

## CHANGES IN HEMORRHAGE PEPTIC ULCER PATIENTS' KNOWLEDGE OF RECURRENCE PREVENTION AFTER HEALTH EDUCATIONAL INTERVENTION AT NGHE AN GENERAL HOSPITAL IN 2022

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### ABSTRACT

**Objective:** To describe changes in knowledge of recurrence prevention among hemorrhage peptic ulcer patients. **Methods:** A single-arm experimental study design was conducted on a group of 72 patients diagnosed with hemorrhage peptic ulcer and treated at Nghe An General Hospital, from February 2022 to May 2022. **Results:** Mean of basic knowledge about the disease increased significantly from  $2.19 \pm 1.06$  before intervention to  $5.14 \pm 0.95$  after intervention ( $p < 0,01$ ); knowledge of recurrence prevention was changed significantly with  $p < 0,01$  as follows: diet from  $4.74 \pm 1.91$  to  $9.15 \pm 1.27$ ; lifestyle from  $4.60 \pm 1.33$  to  $6.83 \pm 1.07$ ; drugs use from  $2.06 \pm 1.40$  to  $6.10 \pm 1.09$ . **Conclusion:** The results showed that health education significantly changes knowledge of recurrence prevention in patients with hemorrhage peptic ulcers. These results confirm the important role of health education and this activity should be maintained in patient care.

**Keywords:** Knowledge, health education, peptic ulcer, recurrence prevention, patients

### 1. INTRODUCTION

A peptic ulcer is a common disease in the gastrointestinal tract, ranked 29th among the top 50 causes of death in Vietnam [1], [2]. Around the world, about 4 million people are affected by this disease each year [3], [4]. About 10-20% of patients have encountered complications, especially ulcer perforation (2 - 14%), which is very dangerous [5]. Among them, gastrointestinal bleeding is the most common and dangerous complication. The clinical manifestations and consequences differ depending on the blood loss degree. Gastrointestinal bleeding due to peptic ulcers accounts for 40-45% of upper gastrointestinal bleeding, with a mortality rate of about 3 to 10% [6], [7].

This complication has threatened life and claimed the life of the patient (the mortality rate is about 10 - 40%) [8], [9]. In developing countries it is estimated that the prevalence of the disease is about 10%, increasing by about 0.2% annually. In Vietnam, about 26% of the population suffers from peptic ulcer disease, accounting for 16% of the total number of surgeries in a year, and it often ranks first among diseases of the gastrointestinal tract [10].

A peptic ulcer is a dangerous disease. Although the disease is curable, the disease easily recurs and has complications [11], [12]. According to a survey by the Ministry of Health of Vietnam, in most cases, peptic ulcers will heal on their own after 2-3 months. However, the disease recurrence

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rate in the first 2 years is relatively high, accounting for over 50% of cases, the average frequency of recurrence is 2-3 years and gradually decreases later on. If the patient is not treated properly, complications can occur such as bleeding, gastric perforation, pyloric stenosis, gastric cancer, and ulcer duration lasting more than 10 years [11]. Providing knowledge about disease recurrence prevention through health education intervention programs to help patients know about the disease, thereby quickly recovering, preventing disease recurrence, and limiting complications. Some studies at Ha Nam General Hospital and Nam Dinh General Hospital showed that knowledge about disease prevention increased significantly after health education interventions [13], [14]. Nghe An General Hospital has periodically organized health education for patients. However, no studies evaluating the effectiveness of health education programs have been conducted. So, we carried out the study: “Changes in hemorrhage peptic ulcer patients’ knowledge of recurrence prevention after health educational intervention at Nghe An General hospital in 2022” with the objective “*To describe changes in knowledge of recurrence prevention among hemorrhage peptic ulcer patients at Nghe An General Hospital.*” The results of the study will help provide information for health education intervention programs to improve the effectiveness of prevention and treatment for patients.

## 2. RESEARCH SUBJECTS AND METHODS

### 2.1. Research subjects

The patient was confirmed through endoscopy with gastrointestinal bleeding due to peptic ulcer (both recurrent and

primary) [15]. The inpatient was at the Department of Gastroenterology, Nghe An General Hospital from February 2022 to May 2022.

#### ***Inclusion criteria:***

- The patient agrees to participate in the study.
- The patient can communicate.

#### ***Exclusion criteria:***

- The patient has participated in a health education program with similar content.

### 2.2. Methods

A single-arm experimental study design was performed on 72 patients who met the criteria for the study.

Step 1: Assessed knowledge of recurrence prevention before intervention (1st assessment), by using questionnaires.

Step 2: Direct provided health education for the patient on knowledge related to the prevention of peptic ulcer recurrence.

***Contents of health education:*** built based on “*Guidelines to prevent recurrence of peptic ulcer*” of the Ministry of Health in 2014 including the following contents: General knowledge about the disease; Diet; Lifestyle; drug use.

Step 3: Re-assessed the knowledge of the patient (2nd assessment) with the same questionnaire as the first time to compare the change in knowledge of recurrence prevention of the subjects before and after the intervention. 2nd assessment was conducted 1 day before the patient was discharged from the hospital.

### 2.3. Sample and sampling methods

**2.3.1. Sample size:** Apply the formula to calculate the sample size

$$n = \frac{[Z_{(1-\alpha)}\sqrt{p_o(1-p_o)} + Z_{(1-\beta)}\sqrt{p_1(1-p_1)}]^2}{(p_o - p_1)^2}$$

n: the number of patients participating in the study

$Z_{(1-\alpha)}$ : the Z value obtained from the Z table corresponding to the  $\alpha$  value. At 90% power ( $\beta = 0.1$ ), 95% significance level ( $\alpha = 0.05$ ), equivalent to  $Z_{(1-\alpha)} = 1.65$  and  $Z_{(1-\beta)} = 1.29$ .

p: the percentage of patients who had good knowledge before the intervention. Based on the research by Maria Polocka - Molinska & et al in Poland in 2016 [16] the percentage of patients who had good knowledge before intervention accounted for 66.4%. So  $p_o = 0.664$ .

$p_1$ : the percentage of patients who had good knowledge after the intervention. Our study estimates that  $p_1 = 0.82$ .

Instead of the above formula,  $n = 67$ .

Studied 72 patients

### 2.3.2. Sampling methods

The convenience sampling method was used to choose patients with gastrointestinal bleeding due to peptic ulcers who were eligible for the study and were treated at Nghe An General Hospital from February 2022 to May 2022. The participant was selected until the sample size is sufficient.

### 2.4. Research instrument

The questionnaire used in this study was built based on the “*Guidelines for preventing recurrence of peptic ulcer*” of the Ministry of Health in 2014. After being developed, the questionnaire will be evaluated for content validity according to the opinions of 3 experts (CVI = 9.0). The reliability of the questionnaire was good (Cronbach Alpha = 0.79).

The questionnaire was divided into 5 parts. Part 1: General information about research subjects. (8 items); Part 2: General knowledge about gastrointestinal bleeding due to peptic ulcer (6 items); Part 3: Knowledge of diet to prevent recurrence (12 items) Part 4: Knowledge of lifestyle to prevent recurrence (8 items); Part 5: Knowledge of drugs used to prevent recurrence (7 items).

**Scoring:** the correct answer (1 point), the wrong answer or do not know (0 points). The questionnaire consisted of 33 items about knowledge so the total score is 33 points. According to knowledge classification in the study of Bayana, E., et al (2021), knowledge of peptic ulcer was classified into 4 levels: poor, moderate, good, and very good [17]

+ Poor knowledge: score got less than 40% of the total score (equivalent to correctly answering <13 questions).

+ Moderate knowledge: score got from 40 to 60% of the total score (equivalent to correctly answering 13 - 20 questions).

+ Good knowledge: score got from 61 to 80% of the total score (equivalent to correctly answering 21-26 questions).

+ Very good knowledge: score got from 81 to 100% of the total score (equivalent to correctly answering 27 - 33 questions).

Assess the change after the health education intervention based on the improvement of the mean ( $\pm$  SD) and the difference in the correct answer rate for each part.

### 2.5. Data analysis

The cleaned data were entered into SPSS 20.0 software. Statistical tests such as frequency, percentage value, mean, SD, and t-test were used to analyze the data.

## 2.6. Research ethics

The study was approved by the Ethics Committee in Biomedical Research of the Nam Dinh University of Nursing under Decision No. 968/GCN-HDDD and got the permission of Nghe An General Hospital.

## 3. RESULTS

### 3.1. General information on research subjects

**Table 1. Age and gender of the subjects (n = 72)**

Age	Gender	Male	Female	Total
		Frequency (%)	Frequency (%)	Frequency (%)
< 20 years		1 (1.4)	0 (0)	1 (1.4)
20-39 years		5 (6.9)	1 (1.4)	6 (8.3)
40-59 years		13 (18)	4 (5.6)	27 (23.6)
60 years		23 (32)	25 (34.7)	34 (66.7)
Total		42 (58.3)	30 (41.7)	72 (100)

More than half of the study subjects were male, accounting for 58.3%. In the two groups, patients aged  $\geq 60$  years accounted for the largest percentage (male group: 32%; female group: 34.7%).

**Table 2. Disease duration and number of disease recurrences of study subjects (n=72)**

Disease duration	< 1 year	1 - 5 years	> 5 years	Total
Number of disease recurrences	Frequency (%)	Frequency (%)	Frequency (%)	Frequency (%)
0 time	9 (12.5)	1(1.4)	0 (0)	10 (13.9)
1 time	3(4.2)	37 (51.4)	1 (1.4)	41(56.9)
$\geq 2$ times	1(1.4)	2 (2.8)	18 (25)	21 (29.2)
<b>Total</b>	13 (18.1)	40 (55.6)	19 (26.4)	72 (100)

Study subjects with a disease duration of 1-5 years accounted for the highest rate (55.6%). The majority of patients with a disease <1 year did not have disease recurrence (12.5%). The group had a disease duration from 1 to 5 years, mainly the subjects had a relapse of the disease once (51.4%). For the group with disease duration >5 years, the majority of patients had relapses  $\geq 2$  times (25%), and no patients had ever relapsed.

**3.2. Changing knowledge of recurrence prevention of peptic ulcer patients**

**Table 3. Specific knowledge to prevent the recurrence of gastric ulcer patients before and after intervention (n =72)**

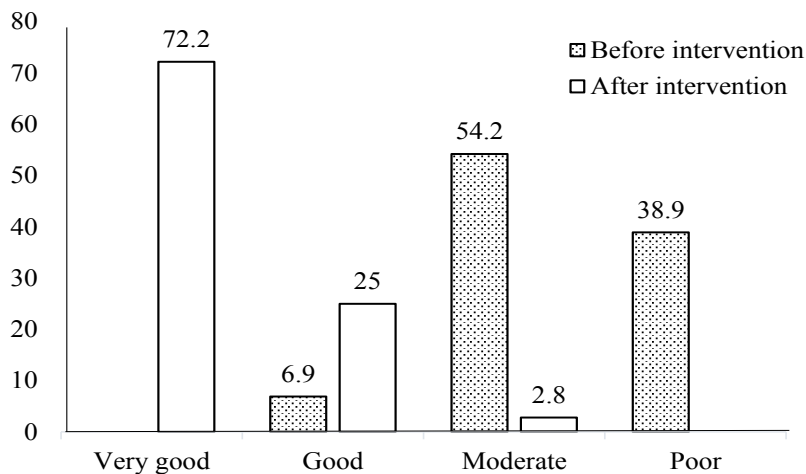
Contents	Time	Mean (± SD)	Range (Min-Max)	p (t-test)
General knowledge about the disease	L1	2.19 ± 1.06	0 - 4	p < 0.01
	L2	5.14 ± 0.95	2 - 6	
Knowledge of diet to prevent recurrence	L1	4.74 ± 1.91	0 - 9	p < 0.01
	L2	9.15 ± 1.27	6 - 11	
Knowledge of lifestyle to prevent recurrence	L1	4.06 ± 1.33	2 - 7	p < 0.01
	L2	6.83 ± 1.07	3 - 8	
Knowledge of drug use to prevent recurrence	L1	2.06 ± 1.40	0 - 6	p < 0.01
	L2	6.10 ± 1.09	0 - 7	

The mean of patients’ knowledge score after the intervention was higher than before the intervention. This difference is statistically significant with p < 0.01.

**Table 4. General knowledge to prevent recurrence of gastric ulcer patients before and after (n = 72)**

Content	Time	Mean (± SD)	Range (Min-Max)	p (t-test)
Knowledge of recurrence prevention	L1	13.58 ± 3.59	8 - 24	p < 0.01
	L2	27.22 ± 2.93	15 - 31	

Knowledge of recurrence prevention significance changed (p < 0.01) after the intervention. Knowledge score increased from 13.58 ± 3.59 before the intervention to 27.22 ± 2.93 after the intervention.



**Figure 1. Classification of knowledge scores before and after the intervention (n=72)**

**Comment:** Before the intervention, 54.2% of the patients had moderate knowledge, and this decreased to 2.8% after the intervention. The number of patients with very good knowledge increased to 72.2% after the educational intervention.

## 4. DISCUSSION

### 4.1. General information on research subjects

Research results from 72 patients with gastrointestinal bleeding due to peptic ulcer at the Department of Gastroenterology, Nghe An General Hospital showed that male patients accounted for 58.3%, and the age group  $\geq 60$  years old was the highest (66.7%). This result is similar to some studies such as that of Le Minh Hong (male patients accounted for 61.1%) [18]; Research by Nguyen Thi Huyen Trang (male patients accounted for 56.9%) [14]. This is consistent with the epidemiological features of peptic ulcer disease. Males also have more risk factors for the disease than females. In addition, the older the age, the more and more diverse the risk of gastric pathology, and the causes of gastrointestinal bleeding due to malignancies such as gastric cancer have an increased risk with age. Therefore, elderly patients must be consulted so that they understand the role and importance of health management and monitoring.

In this study, 18.1% of patients had the disease for about 1 year and up to 26.4% of patients had a disease duration of more than 5 years. This result is different from the study of Le Minh Hong (41% of patients with the disease in less than 1 year) [18]. Although the disease is curable, the disease easily recurs and has complications [11], [12]. According to a survey by the Ministry of Health of Vietnam, in most cases, peptic ulcers will heal on their own after 2-3 months. However, the disease recurrence rate in the first 2 years is relatively high, accounting for over 50% of cases, the average frequency of recurrence is 2-3 years and gradually decreases later on [19].

Our results are similar to the survey of the Ministry of Health of Vietnam, the majority of patients in our study had relapsed one and more than two times, accounting for 56.9 and 29.2%.

### 4.2. Changing knowledge of recurrence prevention of peptic ulcer patients

Knowledge of the recurrence prevention of peptic ulcer patients changed significantly after the health education intervention shown in all the contents (table 3) ( $p < 0.01$ ). Before the intervention, the mean of the patients' general knowledge about the disease was  $2.19 \pm 1.06$ . After the intervention, this score increased to  $5.14 \pm 0.95$ . Before the intervention, most of the patients believed that the main cause of the disease was due to eating. After the intervention, most of the patients knew the cause of the disease was caused by HP bacteria. The wrong knowledge about the cause of the disease leads to the result that over one-third of patients think that only those who like to eat sour, spicy, and hot foods are at risk of peptic ulcer leading to gastrointestinal bleeding and 6.9% of patients think that only people who drink a lot of alcohol are at risk of getting sick. However, after the intervention, there was a significant improvement with most fully answering the risk factors for the disease. Knowledge about diet is one of the important areas of knowledge to help patients prevent relapse effectively [20]. Before the intervention, the mean of knowledge about the patient's diet was relatively low,  $4.74 \pm 1.91$  compared to after the intervention, this score increased to  $9.15 \pm 1.27$ . Before the intervention, the percentage of patients who answered questions about diet correctly was still low. After being consulted, the patients understood the importance of diet in preventing disease and preventing disease



recurrence, this result is similar to previous studies [13], [14].

In addition to changing the diet, lifestyle changes are also essential for patients with peptic ulcers. According to the guidance of the Ministry of Health, patients should not use stimulants such as alcohol, coffee, or tobacco... for the recurrence prevention of the disease. Smoking causes blood vessels to constrict, affecting the blood supply to stomach parietal cells, and reducing the resistance of the stomach lining. Smoking promotes the appearance of new ulcers and slows scar healing by inhibiting gastrointestinal mucosal growth factor [20]. In our study, the patient's knowledge of lifestyle to recurrence prevention had  $4.60 \pm 1.33$  scores after the intervention, and the mean increased to  $6.83 \pm 1.07$ . Research by Hoang Le Thuy [13] and Nguyen Thi Huyen Trang also showed that after the intervention, knowledge of lifestyle to prevent recurrence increased significantly [14]. Although information about peptic ulcer disease and lifestyle can be found on the web, television, or the media, most studies show the score of knowledge on lifestyle recurrence prevention before intervention is low compared to after intervention. It can be seen that direct health education interventions are more effective for patients.

Patients' knowledge of drug use in this study increased from  $2.06 \pm 1.40$  to  $6.10 \pm 1.09$  after the intervention. Many patients have the habit of buying drugs for treatment or buying old prescription drugs if they have similar symptoms. Failure to accurately identify the symptoms of the disease and self-medicating are the causes of the worsening of the disease. One of the causes of peptic ulcers is the abuse of NSAIDs. NSAIDs are one of the important factors

causing gastric and duodenal ulcers and gastrointestinal bleeding through inhibition of Prostaglandin synthesis, reducing the resistance of gastric and duodenal mucosa [21]. Patients with peptic ulcers who use NSAIDs are at risk of making ulcers slow to heal or appear new ulcers, even causing gastrointestinal bleeding and perforation of the stomach. Our study and some other studies [13], [14] showed that knowledge scores about drug use increased significantly after patients received health education. However, according to Nguyen Van Ba's study, the percentage of patients with gastrointestinal bleeding due to gastric and duodenal ulcers with a history of using NSAIDs was quite high (41.58%) [22]. It can be seen that although patients knew the use of drugs to prevent disease recurrence, the practice of drug use is still not good. In addition, to changing knowledge about relapse prevention, patients also need to change and maintain lifestyle practices, diet, and drug use to effectively prevent disease recurrence [17].

After the health education intervention, there was a marked improvement in the patient's knowledge of the recurrence prevention of peptic ulcer. General knowledge reached  $27.22 \pm 2.93$  compared to before intervention was  $13.58 \pm 3.59$  (Table 4). The rate of classification of knowledge level also improved significantly. Before the intervention, 38.9% of patients had poor knowledge; 54.2% of patients had moderate knowledge; 6.9% of patients had good knowledge and no patients had very good knowledge. After the intervention, no patient had poor knowledge, 2.8% of patients had moderate knowledge; 25% of patients have good knowledge and 72.2% of patients have very good knowledge (Figure 1). Some studies such as Nguyen

Thi Huyen Trang's study [13], and Hoang Thi Le's study [14] also showed positive changes in patients' knowledge about disease recurrence prevention after the intervention. Although the information about the disease is quite common, but the results of the study's improvement after the educational intervention show that health education directly from healthcare workers for patients is effective. However, it is also necessary to take measures to strengthen the patient's diet, lifestyle, and drug use to recurrence prevention of the disease.

## 5. CONCLUSION

The patient's knowledge increased markedly after the health education intervention. The mean of pre-intervention knowledge was  $13.58 \pm 3.59$ ; After educational intervention, the patient's mean knowledge score was  $27.22 \pm 2.93$ . The proportion of patients who answered correctly according to each knowledge content also increased significantly after the intervention compared to before the intervention.

Research results show the effectiveness and necessity of health education. Therefore, it is necessary to regularly implement health education programs for patients in general and in the prevention of peptic ulcer recurrence in particular.

## REFERENCES

1. Nguyen Duy Thang. Gastroduodenal disease. Hue University Press. 2020;71: 92–102.
2. WHO. Peptic ulcer disease in Vietnam. <https://www.worldlifeexpectancy.com/vietnam-peptic-ulcer-disease>. 2018.
3. Odeghe E.A, Adeniyi O.F, Oluyemi A.O, Nwude V.N, Keshinro S.O. Upper Gastrointestinal Bleeding In A Nigerian Diagnostic Center: A Retrospective Study Of Endoscopic Records. *The Annals of African Surgery*. 2022;51:1-5. DOI: 10.4314/aas.v19i1.6
4. Thorsen K G.T, Von M.A. Trends in diagnosis and surgical management of patients with perforated peptic ulcer. *J Gastrointest Surg*. 2011;15, 1329–35. doi: 10.1007/s11605-011-1482-1
5. Nutrition Center. Nutrition in peptic ulcer disease. <http://ttdinhduongorg/tailieudinhduong/bshuongdoc>. 2016.
6. Ha Do. Bleeding due to peptic ulcer. 2020.
7. Le Chuan et al. The situation of peptic ulcer disease and treatment drugs in the people of Thuy Duong - Huong Thuy - Thua Thien Hue. Medical Library. 2007:10-1.
8. Zelickson MS B.C, Johnson B.L & et al. Helicobacter pylori is not the predominant etiology for peptic ulcers requiring an operation. *Am Surg*. 2011;77, 1054–60. <https://doi.org/10.1177/000313481107700827>
9. Yun-Sheng Yang. A peptic ulcer is the most common cause of non-variceal upper gastrointestinal bleeding (NVUGIB) in China. *Medical Science Monitor*. 2018;1:1-10. doi: 10.12659/MSM.909560.
10. Pham Thi Hanh et.al. Epidemiological, clinical, prevalence of Helicobacter pylori infection and endoscopic image of peptic ulcer disease at Hoa Thanh General Hospital, Tay Ninh 2011. *Journal of Practical Medicine*. 2011;9:48-53.
11. Ministry of Health. "Community-Based Rehabilitation Guide," Accessed: Jul. 09, 2021. [Online]. Available: [www.iniscommunication.com](http://www.iniscommunication.com). 2021.



12. Bui Dang Minh Tri, Do Van Mai, Nguyen Thi Nhu Huynh, Pham Thu Hang. Current status of drugs used in the treatment of gastritis - duodenal ulcer. *Journal of Community Medicine*. 2021;62(1):10-7.
13. Hoang T.L, Ngo H.H. Changing knowledge of disease recurrence prevention of patients with peptic ulcer disease after health education interventions at Ha Nam General Hospital in 2019. *Journal of Nursing Science*. 2019;2(3 (2):69-75.
14. Nguyen T.H.T, Ngo H.H. Changing knowledge of recurrence prevention of peptic ulcer patients after educational intervention at Nam Dinh General Hospital 2017. *Journal of Nursing Science*. 2018;1(1):28-34.
15. Ministry of Health. Guidelines to prevent recurrence of peptic ulcer disease. <http://moh.gov.vn/news/pages/tinyhoccotruyenasp?ItemID=38> . 2020.
16. Maria Polocka M., Bartosz C. et.al. Education of patients suffering from chronic gastric and duodenal ulcer disease. *Praca Oryginalna*. 2016;48:231 - 7. DOI: <https://doi.org/10.20883/ppnoz.2016.4>.
17. Bayana E., Olani A., Biratu Y., Negash A., Gelan M., Eba A., et al. Peptic ulcer disease: a cross-sectional study of symptoms and risk factors among students at Jimma University, Ethiopia. *Gastrointestinal Nursing*. 2021;19(2):36-40. <https://doi.org/10.12968/gasn.2021.19.2.36>
18. Hong L.M. Survey on the dietary understanding of patients with peptic ulcer disease at the internal medicine department of hospital 199, *Bachelor's degree in nursing*, Duy Tan University, 2013.
19. Nguyen Xuan Truong. Human anatomy and physiology. Hanoi, *Medicine Publishing House*. 2009. 172 - 82 p.
20. Abdullah H.H, Ahmad S., Kamal Z., Ullah S. Pharmacotherapeutical Study of Peptic Ulcer Disease. *Social Sciences (Impact: IJRANSS)*. 2013;1(3):29-36.
21. Phan D.V. Pharmacology. Hanoi: Vietnam Education Publishing House; 2012. 203 - 4 p.
22. Ba N.V. Study on clinical and subclinical characteristics of gastrointestinal bleeding due to gastric and duodenal ulcers and treatment results of intravenous proton pump inhibitors, *Specialist thesis level 2'* University of Medicine and Pharmacy, Can Poetry. 2011.