

Effect of Advanced Health Program on Patients' Outcomes after Endoscopic Treatment of Bleeding Peptic Ulcers

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Abstract

Background: Advanced health program on patients' outcomes after endoscopic treatment of bleeding peptic ulcers is considered as a strategy for promoting patients' outcomes at home and in the community. **Aim:** The study aimed to evaluate the effect of advanced health program on patients' outcomes after endoscopic treatment of bleeding peptic ulcers through the following: 1) Assess needs of patients after endoscopic treatment of bleeding peptic ulcers. 2) Develop and apply the advanced health program on patient after endoscopic treatment of bleeding peptic ulcers based on patients identified needs. 3) Evaluate the effect of advanced health program on patients' outcomes after endoscopic treatment of bleeding peptic ulcers. **Study design:** a quasi-experimental design was utilized to conduct this study. **Setting:** The study was conducted in the endoscopic unit at El Demerdash surgical hospital and outpatient clinics at Ain Shams University hospital, Cairo governorate, Egypt. **Subject:** A purposive sample of 134 patients was recruited in this study based on power analysis. **Data collection tools:** 1) Patients' Interviewing questionnaire. 2) Patient's health outcomes assessment tool. 3) Modified Fatigue Impact Scale (MFIS). **Results:** the present study revealed that, mean age of the patients under study was 52.63 ± 7.6 and 56% of them were males, there was a highly statistically significant difference of patients' total satisfactory level of knowledge about bleeding peptic ulcer during the three phases of the study (pre, post and follow up). And there were a highly statistically significant difference of patients' total nutritional practices related to bleeding peptic ulcer during the three phases of the study. Also that there were a highly statistically significant difference of patients' total physical status related to bleeding peptic ulcer during the three phases of the study. And there was a statistically significant relation between patients' physical status and their level of education and living condition immediately post and one month after implementing advanced health program **Conclusion:** Application of advanced health program has positive effect on improving outcomes of patients after endoscopic treatment of bleeding peptic ulcers. **Recommendations** Counseling interventions should be added to the routine nursing care delivered to those patients in all treatment clinics and should be updated periodically to enhance their knowledge and improve their physical and psychological wellbeing.

Keywords: Advanced health program, Outcomes, Peptic Ulcer.

Introduction

The hallmark of Peptic Ulcer Disease (PUD) is the disruption of the GI tract's inner lining due to either pepsin or stomach acid release. Propriety is extended into the stomach epithelium's muscular layer. Usually, it affects the proximal duodenum and stomach. The jejunum, distal duodenum, or lower esophagus might be affected. Patients with gastric ulcers often have epigastric discomfort 15–30 minutes after eating, but duodenal ulcer patients typically experience pain 2–3 hours after eating. Some individuals may need an endoscopy to

confirm the diagnosis, particularly if they are exhibiting concerning symptoms. Nowadays, triple-drug therapies based on proton pump inhibitors (PPIs) might be used to treat the majority of patients (Najm, 2022).

The age of patient and location of the disease might affect the signs and symptoms of peptic ulcer disease. The distinction between duodenal and gastric ulcers may be made based on when the symptoms appear in relation to meals. Duodenal ulcers often cause nocturnal discomfort. Bloating and/or fullness in the belly are frequently

reported by those who have gastric outlet blockage (**Banerjee et al., 2021**).

Medical tests, including invasive and non-invasive, a physical examination, and a history are necessary for the diagnosis of PUD. Patients who have a history of difficulties should be asked detailed questions about their health. Symptoms of PUD include early satiety, fullness after a meal, and epigastric belly discomfort reported by the patient. Contrary to duodenal ulcers, which may cause weight gain with mealtime pain reduction, stomach ulcers may cause weight loss when their discomfort increases two to three hours after a meal. It is important to look into PUD problems, namely bleeding, perforation, or malignancy, in any patient who presents with anemia, melena, hematemesis, or a decrease in weight. Upon physical examination, anemic symptoms and soreness in the epigastric abdomen may be detected (**Malik et al., 2022**).

If Peptic Ulcer Disease (PUD) is not identified and treated in a timely manner, PUD may result in severe consequences. Thus, PUD problems include upper gastrointestinal hemorrhage, occlusion of the gastric outlet, perforation, penetration, and/or gastric malignancy. Options for treatment include endoscopy followed by appropriate therapy depending on results, empirical triple therapy for *H pylori* infection, empirical antisecretory therapy, and *H pylori* serology followed by triple therapy for individuals who are infected. Additionally, breath tests for *H pylori* infection may be utilized (**Anand, 2021**).

Bleeding of peptic ulcers continues to rank among the most frequent reasons for hospitalization around the globe. While endoscopic hemostasis is the main treatment for bleeding ulcers, managing rebleeding following this procedure becomes increasingly challenging in these patients, who are typically poor surgical candidates with other comorbidities. Modern developments in the treatment of bleeding peptic ulcers have attempted to further lower the rate of rebleeding by identifying patients who are at high risk of both rebleeding and dying, which has improved primary endoscopic hemostasis and prevented angiographic embolization of the major arteries (**Philip, 2019**).

Patient education on changing their lifestyle—giving up smoking, avoiding alcohol and caffeinated drinks, and not taking too many NSAIDs—should be initiated. Nurses specializing in gastroenterology ought to keep an eye on their patients, educate patients, and inform the team on their progress. For both symptom alleviation and a cure, the patient should receive medication compliance education. There is evidence that obesity may be a cause for peptic ulcer disease, thus it is advisable to seek nutritional advice. The morbidity of peptic ulcer disease could only be reduced by a collaborative effort. The majority of PUD patients who get treatment with the triple regimen or PPI have great results, however symptom recurrence is not unusual (**Ayoub et al., 2018**). For patients with bleeding peptic ulcers, effective nursing care is critical to symptom relief, reducing the chance of complications, and enhancing patient psychological health and prognoses. Additionally, nursing interventions are used to reduce and avoid possible risk factors (**Salvador, 2023**).

Peptic ulcer disease (PUD) patients should receive advice from nurses on potentially harmful substances such as aspirin, alcohol, tobacco, and caffeine, as well as nonsteroidal anti-inflammatory medicines (NSAIDs). Use the lowest dose of NSAIDs if necessary, and think about prophylaxis for NSAID-using individuals. Patients should be encouraged to lose weight because there is a substantial correlation between obesity and peptic ulcer disease. Counseling for stress reduction may be beneficial in some situations (**Talia et al., 2023**).

It is recommended to enroll in an advanced health program for peptic ulcer illness. Millions of individuals worldwide suffer with PUD, a relatively prevalent illness. Its morbidity is severe if left untreated. Most PUD patients see primary care physician, although others may visit an emergency room, urgent care facility, or outpatient clinic. Healthcare professionals, especially nurses, should be aware of PUD because PUD presentation is frequently ambiguous. Due to the discomfort in the abdomen's ability to mimic several different illnesses, therapy may not begin right away (**Young et al., 2018**).

The implementation of a per-endoscopic teaching program improved patient outcomes by lowering the incidence of complications and improving patients' abilities to control their diseases. This program also stresses the need of eliminating and avoiding conditions like mental stimulation, overwork, irregular living arrangements, poor food, smoking, and alcohol use that can lead to peptic ulcer disease. For one to two years, patients must additionally take maintenance medications in order to cure the ulcers and have symptom alleviation. It is beneficial in avoiding the recurrence of ulcers. Treatment for gastroduodenal ulcers caused by *Helicobacter pylori* infection consists of both efficient antibiotics and medications that decrease stomach acid production. In order to stop ulcers from recurring, *Helicobacter pylori* infection must be eradicated. In summary, the use of this program for peptic ulcer patients helps to lower their anxiety and sadness while guaranteeing an improvement in their clinical symptoms and prognosis (Ding, 2023).

Significance of the study

Peptic ulcer disease (PUD) is a worldwide issue that has a 5% to 10% lifetime chance of occurrence. The prevalence of PUD has decreased globally overall as a result of more hygienic and sanitary settings, efficient medical care, and prudent use of non-steroidal anti-inflammatory medicines (NSAIDs). Compared to stomach ulcers, duodenal ulcers occur four times as frequently. Moreover, men are more likely than women to develop duodenal ulcers (Lanas & Chan, 2021). Our team showed that doing a planned second endoscopy drastically decreased the risk of ulcer rebleeding from 13.8% to 5% only in a randomized experiment (Chiu et al., 2019).

To lessen the effects of peptic ulcer illness and enhance patient outcomes, advanced health programs founded on evidence-based guidelines have to be implemented for those people.

Aim of the study

The present study aimed to evaluate the effect of advanced health program on patient outcomes after endoscopic treatment of

bleeding peptic ulcers. It was done through the following:

1- Assess educational needs of patients after endoscopic treatment of bleeding peptic ulcers.

2- Develop and apply the advanced health program on patient after endoscopic treatment of bleeding peptic ulcers based on patients identified educational needs.

3- Evaluate the effect of advanced health program on patient outcomes after endoscopic treatment of bleeding peptic ulcers.

Research Hypotheses

The current study hypothesized that the implementation of health improvement program will affect positively on patient outcomes after endoscopic treatment of bleeding peptic ulcers.

Subjects and Methods

The study was portrayed under the four main designs as follows:

- I- Technical design.
- II- Operational design.
- III- Administrative design.
- IV- Statistical design.

(I) Technical design

The technical design was included research setting, subjects and tools for data collection.

Research design

Quasi experimental design was used to achieve the aim of the present study.

Research Setting

This study was conducted at the endoscopic unit in El demerdash surgical hospital and outpatient clinics in Ain shams University

hospital which affiliated to Ain Shams University, Cairo governorate, Egypt.

Subjects

Convenient sample of 134 adult patients diagnosed with bleeding peptic ulcers after endoscopic treatment of bleeding peptic ulcers at the previously mentioned settings.

Inclusion Criteria

The study subjects was selected according to the following criteria:

❖ Age: 18 - \geq 65 years old.

- Patients with bleeding peptic ulcers undergoing endoscopic treatment .

- Patients, whether for the first time or for the second time endoscopic treatment.

- From both gender and psychologically and physically willing to participate in the study.

Exclusion criteria

The study subjects were excluded according to the following criteria:

- Patients with carcinoma of the stomach.

- Patients with mental and psychological disorders.

Sample size calculation

Study subjects include a representative of total patients in gastrointestinal endoscopy department attendance rate (720 patient) at EL-Demerdash surgical hospital; who were hospitalized during the period from July 2022 to December 2022. Based on sample size equation 134 adult patients was participated in the study.

So, the sample size was calculated by adjusting the power of the test to 80% and the confidence interval to 95% with margin of error accepted adjusted to 5% and a known total

population of 134 patients of bleeding peptic ulcer using the following equation:

- Type I error (α) = 0.05

- Type II error (B) = 0.2

- With power of test 0.80

$$n = \frac{N \times p(1-p)}{\left[\left[N-1 \times \left(d^2 \div z^2 \right) \right] + p(1-p) \right]}$$

$$134 = \frac{720 \times 0.50(1-0.50)}{\left[\left[720-1 \times \left(0.05^2 \div 1.28^2 \right) \right] + 0.50(1-0.50) \right]}$$

N= Community size

z= Class standard corresponding to the level of significance equal to 0.80 and 1.28

d= The error rate is equal to 0.05

p= Ratio provides a neutral property = 0.50

Tools for data collection:

Tool I: Patient's Interviewing questionnaire. It was developed by the researchers based on review of the relevant literatures (Laine et al., 2021; Coelho-Prabhu et al., 2022 & Soreide et al., 2022). It was written in simple Arabic language and validity and reliability were tested, it was included the following three parts:

• **Part 1: Socio-Demographic data.** It was concerned with assessing patients socio-demographic data (age, gender, marital status, educational level, and job nature, residence, living condition and monthly income).

• **Part 2: patients' clinical data:** It was used to assess patients' clinical data as follows;

- Past history: It was concerned with assessing past diagnosis, duration of the disease, family history regarding peptic ulcer, hospitalized related to peptic ulcer and previous endoscopy.

- Present history: It was concerned with assessing PUD' signs and symptoms , Complain from any other health problems and Predisposing factors for peptic ulcer.

Part 3: Patients' knowledge assessment questionnaire: It was concerned with assessment of patients' level of knowledge regarding peptic ulcer such as meaning of peptic ulcer disease, causes, signs & symptoms, risk factors, preventive measures, methods of treatment, drugs used and complications.

Scoring system: the questionnaire was a 22 multiple choice question with total score 22 mark and the scores for assessing knowledge was distributed as : 1 mark for each correct answer, zero for incorrect answer and when the result is 70% and above was considered satisfactory level while below 70%, it was considered as unsatisfactory level .

Tool II: Patient's health outcomes assessment tool:

This tool was adapted from Liu ,et al (2017) and modified by the researchers based on the advanced related literatures (Barkun, et al, 2019; Jairath & Feagan , 2020 & Hung, 2023). It was used to assess patient's clinical outcomes after endoscopic treatment of bleeding peptic ulcers pre, post and follow up of implementation of advanced health program. validity and reliability were tested: It was divided into the following three parts.

Part 1: Nutritional practices related to bleeding peptic ulcer: It was used to assess nutritional practices of patients after endoscopic treatment of bleeding peptic ulcers, it was included 11 closed ended questions such as eating three basic meals of the day, eating food in a regular fixed times, using oils in food cook, avoiding foods that contain spices and eating cayenne, avoiding foods that cause acid such as lemon, orange, chewing eating well, avoiding drinking coffee, tea or soft drinks,etc.

• **Scoring system:** One grade was given for Yes answer and zero for No answer, with total grade = 11 grade, for total 11 questions.

• The total nutritional practices score was considered satisfactory nutritional practices if the score > 70%, while considered unsatisfactory nutritional practices if it was ≤ 70%.

Part 2: Patients` physical status related to bleeding peptic ulcer: It was used to assess physical status of patients after endoscopic treatment of bleeding peptic ulcers, it was included 10 closed ended questions as health status hinders self-caring, Avoid activities that require exertion, finding difficulty to do daily living activities and personal, health status prevents home care caring,etc.

• **Scoring system:** One grade was given for Yes answer and zero for No answer, with total grade = 10 grade, for total 10 questions.

• The total physical status score was considered good physical status if it equals >75 %, while was considered average physical status if it equals 50-75%, and was considered poor physical status if it equals < 50%.

Part 3: Modified Fatigue Impact Scale (MFIS)

It was adapted from Frith & Newton (2010). It is valid and reliable tool (Cronbach's alpha = 0.90, bootstrap 95% CI = 0.87–0.91).It was used to assess patients' fatigue after endoscopic treatment of bleeding peptic ulcers. The MFIS contains 21 statements and was designed to assess the three components of this scale which were Physical Subscale, Cognitive Subscale and Psychosocial Subscale.

Scoring system: The total score of the MFIS ranges from 0 to 84. The ranges of scores for each subscale were as follows: physical subscale ranged from, 0 to 36; while cognitive subscale ranged from, 0 to 40; and the psychosocial subscale ranged from, 0 to 8. All items are scaled so that higher scores indicate a greater impact of fatigue on a person's activities. The total score of the MFIS was ranged as follows:

Higher impact >75 %.

Moderate impact 50-75%.

Lower impact < 50%.

II. Operational design:

The Operational design includes preparatory phase, validity and reliability, pilot study, ethical consideration and fieldwork.

Preparatory phase:

It included reviewing of the current and more recent relevant national and international literature reviews concerning the effect of advanced health program on patient outcomes

Reliability

Testing reliability of the developed tools was done by alpha Cronbach test as the following;

Tools	Reliability		Validity		Internal consistency
	Reliability Coefficient	Cronbach's Alpha	Self validate	Content valiantly	
Knowledge regarding bleeding peptic ulcer	0.816	0.753	0.822	0.783	Good
Physical status related to bleeding peptic ulcer	0.952	0.878	0.959	0.913	Good
Modified Fatigue Impact Scale (MFIS)	0.794	0.858	0.861	0.852	Good
Total questionnaire	0.881	0.888	0.948	0.902	Good

Pilot study

To determine the relevance of the study, assess the clarity of the questionnaires that were constructed, and determine how long the study would take to complete, a pilot study with 14 patients (10%) was conducted. Following the development of the final form, the employed tools underwent alteration. The study sample did not contain any of the pilot research participants.

The ethical research considerations in the study included the following:

after endoscopic treatment of bleeding peptic ulcers in order to develop the tool of data collection.

- The tool was translated from English into Arabic and back translation was done.

- Validity and reliability:

Validity of the developed tools was tested using face and content validity. Validity was tested through a jury of 7 experts from medical surgical nursing department, Ain shams university (4 professors, 2 assistant professors and one lecturer). The experts reviewed the tools for clarity, relevance, comprehensiveness and simplicity; minor modifications were done.

- The research approval was obtained from the ethical committee of faculty of nursing before initiating the study work.

- The researcher clarified the objectives and aim of the study to patients included in the study.

- Patients' written consents to participate in the study were obtained.

- The researcher assured maintaining anonymity and confidentiality of subjects' data.

▪ Patients were informed that they are allowed to withdraw from the study at any time without any pressure.

Field work:

It was performed in three phases:

A. Assessment phase:

In addition to introducing themselves and outlining the program's goal, the researchers also establish a formal contract with the participants that requires them to attend all sessions and orient them about the place of sessions, time schedule for the program. During the introductory session, they also foster positive relationships with the participants. Additionally, baseline evaluation data will be collected prior to program implementation using the appropriate instruments (the Patient's Interviewing Questionnaire, the Patient's Health Outcomes Assessment Tool and the Modified Fatigue Impact Scale).

B. Implementation phase:

▪ This phase began postoperatively at the gastrointestinal (GIT) endoscopy department, where 134 patients with bleeding peptic ulcers were interviewed following endoscopic treatment. Prior to data collection, the patients were informed about the purpose and nature of the study and their consent was obtained. The period of data collecting, from February 2023 to August 2023, lasted seven months.

▪ The researchers filled out and finished the study instruments at three stages: before, right after the program started, and one month after.

▪ Following endoscopic therapy, the following information about the patient's needs about bleeding peptic ulcer was obtained using the patient assessment sheet as follows:

▪ It took from the patients depending on their educational background, or from the researchers around 30:45 minutes to complete

the Patients' Interviewing questionnaire, which was used to gauge the patients' level of knowledge. After that, it took the researcher around 20 to 30 minutes to complete each patient's clinical outcome evaluation form. Additionally, the patients or researchers completed the modified fatigue impact scale (MFIS), which took around thirty minutes to complete for each patient based on their educational background.

▪ Three days a week (Sunday, Monday, and Thursday) of data collecting were conducted in the morning and afternoon shifts at the aforementioned locations. For patients with bleeding peptic ulcers, Monday and Thursday were designated as the days for upper gastrointestinal tract endoscopy, whereas Sunday was designated for the outpatient clinic.

▪ In order to improve patient outcomes, the researchers created an advanced health program based on the needs of the patients. The program was designed as an Arabic-language booklet that included the following topics: the peptic ulcer disease definition, risk factors, causes, clinical manifestations, complications, medication, follow-up, and so on. Also include pre- instructions for endoscopy, post-endoscopic instructions, pain management strategies, nutrition, stress management strategies, and more;.

▪ Advanced health program (Laine et al, 2021) was implemented on the patient after endoscopic treatment of bleeding peptic ulcers to improve patients outcomes.

▪ The content of advanced health program for patients after endoscopic treatment of bleeding peptic ulcer was adapted from Chandrasekar et al.,2019; Parsi, et al.,2019; Sebghatollahi, et al.,2020 and Yip, et al.,2020 .

▪ Delivering advanced health program to all patients immediately post assessing patients' needs in February 2023 after explaining its purpose, content, how to go through the advanced health program.

▪ Sessions of the program were conducted in a hall in the GIT endoscopy inpatient department. The classroom was quite, well ventilated, well furnished, had adequate lightening, adequate spacing and supplies for implementation advanced health program.

▪ Sessions of the advanced health program were included three theoretical sessions, starting with greeting the patients while assuring patients' privacy and assessing the patients' motivation for learning. Orientation about the advanced health program' purpose, time and content was done by using simple words and a tone of voice that shows interest, concern and friendliness.

▪ Each session of the advanced health program had taken about 45-60 minutes / day for 2 days per week. Sometimes the sessions were conducted individualized or as for small groups; each group did not exceed three patients.

▪ The sessions were carried out for every patient according to their level of education and understanding. The teaching methods were as demonstration, small group discussion and role play, supported by using posters and booklet.

▪ Patients were allowed to ask questions in case of miss- understanding while listening and expressing interest for them. At the end of these sessions the researcher emphasized the importance of follow up visits.

▪ The booklet was handed for every patient and informed them that they allowed for one month studying advanced health program then evaluation was done.

B. Evaluation phase:

Written assessment tool (patients' interviewing questionnaire, patients' clinical outcomes assessment tool and modified fatigue impact scale (MFIS)) were used again immediately post and post 1 month of implementation of the advanced health program. This was done to evaluate the effect of advanced health program on patient outcomes

after endoscopic treatment of bleeding peptic ulcers .

III. Administrative Design:

An official letter was issued from the Faculty of Nursing, Ain Shams University to the director of GIT endoscopy department and outpatient clinics at which the study was conducted, explaining the purpose of the study to obtain their permission to conduct this study.

IV. Statistical Design:

Data was totaled and analyzed. Version 19 of the SPSS program was utilized for statistical analysis. Categorical data were expressed using percentages and frequencies. To convey numerical data, the mean and standard deviation (SD) were utilized. The three sets of numerical data that were examined were compared using the T-test. To compare numerical data groupings, the Chi-square test was created. P-values were classified as significant if they were less than 0.05, highly significant if they were less than 0.001, and non-significant if they were more than 0.05.

Results

Table (1) shows that mean age of the patients under study was 52.63 ± 7.6 and 56 % of them were male. In relation to marital status, it was found that 66.4 % of the patients under study were married. Concerning educational level, the result revealed that 43.3 % of the patients under study were Read and write. As well, 64.1 % of the patients under study had insufficient monthly income.

Table (2) illustrates that 51.5% of the patients under study had duodenal ulcer, 79.1 % of them had less than one year regarding duration of disease, 78.4% of them hadn't family history regarding peptic ulcer disease, 58.2% of them hadn't hospitalized as a result to peptic ulcer and 63.4% of them hadn't Previous endoscopy .

Tables (3) shows that 78.3% of the patients under study had epigastric pain

according to signs and symptoms. Regarding Complain from any other health problems 64.9% of the patients under study had gastrointestinal disease, while 50.8% of them were smokers.

Table (4) demonstrates that there were a statistical significant difference of patients' total satisfactory level of knowledge about bleeding peptic ulcer during the pre and post and between pre and follow up phases of the study. While there was a statistical non-significant difference of patients' total satisfactory level of knowledge about bleeding peptic ulcer during post and follow up phases of the study

Table (5) clarifies that there were a statistically significant difference of patients' total nutritional practices related to bleeding peptic ulcer during the pre and post phases and between pre and follow up phases of the study. While there was a statistical non-significant difference of patients' total nutritional practices related to bleeding peptic ulcer during post and follow up phases of the study.

Table (6) shows that there were a statistically significant difference of patients' total physical status related to bleeding peptic ulcer during the pre and post phases and between pre and follow up phases of the study. While there was a statistical non-significant difference of patients' total physical status related to bleeding peptic ulcer during post and follow up phases of the study.

Table (7) demonstrates that there were a statistically significant difference of patients' total modified fatigue impact scale (MFIS) during the pre and post phases and between pre and follow up phases of the study. While there was a statistical non-significant difference of patients' total modified fatigue impact scale (MFIS) during post and follow up phases of the study.

Table (8) represents that there were a statistically significant relation between patients' total satisfactory level of knowledge and their level of education and monthly income immediately post implementing advanced health program, also there were a statistically significant relation between patients' total satisfactory level of knowledge and level of education one month after implementing advanced health program.

Table (9) shows that there was a statistically significant relation between patients' physical status and their level of education and living condition immediately post and one month(follow up) after implementing advanced health program

Table (10) reveals that there was a statistically significant relation between patients' modified Fatigue impact scale (MFIS) and their level of education and monthly income immediately post and one month after implementing advanced health program.

Table (1): Frequency and percentage distribution of demographic characteristics for the studied patients (n=134).

Socio-demographic characteristics	No.	%
Age (years)		
18-<30 years	11	8.2%
30-<45 years	32	23.9%
45-<60 years	91	67.9%
Mean \pm SD	52.63 \pm 7.6	
Gender		
Male	75	56%
Female	59	44%
Marital status		
Single/ Widow	45	33.6%
Married	89	66.4%
Educational level		
Illiterate	18	13.5%
Read and write	58	43.3%
Primary and secondary	31	23.1%
University	27	20.1%
Job Nature		
Mind effort	23	17.2%
Physical effort	67	50%
Unemployed	44	32.8
Residence		
Rural	46	34.4%
Urban	88	65.6%
Living condition		
Live alone	41	30.6%
Live with relatives	27	20.1%
Live with spouse/ husband	66	49.3%
Monthly income		
Sufficient	48	35.9%
Insufficient	86	64.1%

Table (2): Frequency and percentage distribution of studies patients regarding items of past history (n=134).

Past history	No.	%
Previous diagnosis		
Gastric ulcer	38	28.4%
Duodenal ulcer	69	51.5%
Esophageal ulcer	27	20.1%
Duration of the disease		
Less than one year	106	79.1%
More than one year	28	20.9%
Family history regarding peptic ulcer disease		
No	29	22.6%
Yes	105	78.4%
Hospitalized as a result to peptic ulcer		
Yes	56	41.8%
No	78	58.2%
Previous endoscopy		
Yes	49	36.6%
No	85	63.4%

Table (3): Frequency and percentage distribution of the studied patients regarding items of present history (n=134).

Present history	No.	%
PUD' Signs and symptoms		
Acidity	112	83.4%
Epigastric pain	99	73.9%
Nausea	105	78.3%
Vomiting	82	61.2%
Loss of appetite	65	48.5%
Weight loss	72	53.7%
Indigestion	45	33.6%
Vomiting of blood	51	38.1%
Heart burn	99	73.9%
Complain from any other health problems		
Gastrointestinal disease	87	64.9%
Cardiovascular disease	48	35.8%
Endocrine disease such as diabetes	39	29.1%
Renal diseases	28	20.9%
Rheumatoid arthritis	5	3.7%
Cancer	17	12.7%
Predisposing factors for peptic ulcer		
Drinking too much caffeine, such as coffee, tea and cola	57	42.5%
Eating spicy foods frequently	63	47.1%
Taking analgesics and antibiotics heavily on an empty stomach	49	36.6%
*Smoking		
Yes	68	50.8%
No	66	49.2%

Table (4): Frequency and percentage distribution of the studied patients' total level knowledge about bleeding peptic ulcer (pre/ post/ follow up) (n=134).

Total knowledge about bleeding peptic ulcer	Pre		Post		Follow up		Pre vs. Post		Pre vs. FUP		Post vs. FUP	
	N	%	N	%	N	%	x ²	p-value	x ²	p-value	x ²	P-value
Satisfactory	51	38.1	120	89.6	114	85.1						
Unsatisfactory	83	61.9	14	10.4	20	14.9	29.285	<0.001**	25.511	<0.001**	0.842	0.358
Total	134	100.0	134	100.0	134	100.0						

p-value >0.05 NS; *p-value <0.05 S; **p-value <0.001 HS

Table (5): Frequency and percentage distribution of the studied patients' total Nutritional practices related to bleeding peptic ulcer (pre/ post/ follow up) (n=134).

Total nutritional practices related to bleeding peptic ulcer	Pre		Post		Follow up		Pre vs. Post		Pre vs. FUP		Post vs. FUP	
	N	%	N	%	N	%	x ²	p-value	x ²	p-value	x ²	P-value
Satisfactory	60	44.8	101	75.4	99	73.9						
Unsatisfactory	74	55.2	33	24.6	35	26.1	42.551	<0.001**	34.683	<0.001**	0.019	0.888
Total	134	100.0	134	100.0	134	100.0						

p-value >0.05 NS; *p-value <0.05 S; **p-value <0.001 HS

Table (6): Frequency and percentage distribution of the studied patients` total physical status related to bleeding peptic ulcer (pre/ post/ follow up) (n=134).

Patients` physical status related to bleeding peptic ulcer	total status	Pre		Post		Follow up		Pre vs. Post		Pre vs. FUP		Post vs. FUP	
		N	%	N	%	N	%	x ²	p-value	x ²	p-value	x ²	p-value
Good physical status	physical	53	39.6	91	67.9	86	64.2						
Average physical status	physical	57	42.5	30	22.4	34	25.4	29.713	<0.001**	22.633	0.002*	0.227	0.634
Poor physical status	physical	24	17.9	13	9.7	14	10.4						
Total		134	100.0	134	100.0	134	100.0						

p-value >0.05 NS; *p-value <0.05 S; **p-value <0.001 HS

Table (7) Frequency and percentage distribution of the studied patients regarding total Modified Fatigue Impact Scale (MFIS) (pre/ post/ follow up) (n=134).

Modified Impact (MFIS)	Fatigue Scale	Pre		Post		Follow up		Pre vs. Post		Pre vs. FUP		Post vs. FUP	
		N	%	N	%	N	%	x ²	p-value	x ²	p-value	x ²	p-value
Physical Subscale													
Higher impact		101	75.4	31	23.1	37	27.6						
Moderate impact		20	14.9	54	40.3	52	38.8	31.996	<0.001**	28.576	<0.001**	0.737	0.692
Lower impact		13	9.7	49	36.6	45	33.6						
Cognitive Subscale													
Higher impact		100	74.6	35	26.1	36	26.9						
Moderate impact		20	14.9	51	38.1	53	39.6	37.284	<0.001**	31.161	<0.001**	0.149	0.928
Lower impact		14	10.4	48	35.8	45	33.6						
Psychosocial Subscale													
Higher impact		102	76.1	31	23.1	34	25.4						
Moderate impact		20	14.9	57	42.5	57	42.5	36.625	<0.001**	25.447	<0.001**	0.240	0.887
Lower impact		12	9.0	46	34.3	43	32.1						
Total level of MFIS													
Higher impact		101	75.4	32	23.9	36	26.9						
Moderate impact		20	14.9	54	40.3	54	40.3	26.679	<0.001**	22.682	<0.001**	0.409	0.815
Lower impact		13	9.7	48	35.8	44	32.8						

p-value >0.05 NS; *p-value <0.05 S; **p-value <0.001 HS

Part IV: Relation and correlation between the study variables

Table (8): Relation between studied patients` total level of knowledge regarding bleeding peptic ulcer and their socio-demographic data (n=134).

Socio-demographic characteristics	Knowledge regarding bleeding peptic ulcer					
	Pre-program		Post-program		Follow Up	
	x ²	p-value	x ²	p-value	x ²	p-value
Age (years)	2.326	0.828	0.848	0.842	2.874	0.694
Gender	2.701	0.687	2.593	0.822	4.747	0.356
Marital status	2.881	0.596	3.254	0.631	5.247	0.263
Educational level	5.012	0.264	12.564	0.014*	10.438	0.033*
Job Nature	3.222	0.485	3.906	0.522	3.242	0.569
Residence	2.682	0.764	6.585	0.123	1.846	0.796
Living condition	3.791	0.453	3.613	0.468	7.010	0.118
Monthly income	7.278	0.106	11.983	0.017*	2.007	0.865

p-value >0.05 NS; *p-value <0.05 S; **p-value <0.001 HS

Table (9): Relation between studied patients 'total level of physical status related to bleeding peptic ulcer and their socio-demographic data (n=134).

Socio-demographic characteristics	Physical status related to bleeding peptic ulcer					
	Pre-program		Post-program		Follow Up	
	x ²	p-value	x ²	p-value	x ²	p-value
Age (years)	2.225	0.730	9.263	0.107	2.973	0.645
Gender	8.436	0.108	5.267	0.120	4.353	0.429
Marital status	3.842	0.388	5.448	0.287	3.594	0.481
Educational level	8.522	0.099	12.470	0.014*	13.532	0.011*
Job Nature	4.228	0.366	3.124	0.754	3.940	0.388
Residence	3.742	0.396	7.444	0.102	8.126	0.108
Living condition	7.911	0.115	12.397	0.016*	10.778	0.022*
Monthly income	4.176	0.422	6.058	0.114	3.503	0.528

p-value >0.05 NS; *p-value <0.05 S; **p-value <0.001 HS

Table (10): Relation between studied patients 'total level of Modified Fatigue Impact Scale (MFIS) and their socio-demographic data (n=134).

Socio-demographic characteristics	Modified Fatigue Impact Scale (MFIS)					
	Pre-program		Post-program		Follow Up	
	x ²	p-value	x ²	p-value	x ²	p-value
Age (years)	4.900	0.395	4.345	0.483	5.020	0.352
Gender	4.596	0.398	3.487	0.417	4.567	0.416
Marital status	5.257	0.125	5.031	0.387	3.882	0.445
Educational level	5.599	0.354	12.587	0.012*	10.874	0.038*
Job Nature	3.997	0.445	9.749	0.101	3.815	0.434
Residence	2.994	0.580	4.005	0.395	7.002	0.117
Living condition	8.769	0.097	6.039	0.242	2.750	0.785
Monthly income	6.334	0.115	11.633	0.018*	10.526	0.032*

p-value >0.05 NS; *p-value <0.05 S; **p-value <0.001 HS

Discussion

Regarding demographic characteristics of the studied patients, the present study results showed that; the mean age (Mean \pm SD) of the study was 52.63 ± 7.6 . Also, less than one quarter of the study were illiterate, two thirds of them were married, half of them their jobs require physical effort, and nearly two thirds of them had insufficient monthly income. From the researchers' point of view, the common GIT problems increase by the progressing of age especially with in appropriate lifestyles. This finding is consistent with **Chen (2021)**, in study entitled; Application of Nursing Risk Management in Nursing of Severe Peptic Ulcer Bleeding, which indicated that the patients aged 52.67 ± 4.85 years old in average. and the majority was males in their study.

Regarding the bleeding peptic ulcer history of the studied patients, this study results indicated that, about half of them were diagnosed with duodenal ulcer, and more than three quarters of patients suffered from the disease in less than one year. Only less than half of patients had been

hospitalized related to peptic ulcer and did previous endoscopy. From the researchers' point of view is due to the endoscopy procedures not required more to be hospitalized after the procedure. This findings are agree with **Prabhu and Shivani (2014)**, in study entitled; An Overview of History, Pathogenesis and Treatment of Perforated Peptic Ulcer Disease with Evaluation of Prognostic Scoring in Adults, who revealed that Duodenal ulcers are the commonest ulcers as compared to other gastric ulcers. Also these findings are congruent with **Mutjaba (2020)**, who mentioned that more than million hospitalizations every year due to bleeding non-variceal gastrointestinal bleeding (GIB), and a mortality rate increased.

In relation to the present history for the studied patients, this study results revealed that more than three quarters of patients have nausea and acidity feelings and less than half of patients have vomiting blood. As regards the complaining from other health problems, less than two thirds of the studied patients have gastrointestinal disease. This findings are in the same line with **Radomski et al, (2021)** in study

entitled; Rethinking the history of peptic ulcer disease and its relevance for network epistemology, who showed that, nausea and hyper acidity are the most common sign and symptoms between patients with peptic ulcers. Also this findings are consistent with **De Angelis (2020)**, who revealed that the most common causes and problems in patients with Non-Variceal Upper GI Bleeding include Mallory–Weiss syndrome, erosive disease, gastric antral vascular ectasia (GAVE), Dieulafoy's lesions, or less frequent vascular lesions such as peripancreatic pseudoaneurysm.

Regarding the predisposing factors for peptic ulcer, smoking represents nearly half of patients. And less than half of them related to drinking too much caffeine, such as coffee, tea, and cola, taking analgesics and antibiotics heavily on an empty stomach, and eating spicy foods frequently. From the researcher's point of view, the bad lifestyle habits as smoking, eating spicy food, overusing of analgesics play the vital role in increasing the risk of common diseases such as peptic ulcers. These findings are congruent with **Philip (2019)**, in study entitled; Endoscopic management of peptic ulcer bleeding, who stated that the risks of patients with bleeding peptic ulcers had significantly raised owing to the aging population with various factors and comorbidities, as well as due to the increasing smoking, use of non-steroidal anti-inflammatory medications and aspirin.

Regards to the total patients' knowledge about bleeding peptic ulcer, this study results revealed that there were a significant difference between pre & post, pre & follow up at P-value <0.001. From the researchers' point of view, the improvement of patients' knowledge regarding physical condition as signs and symptoms could be related to increase of their awareness after education which effect of their condition for a better outcome. This findings are consistent with **Abd-Almageed et al, (2022)** who stated that there is no statistically significant difference between the two groups of the study related to knowledge of peptic ulcer disease such as signs and symptoms before receiving nursing instructions, and there is a statistically significant difference between the two groups

regarding knowledge as symptoms and signs following nursing instructions.

Regarding the total nutritional practices related to bleeding peptic ulcer, the study indicated that there were a significant difference between pre & post, pre & follow up at P-value <0.001. From the researchers' point of view that lifestyle modifications usually helps the peptic ulcer patients improving nutritional practices. These findings are consistent with **Ding et al, (2023)** who stated that, there was an improvement of the observation group, and they had better nutritional practices as compared with those in the control group (P < .05) after the application of guidance.

Regarding the patients' total physical status related to bleeding peptic ulcer, the study showed that, there were a significant difference between pre and post at P-value <0.001, and significant between pre and follow up at P-value <0.002. From the researchers' point of view that all training or identifying the healthy practices usually protect patients with peptic ulcer from the complications. These findings are agree with **Ding et al, (2023)** who stated that, there was an improvement of the observation group, and they had better physical health status as compared with those in the control group (P < .05) after the application of guidance.

In relation to the total Modified Fatigue Impact Scale (MFIS) (physical, cognitive, and psychosocial subscales) of pre, post, and follow up, the results of the current study revealed that, there were a significant relation between pre & post, and between pre & follow up at P-value <0.001. This findings are consistent with **Barkun et al, (2019)**, who found that, regarding the subscales of the modified fatigue impact scale, there was a significant difference in both physical and psychosocial subscales at P <0.05 meanwhile, there was no significant difference in the cognitive subscale at P > 0.05.

Regarding the relation between level of studied patients' knowledge regarding bleeding peptic ulcer according to their socio-demographic data, the study revealed that there were a significant relation between the educational level and patients' knowledge

regarding bleeding peptic ulcer during post and follow up program at P- values were 0.014* and 0.033* respectively. Also there was significant relation between the monthly income post program and patients' knowledge regarding bleeding peptic ulcer at P-value 0.017*. From the researcher's point of view, usually the socio-demographic data especially the level of education has an impact on the patient's knowledge and acceptance the best way of treatment and commitment. This findings are consistent with **Elsayed et al, (2017)**, who found that there were statistically significant relations between the total knowledge score of patients with peptic ulcer and their level of education .

Regards the relation between level of studied patients' physical status related to bleeding peptic ulcer according to their socio-demographic data. The study indicated that there were significant relations between the educational level and living condition and patients' physical status related to bleeding peptic ulcer post program and during follow up. From the researcher's point of view, the understanding of patients to the concept of disease and methods of treatment usually affect positively on their physical status. This results are disagree with **Rietberg et al., (2017)**, who found that there were no statistically significant relations between the total physical status of patients with peptic ulcer and their level of education .

Regarding the relation between level of studied patients Modified Fatigue Impact Scale (MFIS) according to their socio-demographic data. The study revealed that there was a significant relationship between the educational level and monthly income post program and in follow up with patients Modified Fatigue Impact Scale (MFIS). From the researcher's point of view, the understanding of patients to the concept of disease and methods of treatment usually relieves their anxiety levels because it is more related with their level of knowledge. This results are same as **Rietberg et al., (2017)**, who found that there were statistically significant relations between the total fatigue severity scale (FSS score) of patients with peptic ulcer and their level of education .

Conclusion:

Application of advanced health program has positive effect on improving outcomes of patients after endoscopic treatment of bleeding peptic ulcers.

Recommendations:

- Counseling interventions should be added to the routine nursing care delivered to those patients in all treatment clinics and should be updated periodically to enhance their knowledge and improve their physical and psychological wellbeing.
- Full-day counseling programs that provide the latest information about bleeding peptic ulcer and its treatment approach to support those patients to manage their disease effectively.
- Setup a project that aims to improve patients' care by implementing evidence-based practice at bleeding peptic ulcer treatment clinics.
- Establish interdisciplinary approach in management of peptic ulcer at treatment clinics.

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