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# Endoscopic Findings, Clinical Profile, and Outcomes of Patients with Upper Gastrointestinal Bleeding Admitted in a Tertiary Care Hospital

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1. Program / Project Title:

Endoscopic findings and clinical profile of patients with upper gastrointestinal bleeding admitted in a tertiary care hospital

2. Research Question:

What are the endoscopic findings and clinical profile of patients with upper gastrointestinal bleeding admitted at Divine Word Hospital, Tacloban City from January 2020 to December 2024?

3. Program/Project Participants:

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## ABSTRACT

Upper gastrointestinal bleeding (UGIB) remains a significant cause of morbidity and mortality worldwide, with limited local data in Eastern Visayas, Philippines. This study aimed to determine the clinical profile, endoscopic findings, and factors associated with mortality among patients with UGIB. A retrospective descriptive-analytic study was conducted among 276 adult patients admitted with UGIB at a tertiary hospital in Tacloban City from January 2020 to December 2024. Data on demographics, comorbidities, medication use, clinical presentation, laboratory findings, and endoscopic results were obtained through medical record review. Descriptive statistics were used, while differences between survivors and non-survivors were analyzed using Student's t-test and Pearson's chi-square or Fisher's exact test. Univariate and multivariate logistic regression analyses were performed to identify predictors of mortality. The mean age was 65.42 ± 14.53 years, with a male predominance (55.4%). Hypertension (55.0%) and diabetes mellitus (27.9%) were the most common comorbidities. Melena (69.9%) was the most frequent presenting symptom. Peptic ulcer disease, particularly gastric ulcers (29.35%), was the most common endoscopic finding, followed by erosive gastropathy (31.88%) and portal hypertensive gastropathy (19.93%). Mortality occurred in 3.6% of patients. Increasing age (adjusted OR = 1.074, p = 0.033) and male sex (adjusted OR = 0.078, p = 0.021) were independently associated with mortality. UGIB predominantly affected older males and was most commonly caused by peptic ulcer disease. Age and sex were independent predictors of mortality, highlighting the importance of early risk stratification in high-risk patients.

# CHAPTER I

## *THE RESEARCH PROBLEM*

## INTRODUCTION

Gastrointestinal (GI) bleeding is classified as upper or lower depending on its anatomical relationship to the ligament of Treitz. Upper gastrointestinal bleeding (UGIB) involves the esophagus, stomach, and duodenum proximal to this ligament, all of which are highly vascular structures. UGIB is associated with a mortality rate ranging from 6% to 10% (Feinman, 2014).

UGIB commonly presents with hematemesis or melena, although hematochezia may also occur. Its causes include peptic ulcer disease, esophagogastric varices, arteriovenous malformations, Mallory-Weiss tears, tumors, erosions, and Dieulafoy lesions.

Patients presenting with UGIB should undergo esophagogastroduodenoscopy (EGD) for diagnostic and/or therapeutic purposes. In most cases, EGD is performed within 24 hours of admission after adequate resuscitation. However, in patients with high-risk clinical features or suspected variceal bleeding, urgent endoscopy within 12 hours is recommended (Kamboj, 2019).

Locally, there is a paucity of data describing the patterns and frequencies of UGIB and EGD findings in Eastern Visayas. Identifying the clinical characteristics of these patients is essential in determining risk factors and recognizing features unique to the local population.

## PURPOSE OF THE STUDY

### General Objective

This study aims to determine the endoscopic findings and clinical profile of patients with upper gastrointestinal bleeding admitted at Divine Word Hospital, Tacloban City from January 2020 to December 2024.

**Specific Objectives**

Specifically, this study intends to:

1. Describe the demographic profile of the patients in terms of:
    a. Age
    b. Sex
2. Describe the clinical profile of the patients according to:
    a. Comorbidities
    b. Medications
        i. Non-steroidal anti-inflammatory drug (NSAID) use
        ii. Anticoagulant use
        iii. Antiplatelet use
    c. Clinical presentation
    d. Laboratory findings
        i. Hemoglobin
        ii. Hematocrit
        iii. Platelet
        iv. INR
3. Identify the endoscopic findings of patients with upper gastrointestinal bleeding.
4. Determine the association between selected demographic, clinical and laboratory variables and mortality among patients with upper gastrointestinal bleeding.

## SIGNIFICANCE OF THE STUDY

This study can provide data of comorbid conditions associated with UGIB in the local population. This can aid in identifying patients at risk for developing UGIB and help in addressing modifiable risk factors. There are data from various countries but the differences in exposures, lifestyles, genetics, and socio-economic factors contribute to a variation in the clinical features and frequency of different diseases. UGIB is an important cause of morbidity and mortality and characterizing local patterns can help in the diagnosis and management. The scope of this research endeavor may be limited to the hospital setting but its findings can also be used in the outpatient setting especially in localities where healthcare is not easily accessible and where EGD is not immediately available. Local disease pattern could be imparted from the interpretation of research findings that could benefit physicians, patients, and the public health system.

## SCOPE AND LIMITATIONS

This study aimed to determine the clinical profile and endoscopic findings of upper gastrointestinal bleeding among adult patients aged 19 years and above admitted at Divine Word Hospital, a tertiary private healthcare institution in Tacloban City, Leyte, Philippines, from January 1, 2020 to December 31, 2024.

A retrospective descriptive-analytic design was utilized. Data were collected from existing medical records, making the study dependent on the accuracy and completeness of documentation. This may introduce inherent limitations, including missing or incomplete data. Patients with incomplete records were excluded.

The study is limited to a single tertiary hospital and a five-year period, which may affect generalizability. Additionally, potential confounding variables such as socioeconomic status, environmental exposures, and genetic predisposition were not assessed.

**DEFINITION OF TERMS**

- Upper Gastrointestinal Bleeding (UGIB) - Refers to bleeding originating from the esophagus, stomach, or duodenum, confirmed through clinical presentation (melena, hematochezia, or hematemesis).
- Esophagogastroduodenoscopy (EGD) - A diagnostic and therapeutic procedure used to visualize the esophagus, stomach, and duodenum.
- Comorbidities - Refers to the presence of one or more pre-existing medical conditions such as hypertension, diabetes mellitus, liver cirrhosis, and chronic kidney disease, as recorded in the patient's medical records.
- Hematemesis - Vomiting of fresh blood or coffee-ground material.
- Hematochezia - Passage of bright red blood per rectum.
- Melena - Passage of black, tarry stools indicative of upper gastrointestinal bleeding.
- Abdominal Pain - Refers to any discomfort or pain in the abdominal area.
- Antiplatelet Drugs - Medications that inhibit platelet aggregation such as aspirin and clopidogrel.
- Anticoagulant Drugs - Medications that prevent blood clot formation such as warfarin, apixaban, rivaroxaban, and enoxaparin.
- Non-steroidal anti-inflammatory drugs (NSAIDs) - Medications used for analgesic and anti-inflammatory effects which are associated with an increased risk of gastrointestinal bleeding, such as ibuprofen, diclofenac, and naproxen.

## CONCEPTUAL FRAMEWORK

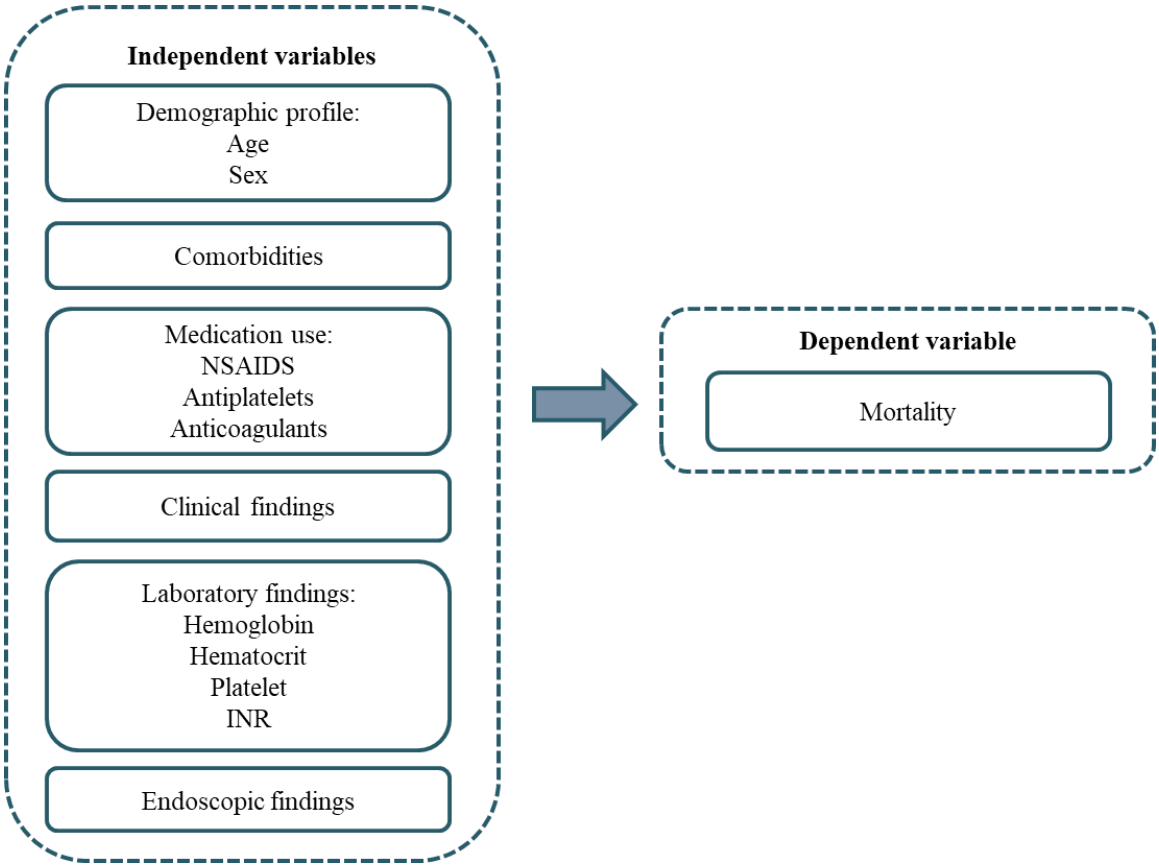



**Figure 1.** Conceptual Framework of the Study. This illustrates how demographic characteristics, clinical profile, laboratory parameters, and endoscopic findings may influence the outcome of patients with upper gastrointestinal bleeding, particularly mortality.

## *REVIEW OF RELATED LITERATURE*

Several studies have examined the etiologies and clinical profiles of patients with UGIB across different settings. A 5-year retrospective study conducted in a tertiary hospital in Manila, Philippines (2010–2014) reported that peptic ulcer disease was the most common cause of

UGIB in both males and females. This was followed by esophageal varices in males and gastritis in females (Abella, 2017).

Similarly, a 7-year study by Wong et al. (2005) in a tertiary hospital in Manila identified gastric ulcers in 16.95% and duodenal ulcers in 10.27% of 15,341 patients. The study observed a declining trend in the prevalence of peptic ulcer disease and H. pylori infection over time, suggesting a correlation between the two.

A study conducted in Nepal (2018–2019) found that peptic ulcer disease was the most common cause of UGIB, followed by variceal bleeding, Mallory–Weiss tears, and erosive gastropathy. Chronic liver disease was the most common comorbidity, followed by ischemic heart disease, hypertension, and diabetes mellitus. Pallor was the most frequent clinical finding, and the mean hemoglobin level was 7.3 g/dL. In terms of presentation, 40% of patients had melena alone, 30.5% had both melena and hematochezia, and 20.5% presented with hematemesis (Bhattarai, 2020).

A similar study conducted in India (2023) reported chronic liver disease as the most common comorbidity, followed by hypertension and diabetes mellitus. Other notable risk factors included alcohol intake and nonsteroidal anti-inflammatory drug (NSAID) use. Hematemesis was the most frequent presenting symptom (68.1%), followed by melena (53.9%). Portal hypertension was identified as the leading cause of UGIB in this cohort (Raj, 2023).

In contrast, studies conducted in African populations have shown differing patterns. A 2013 study in a tertiary hospital in Lacor, Nigeria, reported esophageal varices as the most common cause of UGIB, followed by esophagitis, gastritis, peptic ulcer disease, and malignancy. The mean age of patients was 42 years, which is younger compared to Western populations (Alema, 2013).

Similarly, a 2022 study in Nigeria found that esophageal and gastric varices were the leading causes of UGIB, followed by peptic ulcer disease, portal hypertensive gastropathy, gastric mucosal erosions, and malignancy (Yahya, 2022).

A study conducted in Pakistan in 2015 among patients with liver cirrhosis demonstrated that esophageal varices and portal hypertensive gastropathy were the most common causes of UGIB, with an almost equal distribution between males and females. These were followed by gastric varices, peptic ulcer disease, and gastric erosions (Hadayat, 2015).

Overall, studies from different regions demonstrate both similarities and variations in the clinical profile and endoscopic findings of patients with UGIB. While peptic ulcer disease remains the leading cause in many settings, variceal bleeding predominates in populations with a high prevalence of chronic liver disease.

Locally, in Eastern Visayas, there remains a lack of published data describing the clinical and endoscopic patterns of UGIB. Identifying these local trends is essential for determining population-specific risk factors and improving the management of patients with UGIB.

# CHAPTER II

## *METHODOLOGY*

### RESEARCH DESIGN

This study employed a retrospective descriptive-analytic design to investigate the endoscopic findings and clinical profile of patients with UGIB in a tertiary hospital setting. Through this approach, the study examined the demographics, clinical presentation, comorbidities, laboratory results, endoscopic findings, and outcome of patients with UGIB based on hospital data.

### PARTICIPANTS

This study included all patients who qualify based on the following criteria:

Inclusion Criteria

- Age 19 years or older
- Admitted within January 1, 2020 to December 31, 2024
- With clinical evidence of gastrointestinal bleeding
- EGD was performed

Exclusion Criteria

- Patients readmitted and EGD was repeated with the same findings
- Incomplete or missing medical records

## SAMPLE SIZE

All qualified patients admitted at Divine Word Hospital from January 2020 to December 2024 who met the inclusion criteria were included in the study. A total of 276 patients with UGIB and EGD findings comprised the final study population.

## RESEARCH LOCALE

The study was conducted at Divine Word Hospital (DWH), a private tertiary care institution with a 179-bed capacity, located along Avenida Veteranos Street, Tacloban City, Leyte, Philippines. This was chosen as the study site due to the availability of EGD procedure, diagnostic facilities, and comprehensive records on patient data and information.

## DATA COLLECTION PROCESS

A request letter seeking approval to conduct the research, along with a copy of the research protocol, was submitted to the Hospital Administrator, Medical Director, Chairpersons of the Department of Internal Medicine, and the Head of the Medical Records Department.

A structured data collection form was utilized in this study. It included demographic variables such as age and sex, as well as self-reported and identified comorbidities, clinical presentation, laboratory findings, and endoscopic findings.

The data collection phase commenced upon approval of the research proposal and the request letter by the concerned departments. The study primarily employed secondary data collection through a review of medical records. A list of patients who underwent EGD was

retrieved from operating room records and subsequently cross-checked with the Medical Records Department database.

Patients who were not admitted (i.e., those who underwent EGD on an outpatient basis) and those without documented evidence of UGIB were excluded from the study. For patients with clinical evidence of UGIB, relevant data were extracted from their medical records. Only the required variables were recorded in the data collection form and were subsequently analyzed and interpreted.

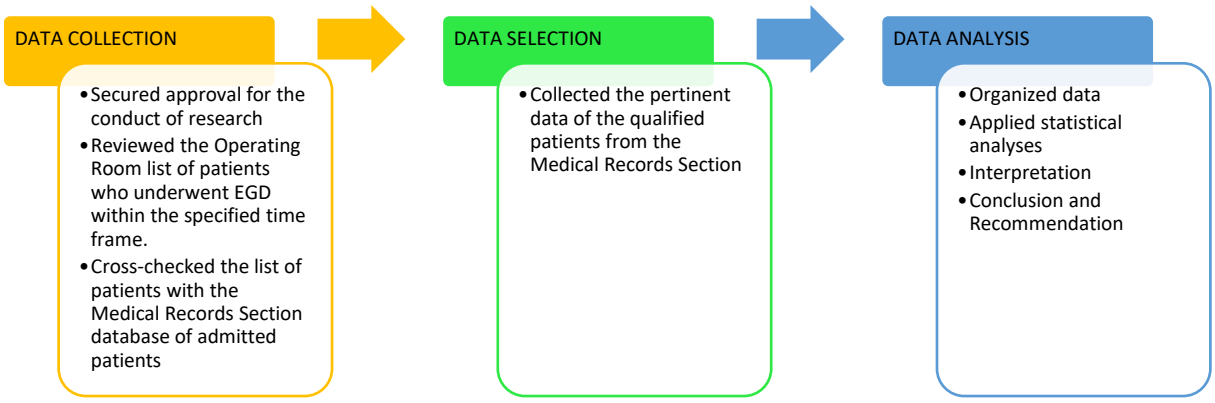



**Figure 2.** Data collection process.

## STATISTICAL ANALYSIS

All data were encoded and analyzed using the Statistical Package for the Social Sciences (SPSS) software, version 26.0 (IBM Corp., Armonk, NY, USA).

Descriptive statistics were used to summarize the data. Frequencies and percentages were reported for categorical variables such as sex, comorbidities, medications used, and clinical presentation, while means and standard deviations were calculated for continuous variables such as age and laboratory parameters (hemoglobin, hematocrit, platelet count, and INR).

The Student's t-test was used to assess statistically significant differences in the means of continuous variables with respect to mortality. The Pearson's chi-square test of independence or Fisher's exact test, when appropriate, was used to evaluate associations between categorical variables and mortality. Univariate and multivariate logistic regression analyses were performed to evaluate the association between patients' mortality and their demographic characteristics, EGD findings, laboratory results, and clinical outcomes. Odds ratios and corresponding regression coefficients were calculated for each variable.

# CHAPTER III

## *RESULTS AND DISCUSSION*

### RESULTS

Among the 276 patients, 153 (55.4%) were males and 123 (44.6%) were females (Figure 3). The mean age of the patients were 65.42 (±14.53) years. Hypertension was the most common comorbidity which was present in 152 patients (55.0%), followed by diabetes mellitus in 77 (27.9%), liver cirrhosis in 38 (13.8%), chronic kidney disease in 35 (12.7%), ischemic stroke in 23 (8.3%), ischemic heart disease in 21 (7.6), cancer in 20 (7.2), heart failure in 19 (6.9%), and others (Table 1). Medications such as NSAIDs (n=19, 6.9%), anti-platelets (n=37, 13.4%), and anticoagulants (n=15, 5.4%) were used by some of the patients (Table 2).

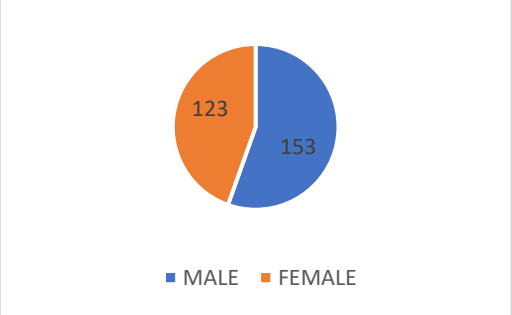



**Figure 3. Sex Distribution of Patients**

**Table 1. Comorbidities of patients with upper gastrointestinal bleeding**

| Clinico-Demographic Profile | Frequency | Percentage |
|---|---|---|
| **Comorbidities** | | |
| • Hypertension | 152 | 55 |
| • Heart failure | 19 | 6.9 |
| • Ischemic heart disease | 21 | 7.6 |
| • Ischemic stroke | 23 | 8.3 |
| • Diabetes mellitus | 77 | 27.9 |
| • Chronic kidney disease | 35 | 12.7 |
| • Liver cirrhosis | 38 | 13.8 |
| • Schistosomiasis | 18 | 6.5 |
| • Chronic hepatitis B | 10 | 3.6 |

| | | |
|---|---|---|
| • Chronic hepatitis C | 2 | 0.72 |
| • Cancer | 20 | 7.2 |
| • Gouty arthritis | 13 | 4.7 |
| • COPD | 9 | 3.3 |

**Table 2. Medication use in patients with UGIB**

| Medication | Frequency | Percentage |
|---|---|---|
| NSAIDS | 19 | 6.9 |
| Anti-platelet | 37 | 13.4 |
| Anti-coagulant | 15 | 5.4 |

Melena was the most common clinical finding, present in 193 patients (69.93%). Other signs and symptoms were pallor in 188 (68.12%), abdominal pain in 117 (42.39), hematemesis in 95 (34.43%), hematochezia in 58 (21.01%), abdominal tenderness in 21 (7.61%), jaundice in 15 (5.43%), and abdominal enlargement in 11 (3.98%) (Table 3).

**Table 3. Clinical presentation in patients with UGIB**

| Signs and Symptoms | Frequency | Percentage |
|---|---|---|
| Melena | 193 | 69.93 |
| Pallor | 188 | 68.12 |
| Abdominal pain | 117 | 42.39 |
| Hematemesis | 95 | 34.42 |
| Hematochezia | 58 | 21.01 |
| Abdominal tenderness | 21 | 7.61 |
| Jaundice | 15 | 5.43 |
| Abdominal enlargement | 11 | 3.98 |

The laboratory findings of the patients are presented in Table 4. The mean hemoglobin was 93.86 (±25.49) g/L, mean hematocrit was 0.27 (±0.086) indicating anemia. The mean platelet count was 288.63 (±190.16) $x10^9$/L which is within normal. The mean INR was 1.59 (±5.04) which is prolonged.

**Table 4. Laboratory findings in patients with UGIB**

| Laboratory findings | Mean | Standard deviation |
|---|---|---|
| Hemoglobin | 93.86 | 25.49 |
| Hematocrit | 0.27 | 0.086 |

| | | |
|---|---|---|
| Platelet count | 288.63 | 190.16 |
| INR | 1.59 | 5.04 |

Table 5 presents the endoscopic findings of the patients. The most common findings were ulcers which were present in 125 patients (45.29%). Among these, the most common ulcers were gastric ulcers with a Forrest grade of III (n=56, 20.29%). Also present were duodenal, gastroduodenal, gastroesophageal, and esophageal ulcers. After ulcers, the next most common cause of upper GI bleeding were erosive lesions found in 120 patients (43.48%). Portal hypertensive gastropathy, present in 55 patients (19.93%), was the next most common finding, followed by varices in 39 patients (14.13%). Other less common findings were masses, erythematous lesions, polyps, hiatal hernias, reflux esophagitis, bile reflux disease, nodules, Dieulafoy lesion, linitis plastica, and gastric angiodysplasia.

**Table 5. EGD findings in patients with UGIB**

| Signs and Symptoms | Frequency | Percentage |
|---|---|---|
| Ulcers | 125 | 45.29 |
| Gastric ulcer | 81 | 29.35 |
| - IIb | 3 | 1.09 |
| - IIc | 3 | 1.09 |
| - III | 56 | 20.29 |
| - IIc+III | 4 | 1.45 |
| - unspecified | 15 | 5.43 |
| Duodenal ulcer | 21 | 7.61 |
| - Ib | 1 | 0.36 |
| - IIa | 1 | 0.36 |
| - IIb | 2 | 0.72 |
| - IIc | 4 | 1.45 |
| - III | 13 | 4.71 |
| Gastroduodenal ulcer | 16 | 5.80 |
| Gastroesophageal ulcer | 5 | 1.81 |
| Esophageal ulcer | 2 | 0.72 |
| Erosive lesions | 120 | 43.48 |
| Erythematous lesions | 19 | 6.88 |
| Portal hypertensive gastropathy | 55 | 19.93 |
| Varices | 39 | 14.13 |
| Masses | 33 | 11.96 |
| Polyps | 17 | 6.16 |
| Hiatal hernia | 15 | 5.43 |

| | | |
|---|---|---|
| Reflux esophagitis | 10 | 3.62 |
| Bile reflux disease | 4 | 1.45 |
| Nodules | 2 | 0.72 |
| Dieulafoy lesion | 2 | 0.72 |
| Linitis plastica | 1 | 0.36 |
| Gastric angiodysplasia | 1 | 0.36 |
| Achalasia | 1 | 0.36 |
| Normal | 1 | 0.36 |

The comparison of the demographic data, clinical findings, laboratory findings of patients who survived and expired are presented in Table 6. A total of 10 patients (3.6%) were expired. A statistically significant higher proportion of males expired compared to females ($p = 0.024$). The mean age of patients who expired (73.3 ± 10.93 years) was significantly higher than that of survivors (65.13 ± 14.56 years) ($p = 0.045$), indicating that older age was associated with mortality. Among endoscopic findings, the presence of a gastric ulcer was significantly associated with mortality ($p = 0.030$). Additionally, Forrest grade Ib duodenal ulcers were significantly associated with mortality ($p = 0.036$). Among clinical findings, none were significantly associated with mortality but abdominal enlargement showed a trend toward significance ($p=0.055$). There was no significant relationship between mortality and the patients' comorbidities, medication use, mean hemoglobin, hematocrit, platelet count and INR, clinical findings, and endoscopic findings.

**Table 6. Comparison of the demographic data, clinical findings, laboratory findings of the patients who survived and expired.**

| **Variables** | **Survived (n=266)** | | **Expired (n=10)** | | **p-values** |
|---|---|---|---|---|---|
| | n | % | n | % | |
| Sex | | | | | **0.024*** |
| Male | 144 | 42.86 | 9 | 90 | |
| Female | 122 | 45.86 | 1 | 10 | |
| Age | 65.13 (±14.56) | | 73.3 (±10.93) | | **0.045*** |
| Comorbidities | | | | | |
| Hypertension | 148 | 55.64 | 4 | 40 | 0.352 |
| Ischemic stroke | 21 | 7.89 | 2 | 20 | 0.198 |
| Ischemic heart disease | 19 | 7.14 | 2 | 20 | 0.171 |

| | | | | | |
|---|---|---|---|---|---|
| Heart failure | 17 | 6.39 | 2 | 20 | 0.145 |
| Diabetes mellitus | 77 | 28.94 | 0 | - | 0.067 |
| Chronic kidney disease | 32 | 12.03 | 3 | 30 | 0.120 |
| Schistosomiasis | 16 | 6.01 | 2 | 20 | 0.132 |
| Cancer | 19 | 7.14 | 1 | 10 | 0.535 |
| Liver cirrhosis | 35 | 13.16 | 3 | 30 | 0.145 |
| Gouty arthritis | 12 | 4.51 | 1 | 10 | 0.388 |
| COPD | 8 | 3.01 | 1 | 10 | 0.286 |
| Hepatitis C | 1 | 0.38 | 0 | - | 0.846 |
| Chronic hepatitis B | 7 | 2.63 | 0 | - | 0.603 |
| Medications | | | | | |
| NSAIDS | 19 | 7.14 | 0 | - | 0.381 |
| Anti-platelet | 35 | 13.16 | 2 | 20 | 0.533 |
| Anti-coagulant | 14 | 5.26 | 0 | - | 0.457 |
| Clinical presentation | | | | | |
| Melena | 187 | 70.30 | 6 | 60 | 0.494 |
| Pallor | 182 | 68.42 | 6 | 60 | 0.731 |
| Abdominal pain | 113 | 42.48 | 3 | 30 | 0.527 |
| Hematemesis | 91 | 34.21 | 4 | 40 | 0.741 |
| Hematochezia | 55 | 20.68 | 3 | 30 | 0.443 |
| Abdominal tenderness | 18 | 6.77 | 2 | 20 | 0.158 |
| Abdominal enlargement | 9 | 3.38 | 2 | 20 | 0.055 |
| Jaundice | 15 | 5.64 | 0 | - | 0.474 |
| Laboratory findings | | | | | |
| Hemoglobin | 93.91 (±24.83) | | 92.5 (±41.17) | | 0.92 |
| Hematocrit | 0.27 (±0.08) | | 0.27 (±0.12) | | 1 |
| Platelet count | 288.48 (±192.93) | | 292.6 (±94.18) | | 0.90 |
| INR | 1.59 (±5.14) | | 1.69 (±0.61) | | 0.787 |
| EGD findings | | | | | |
| Gastric ulcer | 75 | 28.19 | 6 | 60 | **0.030*** |
| Forrest IIb | 3 | 1.13 | 0 | - | 0.929 |
| Forrest IIc | 2 | 0.75 | 1 | 10 | 0.170 |
| Forrest III | 51 | 19.17 | 5 | 50 | 0.083 |
| Forrest IIc+III | 3 | 1.13 | 1 | 10 | 0.071 |
| unspecified | 15 | 5.64 | 0 | - | 0.440 |
| Duodenal ulcer | 19 | 7.14 | 2 | 20 | 0.129 |
| Forrest Ib | 0 | - | 1 | 10 | **0.036*** |
| Forrest IIa | 1 | 0.38 | 0 | - | 0.846 |
| Forrest IIb | 2 | 0.75 | 0 | - | 0.921 |
| Forrest IIc | 4 | 1.50 | 0 | - | 0.444 |
| Forrest III | 12 | 4.51 | 1 | 10 | 0.222 |
| Gastroduodenal ulcer | 15 | 5.64 | 1 | 10 | 0.562 |
| Gastroesophageal ulcer | 5 | 1.88 | 0 | - | 0.662 |

| | | | | | |
|---|---|---|---|---|---|
| Esophageal ulcer | 2 | 0.75 | 0 | - | 0.603 |
| Erosions | 116 | 43.61 | 4 | 40 | 0.821 |
| Erythematous lesions | 24 | 9.02 | 0 | - | 0.32 |
| Portal hypertensive gastropathy | 54 | 20.30 | 2 | 20 | 0.981 |
| Varices | 38 | 14.29 | 1 | 10 | 0.702 |
| Masses | 32 | 12.03 | 1 | 10 | 0.846 |
| Polyps | 17 | 6.39 | 0 | - | 0.409 |
| Hiatal hernia | 15 | 5.64 | 0 | - | 0.517 |
| Bile reflux disease | 3 | 1.13 | 1 | 10 | 0.210 |
| Reflux esophagitis | 9 | 3.38 | 1 | 10 | 0.272 |
| Nodules | 2 | 0.75 | 0 | - | 0.783 |
| Dieulafoy lesion | 1 | 0.38 | 0 | - | 0.846 |
| Linitis plastica | 1 | 0.38 | 0 | - | 0.846 |
| Gastric angiodysplasia | 1 | 0.38 | 0 | - | 0.846 |
| Achalasia | 1 | 0.38 | 0 | - | 0.846 |

Frequencies and percentages were presented for categorical variables, while the means and standard deviations were presented for continuous variables.
Student's t-test was used to determine whether there are statistically significant differences in the means of the continuous variables between the two groups. The Pearson's chi-squared test of independence or Fisher's exact test were used to determine whether there is an association between the categorical variable and the groups.
Variables with groups that have no variation in the data, such as when there is only one respondent in the group, are dropped from the analyses.
*Significance at level <0.05
**Significance at level <0.01

A logistic regression analysis was performed to identify factors associated with mortality. Both unadjusted and adjusted analyses were conducted (Table 7). In the univariate analysis, age was significantly associated with mortality (OR = 1.075, p = 0.029). This association remained significant after adjustment (adjusted OR = 1.074, p = 0.033), indicating that increasing age was independently associated with higher odds of mortality. Sex was also significantly associated with mortality in both univariate (OR = 0.080, p = 0.022) and multivariate analyses (adjusted OR = 0.078, p = 0.021). This suggests that females had significantly lower odds (approximately 92% reduction) of mortality compared to males. Among clinical variables, abdominal enlargement was significantly associated with mortality in the univariate analysis (OR = 7.14, p = 0.022). However, this association was no longer

statistically significant after adjustment (adjusted OR = 5.010, p = 0.098). When adjusted for confounders, there was no statistical association between mortality and the presence of gastric ulcer and Forrest Ib duodenal ulcer. There was no significant relationship between mortality and the patients' comorbidities, medication use, mean hemoglobin, hematocrit, platelet count and INR, and endoscopic findings.

**Table 7. Univariate and multivariate logistic regression on the patients' mortality given their demographic data, clinical findings, laboratory findings.**

| Variables | Unadjusted OR/Coefficient | p-values | Adjusted OR/Coefficient | p-values |
|---|---|---|---|---|
| Age | **1.075** | **0.029*** | **1.074** | **0.033*** |
| Sex (Baseline: males) | **0.080** | **0.022*** | **0.078** | **0.021*** |
| Types of comorbidities | | | | |
| Hypertension | 1.807 | 0.606 | 3.864 | 0.276 |
| Ischemic stroke | 0.121 | 0.221 | 0.105 | 0.184 |
| Heart failure | 0.191 | 0.329 | 0.216 | 0.356 |
| Chronic kidney disease | 0.070 | 0.054 | 0.078 | 0.057 |
| Schistosomiasis | 0.195 | 0.310 | 0.130 | 0.205 |
| Liver cancer | 0.037 | 0.063 | 0.038 | 0.069 |
| Liver cirrhosis | 0.095 | 0.158 | 0.125 | 0.195 |
| Gouty arthritis | 0.058 | 0.119 | 0.066 | 0.154 |
| Ischemic heart disease | 0.121 | 0.221 | 0.105 | 0.184 |
| COPD | 0.174 | 0.269 | 0.264 | 0.403 |
| Medications used | | | | |
| Anti-platelet | 0.138 | 0.999 | 0.137 | 1.000 |
| Clinical presentation | | | | |
| Melena | 1.765 | 0.434 | 2.519 | 0.276 |
| Pallor | 1.390 | 0.635 | 1.411 | 0.639 |
| Abdominal pain | 3.117 | 0.161 | 4.527 | 0.125 |
| Hematemesis | 0.701 | 0.631 | 1.115 | 0.895 |
| Hematochezia | 0.687 | 0.626 | 1.093 | 0.920 |
| Abdominal tenderness | 3.25 | 0.153 | 8.315 | 0.058 |
| Abdominal enlargement | **7.14** | **0.022*** | 5.010 | 0.098 |
| Laboratory findings | | | | |
| Hemoglobin | 0.986 | 0.851 | 0.988 | 0.852 |
| Hematocrit | 2.330 | 0.968 | 2.069 | 0.972 |
| Platelet count | 0.998 | 0.732 | 0.999 | 0.708 |

| | | | | |
|---|---|---|---|---|
| INR | 1.075 | 0.759 | 1.016 | 0.777 |
| EGD findings | | | | |
| Gastric ulcer | 0.112 | 0.111 | 0.105 | 0.106 |
| Forrest IIC+III | 0.039 | 0.059 | 0.047 | 0.079 |
| Forrest III | 0.405 | 0.396 | 0.435 | 0.436 |
| Duodenal ulcer | 0.051 | 0.061 | 0.029 | 0.053 |
| Forrest III | 0.552 | 0.708 | 0.766 | 0.871 |
| Gastroduodenal ulcer | 2.056 | 0.681 | 4.107 | 0.434 |
| Erosions | 1.132 | 0.884 | 1.070 | 0.936 |
| Portal hypertensive gastropathy | 0.675 | 0.713 | 0.532 | 0.562 |
| Varices | 0.817 | 0.877 | 0.628 | 0.730 |
| Masses | 0.252 | 0.355 | 0.149 | 0.182 |
| Bile reflux disease | 0.046 | 0.060 | 0.021 | 0.059 |
| Reflux esophagitis | 0.282 | 0.371 | 0.214 | 0.252 |

The logistic regression analysis was used on the patients' mortality given their demographic data, EGD findings, laboratory findings, and outcomes to generate the odds ratios and coefficients. Variables with groups that have no variation in the data, such as when there is only one respondent in the group or when all share the same profile, are dropped from the analyses.

*Significance at level <0.05

**Significance at level <0.01

## DISCUSSION

This study demonstrated that increasing age is significantly associated with mortality among patients with upper gastrointestinal bleeding (UGIB). Patients who expired had a significantly higher mean age compared to survivors, and logistic regression analysis confirmed age as an independent predictor of mortality. These findings are consistent with previous studies showing that advancing age is associated with increased incidence and worse outcomes in UGIB (van Leerdam, 2008; Marmo, 2008; Button, 2011). The higher mortality observed in older patients may be explained by the presence of multiple comorbidities, reduced physiological reserve, and increased severity of bleeding episodes (Molendina, 2017).

Sex was also found to be significantly associated with mortality, with a higher proportion of deaths occurring among males. Multivariate analysis further showed that females had significantly lower odds of mortality compared to males. This aligns with previous findings

(Button, 2011) where males exhibited higher case fatality rates across most age groups. However, other studies have reported no significant association between sex and mortality despite a predominance of male patients (Aljarad, 2021; Marmo, 2008; Klebl, 2005). The observed sex difference may be related to the greater prevalence of risk factors in males such as smoking, alcohol use, NSAID exposure, peptic ulcer disease, and chronic liver disease, all of which predispose to upper gastrointestinal bleeding (Molendina, 2017).

In terms of etiology, the most common endoscopic findings in this study were ulcers, particularly gastric ulcers, followed by erosive lesions and portal hypertensive gastropathy. This is consistent with existing literature indicating that peptic ulcer disease remains the leading cause of UGIB, accounting for a large proportion of cases (van Leerdam, 2008; Hreinsson, 2013; Morales-Uribe, 2011). Notably, gastric ulcers and Forrest Ib duodenal ulcers were significantly associated with mortality in the unadjusted analysis. Previous studies have demonstrated increased mortality among patients with UGIB secondary to gastric and duodenal ulcers, with reported mortality rates ranging from 5% to 11% (Sung, 2010; Quan, 2014). However, these associations were not sustained after adjustment in the regression model, suggesting that their effects may be confounded by other variables such as age. According to a study by Sung (2010), multiorgan failure, cardiopulmonary conditions, and terminal malignancy constitute the most common causes of death in these patients.

Melena was the most common clinical presentation in this cohort, followed by pallor and abdominal pain. This finding is in agreement with prior studies that identify melena as the most frequent presenting symptom in UGIB (Klebl, 2005; Marmo, 2008). Although none of the clinical presentations were significantly associated with mortality, abdominal enlargement showed a trend toward significance and was associated with mortality in the univariate analysis. This may reflect underlying conditions such as ascites or advanced liver disease, which have been linked to poorer outcomes in UGIB patients (Mutlu, 2025; Afessa, 2000).

Hypertension was the most prevalent comorbidity in this study, followed by diabetes mellitus and liver cirrhosis. Despite their high prevalence, none of the comorbidities were significantly associated with mortality. This contrasts with some studies that have identified comorbid conditions as important predictors of outcomes in UGIB (Thongbai, 2017). The lack of association in this study may be due to the relatively small number of mortality cases, which limits statistical power.

Similarly, medication use (NSAIDs, antiplatelets, and anticoagulants) and laboratory parameters (hemoglobin, hematocrit, platelet count, and INR) were not significantly associated with mortality. While these factors are commonly implicated in the development and severity of UGIB, their lack of association with mortality in this cohort suggests that demographic factors such as age and sex may play a more dominant role in determining outcomes.

A key limitation of this study is the small number of mortality cases (n = 10), which may reduce the ability to detect significant associations and limits the generalizability of the findings. Additionally, incomplete data for some laboratory parameters and missing information on other potential risk factors such as smoking, alcohol intake, and body weight may have affected the analysis. Future studies with larger sample sizes and more comprehensive data collection are recommended to better elucidate the predictors of mortality in UGIB.

# CHAPTER IV

## *SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS*

### SUMMARY

This study investigated the clinical characteristics, endoscopic findings, and mortality predictors among 276 patients with upper gastrointestinal bleeding in a tertiary hospital in Tacloban City from 2020–2024.

Most patients were older males with common comorbidities such as hypertension and diabetes. The most frequent symptom was melena, and the leading cause of bleeding was peptic ulcer disease, particularly gastric ulcers.

The overall mortality rate was low (3.6%), but increasing age and male sex were identified as significant predictors of mortality.

### CONCLUSION

This study showed that upper gastrointestinal bleeding (UGIB) predominantly affects older adults, with a higher occurrence among males. Peptic ulcer disease, particularly gastric ulcers, was identified as the most common cause, followed by erosive and portal hypertensive gastropathy. These findings are consistent with existing literature, highlighting the continued significance of acid-related disorders in UGIB.

Although the overall mortality rate was low, increasing age and male sex were found to be significant predictors of mortality. Other factors such as comorbidities, medication use, and laboratory parameters were not significantly associated with outcomes, suggesting that demographic factors may play a more important role in this population.

These results emphasize the importance of early recognition, timely endoscopic evaluation, and proper risk stratification, particularly among high-risk patients. Despite its limitations, this study provides valuable local data that can support improved management and outcomes of UGIB in similar clinical settings.

## RECOMMENDATIONS

Future studies should include detailed documentation of blood transfusion practices, specifically whether transfusion was performed and the number of units administered per patient, as this is an important indicator of disease severity and clinical management. In addition, the occurrence of rebleeding should be monitored and reported, as it is a significant outcome associated with increased morbidity, prolonged hospitalization, and mortality.

It is also recommended that validated UGIB risk scoring systems, such as the Glasgow-Blatchford Score and Rockall Score, be incorporated into both clinical practice and research. These tools allow for early risk stratification, guide management decisions, and improve the prediction of important outcomes such as need for intervention and mortality. Their use would enhance the consistency and comparability of future studies.

Expanding the study to include multiple institutions across Eastern Visayas is highly recommended to provide a more comprehensive and representative understanding of the regional burden of UGIB. A multicenter approach would improve generalizability and capture variations in patient characteristics and management practices across different healthcare settings.

Future research should aim to improve the completeness of data collection by including additional clinical and lifestyle variables such as smoking history, alcohol intake, and body mass index. Increasing the sample size and including longer follow-up periods would also

strengthen the ability to detect significant associations and provide a more robust assessment of outcomes, particularly mortality.

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