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Original Research Article

Stool antigen-based detection of *Helicobacter pylori*, knowledge and associated factors among patients with suspected gastrointestinal disorders at the Buea Regional Hospital

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ABSTRACT

Background: *Helicobacter pylori*, the most common bacterial infection worldwide, has become a global health issue, with an estimated half of the population exposed to infection. *H. pylori* is classified as a class I carcinogen and is the most common bacterium that colonizes the stomach predominantly in childhood, accounting for approximately 89% of *H. pylori* infections. This study assessed the prevalence of *H. pylori* infection, knowledge, and associated risk factors among patients at the Buea Regional Hospital.
Methods: A hospital-based cross-sectional study was carried out among 180 selected participants. Data were collected through the administration of an interviewer-administered questionnaire designed using Epi Info (version 7.2.5.0). Descriptive statistics are presented as frequencies and percentages.
Results: The mean age of the participants was 40.81 years (standard deviation = 16.85). Among the 180 participants included in this study, 47% (96) were infected with *H. pylori.* More than half 60% (108) of the participants had good knowledge about *H. pylori infection*. Employed individuals had a lower risk of infection (aOR=0.37; 95% CI: 0.15-0.934; p=0.035). Compared with people with a tertiary education, those who attended secondary education had greater odds of infection (aOR=1.12, 95% CI: 1.033, 3.313; p<0.001). Individuals who used drugs regularly without a prescription had higher odds of infection (aOR=3.25; 95% CI: 1.118-9.46; p=0.03). alcoholic drinkers had lower odds of infection than does who did (aOR=0.48; 95% CI: 0.176-0.759; p=0.017). Those who used flushing toilets were less likely to have infection than those who used pit toilets were (aOR=0.23; 95% CI: 0.083-0.65; p=0.005).
Conclusions: The results of the current study in a resource-limited environment revealed a high prevalence of *H. pylori,* which was driven *mainly* by socioeconomic, behavioural and environmental factors. Specific measures based on education, hygiene and antimicrobial management are essential to minimize the burden of infections and their potential complications.

Keywords: Cameroon, *Helicobacter pylori,* Knowledge, Prevalence, Risk factors

INTRODUCTION

Helicobacter pylori, a gram-negative and microaerophilic bacterium, is the primary pathogenic agent of chronic gastritis, peptic ulcers and gastric cancer.[1] The WHO and the International Agency of Research on cancer classify it as a class 1 carcinogen and the most common bacterium that colonizes the stomach predominantly in childhood.[2,3] *H. pylori* infection is deemed a significant cause of gastric cancer because approximately 89% of all gastric cancer is attributed to *H. pylori* infection, and gastric cancer rates are known to decrease after the infection has been

eliminated.[4] Furthermore, *H. pylori* infection is known to cause several other digestive disorders, such as iron deficiency anemia and idiopathic thrombocytopenic purpura.[5] More than one-third of a million people die from this infection every year.[6] It is a disease that is acquired at a young age and is associated with the development of chronic gastritis, gastric ulcers, gastric cancer, peptic ulcer disease, duodenal ulcers and stomach mucosal atrophy.[6] The prevalence of *H. pylori* infection ranges between 20 and 90% per country and is more prevalent in developed countries than in developing countries.[7] The prevalence of *H. pylori* in Cameroon is more than 60%.[8] In developing and developed nations, the prevalence of *H. pylori* is seemingly linked to poor socioeconomic status, including crowded housing, low income, older siblings and family size, which are among the key factors that increase the risk of *H. pylori* infection.[9] One of the most important factors related to the high prevalence of *H. pylori* is knowledge. The development of knowledge and awareness of *H. pylori* infection among the general population is poor worldwide.[10] The infection tends to decline with increasing standards of living. *H. pylori* is generally more common in remote rural communities than in urban communities.[11] The etiology of *H. pylori* and its modes of acquisition are not very well known. Childhood seems to be the major stage through which *H. pylori* is contracted in developing nations where the majority of children are infected before the age of 10 years, and unless the infection is cured, it seems to be permanent.[12] Epidemiological and microbiological investigations have shown that person-to-person transmission within the family is a major transmission mode in developed and developing countries.[13] Previous studies in some developed nations have indicated very high levels of knowledge and practices, ranging from 81%-95.8%, and research in developing nations has indicated a lower prevalence, ranging from 26.7%-68%.[14]

The primary purpose of this study was to determine the prevalence, knowledge and associated risk factors for *Helicobacter pylori infection* among patients at the Buea Regional Hospital, southwestern region of Cameroon.

METHODS

Study design and settings

A hospital-based cross-sectional study was carried out at Buea Regional Hospital (BRH), South-west Region of Cameroon, from April to June 2024. This health district has a total population of 169,746 (2017) and seven health areas with more than 48 health facilities.

Study population

Patients whose stool samples were received in the laboratory of Buea Regional Hospital for analysis during the study period were approached to explain the purpose of the study and obtain their consent for participation.

Inclusion criteria

Patients with suspected gastro-intestinal disorders at the Buea Regional Hospital who provided informed consent to participate were eligible for the study.

Exclusion criteria

Those who received antibiotic treatment within four weeks before the stool sample was obtained and those who could not express themselves for mental or physical reasons were excluded.

Sampling

The sample size was estimated using Cochran's formula, with an error margin and type I error of 5% each, and the estimated prevalence of *Helicobacter pylori* infection (72.5%) was obtained from a previous study conducted among dyspeptic patients in Cameroon.[15]

$$n = \frac{z^2 p(1-P)}{e^2}$$

Furthermore, given that patients with suspected gastrointestinal disorders were finite (N<400), a finite population correction was applied to yield a minimum sample size (n_f) of 174. However, 180 participants were selected for the study.

$$n_f = \frac{n}{1 + \frac{n-1}{N}}$$

Detection of Helicobacter pylori infection

Helicobacter pylori infection in this study was detected in the laboratory by a commercially available *H. pylori* stool antigen (HpSA) test. The test is based on the immunochromatographic principle, which relies on a two-antibody sandwich assay and a cassette-based format of the test in lateral flow. The process was initiated by obtaining a small fecal sample of every member and emulsifying it in an antigen buffer solution that was supplied. This mixture was qualitatively mixed and incubated for five minutes to ensure that sufficient antigen extraction occurred. Afterward, a few drops of the prepared solution were added to the sample well of the test cassette. Interpretation was performed following 10 minutes of incubation at room temperature to ensure full capillary migration. The presence of a clearly colored band in the test (T) and control (C) areas indicates the presence of an *H. pylori* antigen at a concentration of 50 ng/mL or more. A negative test was verified by the appearance of a colored band in only the control region.

Data collection

Demographic, knowledge and risk factor data were collected using a structured questionnaire and entered on

forms built using epi info (Version 7.2.5.0). The questionnaire, composed of three sections, was organized systematically to ensure validity and then used to collect data. The sociodemographic characteristics of the study participants were measured using section A.

Section B was used to assess the lifestyle characteristics of the study participants, and section C was used to assess their knowledge of *H. pylori* infection. A total of 6 questions were asked. A score of 1 was assigned to each question correctly answered by the participant. The total knowledge scores were categorized according to modified Bloom's cut-off criteria, where participants scoring ≥80% (4-6 points) were considered to have good knowledge.[15]

Data management and analysis

Data were coded to maintain confidentiality, and the questionnaire was double-checked for proper completion. Missing values were replaced by the mean value. The data were entered into Microsoft Excel 2016 and imported into the Statistical Package for Social Sciences (SPSS version 26) for cleaning and analysis. Descriptive statistics were used to present the frequencies and percentages for categorical variables.

Ethical consideration

The study protocol was approved by the Institutional Review Board of the Faculty of Health Sciences of the University of Buea. Participants were informed of the objectives and benefits of contributing to the study. Written consent was signed by the study participants who agreed to participate in the study. The privacy and confidentiality of the participants' information were strictly respected, and all the specimens and data were handled in accordance with ethical principles for human subject research.

The objectives and context of the study were clearly explained to participants, who were informed of the potential benefits of the study and their right to withdraw at any time without consequence. They were also encouraged to ask questions that were addressed satisfactorily before they participated.

RESULTS

Socio-demographic characteristics of study participants

The mean age of the participants was 40.81 (SD±16.85) years. Most of the respondents were 21-40 years of age (88, 48.9%), and most of the respondents were women (138, 76.7%). A large percentage of the participants were single (168, 93.3%). In terms of education, the greatest proportion had reached the tertiary level (88, 48.9%). With respect to occupational status, most were unemployed (72, 40.0%), and the majority of the monthly income brackets were 10,000–50,000 XAF (80, 44.4%) (Table 1).

Table 1: Sociodemographic characteristics of the study participants.

Variable	Category	Frequency (N=180)	Percentage
Age group (years)	1-20	16	8.9
	21-40	88	48.9
	41-70	68	37.8
	71+	8	4.4
Sex	Female	138	76.7
	Male	42	23.3
Marital status	Married	12	6.7
	Single	168	93.3
Occupa-tion	Employed	50	27.8
	Retired	4	2.2
	Self employed	54	30
	Unemployed	72	40
Level of education	Illiterate	8	4.4
	Primary	16	8.9
	Secondary	68	37.8
	Tertiary	88	48.9
Monthly income (XAF)	>200000	16	8.9
	10000-50000	80	44.4
	100000-200000	36	20
	60000-100000	48	26.7

Lifestyle characteristics of the study participants

Cam-water was the major source of water (66 (36.7%)). The most popular toilet system was the flushing system (98 (54.4%)). With respect to medication, most of the participants (90, 50.0%) reported that they only occasionally took unprescribed drugs. Moreover, more than 50% of the respondents were alcohol users (100, 55.6%), and most were nonsmokers (166, 92.2) (Table 2).

Prevalence of H. pylori in the Buea Regional Hospital

Among the 180 participants included in this study, 47% (96) were infected with *H. pylori* (Figure 1).

Knowledge of H. pylori in the Buea Regional Hospital

Most participants were very familiar with gastritis (164, 91.1%), and more than half of the participants said that they had gastritis personally (102, 56.7%). Although most were aware of the symptoms of gastritis (100, 55.6%) and what to do to alleviate the related pain (100, 55.6%), fewer of them were aware of what caused gastritis (74, 41.1%). The majority of the participants failed to identify the typical pain associated with gastritis (122, 67.8%) (Table 3).

Table 2: Lifestyle characteristics of the study participants.

Variable	Category	Frequency (N=180)	Percentage
Water system used	Borehole	44	24.4
	Cam-water	66	36.7
	Mineral water	30	16.7
	Stream	40	22.2
Toilet system used	Flushing system	98	54.4
	Pit toilet	82	45.6
Take drug with no prescription	Always	30	16.7
	Never	60	33.3
	Sometimes	90	50
Alcohol	No	80	44.4
	Yes	100	55.6
Smoking	No	166	92.2
	Yes	14	7.8

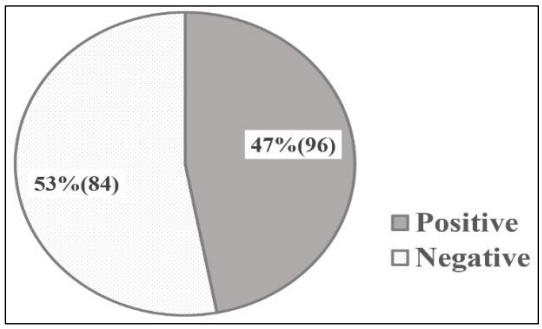

Figure 1: Prevalence of *H. pylori* in the Buea Regional Hospital.

Table 3: Knowledge of *H. pylori* in the Buea Regional Hospital.

Variable	Category	Frequency (N=180)	Percentage
Heard of gastritis	No	16	8.9
	Yes	164	91.1
Have gastritis	I don't know	26	14.4
	No	52	28.9
	Yes	102	56.7
Identify symptoms of gastritis	Yes	100	55.6
	No	80	44.4
Describe pain of gastritis	Yes	58	32.2
	No	122	67.8
Identify what to do to ease pain	Yes	100	55.6
Identify causes of gastritis	Yes	74	41.1
	No	106	58.9

Overall knowledge of H. pylori among the study participants

Among the 180 participants who were included in this study, 60% (108) had good knowledge of *H. pylori* infection (Figure 2).

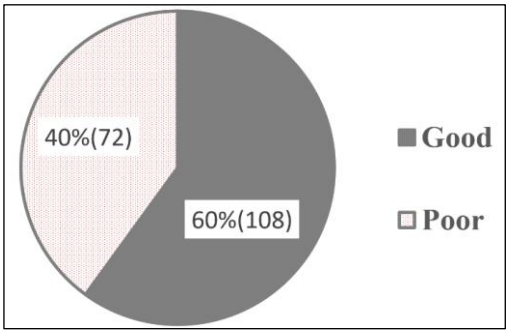

Figure 2: Overall knowledge of *H. pylori* among the study participants.

Factors associated with H. pylori knowledge

The chi-square test revealed that several sociodemographic and lifestyle factors were significantly associated with the level of knowledge of *H. pylori* infection. occupation of a participant was strongly associated with knowledge level (x^2=9.355, p=0.019). monthly income was also significantly associated (x^2=16.652, p=0.001). With respect to environmental aspects, the type of water system used (x^2=9.268; p=0.025) and the type of toilet system used (x^2=11.707; p=0.001) were significantly associated with the level of knowledge among the study participants (Table 4).

Predictors of H. pylori infection

The predictor analysis of *H. pylori* infection first revealed several important predictors using a simple logistic regression model. Nonetheless, four variables were significant predictors after eliminating possible confounders in the multiple logistic regression model, and occupation was a strong predictor of a lower risk of becoming infected among employed individuals than among unemployed individuals (aOR=0.37, 95% CI: 0.15-0.934; p=0.035). The level of education also differed significantly, with people with a secondary education having greater odds of infection than people with a tertiary education did (aOR=1.12, 95% CI: 1.033, 3.313; p<0.001). Individuals who used drugs regularly without a prescription were at increased risk of being infected (aOR=3.25; 95% CI: 1.118-9.46; p=0.03). The use of alcohol was also a stronger predictor of a lower likelihood of infection among nondrinkers than among drinkers (aOR=0.48; 95% CI: 0.176-0.759; p=0.017). The use of toilets was important, and the use of a flushing toilet was less likely to result in infection than the use of a pit toilet was (aOR=0.23; 95% CI: 0.083-0.65; p=0.005) (Table 5).

Table 4: Factors associated with *H. pylori* knowledge.

		Knowledge level			
Variable	**Category**	**Good, N (%)**	**Poor, N (%)**	X^2	**P value**
Age group (years)	1-20	6 (5.6)	10 (13.9)	7.286	0.06
	21-40	50 (46.3)	38 (52.8)		
	41-70	48 (44.0)	20 (27.8)		
	71+	4 (3.7)	4 (5.6)		
Occupation	Employed	34 (31.5)	16 (22.2)	9.355	0.019
	Retired	4 (3.7)	0 (0)		
	Self employed	36 (33.3)	18 (25.0)		
	Unemployed	34 (31.5)	38 (52.8)		
Level of education	Illiterate	4 (3.7)	4 (5.6)	3.715	0.298
	Primary	12 (11.1)	4 (5.6)		
	Secondary	36 (33.3)	32 (44.4)		
	Tertiary	56 (51.9)	32 (44.4)		
Monthly income (XAF)	>200000	16 (14.8)	0 (0)	16.652	0.001
	10000- 50000	44 (40.7)	36 (50.0)		
	100000-200000	24 (22.2)	12 (16.7)		
	60000-100000	24 (22.2)	24 (33.3)		
Marital status	Married	6 (5.6)	6 (8.3)	0.536	0.33
	Single	102 (94.4)	66 (91.7)		
Water system used	Borehole	18 (16.7)	26 (36.1)	9.268	0.025
	Cam-water	42 (38.9)	24 (33.3)		
	Mineral water	20 (18.5)	10 (13.9)		
	Stream	28 (25.9)	12 (16.7)		
Toilet system used	Flushing system	70 (64.8)	28 (38.9)	11.707	0.001
	Pit toilet	38 (35.2)	44 (61.1)		
Take drug without prescription	Always	12 (11.1)	18 (25.0)	6.019	0.058
	Never	38 (35.2)	22 (30.6)		
	Sometimes	58 (53.7)	32 (44.4)		
Alcohol	No	50 (46.5)	30 (41.7)	0.375	0.323
	Yes	58 (53.7)	42 (58.3)		
Smoking	No	100 (92.6)	66 (91.7)	0.052	0.516
	Yes	8 (7.4)	6 (8.3)		

Table 5: Predictors of *H. pylori* infection.

Variable	**Category**	**cOR (95%CI)**	**P value**	**aOR (95%CI)**	**P value**
Occupation	Employed	0.89 (0.366,0.927)	0.006	0.37 (0.15,0.934)	0.035
	Retired	0.27 (0.101,7.186)	0.426	0.52 (0.059,4.611)	0.559
	Self employed	0.31 (0.279,0.672)	0.002	0.55 (0.228,1.351)	0.195
	unemployed	1		1	-
Level of education	Illiterate	1.48 (0.092,2.522)	0.387	0.85 (0.034,1.935)	0.187
	Primary	2.64 (1.377,5.094)	0.004	2.05 (0.364,11.562)	0.416
	Secondary	1.21 (1.04,1.964)	0.045	1.12 (1.033,3.313)	<0.001
	Tertiary	1		1	-
Take drugs without prescription	Always	1.875 (0.966,3.639)	0.063	3.25 (1.118,9.46)	0.03
	Never	0.455 (0.183,1.129)	0.089	0.7 (0.311,1.578)	0.39
	Sometimes	1		1	-
Alcohol consumption	No	0.511 (0.281,0.931)	0.028	0.48 (0.176,0.759)	0.017
	Yes	1		1	-
Toilet system used	Flushing system	0.76 (0.374,3.203)	0.061	0.23 (0.083,0.65)	0.005
	Pit toilet	1		1	-

DISCUSSION

The prevalence of *H. pylori* in the study was 47% (96 of 180). These findings are in line with other results in Cameroon, where the rates have been between 47.4 and 72.5% with the different diagnostic methods and the population sample used.[16] For example, one study in Yaounde reported a prevalence rate of 74.9% among patients with chronic atrophic gastritis, with another study in Buea reporting a prevalence rate of 52.27%.[17,18] The prevalence observed here can be explained by a lack of access to healthcare and irregular treatment among the residents in the area, providing *H. pylori* with a chance to survive and proliferate in the area. Additionally, the relatively high knowledge rate of participants (60%) may have led to increased positive preventive practices in accordance with the comprehensive work on community health mobilization. This finding is consistent with the fact that *H. pylori* has been shown to share transmission conditions with waterborne infections such as cholera; hence, interventions aimed at sanitation and hygiene are likely to decrease its transmission.[19] Despite the fact that the prevalence was not stratified by age, prior studies in Cameroon and other African-based locations have indicated that the proportion is higher in younger persons and decreases with age because of early acquisition and possible immune response.[20]

The overall knowledge of *H. pylori* infection was good, and this is better than in most developing nations where knowledge about the disease is often poor.[21] To illustrate this, studies from Jordan and Saudi Arabia have indicated a 59-64% rate of awareness, with gaps in transmission and symptoms.[22,23] The good knowledge in our study could be linked to hospital exposure, education, and occupation, where higher education was related to a reduced risk of infection. Our participants must be aware because of regional health campaigns, in contrast to reviews in Africa, where there is poor knowledge of bacterial etiology and transmission.[24] However, some loopholes may exist, such as for hygienic prevention. Multidimensional interventions such as media campaigns, seminars, and community projects are suggested to increase awareness in Cameroon and reach high-risk populations such as unemployed and low-educated individuals.

The predictors of *H. pylori* infection identified in this research include socioeconomic and behavioral risk factors. Those employed were less prone to infection, probably because of increased access to healthcare and hygiene. These observations are in line with the findings of other studies linking high socioeconomic status with low prevalence levels.[25,26] Low educational levels increase the likelihood of infection, which is in line with the findings of studies in Ethiopia and East Africa, where low education is associated with low awareness of infection spread.[27,28] Self-prescription resulted in an increased risk of becoming infected through regular self-medication, which may be because of an incomplete course of antibiotics leading to resistance or hiding of symptoms, as observed in African settings.[29] Alcohol use was a predictor, and nondrinkers were less likely to be infected, which is consistent with the evidence regarding the connection between alcohol use and the risk of infection in East Africa, where gastric mucosa damage was associated with increased susceptibility.[30] Last, the use of a flushing toilet was effective in contrast to the use of pit latrines, which support sanitation as one of the determinants of fecal-oral spread. These findings were in line with those of studies in rural Africa. [30] Considering the results of the current research, multifaceted interventions should be prioritized by the public health authorities of the southwestern region of Cameroon to reduce the burden of *H. pylori* infection. These should incorporate educational campaigns that target high-risk groups, including those with low education levels and unemployed individuals, with the goal of having good sanitation habits, engaging in self-medication without prescriptions, and moderating alcohol consumption. Medical practitioners in institutions such as the Buea Regional Hospital must consider regular screening and education on *H. pylori* disease transmission during patient visits and work with community groups to increase access to better sanitation systems. In addition, policymakers are encouraged to invest in socioeconomic development projects, which increase work opportunities and access to education since both elements lower the risk of infection.

CONCLUSION

This cross-sectional study at the Buea Regional Hospital in the southwestern region of Cameroon revealed that the prevalence of *Helicobacter pylori* infection was 47% and that the level of good knowledge of the infection was relatively high (60%). Some of the major predictors determined by multivariate logistic regression were socioeconomic (unemployment, low education), behavioral and environmental (self-medication without prescription, alcohol use and use of pit toilets) predictors. These results highlight the ongoing resource-limited burden of transmission of *H. pylori*, which is caused by the interaction of modifiable risk factors with socioeconomic inequalities. The focus of preventive measures should be on education and awareness campaigns that are aimed at promoting preventive behaviors, enhancing sanitation conditions, and advancing proper antimicrobial control, especially in vulnerable groups. Local prevalence information could be used to eradicate disease, thereby helping to considerably decrease related complications, including peptic ulcers and gastric cancer. Longitudinal studies and molecular diagnostics should be used in the future to confirm these associations and determine the effectiveness of interventions in other African settings, eventually leading to a reduction in morbidity caused by *H. pylori* worldwide.

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REFERENCES

1. Ren S, Cai P, Liu Y, Wang T, Zhang Y, Li Q, et al. Prevalence of Helicobacter pylori infection in China: A systematic review and meta-analysis. J Gastroenterol Hepatol. 2022;37(3):464-70.
2. Narayanan M, Reddy KM, Marsicano E. Peptic ulcer disease and Helicobacter pylori infection. Missouri Medi. 2018;115(3):219.
3. Sripa B, Deenonpoe R, Brindley PJ. Coinfections with liver fluke and Helicobacter species: A paradigm change in pathogenesis of opisthorchiasis and cholangiocarcinoma?. Parasitol Inter. 2017;66(4):383-9.
4. Khoder G, Muhammad JS, Mahmoud I, Soliman SS, Burucoa C. Prevalence of Helicobacter pylori and its associated factors among healthy asymptomatic residents in the United Arab Emirates. Pathogens. 2019;8(2):44.
5. Yeh JM, Kuntz KM, Ezzati M, Goldie SJ. Exploring the cost-effectiveness of Helicobacter pylori screening to prevent gastric cancer in China in anticipation of clinical trial results. Int J Cancer. 2009;124(1):157-66.
6. Zhu Y, Zhou X, Wu J, Su J, Zhang G. Risk factors and prevalence of Helicobacter pylori infection in persistent high incidence area of gastric carcinoma in Yangzhong city. Gastroenterol Res Pract. 2014;2014(1):481365.
7. Mohammad MA, Hussein L, Coward A, Jackson SJ. Prevalence of Helicobacter pylori infection among Egyptian children: impact of social background and effect on growth. Publ Heal Nutrit. 2008;11(3):230-6.
8. Andoulo FA, Ngatcha G, Tagni-Sartre M, Sida MB, Ndam EN. Helicobacter pylori infection and peptic ulcer disease in children and adolescents from the age range of 6 to 18 years old in Yaounde (Cameroon). Heal Sci Dis. 2015;16(4).
9. Shi R, Xu S, Zhang H, Ding Y, Sun G, Huang X, Chen X, Li X, Yan Z, Zhang G. Prevalence and risk factors for Helicobacter pylori infection in Chinese populations. Helicobacter. 2008;13(2):157-65.
10. Driscoll LJ, Brown HE, Harris RB, Oren E. Population knowledge, attitude, and practice regarding Helicobacter pylori transmission and outcomes: a literature review. Fronti Publ Heal. 2017;5:144.
11. Shafiq H, Zafar I, Shafiq S. A systematic review on current trends of socioeconomic disparities and Helicobacter pylori associated risk factors. Res Med Sci Rev. 2024;2(3):1732-48.
12. Hooi JK, Lai WY, Ng WK, Suen MM, Underwood FE, Tanyingoh D, et al. Global prevalence of Helicobacter pylori infection: systematic review and meta-analysis. Gastroenterol. 2017;153(2):420-9.
13. Abongwa LE, Samje M, Antoine KS, Alberic S, Elvis M, Benardette L, et al. Knowledge, practice and prevalence of Helicobacter pylori infection in the north west region of Cameroon. Clin Biotechnol Microbiol. 2017;1(4):135-43.
14. Padmavathi GV, Nagaraju B, Shampalatha SP, Nirmala M. Knowledge and factors influencing on gastritis among distant mode learners of various universities at selected study centers around Bangalore city with a view of providing a Pamphlet. Schol J Appl Med Sci. 2013;1:101.
15. Ashebir W, Molla A, Abate D, Terefe B, Ayenew B, Wubneh CA. Knowledge, attitude, practice, and factors associated with prevention practice toward COVID-19 among healthcare providers in Ethiopia. PLOS Global Public Health. 2022;2(5):e0000171.
16. Kouitcheu Mabeku LB, Noundjeu Ngamga ML, Leundji H. Potential risk factors and prevalence of Helicobacter pylori infection among adult patients with dyspepsia symptoms in Cameroon. BMC Infect Dis. 2018;18(1):278.
17. Mabeku LB, Florice FN, Nguefak LD, Timba IN, Ngatcha G, Tagni SM, et al. Oxidative stress dynamic among helicobacter pylori-positive patients with various stages of premalignant histologic lesions: a prospective study in Cameroon. APJCP. 2025;26(10):3609-18.
18. Aminde JA, Dedino GA, Ngwasiri CA, Ombaku KS, Mahop Makon CA, Aminde LN. Helicobacter pylori infection among patients presenting with dyspepsia at a primary care setting in Cameroon: seroprevalence, five-year trend and predictors. BMC Infect Dis. 2019;19(1):30.
19. Smith S, Fowora M, Pellicano R. Infections with Helicobacter pylori and challenges encountered in Africa. World J Gastroenterol. 2019;25(25):3183.
20. Alfaray RI, Saruuljavkhlan B, Ansari S, Fauzia KA, Yamaoka Y. epidemiology of Helicobacter pylori infection. Microbiota Health Dis. 2022;4(3):e733.
21. Alajmi SM, Alsulami TM, Mudayhish MA, Alhawas MA, Alangari MS, Alfarhan A, et al. Knowledge and attitude of medical students towards helicobacter pylori infection and its prevention and management: a study from Riyadh, Saudi Arabia. Cureus. 2023;15(12).
22. Sabbagh P, Mohammadnia-Afrouzi M, Javanian M, Babazadeh A, Koppolu V, Vasigala VR, et al. Diagnostic methods for Helicobacter pylori infection: ideals, options, and limitations. Europ J Clin Microbiol Infect Dis. 2019;38(1):55-66.
23. Akeel M, Elmakki E, Shehata A, Elhafey A, Aboshouk T, Ageely H, et al. Prevalence and factors associated with H. pylori infection in Saudi patients with dyspepsia. Electron Physi. 2018;10(9):7279.
24. Hakami OA, Alsubaie RA, Albaqami BA, Almutlaq HM, Alqahtani NM, Alkhonezan M, et al. Knowledge

and perception of Physicians of different specialties in Saudi Arabia toward Helicobacter pylori. J Multidisciplin Healthc. 2023:763-71.
25. Zandian H, Moghadam TZ, Pourfarzi F, Malekzadeh R, Rezaei S, Ghorbani S. Gastric troubles in Iran: The role of social and economic factors in Helicobacter pylori infection. Heal Promot Perspect. 2023;13(2):120.
26. Zhang L, Eslick GD, Xia HH, Wu C, Phung N, Talley NJ. Relationship between alcohol consumption and active Helicobacter pylori infection. Alcohol Alcohol. 2010;45(1):89-94.
27. Geraghty J, Thumbs A, Kankwatira A, Andrews T, Moore A, Malamba R, et al. Helicobacter pylori, HIV and gastric hypochlorhydria in the Malawian population. PLoS One. 2015;10(8):e0132043.
28. Che TH, Nguyen TC, Vu VN, Nguyen HT, Hoang DT, Ngo XM, et al. Factors associated with Helicobacter pylori infection among school-aged children from a high prevalence area in Vietnam. Int J Publ Heal. 2023;68:1605908.
29. Metanat M. Self-Medication With analgesics and Helicobacter pylori Infection. Int J High Risk Behav Addict. 2015;4(2):e26155.
30. Mnichil Z, Nibret E, Hailegebriel T, Demelash M, Mekonnen D. Prevalence and associated risk factors for Helicobacter pylori infection in East Africa: a systematic review and meta-analysis. Brazil J Microbiol. 2024;55(1):51-64.

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