



(REVIEW ARTICLE)



## Non-pharmacological interventions to prevent return of gastric ulcers: A systematic review

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### Abstract

Recurrence of gastric ulcers is a significant concern, and non-pharmacological interventions play an important role in their prevention. This systematic review aims to evaluate the effectiveness of nonpharmacological interventions in preventing gastric ulcer recurrence. The aim of this research is Non-Pharmacological Interventions to Prevent Recurrence of Gastric Ulcers: A Systematic Review". The research method in this study was the literature method. The literature method was carried out by means of a comprehensive search carried out in several databases, including PubMed, Medline, Scopus, and the Cochrane Library, using predefined search terms. Studies published from (start date) to (end date) were included. Two independent reviewers screened articles, extracted data, and assessed the quality of included studies using standard tools.

The results show that non-pharmacological interventions are quite promising in preventing recurrence of gastric ulcers. Dietary modifications, such as avoiding spicy and acidic foods, and adopting a balanced diet rich in fruits and vegetables, are associated with a reduced risk of relapse. Lifestyle changes, particularly smoking cessation and reducing alcohol consumption, have shown a positive impact on healing ulcers and preventing recurrence. Stress management techniques, such as relaxation exercises and cognitive behavioral therapy, show potential benefits in reducing ulcer recurrence rates. Complementary therapies, such as acupuncture and herbal remedies, have shown mixed results, with some studies showing positive effects in preventing recurrence. Non-pharmacological interventions offer a valuable approach to preventing gastric ulcer recurrence. Dietary modifications, lifestyle changes, stress management techniques, and complementary therapies show promising results in reducing relapse rates. These findings highlight the importance of integrating non-pharmacological interventions into gastric ulcer management and prevention strategies. Further research is needed to validate these findings and explore optimal implementation methods.

**Keywords:** Non- Pharmacological Interventions; Recurrence; Gastric Ulcers; Systematic Review.

### 1. Introduction

Gastric ulcers or gastritis are known as stomach ulcers, which are very common in Indonesian society and throughout the world, which are swelling or inflammation of the gastric mucosa caused by irritation and infection. Various studies show that functional gastritis causes complaints of gastric pain, which accounts for 70-80% of cases and is more often caused by unhealthy eating patterns, mental problems, and anxiety (Princess Elementary School et al., 2021). Gastric ulcers can cause complications such as hemorrhage in the digestive tract, holes in the stomach wall, or intestinal obstruction. Peptic ulcer disease, the most common digestive tract disorder, can currently be treated with several types of drugs, but all of them have severe side effects. (Sánchez-Mendoza et al., 2020). This condition is characterized by the appearance of pain and soreness in the stomach which is mostly caused by *H. Pylori* bacterial infection, and other factors,

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such as smoking and obesity, can contribute to the development of gastric ulcers and are potential risk factors for the development and course of the disease. which is more severe in individuals (Ofori et al., 2019; Zatorski, 2017).

Several studies have evaluated the safety and efficacy of vonoprazan, a new acid suppressant used in the treatment of acid-related disorders. This new drug competes with K<sup>+</sup>, preventing it from binding to gastric H<sup>+</sup>/K<sup>+</sup>-ATPase. This drug has been used clinically in Japan for the short-term treatment of PUD and *H. pylori* infections based on its effectiveness in eradicating clarithromycin-resistant *H. pylori* strains. However, when long-term gastric acid suppressive treatment is necessary, side effects such as hypergastrinemia, pneumonia, bacterial overgrowth in the small intestine, and *Clostridium difficile* infection may occur, even with classic anti-ulcer drugs such as PPIs or even with classic anti-ulcer drugs such as PPIs. vonoprazan. New vaccines for primary prevention against *H. pylori* are currently being developed (Lehours & Ferrero, 2019; Oshima & Miwa, 2018).

Efforts to relieve pain can be done with two therapies or treatment methods. The first treatment is pharmacological treatment, which can be done using painkillers (analgesics). Secondly, non-pharmacological treatment can be done by exercising, warm or cold compresses, music therapy, relaxation and consuming herbal medicine or herbal drinks (Anggriani et al., 2021; Kusters et al., 2006; Périco et al., 2020).

The prevalence of gastric ulcers in Indonesia in several studies was found to be between 6-15% at the age of 20-50 years. The prevalence of gastric ulcers is influenced by the use of aspirin (NSAIDs) and *Helicobacter pylori* bacterial infection. The number of deaths due to peptic ulcer disease in Indonesia reached 2,174 and was ranked 142nd with an increase in the death rate of 1.22 patients per 100,000 population at all ages. Drug use is frequent and the types of drugs used are also varied. Improper use of medication can cause unwanted side effects. Therefore, it is necessary to carry out therapy using gastric ulcer drugs which is aimed at improving the quality or maintaining the patient's life, reducing complaints and preventing recurrence. However, there are things that cannot be avoided when administering oral medication, namely the possibility that the treatment results will not be as expected (Armah et al., 2021; Le Novere, 2015).

Factors that can cause recurrence of gastric ulcers include: (Ahluwalia et al., 2019; Teixeira et al., 2021): a) *Helicobacter pylori* infection: This bacterium is the main cause of gastric ulcers. Prevention and treatment of these infections is very important, b) NSAIDs (Nonsteroidal Anti-Inflammatory Drugs): Long-term use of NSAIDs can damage the stomach lining and increase the risk of ulcers, c) alcohol intake and smoking: Excessive alcohol consumption and smoking can affect stomach health and cause recurrence, d) unhealthy lifestyle: An unbalanced diet, stress and lack of exercise can affect stomach health.

Gastric ulcers, also known as peptic ulcers, are injuries or damage to the inner lining of the stomach wall caused by excessive stomach acid. This condition is often very painful and can affect a person's quality of life. Apart from pharmacological treatment, such as the use of antacid drugs, proton pump inhibitors, and antibiotics for the treatment of *Helicobacter pylori* infection, non-pharmacological interventions also have an important role in preventing recurrence of gastric ulcers (Amaral et al., 2017; Park et al., 2018).

Based on the description above To prevent indications from getting worse, the aim of this research is Non-Pharmacological Interventions to Prevent Recurrence of Gastric Ulcers: A Systematic Review".

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## 2. Research methods

The research methods used in this study include literature search, inclusion and exclusion criteria, in silico study selection process, and data extraction and synthesis. A literature search was a comprehensive literature search conducted to identify relevant studies for this review. Electronic databases, including PubMed, Scopus, Web of Science, and Google Scholar.

Search for data sources using the keywords non-pharmacological intervention, recurrence, gastric ulcer, systematic review. Next, search using manual methods according to relevant literature. The literature obtained was selected according to specified criteria, namely journals published during the last 8 years which contained information about non-pharmacological intervention studies, recurrence, gastric ulcers.

### 3. Results and discussion

Non-pharmacological interventions to prevent gastric ulcer recurrence: a systematic review are as follows:

#### 3.1. Family Nursing Care

Research about Lestari et al., (2023) showed that after family nursing care was carried out for 2 meetings, 2 nursing problems were found, namely pain related to the family's inability to care for sick members and a knowledge deficit related to the family's inability to recognize the problem. Knowledge about gastritis increases and can be treated at home with non-pharmacological therapy, namely relaxation techniques and warm compresses. Comprehensive identification of pain including location, characteristics, duration, frequency, quality, intensity of pain, identification of factors that aggravate and relieve pain, teach about how to treat gastritis pain, collaborate with clients and families to select and implement non-pharmacological pain reduction measures as needed, as well as giving positive praise for the family's efforts in assessing the success of what has been done (Lestari et al., 2023).

#### 3.2. Using arrowroot flour and turmeric

Gastric ulcers occur due to excess acid and pepsin which can be caused by stress-related mucosal damage. Arrowroot flour and turmeric are both empirically and scientifically said to be able to reduce stomach ulcers. The research results of Bachri et al., (2016) showed that administration of a single and combined dose resulted in an ulcer index of 1.80, respectively; 1.47; 1.33 was significantly lower than the negative control (4.42) and the protection ratio (%) given a combination of arrowroot flour and turmeric 200 mg/kgBW was higher than the positive control. The histopathological picture showed that there was improvement in tissue tissue when given turmeric 250 mg/kgBW and a combination of arrowroot flour and turmeric 200 mg/kgBW. Based on the results of this research, it can be concluded that arrowroot flour (*Marantha arundinaceae*) at a dose of 200mg/kgBW and turmeric at a dose of 250mg/kgBW have strong potential as gastroprotectors, because they can repair ulcerated stomach tissue by inducing 96% ethanol, inhibiting 69.82%, and had an ulcer index of 1.33 (Bachri et al., 2016).

#### 3.3. Lifestyle Changes

Lifestyle changes can affect the risk of stomach ulcers. These include the following: a) a balanced diet, namely consuming healthy and balanced foods, can help reduce the risk of stomach ulcer recurrence. Avoid spicy, sour, fatty foods and alcohol, and increase consumption of vegetables, fruit and fiber, b) stop smoking, namely smoking can damage the stomach wall and increase stomach acid production. Quitting smoking is an important step in preventing recurrence of gastric ulcers, c) avoiding stress, namely stress can worsen the symptoms of gastric ulcers. Relaxation techniques, meditation and exercise can help reduce stress levels (Subekti et al., 2018; Yelvita, 2022). This is in line with research by Purbaningsih (2020) and AA Putri (2021) which states that diet, smoking, drug use, stress levels and drinking alcohol can influence the risk of stomach ulcers (Purbaningsih, 2020; AA Putri, 2021).

People who are overweight or obese have a higher risk of experiencing a recurrence of gastric ulcers. Maintaining a healthy weight through a balanced diet and exercise can help prevent recurrence.

##### 3.3.1. Dietary Changes

Dietary changes can be made by avoiding eating too quickly, eating small portions, and chewing food well, which can help reduce pressure on the stomach and prevent further irritation (SD Putri et al., 2021; Wardhani, 2017).

Potter & Perry (2015) state that irregular and unhealthy eating patterns can cause stomach acid to become sensitive and cause gastritis, and individuals who have irregular eating patterns tend to suffer from gastritis. because when the stomach must be filled, but is not done, stomach acid will digest the mucosal lining of the stomach, causing pain. The stomach will have difficulty adjusting to an irregular eating pattern (Amri, 2020; Potter & Perry, 2015).

Excessive production of stomach acid can cause irritation of the gastric mucosal walls if it lasts for a long time. Apart from releasing stomach acid, hunger contractions will cause strong contractions. These contractions often occur when the stomach is empty for too long. Typically, peristaltic contractions are rhythmic, which may be additional mixing waves in the gastric corpus. This wave will be very strong. Contractions of the stomach wall last for two to three minutes. In children who are healthy and have low blood sugar levels, hunger contractions are usually the strongest (Hall & Guyton, 2019).

### 3.3.2. Avoid Consuming Medications That Trigger Ulcers

Some medications, such as nonsteroidal anti-inflammatory drugs (NSAIDs), can cause stomach ulcers. If possible, avoid using these medications or consult a doctor for safer alternatives (De Cássia dos Santos et al., 2019; Geyikoglu et al., 2018). Long-term NSAID treatment is not sufficient to prevent gastric ulcers and may result in ulcer complications so gastroprotective measures in high-risk cases (Kusters et al., 2006; Ofori et al., 2019).

### 3.3.3. Prevention of *Helicobacter Pylori* Infection

If the cause of gastric ulcers is *Helicobacter pylori* bacterial infection, appropriate antibiotic treatment and prevention of transmission of the infection are very important to prevent recurrence. For first-line treatment, clarithromycin triple therapy should be limited to patients with no history of previous macrolide exposure who reside in areas where clarithromycin resistance among *H. Pylori* isolates is known to be low. Most patients would be better served by first-line treatment with quadruple bismuth therapy or concomitant therapy consisting of a PPI, clarithromycin, amoxicillin, and metronidazole (Chey et al., 2017; Ofori et al., 2019; Papastergiou et al., 2014).

### 3.3.4. Warm Water Compress

Warm water compresses are one of the implementations used to treat gastritis. Warm water compresses can relieve pain by reducing muscle spasms, stimulating pain, causing vasodilation and increasing blood flow. The blood vessels will widen, thereby improving blood circulation in the tissue. The benefit is that it can focus attention on something other than pain, or the person's visual actions can no longer focus on pain, and can relax. In addition, warm water compresses can cause the release of endorphins in the body, thereby blocking the transmission of painful stimulation (SD Putri et al., 2021; Silawati et al., 2023).

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## 4. Conclusion

Non-pharmacological interventions have an important role in preventing recurrence of gastric ulcers. By adopting family nursing care, medication using flour and turmeric, healthy lifestyle changes, maintaining proper body weight, avoiding risk factors, and following doctor's advice, one can increase the chances of preventing recurrence of gastric ulcers. Always consult a doctor for appropriate treatment planning and proper monitoring so that this condition can be managed properly.

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## Compliance with ethical standards

### *Disclosure of conflict of interest*

The authors declare no conflict of interest.

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