Original Article Research Journal of Health Sciences

The knowledge and attitude of students of a Nigerian tertiary institution about peptic ulcer disease

***Bojuwoye, M.O.[1,2], Ogunmodede J.A.[1,2], Ogunlaja, O.A.[3], Fasiku, M.M.[4], Oyeleke, G.K.[5], Olokoba, A.B.[1,2]**

Abstract

Objectives: This study was aimed at assessing the knowledge and attitude of students of a tertiary institution in North-Central Nigeria about peptic ulcer disease (PUD)

Methodology: Three hundred students of the Kwara State Polytechnic, Ilorin, were recruited using a multistage sampling method. A semi-structured questionnaire was used to obtain socio-demographic data and assess their knowledge about and attitude towards PUD.

Results: Two hundred and thirty-four (78.0%) of respondents had heard about PUD before. Two hundred and fifty (83.3%) of the respondents thought PUD was a gastrointestinal disease whereas 40 (13.3%) thought it was a disease of the heart. Only one (0.3%) of the respondents knew *Helicobacter pylori* as a cause of PUD, and only 17.3% believed drugs could treat PUD. Students of Science-based courses were twice as likely as non-Science based students to have had a prior knowledge of PUD (OR: 1.98, CI: 1.054-3.717, P=0.034).

Conclusion: Though majority of respondents had heard about PUD, their knowledge of its aetiology, symptoms and treatment was poor. This reflects the need to strengthen public health education about PUD because of its potential for causing morbidity and mortality.

Key words: Peptic ulcer disease, gastrointestinal disease, *Helicobacter pylori,* knowledge

*Corresponding Author
Bojuwoye, M.O.
ORCID-NO: http://orcid.org/0000-0002-6375-5203
E-mail: bojuwoyem26@yahoo.com

[1]Department of Medicine, University of Ilorin, Ilorin, Nigeria
[2]Department of Medicine, University of Ilorin Teaching Hospital, Ilorin, Nigeria.
[3]Department of Obstetrics and Gynaecology, Bowen University Teaching Hospital, Ogbomosho, Nigeria
[4]Department of Community Medicine, Federal Medical Centre, Abeokuta, Nigeria
[5]Department of Medicine, Lagos University Teaching Hospital, Lagos, Nigeria

Received: January 3, 2020 *Accepted: January 9, 2021* *Published: June 30, 2021*

http://dx.doi.org/10.4314/rejhs.v9i2.4

Original Article Research Journal of Health Sciences

La connaissance et l'attitude des étudiants d'un établissement d'enseignement supérieur nigérian au sujet de l'ulcère gastroduodénal

***Bojuwoye, M.O.[1,2], Ogunmodede J.A.[1,2], Ogunlaja, O.A.[3], Fasiku, M.M.[4], Oyeleke, G.K.[5], Olokoba, A.B.[1,2]**

Résumé

Objectif de l'étude: Cette étude visait à évaluer les connaissances et l'attitude des étudiants d'une institution tertiaire du centre-nord du Nigéria concernant l'ulcère gastroduodénal (UG).

Méthode de l'étude: Trois cents étudiants de l'école polytechnique d'État de Kwara, Ilorin, ont été recrutés à l'aide d'une technique d'échantillonnage à plusieurs degrés. Un questionnaire semi-structuré a été utilisé pour obtenir des données sociodémographiques et évaluer leurs connaissances et leur attitude envers l'UG.

Résultat de l'étude : Deux cent trente-quatre (78,0%) des répondants avaient déjà entendu parler de l'UG. Deux cent cinquante (83,3%) des répondants pensaient que l'UG était une maladie gastro-intestinale alors que 40 (13,3%) pensaient qu'il s'agissait d'une maladie du cœur. Seul un (0,3%) des répondants connaissait *Helicobacter pylori* comme cause de l'UG, et seulement 17,3% pensaient que les médicaments pouvaient traiter le PUD. Les étudiants de cours scientifiques étaient deux fois plus susceptibles que les étudiants non scientifiques d'avoir une connaissance préalable du UG (OR: 1,98, IC: 1,054-3,717, P = 0,034).

Conclusion: Bien que la majorité des répondants aient déjà entendu parler de l'UG, leur connaissance de l'étiologie, des symptômes et du traitement était médiocre. Cela reflète la nécessité de renforcer l'éducation en santé publique sur l'UG en raison de son potentiel de provoquer la morbidité et la mortalité.

Mots-clés : Ulcère gastroduodénal, maladie gastro-intestinale, *Helicobacter pylori,* connaissance

*Corresponding Author
Bojuwoye, M.O.
ORCID-NO: http://orcid.org/0000-0002-6375-5203
E-mail: bojuwoyem26@yahoo.com

[1]Department of Medicine, University of Ilorin, Ilorin, Nigeria
[2]Department of Medicine, University of Ilorin Teaching Hospital, Ilorin, Nigeria.
[3]Department of Obstetrics and Gynaecology, Bowen University Teaching Hospital, Ogbomosho, Nigeria
[4]Department of Community Medicine, Federal Medical Centre, Abeokuta, Nigeria
[5]Department of Medicine, Lagos University Teaching Hospital, Lagos, Nigeria

Received: January 3, 2020 *Accepted: January 9, 2021* *Published: June 30, 2021*

http://dx.doi.org/10.4314/rejhs.v9i2.4

INTRODUCTION:

Peptic ulcer disease (PUD) is an important cause of morbidity and health care costs; estimates of expenditures related to work loss, hospitalization, and outpatient care (excluding medication costs) are $5.65 billion per year in the United States (1). The true prevalence rate of PUD in the Nigerian populace is not certain although over three decades ago Nigeria was listed as an area of high PUD prevalence (2). Peptic ulcers are defects in the gastrointestinal mucosa that extend through the muscularis mucosae and they develop when the protective mechanisms of the gastrointestinal (GI) mucosa, such as mucus and bicarbonate secretion, are overwhelmed by the damaging effects of gastric acid and pepsin (3). Peptic ulcers can develop in any portion of the GI tract that is exposed to acid and pepsin in sufficient concentration and duration. However, they usually occur in the stomach [gastric ulcer (GU)] or proximal duodenum [duodenal ulcer (DU)] or both.

A high proportion (at least 90%) of PUD cases is caused by infection with *Helicobacter pylori*; an association first reported in 1983 (4). Other causes of PUD include the use of non-steroidal anti-inflammatory drugs (NSAIDs) such as aspirin; hypersecretory states such as gastrinoma (or Zolinger-Ellison Syndrome) or multiple endocrine neoplasia type I (MEN-I), antral G cell hyperplasia, systemic mastocytosis, basophilic leukaemias, cystic fibrosis, short bowel syndrome, hyperparathyroidism; genetic factors (family history of PUD); cigarette smoking and alcohol consumption. However, the two major causes of PUD are *H. pylori* infection and the use of NSAIDs. The development of effective treatment has enabled a new public health approach to PUD, which was previously considered a chronic disease but now an infectious disease (5). Even though effective primary prevention strategies remain to be defined, appropriate diagnosis and antibiotic treatment can substantially reduce the burden of PUD. This secondary prevention strategy depends on awareness that PUD is caused by a curable infection.

Working in partnership with patients and their families is essential in modern healthcare. For this partnership to be effective, patients must have sufficient understanding of their condition. Patient understanding may be limited due to restricted time for counseling in clinic and the variable quality of available educational resources. To our knowledge, students' understanding of PUD has not been previously studied in our environment.

MATERIALS AND METHODS

The study was a descriptive cross - sectional evaluation of knowledge of PUD, its causes, and symptoms among students of a tertiary institution, Kwara State Polytechnic, Ilorin, north central Nigeria. A total of 300 students were selected from the school based on multistage sampling method. The school has 5 Institutes – Technology, Applied sciences, Environmental sciences, Finance and Management, Information and Communications Technology. The minimum sample size was determined using the Raosoft online sample calculator (6) from a population size of 10000. The margin of error, confidence interval and response distribution rate were set at 5%, 95% and 24% respectively. The calculated sample size was 273 but this was increased to 300 taking into account the expected response rate of 90%.

The number of respondents selected from each institute was based on a sampling-by-size approach (proportional allocation) from the total sample size using the formula:

$$\text{Number of Respondents per institute} = \frac{n}{N} \times 300$$

Where,

n = the total number of students at the specific institute;

N = the total number of students in all the participating institutes;

300= the total sample size required for the study at the institution

In each of the institutes, a numbered list of eligible respondents who were confirmed to be students was compiled and respondents were randomly selected using a computer generated table of random numbers. These were interviewed after obtaining an informed consent.

A two paged interviewer-administered pre-tested structured questionnaire developed purposely for this study was given to each consenting participant. Simple language devoid of medical jargons was used with closed ended questions requiring a response of yes or no. A few questions were there that required free response from the respondents. The participants included male and female students from various departments and study levels of the institution. The questionnaire was designed to assess the awareness and knowledge of the respondents on PUD, its causes, and symptoms as well as their attitude towards the disease.

Statistical analysis

The data obtained were analyzed using the Statistical Package for Social Sciences (SPSS) version 20. Categorical variables were expressed as percentages whereas continuous variables were presented as mean ± standard deviation. The Chi-square test and student's independent t-test were used to test for associations between categorical and normally distributed continuous variables respectively with the awareness of PUD. A binary logistic regression was performed to ascertain the predictors of awareness of PUD among the students. The variables that showed a significant association with awareness of PUD, and variables not significantly associated but with biological plausibility of predicting awareness of PUD and a p value less than 0.5 were inputted into the regression model. The dichotomized outcomes were defined as "not aware of PUD" and "aware of PUD". Analysis was performed at 95 % confidence interval and statistically significance was set at $P < 0.05$

Ethical Approval: Approval was granted by the Departmental board of the Department of Medicine, University of Ilorin as these data were collected as part of the Mini-project series of students on rotation at that time. Informed consent was taken from respondents. The research was carried out in accordance with the ethical principles for medical research involving human subjects according to the Declaration of Helsinki (7).

RESULTS

Of the 300 respondents, 134 (44.7%) were females and 166 (55.3%) were males with a male to female ratio of 1.24:1. The age group 21-30 years had the highest number of respondents 161 (53.3%). The other socio-demographic characteristics of the study population are as shown in Table 1. Two hundred thirty-four (78.0%) students had heard about PUD before and 66 (22.0%) had not. Two hundred and fifty respondents (83.3%) responded correctly that PUD is a disease of the stomach and intestine, 40 (13.3%) thought it was a heart disease, 6 (2.0%) a disease of the lungs, and 4 (1.3%) a brain disease (see Table 2). Concerning knowledge of symptomatology of PUD, 185 (61.7%) respondents believed upper abdominal pain was a symptom, 136 (45.4%) considered lower abdominal pain, 130 (43.3%) considered peri-umbilical pain and 32.3% believed fever was a symptom (see Table 3). Majority of the respondents considered prolonged fasting (81.0%) to be a cause of PUD; other responses were: consumption of peppery food (54.3%), tobacco smoking (52.3%), alcohol consumption (50.7%), drugs (44.7%), genetic predisposition (33.3%), ingestion of herbal concoction (25.7%), 'spiritual reasons' (18.0%), eating early (13.3%) and *H. pylori* infection (0.3%). It is important to state that there were multiple responses per respondent. With respect to respondents' knowledge about treatment of PUD, majority (64.2%) believed that eating on time was the treatment and only 17.3% believed that taking drugs was the treatment (see Table 4).

For the purpose of this study, the institutes in the polytechnic were classified as Science-based and Non-Science based. The nature of course of study (whether science based or non-science based) was the only factor significantly associated with awareness of PUD, a significantly greater proportion of Science-based students 82 (92.1%) than non-Science based students had heard about PUD before. A binary logistic regression was performed to ascertain if this factor predicted prior knowledge of PUD. The logistic regression model fit well at χ^2 (1) = 4.87. The model explained only 24% (Nagelkerke R^2) of the variance in the prior knowledge of PUD based on whether the students studied Science-based or non-Science-based courses. Science students were twice as likely as non-Science students to have had a prior knowledge of PUD (Odds Ratio (OR) 1.98, CI: 1.054-3.717, P=0.032) (See Table 5).

DISCUSSION

Awareness about a disease condition, its cause(s) and recognition of its symptoms are vital to the primary and secondary prevention of the disease. In this study, 78% of the students were aware of PUD as a disease but their understanding of the symptomatology of the disease was relatively poor with recognition of cardinal symptoms ranging between 43-61%. This can lead to delayed presentation to the appropriate level of medical care or self-medication. Before 1983, the major causes of PUD were considered to be excess acid, diet, smoking, and stress, and most patients with recurrent PUD were treated with maintenance doses of acid-reducing medications (8). With the discovery of the association between *H. pylori* infection and PUD, appropriate antibiotic regimens can now successfully eradicate gastrointestinal infection with this organism and permanently cure ulcers in a high proportion of

patients. Although, majority of the respondents have heard about PUD previously, only 17.3% of them knew it could be treated by drugs. The understanding of symptomatology of the disease is also quite low. Knowledge about PUD symptomatology and treatability is important in our environment. A review by Agboola *et al* (9) revealed that complicated PUD accounted for the fourth largest number of cases of acute abdomen in our centre. Being students of a tertiary level educational institution, our respondents represent the most vibrant segment of the Nigerian population and fall into the age group where the bulk of Nigeria's population lies (10). The level of awareness of PUD among them is therefore an important index of awareness among the populace of the impact of chronic diseases and potential health service utilization.

The review of Agboola *et al* (9) of acute abdomen in our centre also gives further reason why it is important for students in our environment to know the nature, symptomatology and causes of PUD. This is because students accounted for the second highest number of complications of PUD such as intestinal perforation among patients reviewed (9). Considering that it appears that there is an increasing incidence of gastric ulcers in our environment according to data from Ndububa *et al* (11) and Ijarotimi *et al* (12) despite earlier reports by Ameh *et al* (13) and Gunshefski *et al* (14) who had separately previously reported duodenal ulcers to be more common than gastric ulcers, appropriate knowledge about PUD among the younger members of the society is very important. The observed increase in the incidence of gastric ulcers may be due to the increased use of aspirin and non-steroidal anti-inflammatory drugs in Nigeria over the past two decades (12). These drugs are prominent causes of gastric ulcers and erosions. Another reason for the interest in the knowledge of students about PUD among young people in Nigeria is the issue of tobacco smoking which is a risk factor of PUD. The estimated median age at initiation of smoking is low among Nigerian students at 16.8 years (IQR: 13.5–18.0) (15) and the fact that tobacco use is on the rise among them (16,17,18) suggests that diseases for which tobacco is a risk factor such as PUD will increase among them. The awareness of PUD and its risk factors will indirectly foster anti-tobacco campaigns in our environment.

A large proportion of students in this study believed that the aetiology of PUD was related to consumption of pepper. This is significantly higher than the 17% recorded among US citizens of Health Styles Supplemental Survey (8). This likely reflects the predominance of pepper in the local cuisine in the Nigerian society as well as long-held health beliefs prevalent in the larger community. Students in a science-based course were about twice as likely as others to be aware of PUD. This is because of a greater likelihood of coming across the mention of PUD in the course of their studies. Most of them will also be obliged to have a foundation in the biological sciences because of the structure of the secondary (high) school curriculum and may come across issues related to PUD in the course of learning the application of biological sciences. The merit of this study is that it shows the knowledge gap of PUD among an important strata of the society and this indicates an important entry point for health education strategies about PUD to the society. The limitation is that it was a single institution based study. A multi-institution study may give a result that is more generalizable to the larger society.

CONCLUSION

The awareness of the PUD is high among tertiary institution students in our study. However, the knowledge of the symptomatology and risk factors is relatively poor. Considering that this is vital to seeking appropriate treatment and timely reporting of any complications, it also reflects the need to strengthen public health education about common conditions like PUD, awareness of which should not be limited by peculiar educational background.

Conflict of interest: None

Acknowledgement: We thank Mr. Emmanuel Medubi for his support in data collation and entry.

REFERENCES

1. Sonnenberg A, Everhart JE. Health impact of peptic ulcer in the United States. *Am J Gastroenterol* 1997; 92: 614
2. Eniojukan JF, Okonkwo OC, Adje UD. Risk Factors, Management and Other Correlates of Peptic Ulcer Disease in a University Community in South-South Nigeria. *Pharmaceutical and Biosciences Journal.* 2017; 5(6): 07-15.
3. Ramakrishnan K, Salinas RC. Peptic ulcer disease. *Am Fam Physician*. 2007;76(7):1005-1012
4. Marshall B, Warren JR. Unidentified curved bacilli on gastric epithelium in active chronic gastritis. *Lancet* 1983; 1:1273-1275
5. Bashinskaya B, Nahed BV, Redjal N, Kahle KT, Walcott BP. Trends in Peptic Ulcer Disease and

the Identification of *Helicobacter Pylori* as a Causative Organism: Population-based Estimates from the US Nationwide Inpatient Sample. *Journal of Global Infectious Diseases*. 2011; 3(4):366-370
6. Raosoft Incorporation: Raosoft Sample Size Online Calculator. [Internet] c2004 [cited 2018 July 25]. Available from: http://www.raosoft.com/samplesize.html
7. World Medical Association. World Medical Association declaration of helsinki: ethical principles for medical research involving human subjects. *JAMA* 2013; 310(20):2191-2194
8. Novelli P. Knowledge about causes of Peptic Ulcer Disease - United States. *MMWR* 1997; 46(42):985-987.
9. Agboola JO, Olatoke SA, Rahman GA. Pattern and presentation of acute abdomen in a Nigerian teaching hospital *Niger Med J*. 2014; 55(3): 266–270.
10. National Bureau Statistics. National Population Commission and National Bureau of Statistics Estimates. 2016
11. Ndububa DA, Adeyemi OJ. Peptic ulcer disease in Nigeria. *Ife Med J* 2008:62-66.
12. Ijarotimi O, Soyoye DO, Adekanle O, Ndububa DA, Umoru BI and Alatise OI. Declining prevalence of duodenal ulcer at endoscopy in Ile-Ife, Nigeria. *S Afr Med J*. 2017; 107(9): 750-753
13. Ameh EA, Nnamdi PT. Pattern of peptic ulcer disease in Zaria, Nigeria. *East Afr Med J* 1998; 75:90-92.
14. Gunshefski L, Flancbaum L, Brolin RE, Frankel A. Changing patterns in perforated peptic ulcer disease. *Am Surg* 1990; 56:270-274.
15. Adeloye D, Auta A., Fawibe A, Gadanya M, Ezeigwe N, Mpazanje RG, *et al.* Current prevalence pattern of tobacco smoking in Nigeria: a systematic review and meta-analysis. *BMC Public Health* 2019; 19:1719
16. Ukwayi JK, Eja OF, Unwanede CC. Peer pressure and tobacco smoking among undergraduate students of the University of Calabar, Cross River State. *Higher Education Studies* 2012; 2:92-101.
17. Emerole CAJ, Chineke HN, Diwe KC, Onubeze DPM. Prevalence of smoking among undergraduates of Imo State University Owerri, South Eastern Nigeria. *Niger J Gen Pract* 2013; 11:43-47.
18. Amorha KC, Jiburu EM, Okonta MJ, Nduka SO. Cigarette Smoking Prevalence and Awareness amongst Undergraduate Students of the University of Nigeria, Nsukka. *J Basic Clin Pharma* 2017; 8:239-244

How to cite this article:
Bojuwoye, M.O., Ogunmodede J.A., Ogunlaja, O.A., Fasiku, M.M., Oyeleke, G.K., Olokoba, A.B. The knowledge and attitude of students of a Nigerian tertiary institution about peptic ulcer disease. Research Journal of Health Sciences, 2021, 9(2): 142-149

Table 1: Association between sociodemographic characteristics and PUD awareness among respondents

Variables	All Respondents Freq (%) n=300	Aware of PUD n= 234	Not aware of PUD n=66	Test Statistic (t/x^2)	P value
Age (yrs) (Mean±SD)	21.5±3.63	21.6±3.9	21.24±2.8	**2.162**	**0.457**
Age (yrs)				**0.202**	**0.904**
≤20	134 (45.0)	106 (79.1)	28 (20.9)		
21-30	161 (54.0)	124 (77)	37 (23)		
≥31	5 (1.0)	4 (80)	1(20)		
Sex				**0.172**	**0.678**
Female	134 (44.7)	106 (79.1)	28 (20.9)		
Male	166 (55.3)	128 (77.1)	38 (25.9)		
Course-Type				**14.7**	**<0.001***
Science based	89 (29.7)	82(92.1)	7 (7.9)		
Non-Science based	211 (70.3)	152 (72)	59 (28)		
Level of Study				**0.001**	**0.974**
Ordinary National Diploma	205 (68.3)	160 (78)	45 (22)		
Higher National Diploma	95 (31.7)	74 (77.9)	21 (22.1)		
Marital Status				**2.272**	**0.131**
Single	273 (91)	210 (76.9)	63 (23.1)		
Married/Widowed/Divorced	27 (9)	24 (88.9)	3 (11.1)		

Except otherwise stated, values are Frequency (%) * P<0.05

Table 2: Awareness and perception of respondents' about PUD and the organ primarily affected in PUD

	Frequency (%) n= 300
Awareness of PUD	
Yes	234 (78)
No	66 (22)
Opinion about the organ primarily affected in PUD	
Heart	40 (13.3)
Stomach and intestine	250 (83.3)
Lungs	6 (2)
Brain	4 (1.3)

Table 3: Distribution of respondents' knowledge about symptoms and risk factors of PUD

Symptoms	**Frequency (%)**	**Risk Factors**	**Frequency (%)**
Upper Abdominal Pain	185 (61.7)	Prolonged fasting	243 (81.0)
Lower Abdominal Pain	136 (45.3)	Peppery food	163 (54.3)
Pain Around Umbilicus	130 (43.3)	Tobacco smoking	157 (52.3)
Chest Pain	124 (41.3)	Alcohol	152 (50.7)
Indigestion	124 (41.3)	Drugs	134 (44.7)
Fever	97 (32.3)	Genetic	100 (33.3)
Vomiting	96 (32.0)	Herbal Concoctions	77 (25.7)
Heart Burn	94 (31.3)	Spiritual causes	54 (18.0)
Diarrhoea	57 (19.0)	Eating Early	40 (13.3)
		H. pylori	1 (0.3)

Table 4: Distribution of respondents' suggestions about treatment of PUD

Treatment suggested by respondents	**FREQUENCY n= 300**
Eating on time	192 (64)
Taking Certain Drugs	52 (17.3)
Drinking Milk	43 (14.3)
Using Laxatives e.g. Andrews Liver salt	7 (2.3)
Herbal Concoction	4 (1.3)
Spiritual Remedy	2 (0.7)

Table 5: Predictor of awareness of peptic ulcer disease among Study Participants

Variables	B	Odds Ratio	95% Confidence Interval	P value
Nature of Study	0.683	1.98	1.054 – 3.717	0.032*
Science –based students				
Non Science-based Students [REF]				
Age	-0.26	0.974	0.902 – 1.052	0.502

B- Coefficient of binary logistic regression *Significant REF – Reference variable