly associated with total fluid fasting time (28). The difference of the results may be correlation coefficient interpretation.

Our result also showed that level of education was a weak and negative relation with preoperative fasting time. When level of education increases patients fasting duration was decreased. Patient's level of education may help them to adhere with the fasting instruction. Significant correlations could not be determined between the duration of fasting and participants age so, prolonged fasting time was not associated with participant's age. A study in Brazil revealed prolonged fasting was not associated with physical score, age, sex, type of surgery, or type of hospital (35).

Strength and limitations of the study

- **Strengths**
  - A multicenter study with large sample size
- **Limitation**
  - The effects of preoperative fasting were assessed by subjective patient's self reports instead of objective measures.
  - Due to covid-19 pandemic number of patients operated per day was decreased this limits as to asses fasting time of patients scheduled for late afternoon.

7. Conclusion and recommendation

7.1. Conclusion

On the basis of our findings, we conclude that preoperative fasting time for solids and clear liquids was significantly longer than the fasting time recommended by ASA in selected public hospitals of Addis Ababa. Preoperative fasting duration had association with preoperative discomforting factors. Almost all patients had prolonged preoperative fasting due to NPO after mid night prescription, patient's lacked knowledge about the reason for POF, maximization of fasting time by patients, the absence of a formal fasting policy, and surgeries weren't done as scheduled due to different reasons.

7.2. Recommendations

Based on the findings of the our study, the following recommendations are forwarded

7.2.1. For hospital Administrators and policy makers

- Public hospitals of Addis Ababa should outdate the NPO after midnight instruction and establish formal preoperative fasting policy depending on current fasting guidelines and teach the staff to ensure compliance with guidelines.
- Continuous auditing for the adherence of the health professionals with the guidelines to ensure patient safety and outcome.

7.2.2. For health professionals

- Anesthetists, surgeons, and nurses should be made aware of the current problem and the adverse effect of prolonged fasting.
- They should check the list of patients before delivering fasting instruction.
- A good communication between nurses, surgeons, and anesthetists are needed to reduce the fasting time of the patient's when surgery is delayed or canceled for various reasons.
- Clear explanation about the rational, duration and the outcomes of non-adherence to the instructions of fasting should be given to patients.

8. References

1. Brady MC, Kinn S, Stuart P N V. Preoperative fasting for adults to prevent perioperative complications. Cochrane Database Syst Rev. 2003;(4):Art. No.: CD004423. DOI: 10.1002/14651858.CD004423.
2. American S of ATF on PF. Practice Guidelines for Preoperative Fasting and the Use of Pharmacologic Agents to Reduce the Risk of Pulmonary Aspiration. Anesthesiology. 2017;126(3):376–93.
3. Maltby JR. Fasting from midnight e the history behind the dogma. 2006;20(3):363–78.
4. Curtis L. THE ASPIRATION OF STOMACH CONTENTS INTO THE LUNGS DURING OBSTETRIC ANESTHESIA. Am J Obstet Gynecol [Internet]. 1945;52(2):191–205. Available from: http://dx.doi.org/10.1016/S0002-9378(16)39829-5
5. Crenshaw JT, Winslow EH. Preoperative fasting: Old habits die hard. Am J Nurs. 2002;102(5):36–44.
6. Sakai T, Planinsic RM, Quinlan JJ, Handley LJ, Kim TY, Hilmi IA. The incidence and outcome of perioperative pulmonary aspiration in a university hospital: A 4-year retrospective analysis. Anesth Analg. 2006;103(4):941–7.
7. Fawcett WJ, Thomas M. Pre-operative fasting in adults and children: clinical practice and guidelines. Anaesthesia. 2019;74(1):83–8.
8. Khoyratty S, Modi BN, Ravichandran D. Preoperative starvation in elective general surgery. J Perioper Pract. 2010;20(3):100–2.
9. Ljungqvist O, Nygren J, Thorell A. Insulin resistance and elective surgery. Surgery. 2000;128(5):757–60.
10. Maltby JR, Sutherland AD, Sale JP, Shaffer EA. Preoperative Oral Fluids : Is a Five-hour Fast Justified Prior to Elective Surgery ? 1986;1112–6.
11. Phillips S, Hutchinson S, Davidson T. PREOPERATIVE DRINKING DOES NOT AFFECT GASTRIC CONTENTS. Br J Anaesth [Internet]. 1993;70(1):6–9. Available from: http://dx.doi.org/10.1093/bja/70.1.6
12. Maltby JR, Koehli N, Ewen A, Shaffer EA. Gastric fluid volume pH, and emptying in elective inpatients Influences of narcoticatropine premedication oral fluid, and ranitidine. Can J Anaesth. 1988;35(6):562–6.
13. Maltby JR, Lewis P, Martin A, Sutherland LR. Gastric fluid volume and pH in elective

patients following unrestricted oral fluid until three hours before surgery. Can J Anaesth. 1991;38(4):425–9.

14. Søreide E, Holst-larsen H, Reite K, Mikkelsen H, Søreide JA, Steen PA. Effects of giving water 20-450 ml with oral diazepam premedication 1-02 h before operation. Br J Anaesth. 1993;71(4):503–6.
15. Søreide E, Strømskag KE SP. Statistical aspects in studies of preoperative fluid intake and gastric content. :738–43.
16. Asiye Gül, Işıl Işık Andsoy, Hülya Üstündağ BÖÖ. Assessment of Preoperative Fasting Time in Elective General Surgery. J MacroTrends Heal Med [Internet]. 2013;1(1):1–8. Available from: http://www.macrojournals.com/yahoo_site_admin/assets/docs/1HM11Mak.2134834.pdf
17. Njoroge G, Kivuti-Bitok L, Kimani S. Preoperative Fasting among Adult Patients for Elective Surgery in a Kenyan Referral Hospital. Int Sch Res Not. 2017;2017:1–8.
18. Carter RFCST. Preoperative fasting : current practice and areas for improvement. 2013;doi:10.1007/s13304-013-0242-z.
19. Baril P, Portman H. Preoperative Fasting : Knowledge and Perceptions. 2007;86(4).
20. Aguilar-Nascimento JE de. Reducing preoperative fasting time: A trend based on evidence. World J Gastrointest Surg. 2010;2(3):57.
21. Green CR, Pandit SK, Anthony Schork M. Preoperative fasting time: Is the traditional policy changing? Results of a national survey. Anesth Analg. 1996;83(1):123–8.
22. Hausel J, Nygren J, Lagerkranser M, Hellström PM, Hammarqvist F, Almström C, et al. A carbohydrate-rich drink reduces preoperative discomfort in elective surgery patients. Anesth Analg. 2001;93(5):1344–50.
23. Lam KK, So HY, Gin T. Gastric pH and volume after oral fluids in the postpartum patient. Can J Anaesth. 1993;40(3):218–21.
24. Bisgaard T, Kristiansen VB, Hjortsø NC, Jacobsen LS, Rosenberg J, Kehlet H. Randomized clinical trial comparing an oral carbohydrate beverage with placebo before laparoscopic cholecystectomy. Br J Surg. 2004;91(2):151–8.
25. College R. Perioperative fasting in adults and children An RCN guideline for the Perioperative fasting in adults and children. 2005;(November).
26. Smith I, Kranke P, Murat I, Smith A, Sullivan GO, Søreide E, et al. Perioperative fasting

in adults and children : guidelines from the European Society of Anaesthesiology. 2011;

27. Tosun B, Yava A, Açikel C. Evaluating the effects of preoperative fasting and fluid limitation. Int J Nurs Pract. 2015;21(2):156–65.
28. Gul A, Andsoy II, Ozkaya B. Preoperative Fasting and Patients' Discomfort. Indian J Surg. 2018;80(6):549–53.
29. Lamacraft G, Labuschagne C, Pretorius S, Prinsloo MC, Smit MD, Steyn JR. Preoperative fasting times: Prescribed and actual fasting times at universitas hospital annex, Bloemfontein, South Africa. South African Med J. 2017;107(10):910–4.
30. Gunawardhana SAAI. Knowledge, attitudes and practice of preoperative fasting guidelines in the National Hospital of Sri Lanka. Sri Lankan J Anaesthesiol. 2012;20(2):1–4.
31. Abebe WA, Rukewe A, Bekele NA, Stoffel M, Dichabeng MN, Shifa JZ. Preoperative fasting times in elective surgical patients at a referral hospital in Botswana. Pan Afr Med J. 2016;23(March).
32. Gebremedhn EG, Nagaratnam VB. Audit on preoperative fasting of elective surgical patients in an African academic medical center. World J Surg. 2014;38(9):2200–4.
33. Lim HJ, Lee H, Ji LK. An audit of preoperative fasting compliance at a major tertiary referral hospital in Singapore. Singapore Med J. 2014;55(1):18–23.
34. ASA Physical Status Classification System Committe. 2019;2014–5.
35. de Aguilar-Nascimento JE, de Almeida Dias AL, Dock-Nascimento DB, Correia MITD, Campos ACL, Portari-Filho PE, et al. Actual preoperative fasting time in Brazilian hospitals: The BIGFAST multicenter study. Ther Clin Risk Manag. 2014;10(1):107–12.

Annex I. Consent form

Addis Ababa University College of Health Sciences

Department of Anesthesia

Verbal consent form before conducting interview

Greeting

Hello, my name is _____ and I'm a data collector for the study entitled "assessment of preoperative fasting time and associated discomfort in adult patients who underwent elective surgery in public hospitals of Addis Ababa". The aim of this study is to know preoperative fasting time to avoid unnecessary long fasting and its complications to improve patient perioperative outcomes. I will ask you few questions that will only take 5-10 minutes of your time regarding this matter.

Being a part of this study will not affect in any way the service you are getting in this hospital. You are selected randomly to participate in the study just because you undergoes a surgery in this hospital no other special criteria. You are free to withdraw from the study and you can stop answering to any questions that are forwarded to you at any time you want. In the study any answer you gave will be confidential and in addition your name, address or any information that identifies you will not be used.

Do you agree to participate in the study?

Amharic version of verbal consent before conducting interview

ከቃለ መጠይቅ በፊት ፈቃደኝነት መጠየቂያ ቅጽ

ሰላምታ

ጤና ይስጥልኝ እኔ ስሜ _____ ነው “በአዲስ አበባ የህዝብ ሆስፒታሎች በቀጠሮ የቀዶ-ጥገና ሕክምና በሚያደርጉ አዋቂ ህመምተኞች የቅድመ ቀዶ ጥገና -ጾም ሰዓት እና ተያያዝ ምቾት ማጣት ” በሚል ርዕስ ጥናታዊ መረጃ ሰብሳቢ ነኝ ። የዚህ ጥናት ዓላማ የቅድመ ዝግጅት ጾምን ሰዓት በማወቅ አላስፈላጊ ረጅም ጾምን እና የሚያስከትለውን ውስብስብ ችግሮች ለማስወገድ ነው ። ይህንን በተመለከተ የተወሰኑ ጥያቄዎችን ልጠይቀዎት እፈልጋለሁ። መጠይቁ ከ 5 እስከ 10 ደቂቃ ብቻ የሚፈጅ ሲሆን ተሳትፎዎት ሙሉ በሙሉ በእርስዎ ፈቃደኝነት ላይ የተመሰረተ ነው።በዚህ ጥናት መሳተፍዎ ሆነ አለመሳተፍዎ በሆስፒታሉ ውስጥ በሚያገኙት አገልግሎት ላይ ምንም አይነት ለውጥ አያመጣም። የተመረጡትም በዚህ ሆስፒታል ቀዶጥገና ስለሚደረግሎት ብቻ ነው። ቃለመጠይቁን በማንኛውም ሰአት ማቋረጥ ወይም ጥያቄዎችን አለመመለስ ይችላሉ። ለጥያቄዎች የሚሰጧቸዉ መልሶች በሚስጥር የሚጠበቁ ሲሆን የእርስዎ ስም ወይንም እርስዎ የሚለይ ማንኛውም መረጃ አይገለጽም። እንዲሁም የሚሰጡት ምላሽ ከርሶ ማንነት ጋር በማንኛውም መልኩ አይያያዝም።

የቃል ሥምምነት

የዚህ ጥናት ዓላማው ገብቶኝ በጥናቱ ለመሳተፍ

ሀ. ፈቃደኛ ነኝ ለ. ፈቃደኛ አይደለሁም

በጥናቱ ለመሳተፍ ፈቃደኛ የሆኑ፡-

የመጠይቁ መለያ ቁጥር_____መጠይቁ የተካሄደበትቀን_____

የጠያቂው ሥምና ፊርማ_____

የሱፐርቫይዘር ስምና ፈርማ_____

ጥናቱን በተመለከተ ማንኛዉም አይነት ጥያቄ ካለዎት የሚከተለዉን አድራሻ ተጠቀሙ::

በዋናነት ምርምሩን የሚያካሂዉ ሰዉ ስም ፡ በረከት አለኸኝ

ስ.ቁ.፡ 0913080920 ኢሜል፡ bereketalehegn2007@gmail.com

Annex II. Questionnaire

Part1. Identification

1. Card number ……

Part 2: Questions on Socio- demographic characteristics

2. Patients Age (in year) …… 3. Weight (kg.) ……. 4.Height …….

5. Sex; M F

6. ASA status; I II

7. Level of education

A. No formal education
B. Primary school (1-8)
C. Secondary school (9-12)
D. College/University

Part 3: Questions on preoperative fasting time

8. Preoperative fasting starting time.

- Clear liquids (water, pulp-free juice and tea or coffee without milk) ……(local time am/pm)
- Solid foods…… (local time am/pm)

9. Anesthesia starting time …….. (Local time am/pm)

10. Sequence of the patient's schedule: 1^{st} 2^{nd} 3^{rd} 4^{th} 5^{th} 6^{th} 7^{th} 8^{th}

11. When does the surgery will do?

A. Morning
B. Afternoon

12. Delayed of fasting time (on the day of surgery) due to:
    A. Prior surgery takes long time.
    B. Changing order of patients.
    C. Waiting for laboratory results
    D. Shortage of OR table
    E. Incorrect order was given.
    F. Others (specify)……

Part 4: Type of surgery and anesthesia

13. Types of surgery.
    A. General
    B. ENT
    C. Orthopedics
    D. Gynecology
    E. Urology
    F. Others
14. Type of anesthesia.
    A. General anesthesia
    B. Spinal
    C. Sedation
    D. Other (specify)……..

Part 5. Questions on instructions for preoperative fasting

15. Did you fast before your surgery today?
    A. Yes B. NO
16. If you fasted, how long did you fast for;
    A. < 6 hrs,
    B. 6–12 hrs or overnight,
    C. >12 hrs,

17. Who informed you the need to fast?

A. Nurses
B. Anesthetists
C. Surgeons
D. Others

18. What was the instruction given to fast?

A. Don't take any food or liquid after mid night.
B. You should fast for solid food minimum 8 hrs before surgery.
C. You should fast for water Minimum 2hr before surgery
D. None
E. Others ……

19. Did you receive any information about why it is necessary to avoid food and fluids before your Surgery?

A. Yes B. No

20. What do you think about the reasons for fasting before surgery?

A. To prevent regurgitation and aspiration
B. Requirement of surgery
C. To prevent anesthesia complications
D. To avoid urination and/or bowel movement during surgery
E. To reduce sugar level during surgery
F. Don't know.
G. To Prevent surgical complications
H. Other (specify) ……

21. How long do you think too fast before surgery?

A. < 6 hrs
B. 6–12 hrs or overnight,
C. 12 hrs

Part6: Patients discomfort due to preoperative fasting

22. Do you feel comfort about fasting?

A. Yes B. No

23. If No for question 26, what are the factors contributing for discomfort?

A. Thirst,
B. Hunger,
C. Anxiety,
D. Lengthy wait prior to surgery,
E. All
F. Others…….

Please put a mark (/) on the table shown below to indicate the severity of discomfort.

No	Questions	No	Mild	Moderate	Severe
24	Are you thirsty now?				
25	Are you hungry now?				
26	Do you have mouth dryness now?				
27	Are you currently feeling tired?				
28	Do you have headache now?				