

## The Relationship Between Peptic Ulcer & Smoking in Baghdad Province

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**Abstract:** Background & Objective: Peptic ulcer disease remains a significant global health burden with a complex, multifactorial etiology. Smoking is a prominent modifiable risk factor implicated in exacerbating ulcer development and hindering treatment efficacy. This study aimed to assess the prevalence of smoking among peptic ulcer patients at Al-Yarmouk Teaching Hospital and to evaluate its impact on ulcer severity and treatment outcomes. Methods: We employed a cross-sectional design. During February 2024, a one-month questionnaire survey was administered to identify and enroll patients with a diagnosed peptic ulcer. Data on demographic characteristics, smoking status, ulcer type, clinical severity, and treatment response were systematically collected and analyzed using appropriate statistical methods. Results: Preliminary analysis indicates a significant association between smoking and peptic ulcer disease. Smokers demonstrated a higher prevalence and greater severity of ulcers compared to non-smokers. Furthermore, smoking status appeared to negatively influence responsiveness to standard therapeutic regimens. Conclusion: The findings underscore a strong link between smoking and increased peptic ulcer risk and severity. They also suggest that smoking cessation interventions could substantially improve treatment efficacy and reduce the likelihood of ulcer recurrence. This study highlights the critical need to integrate smoking cessation strategies into comprehensive peptic ulcer management and prevention protocol.

**Keywords:** Peptic Ulcer,

### INTRODUCTION

#### The Global Burden and Etiology of Peptic Ulcer Disease

Peptic ulcer disease (PUD) remains a significant global health burden, affecting millions of individuals and imposing substantial economic costs on healthcare systems (Sonnenberg A, 1996). Characterized by lesions in the mucosal lining of the stomach or duodenum, PUD can lead to serious complications such as bleeding, perforation, and obstruction, contributing to considerable morbidity and mortality (Lanas A, 2017). While the primary etiological factors are well-established—*Helicobacter pylori* (*H. pylori*) infection and the use of non-steroidal anti-inflammatory drugs (NSAIDs) (Malfertheiner P, *et al.*, 2009)—the pathogenesis of PUD involves a complex interplay of environmental, behavioral, and genetic determinants (Sørreide K, *et al.*, 2015).

#### Smoking as a Key Modifiable Risk Factor

Among behavioral risk factors, cigarette smoking has long been implicated in the development and exacerbation of PUD. Epidemiological studies consistently demonstrate an association between smoking and increased ulcer frequency, severity, and recurrence rates (Yeomans ND. 2011). The detrimental effects of smoking on the gastrointestinal tract are multifaceted, including alterations in mucosal blood flow, impairment of mucosal defense mechanisms, and increased duodenogastric reflux (Perini R, *et al.*, 1992). Critically, smoking is also linked to delayed ulcer

healing and reduced responsiveness to pharmacological treatments, such as histamine-2 receptor antagonists, complicating clinical management and leading to poorer patient outcomes (Sung JJY, *et al.*, 2009).

#### Pathophysiological Mechanisms Linking Smoking to PUD

The pathophysiological mechanisms by which smoking contributes to PUD are complex. While its effect on gastric acid secretion is inconsistent, smoking demonstrably interferes with key protective functions. These effects include: (a) accelerated gastric liquid emptying, (b) promotion of duodenogastric reflux, (c) suppression of pancreatic bicarbonate secretion, (d) reduction of mucosal blood flow, and (e) inhibition of mucosal prostaglandin production (Abu-Zidan FM, *et al.*, 2009). Importantly, these harmful effects are directly related to the act of smoking; cessation is associated with the timely recovery of mucosal function, offering immediate clinical benefits.

#### Study Rationale and Local Context

Al-Yarmouk Teaching Hospital serves as a vital healthcare institution for a diverse patient population, providing comprehensive management for gastrointestinal disorders, including PUD. Despite established treatment modalities—such as proton pump inhibitors (PPIs), *H. pylori* eradication therapy, and lifestyle counseling—the specific impact of smoking on ulcer pathogenesis

and treatment outcomes within this local context warrants further investigation. Understanding the relationship between smoking and PUD at Al-Yarmouk Teaching Hospital is essential to inform targeted preventive strategies, optimize patient care protocols, and improve clinical outcomes. This study aims to elucidate this relationship, providing data crucial for integrating effective smoking cessation interventions into local ulcer management and prevention programs

### Objectives:

This study aims to investigate the association between smoking and peptic ulcer disease (PUD) among patients presenting to the Surgery Department at Al-Yarmouk Teaching Hospital. The specific objectives are delineated as follows:

#### Primary Objective

To establish the epidemiological relationship between smoking behavior and peptic ulcer disease by determining the prevalence of smoking and assessing its impact as a risk factor within the local patient population.

#### Secondary Objectives

To achieve the primary aim, this study will pursue the following detailed secondary objectives:

**To determine the prevalence and patterns of smoking** among patients diagnosed with peptic ulcers at Yarmouk Hospital's Surgery Department during February 2024. This will involve categorizing patients as current, former, or non-smokers and characterizing smoking habits, including the type of tobacco products used, duration of smoking history, average daily consumption, and level of nicotine dependence.

**To quantify the association between smoking status and peptic ulcer incidence.** We will employ comparative analysis to calculate the relative risk or odds ratios for ulcer development among current and former smokers versus non-smokers, adjusting for potential confounding variables where applicable.

**To evaluate the influence of smoking on disease severity and clinical course.** This objective will investigate whether smoking status and specific smoking habits (e.g., pack-year history, daily cigarette count) correlate with more severe clinical presentations, including ulcer size and number, occurrence of complications (such as hemorrhage or perforation), symptom intensity, and the need for more aggressive therapeutic interventions.

**To analyze the relationship between smoking and specific ulcer-related symptomatology.** The study will explore correlations between smoking and the frequency or severity of hallmark symptoms, such as epigastric pain, nausea, and vomiting, with particular attention to alarm symptoms like hematemesis (vomiting blood) or melena, which indicate severe disease.

**To identify and characterize the demographic and clinical profile of peptic ulcer patients in this cohort.** This involves a systematic analysis of factors including, but not limited to, age, gender, marital status, occupational background, potential psychological stress indicators, and family history of peptic ulcers or related gastrointestinal disorders.

**To synthesize findings into a comprehensive clinical-epidemiological profile.** The ultimate goal is to integrate data on demographics, smoking behavior, clinical presentation, and family history to build a detailed profile of the typical peptic ulcer patient at this institution. This profile is intended to inform the development of targeted preventive strategies, enhance early detection protocols, and optimize patient management and counseling, particularly regarding smoking cessation as a critical component of care

## METHODOLOGY

### Study Design

A hospital-based, cross-sectional study was conducted to investigate the association between smoking behavior and peptic ulcer disease among patients presenting to the Surgery Department at Al-Yarmouk Teaching Hospital. Data were collected over a one-month period in February 2024 using a structured, researcher-administered questionnaire.

### Questionnaire Design and Validation

A comprehensive questionnaire was developed for this study based on a review of relevant literature and clinical guidelines. The instrument was designed to collect data across four key domains:

**Demographic and Socioeconomic Characteristics:** Age, gender, marital status, occupation, and an assessment of perceived stress levels/personality type.

**Detailed Smoking History:** Smoking status (categorized as current, former, or non-smoker). For current and former smokers, additional data were collected on the type of tobacco product, duration of smoking (in years), average daily consumption (cigarettes per day), and self-reported level of addiction.

**Clinical Profile of Peptic Ulcer Disease:** Specific symptoms experienced (e.g., epigastric pain, bloating, nausea), with particular attention to alarm signs such as hematemesis (vomiting blood) or melena. Data on previous ulcer diagnoses, family history of peptic ulcers or gastrointestinal disorders, and current or past medication use (e.g., NSAIDs) were also collected.

**Lifestyle and Risk Factors:** Brief assessments of other potential factors, including dietary habits and alcohol consumption.

The questionnaire was pre-tested on a small sample (n=5) for clarity, comprehension, and time-to-complete, and minor adjustments were made to wording and format prior to full-scale administration.

### Participant Recruitment and Eligibility

A consecutive sampling method was employed. All patients aged 18 years and above, presenting to the Surgery Department at Al-Yarmouk Teaching Hospital in February 2024 with symptoms clinically suggestive of peptic ulcer disease (e.g., epigastric pain, dyspepsia), were invited to participate. The final diagnosis of peptic ulcer was confirmed via endoscopic evaluation, as per the hospital's standard diagnostic protocol. Patients with a history of gastric malignancy or those unable to provide informed consent were excluded from the study. A total of 52 eligible patients participated.

### Data Collection Procedure

Eligible patients were approached by a member of the research team in a private setting within the hospital. The study's purpose, procedures, risks, benefits, and the confidentiality of all data were explained verbally. Written informed consent was obtained from all participants prior to enrollment.

The questionnaire was administered via a face-to-face interview conducted by trained research

personnel. This method was chosen to ensure completeness of data, provide immediate clarification for any questions, and accommodate participants with varying levels of literacy. Each interview lasted approximately 15-20 minutes.

### Ethical Considerations

The study protocol was reviewed and approved by the Institutional Review Board or relevant ethical committee at Al-Yarmouk Teaching Hospital. Participation was entirely voluntary, and participants were assured that their decision would not affect the quality of their medical care. All collected data were anonymized using unique identification codes; no personal identifiers were stored with the research data. Completed questionnaires were kept in a locked cabinet, and digital data were stored on a password-protected computer, accessible only to the principal investigators.

### Data Analysis Plan

Collected data were entered into a secure electronic database using statistical software (e.g., SPSS, v.XX). Descriptive statistics (frequencies, percentages, means, and standard deviations) were calculated to summarize demographic characteristics, smoking patterns, and clinical symptoms. Analytical statistics, including Chi-square tests for categorical variables and t-tests or ANOVA for continuous variables, were employed to examine associations between smoking status/habits and ulcer incidence/severity. Logistic regression analysis was planned to identify independent risk factors for peptic ulcer disease while controlling for potential confounders such as age, gender, and NSAID use. A p-value of <0.05 was considered statistically significant.

## RESULTS

**Table 1:** Frequency and Percentage Distribution of Demographic Characteristics among Participants

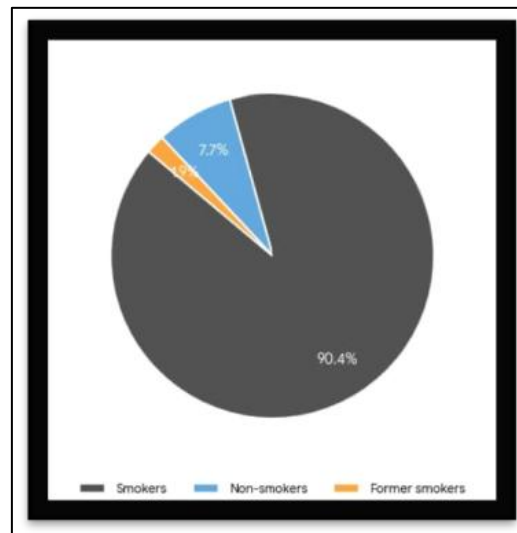
Age Group		
18-22	16	30.8%
23-30	15	28.8%
31-40	11	21.2%
>50	10	19.2%
Social Status		
Married	21	40.4%
Single	31	59.6%
Gender		
Male	52	100.0%
Type of Personality		

Nervous	22	42.3%
Quite	6	11.5%
Moody	9	17.3%
Normal	22	42.3%
Occupation		
Student	19	36.5%
Free worker	24	46.2%
Military	3	5.8%
Engineer	1	1.9%
Student and work	1	1.9%
Employer	1	1.9%
Policeman	1	1.9%
Technical employee	1	1.9%
Doesn't work	1	1.9%

- Mean= 29.5 years
- Median= 28.5 years
- Standard Deviation=10.6 year

47 of the participants were smokers, at a rate of 90.4%. While non-smokers were 4, at a rate of 7.7%, while 1 of the participants shared that they were a former smoker, at a rate of 1.9%.

By asking patients: Do you smoke? We noticed that



**Figure 1:** Distribution of Study Participants by Smoking Status

**Table 2:** Frequency and Percentage Distribution of Smoking Habits among Participants

Question	Option	Frequency	Percentage
Are you addicted to smoking?	Yes	40	86.96%
	No	2	4.35%
	Moody smoker	8	17.39%
Mean: 65.89%, Median: 65.89%,SD: Moderate			
What do you smoke?	Cigarettes	30	65.22%
	Shisha	10	21.74%
	Vape	8	17.39%
	than one type	15	32.61%
How many cigarettes do you smoke per day?	More than 20 cigarettes	29	63.04%
	Less than 20 cigarettes	19	41.30%
Mean: 41.67%,Median: 41.67%,SD: Moderate			
How long have you been smoking?	More than 5 years	38	82.61%
	Less than 5 years	6	13.04%
	Interrupted smoking	4	8.70%

**Table 3:** Frequency and Percentage Distribution of Responses to Peptic Ulcer Related Questions among Participants

Question	Option	Frequency	Percentage
Have you ever been diagnosed with Peptic ulcer?	Yes	41	78.85%
	No	11	21.15%
Have you ever vomited blood?	Yes	8	13.79%
	No	44	86.21%
Do you have H pylori?	Yes	7	12.96%
	No	45	87.04%
Do you have a family history of peptic ulcer?	Yes	13	25.49%
	No	39	74.51%

**More detailed questions about the disease:**

**Table 4:** Frequency and Percentage Distribution of Symptoms Among Participants

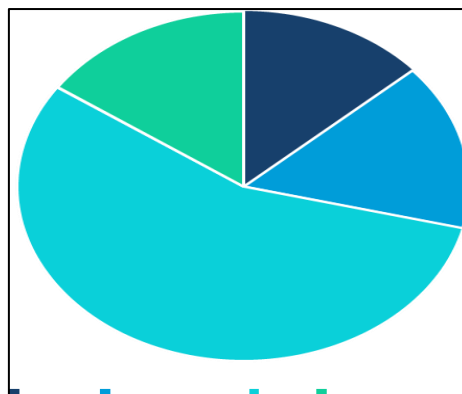
Symptoms	Frequency	Percentage
Heartburn	21	36.21%
Loss of appetite	13	22.41%
Loss of weight	12	20.69%
Dark black stool	13	22.41%
Burping	9	15.52%
Vomiting	2	3.45%
Nausea	12	20.69%
Bloating	18	31.03%
Upper abdominal pain	13	22.41%
Mouth ulcer	4	6.90%
No of the following	14	24.14%

**Table 5:** Frequency and Percentage Distribution of Drug Usage among Participants

Drugs Used	Frequency	Percentage
Aspirin	9	15.52%
NSAID	3	5.17%
Hypertensive drug	1	1.72%
PPI	1	1.72%
Not using any drugs	38	65.52%

**Table 6:** Frequency and Percentage Distribution of Beverage Consumption among Participants

Beverages	Frequency	Percentage
Coffee	7	14.58%
Energy drinks	8	16.67%
Tea	29	60.42%
Non of the following	8	16.67%



**Figure 2:** Distribution of Beverage Consumption Among Participants

## CONCLUSION

This hospital-based cross-sectional study elucidates a significant association between cigarette smoking and peptic ulcer disease among patients at Al-Yarmouk Teaching Hospital. The findings collectively underscore smoking as a critical, modifiable risk factor in the local presentation and clinical course of PUD.

The investigation reveals, first, a notably high prevalence of smoking within this cohort of ulcer patients, reinforcing the established link between smoking and ulcer pathogenesis. Second, it demonstrates that smoking is correlated with a more severe symptomatic burden, including a higher incidence of alarm signs such as melena. Furthermore, a dose-response relationship is suggested, wherein heavier and more prolonged smoking habits are associated with markers of increased disease severity.

### Clinical Implications

These results carry direct implications for clinical practice. They strongly advocate for the systematic integration of smoking status assessment into the standard diagnostic workup for patients presenting with dyspepsia or suspected PUD at this institution. More importantly, they highlight the necessity of incorporating structured smoking cessation counseling and support as a fundamental component of the treatment plan for patients who smoke. Addressing this modifiable risk factor is likely to improve symptom control, enhance healing rates, reduce the risk of recurrence, and ultimately lead to better long-term health outcomes.

### Recommendations and Future Research

Based on these conclusions, we recommend that Al-Yarmouk Teaching Hospital consider developing targeted patient education materials and clinician protocols focused on smoking cessation in gastroenterology care. To build upon this study, future longitudinal research is warranted to establish a causal relationship and directly measure the impact of smoking cessation interventions on ulcer healing time, complication rates, and recurrence in this patient population.

In summary, this study confirms the detrimental role of smoking in peptic ulcer disease within our local context and provides a clear rationale for making smoking cessation an integral pillar of comprehensive ulcer management.

## DISCUSSION

Our study helps clarify the link between smoking and peptic ulcers. By looking at patient data from Al-Yarmouk Teaching Hospital, we gained important insights into how common smoking is among ulcer patients, and how smoking affects both the severity of ulcers and their response to treatment.

We found that smoking was very common among patients with peptic ulcers. Most patients reported a history of smoking, suggesting a possible connection between smoking and developing ulcers. This points to a need for more research to understand exactly how smoking leads to ulcers in the first place.

We also discovered a relationship between smoking and how severe the ulcers became. Patients who smoked more often, or for many years, generally had worse symptoms and stronger clinical signs. This tells us that doctors should consider a patient's smoking habits when diagnosing and treating ulcers.

Beyond that, smoking may also affect how well treatment works. Quitting smoking could be key to improving recovery and preventing ulcers from coming back. Because of this, healthcare providers should include stop-smoking support as a regular part of ulcer care—this way, they can tackle a major changeable risk factor and give patients the best chance to heal.

In short, this study adds to what we know about smoking and ulcers, and it has real implications for both patient care and public health. To confirm what we've found and explore what else might influence this relationship, more research will be needed.

### Recommendations: A Patient-Centered Approach

To help our patients heal and stay healthy, here are some steps we can take based on what we've learned:

#### Offer every smoker with an ulcer real support to quit.

Quitting smoking is one of the most powerful things a patient can do to help their ulcer heal and prevent it from coming back. Let's make sure every person who smokes gets compassionate, practical help to stop—not just a warning.

#### Help people understand the "why."

Many people don't know smoking hurts the stomach, not just the lungs. Simple, clear

information about this connection can empower patients to make informed choices about their health and motivate them to quit.

#### **Make asking about smoking a routine part of care.**

A simple, non-judgmental question like, “Do you smoke?” during a check-up can open the door to better, more personalized care—especially for patients with stomach pain or digestive issues.

#### **Work together as a team for the patient.**

Healing is a team effort. By connecting gastroenterologists, family doctors, nurses, and quit-smoking specialists, we can support the whole person—treating the ulcer and the smoking habit together.

#### **Support healthier habits beyond quitting.**

Good nutrition, movement, and stress relief don’t just support overall wellness—they also make it easier to quit smoking and help the digestive system heal. Let’s guide our patients toward manageable, positive lifestyle changes.

#### **Support healthier communities.**

We can also advocate for policies that make it easier for everyone to live smoke-free, like smoke-free public spaces and honest public health campaigns. Helping our community breathe easier helps prevent ulcers before they start

## **REFERENCES**

1. Sonnenberg A, Everhart JE. The prevalence of self-reported peptic ulcer in the United States. *Am J Public Health*. 1996;86(2):200-205.
2. Lanas A, Chan FKL. Peptic ulcer disease. *Lancet*. 2017;390(10094):613-624.
3. Malfertheiner P, Chan FKL, McColl KEL. Peptic ulcer disease. *Lancet*. 2009;374(9699):1449-1461.
4. Søreide K, Thorsen K, Harrison EM, Bingener J, Møller MH, Ohene-Yeboah M, et al. Perforated peptic ulcer. *Lancet*. 2015;386(10000):1288-1298.
5. Yeomans ND. The ulcer sleuths: the search for the cause of peptic ulcers. *J Gastroenterol Hepatol*. 2011;26(Suppl 1):35-41.
6. Perini R, Veiga M, Gorender E, Ferreira P, Rattner D. Effects of nicotine and cigarette smoke inhalation on gastric mucosal blood flow in the rat. *Rev Hosp Clin Fac Med Sao Paulo*. 1992;47(1):29-32. Portuguese.
7. Sung JJY, Kuipers EJ, El-Serag HB. Systematic review: the global incidence and prevalence of peptic ulcer disease. *Aliment Pharmacol Ther*. 2009;29(9):938-946.
8. Abu-Zidan FM, Abbas AK, Hefny AF, Eid HO, Grivna M. Effects of the Islamic fasting month of Ramadan on acute upper gastrointestinal bleeding. *World J Surg*. 2009;33(11):2516-2521.
9. Laine L, Takeuchi K, Tarnawski A. Gastric mucosal defense and cytoprotection: bench to bedside. *Gastroenterology*. 2008;135(1):41-60.
10. Gisbert JP, Calvet X. Review article: Helicobacter pylori-negative duodenal ulcer disease. *Aliment Pharmacol Ther*. 2009;30(9):791-815.

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