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Pervasiveness and Sway of Peptic Ulcer Caused by *Heliocobacter Pylori* (*H. Pylori*) among Undergraduate Students in Wukari, Taraba State, North East, Nigeria

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Abstract: Peptic ulcer disease is one of the most common chronic infections in human population. Regardless of centuries of research, it still worries a lot of individuals, especially in the third world countries. Expressive investigation on the pervasiveness and impact of peptic ulcer was carried out among two hundred (200) undergraduate students in Federal University Wukari and Kwararafa University Wukari, Taraba State, North East, Nigeria with the use of well-designed and detailed questionnaires. These studies showed that majority of the students were between the ages of 21-25 years (108) representing (54%) and ages between 31 – 35 years has the lowest 8(4%). One hundred and three (103) of the 200 students reported to have ulcer (51.5%) whereas 97 (48.5%) of the total students reported no ulcer. Preponderance of the students have duodenal ulcer 67 (65%) whereas 36 (35%) has gastric ulcer and this gives ratio of approximately 2:1 respectively. The students reported the use of antacids 40 (39%), antibiotics 30 (29%), proton pump inhibitors (PPI) 8(9%), herbal medicine 18 (18%) and histamine 7 (7%) in the treatment of peptic ulcer, some students however, reported the used of mixed treatment. Conclusively, this study shed light on the prevalence of peptic ulcer (gastric and duodenal). Eliminating or reducing the drinking of alcohols if possible and helping the ulcer to heal with medication. Medications for treatment of ulcer include antibiotic medications to kill *H. pylori*. Also lessening of acid producing foods and drinks should be shunned. Avoiding tobacco products,caution with aspirin, non- ignoring ulcer symptoms, protect one from infections by washing hands regularly and consuming foods that have been cooked thoroughly are sure ways of preventing peptic ulcer.

keywords: Antibiotics, *Heliocobacter pylori*, Nigeria, Peptic ulcer, Prevalence, Undergraduate Students, Wukari

I. Introduction

Helicobacter pylori (H. pylori) are a gram negative, micro aerophilic, spiral shaped, flagellated, bacillus which colonizes the mucus layer of the gastric epitheliumLin *et al.*, (2017). It is a common infection world-wide with prevalence rates in the general population ranging from 30-40% in United States, 80-90% in South America and 70-90% in Africa.2-6 It is more common in developing countries, and its prevalence increases with age from 20% among teenagers to 50-60% of subjects in the 6th and 7th decades of life Sung *et al.,* (2009). Peptic ulcers are defects in the gastric or duodenal mucosa that extend through the muscularis mucosae Whitehead *et al.,* (2000). They develop and persist as a function of the acid-peptic activity in gastric juice. Peptic ulcer disease remains an important cause of morbidity and health care costs Vakil*et al.,* (2006). The natural history of peptic ulcer ranges from healing without intervention to the development of complications with the potential for significant morbidity and mortality, such as bleeding and perforation. This topic will review the epidemiology, etiology, and pathogenesis of peptic ulcer diseaseImarenezor, (2017). The clinical manifestations, diagnosis, and management of peptic ulcer disease are discussed in detail, separately. Incidence and prevalence — In a systematic review of 31 published studies, the pooled incidence of uncomplicated peptic ulcer disease (PUD) was approximately one case per 1000 person-years in the general population, and the incidence of ulcer complications was approximately 0.7 cases per 1000 person-years Lanas and Chan, (2017). The incidence and prevalence of PUD varies based upon the presence of *Helicobacter pylori* (*H. pylori*). Higher rates are found in countries where *H. pylori* infection is higher Bohmer and

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Schumacher, (2017). The incidence of PUD in *H. pylori*-infected individuals is approximately 1 percent per year, a rate that is 6-fold to 10-fold higher than for uninfected individuals El-Serag, (2014). A systematic review of seven studies from developed countries indicated a population-based one-year prevalence of PUD of 0.1 to 1.5 percent based on physician diagnosis and 0.1 to 0.19 percent based on hospitalization data Camiller, (2012). A study in the United States reported endoscopic point prevalence for peptic ulcers in asymptomatic, *H. pylori*-positive adults of 2 percent Ananthakrishman, (2015). Other studies, in presumably asymptomatic subjects in whom *H. pylori* status was unknown, have reported an endoscopic point prevalence ranging from 1 and 6 percent Camiller, (2012). Ulcer incidence increases with age for both duodenal ulcers (DUs) and gastric ulcers (GUs), but the incidence of uncomplicated PUD reached a plateau with age, whereas for complicated PUD, the incidence increases with age Malaty*et al*., (2010). DUs occur two decades earlier than GUs, particularly in males Lin *et al.*, (2017). *Helicobacter pylori* infection leads to chronic inflammation of gastric mucosa and peptic ulcer disease. It may influence the absorption of essential trace elements. The association between trace elements and *H. pylori* infection has been reported Malaty*et al.*, (2010). This is designed to compare the effects of *H. pylori* infection treatment on serum zinc, copper, and selenium levels. They concluded that *H. pylori* eradication regimen appears to influence the serum selenium concentration.*H. pylori* were linked with several extra gastrointestinal diseases, including preeclampsia and intrauterine growth restriction of fetus. There are several methods to detect *H. pylori* infection. One of them is the urease test using gastric mucosal tissue obtained during gastro endoscopy. Despite being proven that procedure is safe when performing on the pregnant women Saito, (2011). The general unwillingness, the high cost, the invasiveness of the procedure and the possible sampling error make it not the ideal choice for screening the *H. pylori* infection during pregnancySaito, (2011). The noninvasive tests include the urea breath test (UBT), the stool antigen test, and the serum *H. pylori* IgG antibody test. The latest one is easy to perform during antenatal examination and the existence of the antibody was found to be associated with the intrauterine growth restriction Mohammed *et al*., (2003). How the maternal *H. pylori* antibody influences the growth of the fetus is still elusive, but, interestingly, the antibody can be transmitted transplacentally to the fetus Verstockt, 2018. However, the detection of the serological antibody was frustrated because of the inconsistent accuracy caused by several factors, including the different antigen extracts, the kit uses, and variable *H. pylori* strain in different regions Mohammed *et al.*, 2003. However, accuracy of the test kit needs to be evaluated before utilization in screening. Patients who have experienced severe caustic injury to the gastrointestinal tract are at high risk of luminal strictures Watanabe et al., (2017). Early endoscopy is usually routinely recommended in patients after gastroesophageal caustic injuries and should unnecessary hospitalization and to plan future treatment after carefully assessing the severity of the initial digestive lesions Ijarotimi*et al*., (2017). Eradicating H. pylori is effective for infection-relevant PUD treatment Edje*et al*., (2022). However, understanding the host factors influencing H. pylori infection and subsequent response could contribute to earlier risk identification and/or prevention, especially given the increasing antimicrobial resistance worldwideEdje*et al*., (2022). Moreover, clinical presentation of PUD those is not associated with H. pylori infection, nor with the use of NSAIDs, are now also imposing substantial diagnostic and therapeutic challengesImarenezor *et al.*,(2017). Lifetime prevalence of PUD in the general population has been estimated to be about 5–10%Imarenezor *et al.*, (2017). An increase in the prevalence of GORD since 1995 has been reported. IBS, a common disorder with a population lifetime risk of 11% globallyEdje*et al*., (2022).IBD is associated with many lifestyle risk factors, particularly smoking and lifetime risk for IBD is around 0.3% in most countries of EuropeEdje*et al*., (2022).The genetic contributions to PUD, GORD, IBS and IBD have been well-recognized and well-powered genome-wide association studies (GWASs) have identified >200 approximately independent susceptibility loci associated with IBDImarenezor *et al*., (2022). These loci implicate pathways such as autophagy and the IL-17/IL-23 axis and provide insights into IBD pathogenesisWatanabe *et al*., (2017) and Imarenezor *et al*., (2022). Ulcers caused by H. pylori are treated with a combination of medications such as amoxicillin, clarithromycin and a PPI. Likewise, some Africa medicinal plants including *Azadirachtaindica, Carica papaya, Musa paradisca, Musa sapientum, Phyllanthusemblica, Moringaoleifera, Garcinia cambogia,* amongst others, are effective in the treatment of peptic ulcer Imarenezor *et al.*, (2016). In developing nations like Nigeria, the true epidemiological picture appears difficulty because of inadequate researchers in this direction despite its relevance in planning it prevention and control in any locality. To this end, this paper tends to evaluate the prevalence rate of peptic ulcer as caused by H. pylori in an endemic community like Wukari and environs which will broaden the existing epidemiological picture of this bacterial infection in this part of the globe and has a direct consequence on planning adequate prevention and control programme. Thus, this research is carried out to identify the pervasiveness and imapct of peptic ulcer and by extension *H. pylori*as an epidemiological marker among undergraduate students of Federal University Wukari and Kwararafa University Wukari in Taraba State, North East of Nigeriaso as to provide valuable epidemiological information in form of data concerning its pervasiveness and impact among students' population and by extension host communities as well as the various prevention, control and treatment approaches.

II. Materials and Methods

Study area

This study was carried out in the Department of Microbiology, Federal University Wukari, Taraba State, Nigeria. Wukari metropolis is a large town which is the Headquarter of Wukari Local Government Area of Taraba State. Geographically, Wukari lies between

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latitude 7°55'42" North and longitude 9°47'59" East. It has an area of 4,308 km2. Wukari is home to Federal University Wukari and Kwararafa University. The major languages spoken are Jukun, Kutep, Tiv, Hausa and Fulani Imarenezor *et al*., (2017).

Study design and population

This is expressivesurvey on the pervasiveness and impactof peptic ulcer among undergraduate students of Federal University Wukari, and Kwararafa University with an estimated population size of 5,000 and 1500 respectively. A total of two hundred (200) questionnaires were given to responsive undergraduate students who answered and returned after filling. Explanations were made on questions pertaining to the questionnaires and honest answers were encouraged. An oral informed consent was obtained from each student who partook in the study. One constraint of this study is possible response bias and reluctance on the part of some students as a result of some cultural beliefs and personal reasons about revealing some sensitive information. This was appropriately handled by persuasive encouragement that the information provided will be in anonymous form.

Data analysis

Statistical Package for Social Sciences (SPSS) version 21.0 software was used for data entry and analysis. Validity of data collected was ensured by double entry and random checks for errors. Frequency distributions and summary measures were done and percentages were used to represent the results gotten from the data.

III. Results

Table 1 to 5below shows the socio-demographic distribution of the students with respect to ethnic, age, gender, religion and level of study respectively. Table 6 showsrate of ulcer occurrence among students who participated in the research. Table 7 shows the incidence of type of Ulcer among students and table 8 represent ulcer remedy use by students.

Table 1: Students Ethnic socio- demographic data (n=200)

Factor	Group (tribe)	Incidence (%)
Ethnic group	Jukun	42 (21%)
	Kutep	21 (10.5%)
	Tiv	72 (36%)
	Hausa	8 (4%)
	Fulani	4 (2%)
	Others	53 (26.5%)

Table 2: Students Age socio- demographic data (n=200)

Factor	Group (year)	Incidence (%)
Age	15 – 20	38 (19%)
	21 – 25	108 (54%)
	26 – 30	46 (23%)
	31 – 35	8 (4%)

Table 3: Students Gender socio- demographic data (n=200)

Factor	Group	Incidence (%)
Gender	Male	86 (43%)
	Female	114 (57%)

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Table 4: Students Religion socio- demographic data (n=200)

Factor	Group	Incidence (%)
Religion	Christian	133 (66.5%)
	Islam	64 (32%)
	Others	3 (1.5%)

Table 5: Students level of study socio- demographic data (n=200)

Factor	CLASS	Incidence (%)
Level of study	100	19 (9.5%)
	200	45 (22.5%)
	300	36 (18%)
	400	69 (34.5%)
	500	31 (15.5%)

Table 6: Rate of ulcer occurrence among students (n = 103)

Factor	Group	Frequency (%)
Presented with Ulcer	Yes	103 (51.5%)
	No	97 (48.5%)

Table 7: Incidence of type of Ulcer among students (n =103)

Factor	Type	Incidence (%)
Ulcer	Duodenal ulcer	67 (65%)
	Gastric ulcer	36 (35%)

Table 8: Ulcer remedy use by students (n = 103)

Factor	Type	Frequency (%)
Drugs	Antacids	40 (39%)
	Antibiotics	30 (29%)
	Proton pump inhibitors (PPI)	8 (9%)
	Herbal medicine	18 (18%)
	Histamine	7 (7%)

IV. Discussion

This research study shows that PUD is rather common in this environment (Wukari), accounting for all individuals who had upper GI endoscopy during the study period. This current research was carried out to evaluate the pervasiveness and impactof peptic ulcer among undergraduate students of Federal University and Kwararafa University both in Wukari, Taraba State, Nigeria. The pervasiveness of peptic ulcer was 51.5%. This shows a remarkably difference from similar study carried in Abraka in Delta State which has prevalence rate of 34%Imarenezor *et al.*, (2017) and also similar research in Ile-IfeEdje*et al*., (2022). Major reasons for this disparity could be ascribed to study population in terms of demographic and other ethical issues.The mean ages of the students were between 15 and 35 years with majority of the students being of TVs 72 (36%), ethnicity closely followed by Jukuns 42 (21%) which is expected in this part of TarabaState, with TVs ethnicity as part of Taraba State and Benue State and Benue State having

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boundary with Taraba State Ray-offer and Obiorah, (2018).The research also showed that PUD is common in young age groups (21-25)108 (54%) with most individuals being less than thirty five (35) years. This is in contrary to what was found in Europe, where most peptic ulcer disease patients were usually more than forty years of age, Edje*et al*., (2022). Females 114 (57%) made up the highest percentage while Christianity 133 (66.5%) was the main religion recorded. The prevalence of peptic ulcer was 51.5%, with duodenal ulcer more predominant 67 (65%) than gastric ulcer 36 (35%), giving a gastric to duodenal ulcer ratio of approximately 2:1 respectivelyImarenezor *et al.*, (2017).A similar study has reported ratios of 1:1.68 at a study carried out in the Delta State University Abraka among Faculty of Basic Medical students Edje*et al*., (2022).Studyalso reported that duodenal ulcer was more common in the young than gastric ulcer; this is in agreement with our current research in Wukari. In terms of gender female 114 (57%) has the highest occurrences when compare with Male 86 (43%). This also is in agreement with the study carried out by Edje*et al*., (2022). This current researched also shown that in terms of drugs used, antacids 40 (39%) has highest rate of been consumed by respondents which is closely followed by Antibiotics 30 (29%), Herbal medicine 18 (18%), Proton pump inhibitors (PPI)8 (9%) and Histamine 7 (7%) respectively. This also aligned with the study carried out that involves the use of antacids (e.g., magnesium hydroxide, aluminum hydroxide), proton pumps inhibitors (PPIs) (e.g., omeprazole, lansoprazole), histamine-2 receptor antagonists (H2 RA) (e.g., cimetidine, ranitidine), and antibiotics (e.g., amoxicillin, tetracycline). However the researched byVerstockt, 2018also clearly revealed that antacids as the widely used medication (98%) in the treatment of ulcer, followed by the PPIs (74.5%), and antibiotics (60.8%) which was in divergence to this current researched. The combination drug therapy mostly utilized was antacids + PPI + Antibiotics (62.7%) according toRay-offer and Obiorah, (2018) this was in agreement with the current study where majority of the students agreed to using combination of drugs for treatment. Utilization of herbal medicine in disease therapy is a growing aspect in the world of medicine especially in developing countries. About 18 (18%) of the participants in this study utilized herbal medications as medicinal plants have been demonstrated to be effective in the treatment of ailments including ulcerImarenezor *et al*., (2022).

V. Conclusion

In conclusion, thedifficult associated with peptic ulcer is compounded by the poor lifestyles of people in developing countries like Nigeria in visiting hospitals for treatment. Also self-medication is still practiced as manifested by antibiotics abuse. This act is worsened by presence of inadequate health facilities. One of the consequences of the self-medication and antibiotics abuse includes the dominance of the peptic ulcer symptoms. The net effect is erroneous diagnosis in any locality. This may also become evidence in sub clinical cases with majority of individuals whom are initially asymptomatic. Another obvious difficulty occurs during very low grade infections. Although the uses of serological diagnosis are available, poverty poses a major serious impediment to the applications of serology in sub- Sahara countries like Nigeria. The lack of non -invasive screening tests for *H. pylori*, and the paucity of endoscopy facilities in Nigeria would result in a lot of patients being empirically treated for PUD based on rational clinical evaluation, there may thus be need to treat for *H pylori* in patients with suspected PUD in our environment in view of the established high rate of recurrence of PUD in the presence of H. pylori.Finally, this current research showed that the pervasiveness of peptic ulcer was 51.5%, with a gastric to duodenal ulcer ratio of 1:2, with alcohol and cigarette consumption been identified as the most linked risk factors among thisstudents' population. Treatment effective was accomplished with suitablemixtureof therapies and participants compliance. It is however, recommended that effective Public health education by cooperate bodies, institution, communities and government will reduce risk related with PUD and hence will be beneficial in reducing drastically the prevalence of PUD in the future in this area of study and in the nation generally.

Declaration by Authors Ethical Approval: Approved by Research and ethic Committee of Federal University Wukari and Kwararafa University Wukari in Taraba State, North East, Nigeria

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Conflict of Interest: Authors have declared that there is no conflict of interest reported in this study or researched work.

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