Original article

Study of Correlation between H. pylori, Life Habits, and Risk Factors among Adult Patients in Gharyan, Libya

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ABSTRACT

Helicobacter pylori (H. pylori) is a bacterium that can live in the human stomach and is one of the most common pathogens worldwide. The aim of this study was to evaluate the relationship between H. pylori infection and risk factors and life style habits, such as non-steroidal anti-inflammatory drugs, alcohol ingestion, and smoking. The study was conducted in two centers in Gharyan, Libya (private clinics). The case study took place over three months from July to September 2024 and utilized a validated questionnaire. All participants had confirmed H. pylori infections. A total of 50 cases with positive H. pylori infections were included in this study. They completed the questionnaire and data was analyzed using simple statistics. The questionnaire consisted of three parts. The prevalence of H. pylori infection was higher in females than males in this study. The findings suggested that certain habits, such as perceived stress, frequency of physical activity per week, and duration of physical activity, may influence the presence of H. pylori infection. Additionally, adults with below-normal levels of vitamin D had a higher risk of H. pylori infection.

INTRODUCTION

Helicobacter pylori (H. pylori) infect more than 50% of the world's population. There is tremendous variance in the prevalence of H. pylori around the world. Previous studies from India have found a high, up to 80%, prevalence of H. pylori [1]. Many of factors, such as the virulent East Asian CagA genotype, environmental factors, and dietary factors, have been linked to the aggressiveness of H. pylori and, consequently, implicated in epithelial injury [1]. Although the precise mode of transmission of H. pylori is unknown, it is infectious. It is most likely to spread from person to person through the oral-oral or fecal-oral routes. By consuming water contaminated with trash, H. pylori can also be spread orally through faecal matter. Poor sanitation, congested living circumstances, and poor hygiene were among the several variables linked to H. pylori infection that were reported [2,3].

China's H. pylori infection rate has decreased during the past 20 years. The prevalence of H. pylori infection varies from 35.0% to 54.27% in various parts of China in recent years [4,5]. Numerous factors are linked to H. pylori infection. A thorough investigation that spanned several mainland Chinese regions over almost 20 years revealed a correlation between H. pylori infection and per capita GDP, annual average humidity, and intake of meat, milk, vegetable oil, and aquatic products. Researchers discovered that the main determinants of H. pylori infection among the local population in Wuwei city, Gansu Province, a location with a high prevalence of stomach cancer in China, were age, yoghurt intake, and family income [5]. In the United Kingdom and the United States, the prevalence of H. pylori infection was 13.4% and 27.1%, respectively, however in developing countries like Chile, Turkey, and Bangladesh, it can reach 73.4, 74.6,

and 92% [6,7]. The aim of the study was to evaluate the relationship between *H. pylori* infection with risk factor and life habits, such as non-steroidal anti-inflammatory drugs and alcohol ingestion, and smoking habit.

METHODS
Study setting
The study was performed in two centers in Gharyan, Libya (private clinics). The case study was carried out during the three months from July to September 2024 and used a validated questionnaire. All participants were collected with positive H. pylori infections. This study was conducted at the medicine outpatient department among patients who were diagnosed with H. pylori infection. The patients were selected by using the antigen stool test, in which all patients had positive H. pylori infections.

Data collection
A total of 50 cases in this study were collected and had positive infection with H. pylori, and completed the questionnaire. The questionnaire was consisted of three parts. The first part was the demographic data of patients, which included age, gender, marital status, educational level, and employment status**.** The second part focused on patients with positive H. pylori habits. These habits included smoking, NSAID use, alcohol consumption, level of perceived stress, frequency of physical activity per week, and duration of physical activity. The third part was patients associated with medical history such as hypertension, diabetes, hyperlipidaemia, and vitamin D.

Data analysis
Data was entered Microsoft excel and analyzed using simple descriptive statistics.

RESULTS
About 50 patients had positive H. pylori infections with demographic data; the age range of 20-40 years was 52%, 40-60 years were 21%, and >60 years were 6%. The majority of patients were female, 80%, while 20% were male. There were 48% of patients married, and 52% were unmarried. 54% of patients had college/university, and 46% had high school or below. 62% of patients were employed, 36% unemployed, and only 2% were retired table 1.

Table 1. Demographic data of H. pylori patients.

Variables	N (%)
Age	
20-40	26 (52%)
40-60	21 (42%)
>60 years	3 (6%)
Gender	
Female	40 (80%)
Male	10 (20%)
Marital status	
Married	24 (48%)
Unmarried	26 (52%)
Educational level	
High school or below	23 (46%)
College/university	27 (54%)
Employment status	
Employed	31 (62%)
Unemployed	18 (36%)
Retired	1 (2%)

Table 2 showed the habits of patients with positive H. pylori. 98% of patients were nonsmokers, 2% were smokers, and 100% were no drinkers. 28% of patients used NSAIDs, and 72% of patients had no NSAID. 70% of patients had high perceived stress, 14% were moderate, and 16% were low. The number of times/weeks of being physically active: 44% were 1 < time, followed by 36% non, 16% were 2-3 times, and then 4% were >3 times. 80% of patients had duration of physical activity <20 min. and 20% had ≥20 min.

Table 2: Patients with positive H. pylori habits.

Habits	N (%)
Smokers	1 (2%)
Non smoker	49 (98%)
NSAID use	14 (28%)
No NSAID	36 (72%)
Drinkers	0
Non drinks	50 (100%)
Level of perceived stress	
Low	8 (16%)
Moderate	7 (14%)
High	35 (70%)
Number of times/weeks of being physically active	
None	18 (36%)
1 < time	22 (44%)
2-3 times	8 (16%)
>3 times	2 (4%)
Duration of physical activity	
<20 min.	40 (80%)
≥20 min.	10 (20%)

H. pylori patients associated with medical history risk factors (table 3) showed patients had diseases yes or no. This study had only 12% hypertension, and 88% were no. 14% had diabetes, and 86% had no. 26% of patients had hyperlipidaemia, and 74% had no. 30% of patients had a normal range of vitamin D, while 70% had a below-range.

Table 3. H. pylori patients associated with medical history risk factors.

Variables	N (%)
Hypertension	
Yes	6 (12%)
No	44 (88%)
Diabetes	
Yes	7 (14%)
No	43 (86%)
Hyperlipidemia	
Yes	13 (26%)
No	37 (74%)
Vitamin D	
Normal	15 (30%)
Below normal	35 (70%)

DISCUSSION

This study was estimated the prevalence of H.pylori infections in adult population in Gharyan, Libya. There were about 50 patients had positive infections. The majority of patients were age range 20-40 and 40-60 years old, female, unmarried, and with educational level of college university, and employed. Other study found participants with an H. pylori infection were female, married or divorced, and 44.52 ± 10.865 years old [8]. There was found in another study 48.8% of people over 40 with H. pylori, with a higher frequency in females [9].

University-educated participants may have a healthier lifestyle and be more informed about health-related concerns than individuals with less education. Higher educational attainment was associated with a lower risk of H. pylori infection, which is consistent with the findings of this study and other research done in China, Korea, and Turkey [10].

All patients had different habits, but they were not associated with smokers or drinkers because most patients were female nonsmokers. Similarity to other study found there was no apparent difference in the prevalence of H. pylori based on smoking, drinking, or the history of using non-steroidal anti-inflammatory drugs (NSAIDs) [11]. We found in this study the patients with H. pylori had a high level of perceived stress, which explained the stress-increased infection with H. pylori. On other hand more patient with < 20 min. duration of physical activity with most patients in this study. According to another study, the lowest risk of H. pylori infection was observed in individuals who exercised three to

five times each week (8). The majority of research found a link between sleep issues, activity, and H. pylori-induced stomach illness. Frequent exercise lowers the incidence of H. pylori infection-related stomach cancer. In addition to improving immunological function, lowering anxiety, and promoting the adoption of a healthy lifestyle, moderate physical activity may also decrease stomach secretions. Long-term endurance training may impair mucosal blood flow and immunological function [8].

H. pylori patients in this study, most of them had not had hypertension, diabetes, or hyperlipidaemia, and most had vitamin D levels less than normal. All diseases were common risk factors for increased infection with H. pylori.

Adults with vitamin D levels below normal had a higher risk of H. pylori infection than those with normal vitamin D levels. The function of vitamin D in preventing H. pylori infection has not been thoroughly studied [12]. The literature is not entirely clear on the connection between H. pylori infection and diabetes mellitus [12]. There was no significant correlation between H. pylori infection and those with a medical history of hyperlipidaemia, diabetes, anaemia, or a family history of gastrointestinal tumours [13].

Another study found both Asian populations and developing countries showed a positive correlation between H. pylori and hypertension. However, the population of industrialised nations and Europe did not see the same outcome. The overall H. pylori infection rate was higher in underdeveloped nations than in industrialised ones. Asian populations were particularly badly impacted [14]. H. pylori infection and the risk of type 2 diabetes were significantly correlated, according to the results of subgroup analysis by type of diabetes [15].

CONCLUSION

The prevalence of H. pylori infection in adults was female more than male in this study. The findings of this study indicated that some habits influence the presence of H. pylori infection, such as perceived stress, number of times/weeks of being physically active, and duration of physical activity. Also, adult with vitamin D levels below normal had a higher risk of H. pylori infection.

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دراسة الارتباط بين الملوية البوابية وعادات الحياة وعامل الخطر بين المرضى البالغين في غريان، ليبيا

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المستخلص

هيليكوباكتر بيلوري هي بكتيريا يمكن أن تعيش في معدة الإنسان وهي أيضًا واحدة من أكثر مسببات الأمراض شيوعًا في العالم. هدف الدراسة الي تقييم العلاقة بين الإصابة بالبكتيريا الحلزونية مع عوامل الخطر والعادات الحياتية مثل مضادات الالتهاب غير الستيرويدية وتناول الكحول وعادات التدخين. أجريت الدراسة في مركزين بمدينة غريان، ليبيا (العيادات الخاصة). تم إجراء دراسة الحالة خلال الأشهر الثلاثة من يوليو إلى سبتمبر 2024 واستخدمت استبيانًا تم التحقق من صحته. تم جمع جميع المشاركين مع عدوى الملوية البوابية الإيجابية. تم جمع 50 حالة في هذه الدراسة وكانت إصابتها إيجابية بالبكتيريا الحلزونية. وأكملت الاستبيان الذي تمت الإجابة عليه واستخدمت إحصائيات بسيطة. وكان الاستبيان يتكون من ثلاثة أجزاء. كان معدل انتشار عدوى الملوية البوابية لدى البالغين بين الإناث أكثر من الذكور في هذه الدراسة. أشارت نتائج هذه الدراسة إلى أن بعض العادات تؤثر على وجود عدوى الملوية البوابية، مثل الإجهاد الملحوظ، وعدد مرات النشاط البدني في الأسبوع، ومدة النشاط البدني. وأيضًا، كان البالغون الذين لديهم مستويات فيتامين د أقل من المعدل الطبيعي أكثر عرضة للإصابة بعدوى الملوية البوابية.

الكلمات المفتاحية. هيليكوباكتر بيلوري، مرضى العدوى، العادات الحياتية، وعوامل الخطر.