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Sources of knowledge and information about Helicobacter pylori in Iraq

Aldhahi Hasan Issa[1] , Iman Kamel Ati[2], Ousama Aziz Ibrahim[3]
[1]*College of Dentistry,University of Misan , Amarah,Maysan , Iraq.*
[2]*College of Nursing, University of Misan, Amarah,Maysan, Iraq.*
[3]*Al-Manara college for medical sciences, Amarah,Maysan,Iraq.*

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ABSTRACT
The Ministry of Health declared in 2017 that stomach cancer is an illness. most cancer instances that are diagnosed. Helicobacter pylori, one of the stomach bugs Risk factors in the first place, is frequently linked to stomach cancer. Despite the great incidence of H. pylori, nothing is known about how well-informed the general public is about the dangers of this infection. The purpose of the study is to assess the general population's awareness about H. pylori and the influence that information has on its source. Between May and July of 2021, 933 people were included in a cross-sectional survey. upon fulfillment of inclusion requirements by filling out the form, individuals consented to take part in this study.
The following components were addressed by the interview-based questionnaire: knowledge of H. pylori infection and sociodemographic data. Sixty-three percent of individuals were well educated, seventy-five percent learned about H. pylori infection from non-medical sources, and sixty-seven percent were cognitively deficient. A strong correlation was found between having a high level of knowledge and working in the medical area, using medical resources for information, and having a family history of H. pylori infection. Mann Whitney U- test shows the results of the indicated that the non-medical source group's mean rankings for all cognitive tasks are considerably lower than those of the medical source group ($P < 0.05$). Unsatisfactory awareness of H. pylori existed, as it does elsewhere. Nonetheless, it has been determined that there are misunderstandings regarding H. pylori, and greater awareness must be raised and it is notified. Vigilant observation of non-clinical data sources is necessary to provide the public with a suitable level of information.
Keywords:- H.pylori, Awareness of H.pylori,

I.INTRODUCTION

A bacterium known as Helicobacter pylori sparked the curiosity of several researchers to learn more about this organism, which has grown to be a global concern in an effort to eradicate it and reduce the issues it causes, including stomach cancer [1]. By 2020, gastric cancer—which is currently the fifth most frequent disease globally—will have one million additional cases linked to H. pylori infection [2]. Globally, stomach cancer rates for both sexes were greatest in Eastern Asia [3].

Regretfully, the republic of iraq lacks current epidemiological or statistical data about stomach cancer. With 3.3% of all cancer cases in iraq, stomach cancer ranks tenth among the most common malignancies diagnosed in the country, according to data from the Ministry of Health n in 2017 [4].

Furthermore, gastric cancer ranks seventh in incidence among males and tenth in incidence among females. Because there is no national screening programme in place, there is little statistical data about stomach cancer in the nation. Furthermore, other emerging nations throughout the globe have a comparable high prevalence [5, 6]. It's interesting to note that a cross-sectional research discovered that 88% of the population had positive H. pylori tests [7]. However, compared to poor nations, industrialised nations have demonstrated a lower frequency [8]. This has been connected to and related to a number of unsanitary facility and infrastructure practices [9]. One of the most important variables linked to the high incidence of H. pylori in the population of Iraq is knowledge. Worldwide, the general public's understanding and awareness of H. pylori infection is insufficient [10].

Unfortunately, to the best of our knowledge, no published information exists about the general population's awareness of H. pylori infection. The reliability of the information sources employed has a big impact on the value of the knowledge gained. One may find relevant health information from a number of sources, such as medical experts, TV, radio, books, the internet, and social media platforms. According to a research carried out in the Middle East, experts were the most often used information source by the general

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public [11]. However, a Saudi Arabian cross-sectional study revealed that participants are greatly impacted by the information found on social media sites [12]. These results [11, 12] point to the necessity of evaluating the reliability, correctness, and sufficiency of various information sources on the general public's level of knowledge.

This study's main objectives are to evaluate knowledge levels and look into sociodemo graphic variables that are associated with high knowledge levels. The secondary goal was to determine the various informational domains that will impact the general population's comprehension of H. pylori infection and the areas that require improvement in order to achieve the best understanding and adequate knowledge of H. pylori infection.

II.MATERIALS AND PROCEDURES

Selection of samples and research settings

Descriptive cross-sectional study was carried out at al -Yarmouk University Hospital betweenMay and July of 2021. Outpatient Visitors of al -Yarmouk University Hospital were encouraged tovoluntarily take part in the study. Participants had to be at least 18 years old, able to converseverbally in Arabic, and willing to engage in the study to be enrolled. Those who did not matchthe inclusion criteria were excluded. Convenience sampling method was used to recruit theparticipants from outpatient clinic visitors in different clinics. Medical students from 5th and6th years were trained by the research team to interview the volunteered visitors.Those who consented to take part in the study responded to questions concerning their knowledge of H. pylori and the source of the material utilized in the interview. Completing the questionnaire required eight minutes. Based on 50% prevalence and a 5% margin of error, 385 is the projected minimum sample size required for the study [13].

Establishing ofthe survey

Based on earlier research [15–17] and a study of the literature [14], a questionnaire has been created. Since there isn't a validated instrument for evaluating community knowledge. Questionnaire was written in Arabic. After the survey was finished, it was analyzed and verified by gastroenterologists and microbiologists. Following pilot testing, certain linguistic and grammatical changes were made to ensure that the questions were comprehensible. The internal consistency was evaluated, and Cronbach's alpha of knowledge was calculated (0.81).

Measurement method

An online questionnaire in Arabic was used to collect the data, and it included the following sections: general knowledge and background information on the participants. Age, gender, marital status, level of education, occupation (medical, non-medical, not working), self-reported history of H. pylori infection (yes, no), family history of H. pylori infection (yes, no), current housing type (urban/rural), and source of information about H. pylori (medical, i.e., directly from doctors, nurses, pharmacists, etc., or educational field), non-medical, i.e. from a family member or friend, social media, TV/radio, etc.) were among the sociodemographic characteristics collaborative. There were forty-three questions on various H. pylori-related issues in the questionnaire. To determine the degree of knowledge of H. pylori, the questions are broken down into seven primary items. These items include: **1) H. pylori's nature**. [For example, is it a worm, virus, bacterium, or parasite?] **2) Organs impacted by H. pylori, 3) route of transmission, 4) typical symptoms and indicators, 5) diagnosis techniques, 6) treatment options, 7) basic understanding of H. pylori**, such as its frequency in country, significant risk factors, and consequences. The following were the responses to the questions:

(Yes, no, I have no idea). One point was awarded to those who properly answered the question; zero points were awarded to those who said "no" or "I don't know." The knowledge scores of the participants in this study were classified into a binary group (high knowledge) using a cut-off value of 75%. and inadequate understanding).

Considerations of ethics

In meeting No. 2021, the Institutional Review Board of the University that chose as center of analyzing, examined and approved the study protocol. It was composed with the principles of the Helsinki Declaration in mind. Before the questionnaire was introduced, each participant was asked for their informed consent. Only the principal investigator had access to the data once it was collected, and it was held in complete confidence.

III.STATISTICAL DATA ANALYSIS

The data were imported into IBM SPSS version 25 (IBM Corp., Armonk, N.Y., USA) for analysis after being inputted into Microsoft Excel (2016). Descriptive statistics were calculated and reported as either mean and standard deviation (SD) or frequency and percentage for each quantitative and categorical variable. The Chi-

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square test was used to examine relationships between knowledge (binary level) and demographic factors. In order to evaluate the independent influence of each variable, significantly related variables were included in a multivariate regression analysis that adjusted for relevant confounders. The relationship between the source of information variable and the mean scores of the knowledge score items was assessed using the Mann-Whitney U-test. A 92% Confidence Interval and a p-value of $\alpha < 0.04$ were established to assess the statistical significance of the presented findings.

IV.RESULTS AND DISCUSSION

Results

The participants individuals' sociodemographic characteristics

933 people in all fulfilled the requirements for inclusion and answered the questionnaire. Table 1 shows the sociodemographic features of this group. 588 people (63%) had completed a diploma programme or above, indicating a high level of education. Furthermore, 119 individuals (12.5%) are employed in the medical industry. Additionally, 301 (32.3%) of participants had a family history of H. pylori infection, and 165 (17.7%) of individuals self-reported having a history of H. pylori infection. Additionally, 275 people (29.5%) learned about H. pylori infection from medical sources.

Understanding H. pylori and the component that's associated with

S1 Table displays an overview of the participant's right responses. Of the 933 participants, the knowledge levels of 292 (31.3%) and 641 (68.7%) were high and poor, respectively.

Table 1: shows the sociodemographic details of the 933 participants in the H. pylori questionnaire.

Characteristics	(n/mean)	(%/SD)
Age	40.4	±16.1
Gender		
Male	493	52.8
Female	440	47.2
Education Level		
Low	345	37
High[1]	588	63
Marital Status		
Married	602	64.5
Unmarried	331	35.5
Job Field		
Medical	119	12.5
Non-medical	487	52.2
No work	327	35
Type of Residence		
City	824	88.3
Village	109	11.7
Self-reported History of *H. pylori* Infection		
Yes	165	17.7
No	768	82.3
Family History of *H. pylori*		
Yes	301	32.3
No	632	67.7
Source of Information		
Medical	275	29.5
Non- medical	658	70.5

SD: Standard deviation

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1 High education: whether the individual held a higher degree or a diploma.

Only 37.3% of respondents said that H. pylori is a member of the bacterial species. The stomach was selected by 76.7% of participants as the organ that H. pylori colonizes. The primary pathway of H. pylori transmission and the proportion of individuals that answered correctly answers were as the following: food (68.6%), water (63.8%), and saliva (38.4%).

In terms of H. pylori infection signs and symptoms, the percentage of accurate symptoms was 75.5% for stomach pain, 68.4% for nausea/vomiting, and 59.8% for abdominal bloating. Regarding the course of treatment, triple therapy was recommended by 72.7% of respondents as the primary means of curing H. pylori infection. Regarding the H. pylori diagnosis, the accurate answers given by the participants were: endoscopy (62.4%), urea breath test (13.8%), and stool antigen (62.2%). In response to general knowledge questions, 44.1% of participants acknowledged that over 50% of Iraqis may have H. pylori infection. of the participants, 69.1% and 55.2%, respectively, stated that H. pylori is responsible for the development of duodenal and stomach ulcers. Moreover, 59.5% of participants agreed that, in the absence of treatment, an H. pylori infection can be fatal. Sixty-six percent of participants said that eating spicy food and sixty-three percent said that long-term stress might exacerbate the symptoms of an H. pylori infection. In response to a question about the long-term risk of developing malignancy as a result of a chronic H. pylori infection, participants indicated that the infection can cause stomach cancer and mucosa-associated lymphoid tissue (MALT) B-cell lymphomas, respectively, with 45.7% and 26.6% of them saying as much.

Table 2 displays the sociodemographic characteristics that were statistically substantially correlated with knowledge. The following variables were found to be significantly correlated with the results of multivariate logistic regression analysis: job field (Medical: OR = 2.936; 95% CI = 1.718–5.018, p = 0.000; ref: No-work), educational level (Higher education: OR = 1.948; 95% CI = 1.355–2.801, p = 0.000; ref: Lower educational level), self-reported history of H. pylori (Yes: OR = 2.119; 95% CI = 1.392–3.225, p = 0.000; ref: No), family history of H. pylori (Yes: OR = 2.129; 95% CI = 1.545–2.935, p = Table 3 reports the results of the multivariate logistic regression analysis, which showed that knowledge of H. pylori was not significantly linked with age, gender, marital status, or residence.

The information's origins and degree of comprehension

The research participants acquired their knowledge regarding H. pylori infection from a variety of sources, as indicated in Table 1. Most of the participant 658 (70.5%) got their information from non-medical sources such TV, social media, friends, and family. On the other hand, just 275 participants, or one-third, (29.5%), learned about H. pylori infection via medical sources like doctors or research studies. A strong statistical relationship between the information source and the degree of awareness regarding H. pylori infection has been discovered by classifying the sources of information into medical and non-medical sources (p-value =.000). The results of the Mann-Whitney U test indicate that all knowledge items in the medical source category have a mean rank that is substantially higher than those in the non-medical source group category (p-values < 0.05). Table 4 displays the mean rankings and p-values for every question posed.

V.DISCUSSION

Not much research has been done to find out how much the general public knows about H. pylori infection. Examining the level of public knowledge of H. pylori infection may help identify the different approaches anticipated to get rid of the bacteria and avoid the long-term effects of chronic H. pylori infection. As far as we are aware, this study is the first in Iraq to present the degree of understanding regarding H. pylori infection and associated risk factors.

More than nine hundred outpatient visits to the University Hospital participated in this study. The responses indicated low awareness of the following topics: the nature of H. pylori, organs colonised by H. pylori, frequent signs and symptoms of H. pylori infection, the definitive treatment and diagnosis, and general knowledge about H. pylori prevalence in country. Overall, it appears that the population is less aware of H. pylori infection. Mucosa-associated lymphoid tissue (MALT) B-cell lymphomas and stomach cancer are two further long-term consequences of H. pylori infection.

Of the participants, around half knew that a chronic H. pylori infection might cause gastric cancer as well as duodenal and stomach ulcers. This study revealed higher awareness than other research from China and the United Arab Emirates [15–18], and it resembled a study from Korea [19] quite a bit. This study demonstrated a relationship between higher levels of knowledge and certain

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sociodemographic traits. Compared to men, women are far more knowledgeable about H. pylori infection. This is consistent with other research [15–17] and may be related to the fact that women frequently fill the position of family carer, which increases their encounters with physicians to gain knowledge about a range of illnesses. As expected, those with greater education levels and those employed in the medical field are more aware of H. pylori infection, as has been shown in earlier research [15, 17].

Table 2 shows the correlation between general population sociodemographic traits and H. pylori knowledge (n = 933).

Variables	Level of Knowledge		
	High (n = 292)	Low (n = 641)	P-value
Age (mean/SD)	38.5 (±15)	41.2 (±16.5)	0.014
Gender:			0.010
Female	156	284	
Male	136	357	
Marital Status:			0.092
Married	177	425	
Unmarried	115	216	
Education Level:			0.000
Low	74	271	
High	218	370	
Job Field:			0.000
Medical	76	43	
Non-medical	125	362	
No-work	91	236	
Residence:			0.494
City	261	559	
Village	31	78	
Self-reported History of *H. pylori* infection			0.000
Yes	83	82	
No	209	559	
Family History of *H. pylori*			0.000
Yes	123	178	
No	169	463	
Source of Information:			0.000
Medical	148	127	
Non- medical	144	514	

According to our research, participants who had already been diagnosed with H. pylori infection or who had family members with the condition also tended to know more. This conclusion was reinforced by the fact that the doctor provides further information on H. pylori after making a diagnosis. Therefore, having an open-ended and interactive discussion with the patient and/or their companion after receiving information directly from a medical source, such as a healthcare practitioner, will facilitate a better comprehension of the situation. However, when indirect non-medical sources (such as the media, TV, or radio) are used, there is no such contact, which can result in ambiguity, inaccurate information, and an inability to satiate the patient's interest. The current study found unsatisfactory outcomes in terms of awareness. This is consistent with comparable research conducted in China, the United Arab Emirates and South Korea [15–17, 19]. Misconceptions in important domains were found. For instance, almost 50% of the participants did not think that stomach cancer or mucosa-associated lymphoid tissue (MALT) B-cell

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lymphomas were related to H. pylori infection. This emphasises how critical it is to step in and dispel such myths while raising awareness of the gravity of H pylori infection. Furthermore, as prevention of H. pylori infection would lessen its effects on the community and healthcare system, we think that health education might help prevent H. pylori infection.

Table 3: shows the relationships, using multivariate logistic regression, between knowledge and the sociodemographic traits of Iraq's whole population.

Covariates	Knowledge		
	OR	CI	p-value
Age 38.5(±15)	0.996	0.986–1.006	0.349
Gender			
Male	Reference		
Female	1.348	0.998–1.918	0.051
Education Level:			
Lower education	Reference		
Higher education	1.948	1.355–2.801	0.000
Job Field:			
Medical	2.936	1.718–5.018	0.000
Non-medical	0.852	0.554–1.161	0.411
No-work	Reference		
Self-reported History of *H. pylori* Infection			
Yes	2.119	1.392–3.225	0.000
No	Reference		
Family History of *H. pylori*			
Yes	2.129	1.545–2.935	0.000
No	Reference		
Source of Information:			
Medical	2.224	1.535–3.221	0.000
Non- medical	Reference		

OR: Odds ratio
CI: Confidence interval

Healthcare practitioners have to be particularly aware of these conundrums and incorporate preventative education into their courses. The results of this study indicate that participants mostly accessed non-medical sources. To restrict and manage incorrect and poorly apparent health-related material, we thus propose and advocate for the Ministry of Health to implement intense, tight monitoring of social media platforms, TV, and radio. As a result, it will raise public awareness of the need of gathering information from reliable and legitimate sources.

Table 4: presents the results of the Mann-Whitney test comparing information from medical and non-medical sources about the topics under inquiry.

Scale	Medical (n = 292)	Non-medical (641)	P-value
	Mean Rank	Mean Rank	
Organ Affected Item	602.44	410.4	.000
Mode of Transmission Item	586.52	417.05	.000
Symptoms Item	606.34	408.76	.000
Treatment Item	570.65	423.68	.000
Diagnosis Item	609.59	407.41	.000
General Knowledge Item	606.29	408.79	.000

Strengths and limitations

As far as we are aware, this is the first study that assesses people level of knowledge. The face-to-face way performance, which helped us get a high response rate and lessen participation bias, is one of the study's strengths. This is the first study to focus exclusively on knowledge of H. pylori. The single centre involved and the convenience sample strategy may have had an impact on how broadly applicable the findings were. The results are susceptible to memory bias due to self-reported information, such as participants' and their families' histories of H. pylori infection. Recall bias manifests itself in a variety of domains, and one major issue and study constraint is self-reporting bias. Recall bias manifests itself in a variety of domains, and one major issue and study constraint is self-reporting bias. It is a standard method used in epidemiologic and medical research, nevertheless, for data collection. Due to their quicker and more economical gathering, these data are easily accessible [20].

Furthermore, self-reported illness state and health are helpful predictors of actual underlying health status [21, 22]. Despite these drawbacks, the interview-based methodology used for this study allowed the researchers to advise participants to only disclose past infections if they were positive that they or a family member had received a diagnosis from a medical professional. Additionally, participants were assured of their anonymity to prevent them from overreporting in an attempt to obtain attention or underreporting out of fear of stigma. Lastly, gastroenterologists and microbiologists who optimised the questionnaire assisted in accurately conveying the questions to the participants.

One of the obstacles we ran into was the absence of a validated questionnaire. Since there was no validated questionnaire available to assess knowledge of H. pylori infection, the authors developed this survey. Therefore, in the future, a validated questionnaire has to be created. As a cross-sectional research, it is challenging to determine a cause-and-effect relationship. Moreover, the awareness was measured exclusively using quantitative methods. In reality, our study did not examine sociocultural elements like beliefs and traditions; further research should look at these elements in more detail.

VI.CONCLUSION

In conclusion, the prevalence of H. pylori infection is low in Iraq. A high level of knowledge of H. pylori infection was associated with higher education, employment in the medical sector, a history of H. pylori, a family history of H. pylori, and information obtained from medical sources. To raise general awareness, interventions to address the shortcomings and misunderstandings identified in the study should be implemented. In the country, creating public health campaigns and social programmes to increase awareness among the general public is essential.

The prevalence of H. pylori infection will decrease if people are aware of its basic concepts. Furthermore, promoting the public to obtain information about H. pylori infection from reliable sources will improve public awareness of the infection's routes of transmission and lessen its negative effects, including the incidence of gastric cancer that is a side effect of the infection. Future research ought to employ validated questionnaires, think about doing multicenter cross-sectional studies, and assess the prevalence of H. pylori in the intended audience.

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