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Medical, Social and Behavioral Risk Factors for the Development of Hepatopancreatoduodenal System Pathology

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Abstract The aim of the study is to investigate the prevalence and role of medical, social, and behavioral risk factors in the development and progression of hepatopancreatoduodenal system pathology based on clinical and statistical analysis. A retrospective study was conducted among 105 patients hospitalized in City Clinical Hospital No. 5 (Tashkent, Uzbekistan) between April and October 2025. The analysis included socio-demographic characteristics, disease structure, dietary habits, psycho-emotional stress, harmful behaviors, medication use, and hereditary predisposition. The most prevalent modifiable risk factors were dry eating habits (65.7%), psycho-emotional stress (57.1%), non-adherence to dietary recommendations (55.2%), uncontrolled use of non-steroidal anti-inflammatory drugs (52.4%), smoking (40%), and alcohol consumption (40%). A substantial proportion of patients belonged to socially vulnerable groups, which was associated with an unfavorable disease course. The results demonstrate the leading role of modifiable lifestyle-related risk factors in hepatopancreatoduodenal pathology and highlight the importance of preventive strategies focused on stress management, dietary correction, and rational medication use.

Keywords Hepatopancreatoduodenal pathology, Risk factors, Lifestyle, Psycho-emotional stress, Harmful habits

1. Introduction

Diseases of the hepatopancreatoduodenal zone (liver, pancreas, biliary tract, and duodenum) are widespread worldwide and represent a significant medical and social problem. They are characterized by high morbidity and mortality rates, making a substantial contribution to the global burden of disease [1-2]. The high prevalence of these conditions is associated with numerous external and behavioral risk factors [3]. Previous studies have demonstrated chronic stress, unhealthy dietary patterns, harmful habits (such as smoking and alcohol consumption), and uncontrolled use of certain medications play a significant role. It has been shown that psychological stress may independently increase the risk of peptic ulcer disease [4], while for pancreatic cancer the influence of modifiable factors such as tobacco smoking, alcohol abuse, and obesity has been proven [5]. These circumstances emphasize the relevance of studying risk factors in order to develop effective preventive measures.

The aim of the study was to investigate the role and prevalence of the main medical, social, and behavioral risk factors (dietary habits, stress, harmful habits, uncontrolled medication use, heredity, etc.) in the development and progression of hepatopancreatoduodenal system pathology based on a clinical and statistical analysis of inpatient data.

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2. Material and Methods

The study was based on an analysis of examination and treatment results of 105 patients with hepatopancreatoduodenal system pathology who were hospitalized in City Clinical Hospital No. 5 from April to October 2025. Among the examined patients, there were 49 (46.7%) women and 56 (53.3%) men; the mean age was 51.14 ±2.3 years.

Clinical and statistical data were collected through a retrospective analysis of medical records (inpatient case histories), as well as patient questionnaires aimed at identifying medical, social, and behavioral risk factors. The obtained data were systematized and processed using SPSS software on a personal computer.

3. Results

Analysis of age characteristics showed that the mean age of women was 53.5 ±2.6 years, while that of men was 46.05 ±3.2 years. In the overall structure of the examined patients, men predominated – 56 (53.3%), while women accounted for 49 (46.7%). According to the severity of the condition at admission, patients were distributed as follows: 60 (57.1%)

patients were admitted in a satisfactory condition, 42 (40.0%) in a moderate condition, and 3 (2.9%) in a severe condition. Disability due to hepatopancreatoduodenal system pathology was observed in 34 (32.3%) patients. Among them, disability group III was established in 12 (35.3%), group II in 20 (58.8%), and group I in 2 (5.9%) patients. In 71 (66.7%) patients, disability was not registered (Table 1).

Table 1. Socio-demographic and clinical characteristics of patients (n = 105)

Indicator	Absolute number	%
Sex:		
Men	56	53.3
Women	49	46.7
Severity of condition at admission:		
Satisfactory	60	57.1
Moderate	42	40.0
Severe	3	2.9
Disability:		
Total	34	32.3
∟ Group III	12	35.3*
∟ Group II	20	58.8*
∟ Group I	2	5.9*
No disability	71	66.7

Note: * Percentage calculated among patients with disability

The disease structure included gastritis and gastroduodenitis in 52 (49.5%) cases, pancreatitis in 32 (30.5%), cholecystitis in 30 (28.6%), duodenal ulcer disease in 25 (24.0%), hepatitis in 18 (17.1%), and gastric ulcer disease in 15 (14.3%). Bulbitis was identified in 10 (9.5%) patients. Cicatricial-ulcer deformity was diagnosed in 15 (14.3%) patients, while other complications were observed in 26 (24.8%) cases (Table 2).

Table 2. Structure of hepatopancreatoduodenal system diseases

Nosological form	Absolute number	%
Gastritis and gastroduodenitis	52	49.5
Pancreatitis	32	30.5
Cholecystitis	30	28.6
Duodenal ulcer disease	25	24.0
Hepatitis	18	17.1
Gastric ulcer disease	15	14.3
Bulbitis	10	9.5
Cicatricial-ulcer deformity	15	14.3
Other complications	26	24.8

According to social status, patients were distributed as follows: manual workers – 30 (28.6%), office employees – 18 (17.1%), pensioners and non-working disabled individuals – 46 (44.0%), unemployed or temporarily unemployed – 5 (4.8%), students – 3 (2.8%), homemakers – 2 (1.9%), and entrepreneurs – 1 (1.0%).

Occupational hazards in medical history were identified in 39 (37.1%) patients, including exposure to harmful substances in 12 (11.4%), radiation exposure in 7 (6.6%), and other occupational hazards in 20 (19.0%).

Analysis of marital status showed that 52 (49.5%) patients were married, 15 (14.3%) were single, 18 (17.1%) were divorced, and 12 (11.4%) were widowed.

A history of neuropsychological stress preceding disease exacerbation or acute onset was reported by 60 (57.1%) patients (Table 3).

Table 3. Medical, social, and behavioral factors

Nosological form	Absolute number	%
Social status:		
Manual workers	30	28.6
Office employees	18	17.1
Pensioners and disabled	46	44.0
Unemployed	5	4.8
Students	3	2.8
Homemakers	2	1.9
Entrepreneurs	1	1.0
Occupational hazards:		
Total	39	37.1
∟ exposure to harmful substances	12	11.4
∟ radiation exposure	7	6.6
∟ other hazards	20	19.0
Marital status:		
Married	52	49.5
Single	15	14.3
Divorced	18	17.1
Widowed	12	11.4
Neuropsychological stress	60	57.1

According to questionnaire data, adherence to dietary recommendations was reported by 47 (45.0%) patients, while 58 (55.2%) did not adhere to a diet. Dry eating habits were identified in 69 (65.7%) patients, irregular meals in 32 (30.5%), and insufficient chewing of food in 38 (36.1%). The mean meal frequency was 3.2 times per day. Full compliance with dietary principles was observed in only 4 (3.8%) patients.

Alcohol consumption was reported by 42 (40.0%) patients, including 34.3% of men and 9.5% of women. The mean duration of alcohol consumption was 19.3 ± 8.2 years. Smoking was identified in 42 (40.0%) patients, including 38 men and 4 women.

Regular preventive visits to outpatient healthcare facilities were reported by 40% of the examined patients.

A positive family history of gastrointestinal diseases was noted in 25 (23.8%) patients. Use of medications potentially aggressive to the gastrointestinal mucosa was recorded in 55 (52.4%) patients.

The most prevalent risk factors in descending order were: dry eating habits (65.7%), psycho-emotional stress (57.1%), non-adherence to diet (55.2%), NSAID use (52.4%), smoking (40%), and alcohol consumption (40%).

Table 4. Dietary habits and harmful behaviors

Nosological form	Absolute number	%
Adherence to diet	47	45.0
Non-adherence to diet	58	55.2
Dry eating	69	65.7
Irregular meals	32	30.5
Insufficient chewing	38	36.1
Full dietary compliance	4	3.8
Mean meal frequency (times/day)	3.2	–
Alcohol consumption	42	40.0
└ men	–	34.3
└ women	–	9.5
Mean duration of alcohol use (years)	19.3 ±8.2	–
Smoking	42	40.0
└ men	38	–
└ women	4	–
Regular preventive visits	–	40.0
Positive family history	25	23.8
NSAIDs and other aggressive drugs	55	52.4

4. Discussion

In the present study, a wide spectrum of medical, social, and behavioral risk factors was identified among patients with hepatopancreatoduodenal pathology. The most prevalent factors were psychoemotional stress (57.1% of exacerbations were preceded by stress), dry eating habits (65.7%), and non-adherence to dietary recommendations (55.2%). In addition, a substantial proportion of patients reported alcohol consumption (40%) and smoking (40%), more than half of the patients (52.4%) used medications aggressive to the gastrointestinal tract (e.g., NSAIDs), 23.8% had a positive family history, and 44% were pensioners or non-working disabled individuals. These findings are largely consistent with data reported in contemporary literature [6], highlighting their relevance and significance.

The obtained results confirm the key role of psychosocial stress in the development and exacerbation of gastroduodenal diseases. In more than half of patients, exacerbations were preceded by stress exposure, which is consistent with international studies. Psychological stress may impair gastroduodenal perfusion, reduce mucosal defense mechanisms, and provoke acid hypersecretion, thereby contributing to ulcer formation [7]. Stress is recognized as one of the most common risk factors for peptic ulcer disease. According to a large prospective study, high perceived stress levels are associated with more than a twofold increase in the risk of gastric or duodenal ulcer development [4]. Thus, stress exposure significantly affects the course of hepatopancreatoduodenal pathology, delaying ulcer healing and promoting relapses.

Dietary habits also play an important role. The eating pattern disturbances identified in our study—namely dry eating and poor dietary adherence—correlate with findings of international research. Irregular meals, including skipping breakfast and lack of meal regularity, have been shown to significantly increase the risk of dyspepsia and peptic ulcer disease [8]. Regularity and balance of nutrition directly affect the condition of the gastric and duodenal mucosa; insufficient fluid intake and coarse dietary patterns may weaken the gastrointestinal protective barrier. Recent studies report a higher prevalence of gastroduodenal disorders among individuals with irregular eating habits and poor-quality diets [9], which is consistent with the high proportion of patients with dietary нарушения observed in our study.

Harmful habits such as alcohol consumption and smoking make a substantial contribution to the pathogenesis of upper gastrointestinal diseases. In our sample, 40% of patients consumed alcohol and the same proportion smoked. These factors are widely recognized as significant risks in international research. Smoking is strongly associated with ulcer formation; global epidemiological analyses indicate that smoking remains a leading risk factor for peptic ulcer disease and related morbidity and mortality. Numerous studies worldwide have confirmed the role of smoking in both ulcer development and its complications. Alcohol abuse is also considered a factor increasing the risk of gastroduodenal damage. Although there is some controversy regarding the effects of moderate alcohol consumption, it is generally accepted that chronic ethanol abuse exerts a damaging effect on the gastric and duodenal mucosa, promoting ulcer formation [10]. Our data on the high prevalence of smoking and alcohol use emphasize the need to address these modifiable factors in prevention and treatment strategies.

Medication-related mucosal injury deserves special attention. More than half of the examined patients (52.4%) used drugs aggressive to the gastrointestinal mucosa, primarily nonsteroidal anti-inflammatory drugs. This finding reflects global trends: widespread NSAID use has led to a significant increase in gastroduodenal ulcers and related complications. NSAIDs, along with aspirin, are recognized as leading causes of peptic ulcer disease, especially in elderly patients, and their combination with other risk factors (such as smoking and alcohol) markedly increases the risk [11]. International guidelines emphasize the need for gastroprotective therapy or alternative treatment in high-risk patients receiving NSAIDs, which aligns with our findings.

Finally, the unfavorable hereditary and socio-demographic factors identified in our study are also supported by the literature. A positive family history (23.8% of patients) suggests a possible genetic predisposition to gastroduodenal diseases. Several studies identify family history as a significant risk factor for peptic ulcer disease, which may be related to both genetic mechanisms and shared lifestyle factors or transmission of Helicobacter pylori. Older age and low socioeconomic status (a high proportion of pensioners and disabled individuals—44%) are also associated with an increased risk of gastropathy. It is well known that the prevalence of peptic ulcer disease and its complications increases with age. Recent publications report a growing incidence of ulcers and gastrointestinal bleeding among elderly populations, driven by cumulative exposure to risk

factors and concomitant therapies such as NSAID use. Social determinants further contribute: low income and unemployment are often associated with unhealthy lifestyles. Populations with low socioeconomic status are more frequently exposed to clusters of harmful factors—smoking, alcohol use, heavy physical labor, poor diet, frequent analgesic use, and stress [7]. This leads to a higher burden of peptic ulcer disease, as reflected in Global Burden of Disease (GBD) data, which show disproportionately high ulcer-related burden in low-income regions [12].

5. Conclusions

Diseases of the hepatopancreatoduodenal system are predominantly associated with modifiable risk factors, including stress, dietary disturbances, smoking, alcohol consumption, and uncontrolled NSAID use.

The high prevalence of these factors among the examined patients indicates the need to strengthen preventive measures and lifestyle modification strategies, particularly among elderly and socially vulnerable populations.

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