

The Role Of Non-Modifiable Risk Factors For Peptic Ulcer Disease In Patients Attending A Tertiary Hospital In Enugu, South East Nigeria

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Abstract: Background: To determine the role of non-modifiable risk factors associated with peptic ulcer disease in patients attending a tertiary hospital in Enugu, South East Nigeria. Material And Methods: A total of 240 patients comprising 120 cases and 120 controls attending the outpatient clinic of the Enugu State University Teaching Hospital, GRA, Enugu were seen within the period February and August 2017. Their age, sex, educational and income levels were taken. Their medical history which centered on knowledge of peptic ulcer disease (PUD), family history of PUD, history of chronic illness and diagnosis of PUD were assessed. The prevalence of these non-modifiable risk factors in the cases and controls were compared. Result: There was no significant difference between the age distribution and sex distribution of cases and controls (P-value= 0.103 and 0.07 respectively). Similarly, there was no significant difference between the educational levels (P-value= 0.683) and the monthly income levels (P-value= 0.490) of cases and controls. Conclusion: Factors such as age and sex were found to be of little or no influence. However the cases with higher educational level had a higher prevalence of PUD while those with lower monthly income had the same higher prevalence, thus showing that the higher the educational attainment, the lower the monthly income. From the above findings, emphasis should be laid on a policy aimed at massive employment/empowerment of the youths and young adults so as to improve their monthly income and reduce the observed inequality. [L.U.M, Onoh Natl J Integr Res Med, 2020; 11(3):7-10]

Key Words: Enugu State, Non-modifiable risk factors, Peptic ulcer disease, tertiary hospital

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Introduction: Peptic Ulcer Disease (PUD) is a disorder of the upper gastrointestinal tract. Ulcers occur when the mucosal lining of the GI tract breaks down, resulting in acute or chronic inflammatory response.¹ Ulcers can develop in the esophagus, stomach, duodenum, or other regions of the GI tract.² Through most of the 20th century, ulcers were thought to be the result of stress and dietary factor. First, treatment included hospitalization, rest and special diets. Later on, treatments focused on the reduction of acidity in the digestive tract, using antacids and proton pump blockers when these became available. However, despite these treatments relieving the symptoms of ulcer and high recurrence remained a major problem.

The rate of PUD hospitalizations was found to be highest in adults > 65 years of age, Caucasians, and males.⁹ The prevalence was lower at younger ages.⁹ The elderly population often suffers from musculoskeletal and joint disorders, which are commonly treated with NSAIDs. This explains why peptic ulcer bleeding is most common in adults > 65 years of age. Low-dose aspirin is also a cause of drug-induced peptic ulcer bleeding.²⁰

Aspirin is used for the prevention of cardiovascular incidents.²⁰ With the continuing rise of coronary and cerebro-vascular diseases,

the number of low-dose aspirin users may also increase, leading to more cases of PUD. Age was strongly associated with ulcer incidence, increasing from 38.8 per 10,000 at age 18-24 years to 107.7 per 10,000 at age 75 and older. Therefore, the incidence of ulcers for other factors was age standardized. Lower socioeconomic status, as represented by low family income and lower educational attainment, was strongly associated with incident ulcers.

For example, persons who had not attended high school had 4.7 times the incidence of persons who had attended graduate school. Incidence by family income showed a clear separation at \$20,000, with persons having a lower family income having about twice the incidence of ulcers as persons with a family income greater than \$20,000.⁵ Helicobacter pylori infection and the use of non-steroidal anti-inflammatory drugs (NSAIDs) are the most well-known causal factors for PUD.⁶⁻¹⁰ Although the prevalence of PUD caused by H. pylori has been decreasing because of eradication therapy, the prevalence of PUD induced by NSAIDs or aspirin is increasing because of the worldwide increase in the aging population.¹¹⁻¹³ Most previous studies on the risk factors of PUD had focused on such things like the involvement of gastric acid and other enzymes of the digestive system which had led to

the age-long use of antacids and other drugs that minimize gastric acid secretion in the treatment of PUD. More recently with the discovery of the involvement of H.Pylori, newer authors had focused on studies centered on this organism as a possible risk factor or causal factor in PUD. The resultant effect is that little or no attention has been paid on the involvement of the non-modifiable risk factors like Age, Sex, Marital status, Occupation, Educational and Income levels as risk factors in PUD. It is therefore the aim of this study to contribute in filling this gap.

Material & Methods: The study comprised of 240 patients aged 18years and above (120 of them were being treated for PUD while 120 were being treated for other ailments) attending the outpatient department of the Enugu State university Teaching Hospital GRA Enugu within the period of February to August 2017. After obtaining permission from the hospital authorities, a questionnaire was issued to each of the patients to ascertain their age, sex, marital status, occupation, income and educational levels as well as their medical history which centered on presence or absence of PUD. The diagnosis of PUD was based on present and past medical histories, family history, drug history, abdominal ultrasound, stool analysis and endoscopy. Those patients who tested positive for H.pylori were excluded from the study to avoid its role as a confounding factor. Also excluded were those patients who for one reason or the other were not willing to partake in the study.

Statistical Analysis: Data from the questionnaire was analyzed using the statistical package for social sciences (SPSS) software version 11.0. Information was presented in the form of tables, pie charts and bar charts. To compare the differences (If any) between the cases and controls, the Chi-square test was employed.

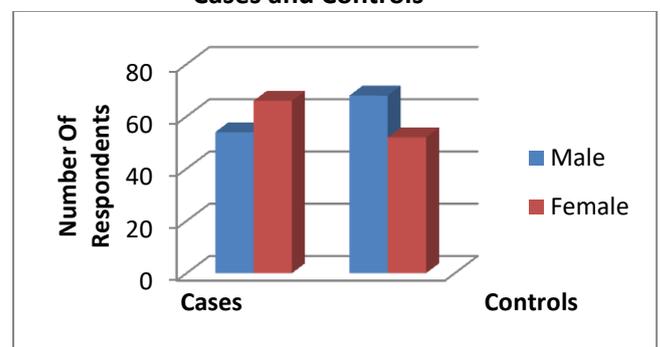
Results: During the period of this study, a total of 240 patients comprising 120 cases and 120 controls were assessed. The table below shows the age distribution of the cases and controls;

Age group with the highest number of cases (27.5%) was 24-29 years while those with the lowest number of cases (8.3%) were age 42-47. The controls also had a high number of respondents (30%) from the age group 24-29; this was second to age group 18-23 that had (36.7%) respondents

Figure 1: Table Showing Age Distribution Of Cases And Controls

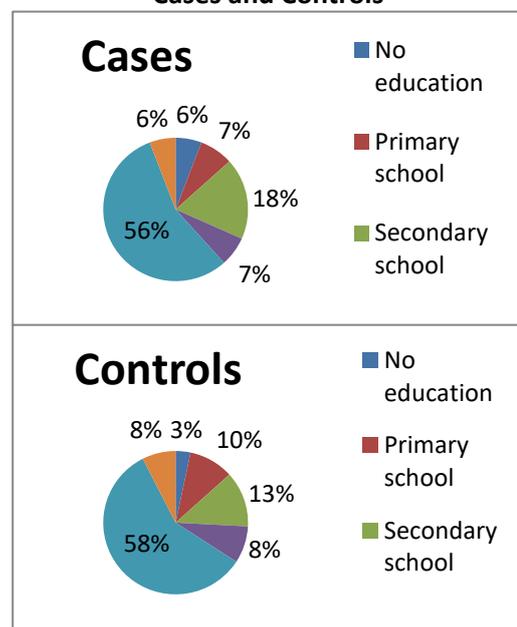
N=240					
Age	Cases	Controls	Total	X ²	p-value
18-23	28	44	72		
24-29	33	36	69		
30-35	14	12	26	9.16	0.103
36-41	14	7	21		
42-47	10	4	14		
>47	21	17	38		
Total	120	120	240		

Figure2: Bar Chart Showing Sex Distribution of Cases and Controls



The total number of males is 122 and 118 as the total number of females, although majority of the cases were female (55%) as against 45% of male cases. The controls were dominated by males 56.7% while female were 45.5%. The p-value is 0.071.

Figure 3: Pie Chart Showing Educational Level of Cases and Controls



The percent of cases that had university education as their highest level of Education is 55.8% (67), while 58.3% (70) of controls had university education as their highest level of

Education. Only 5.8 % (7) cases and 3.3% (4) controls were uneducated. The X^2 is 3.109 and p-value is 0.683

Figure 4: Tables Showing the Monthly Income of Cases and Controls

N=240					
Monthly Income	Cases	Controls	Total	X^2	p-value
<N10,000	24(26.7%)	30(33.7%)	54		
N11,000 - N29,000	24(26.7%)	25(28.1%)	49		
N30,000 - N59,000	21(23.3%)	12(13.5%)	33	3.423	0.490
N60,000 - N99,000	14(15.6%)	13(14.6%)	27		
>N100,000	7(7.8%)	9(10.1%)	16		
Total	90	89	179		

26.7% of the cases and 33.7% of controls earned less than 10,000 naira monthly while 7.8% of cases and 10.1% of controls earned over 100,000 naira monthly.

Discussion: In the present study, the age group with the highest number of cases (27.5%) was 24-29 years while those with the lowest number of cases (8.3%) were age 42-47years. (Fig 1). This is not in agreement with the findings of Feinstein L, Holman R, Yorita Christensen K, et al who found that the rate of PUD hospitalizations was found to be highest in adults > 65 years of age, Caucasians, and males,³ and that the prevalence was lower at younger ages.⁹ Their study also deduced that the elderly population often suffered from musculoskeletal and joint disorders, which are commonly treated with NSAIDs. This explains why peptic ulcer bleeding is most common in adults > 65 years of age.

The observed difference may be due to the fact that our PUD patients were those who were not consuming NSAIDs. Within the environment of our study which is the General Outpatient Department of the hospital, doctors take special precaution not to prescribe NSAIDs for any patient who has given a history likely to incriminate PUD. Again from our study, there was no statistically significant difference ($X^2= 9.16$ and P-value=0.103) between the age distribution of the cases and controls.

There was no statistically significant difference between the sex distribution of cases and controls (p-value is 0.071) although the controls were dominated by males 56.7% while females were 45.5%. Also our findings showed that the total number of males was 122 and the total

number of females 118, although majority of the cases were female (55%) as against 45% of male cases. This is contrary to the reported literature of highest case of peptic ulcer found in males³.

There was no statistically significant difference between the educational level of cases and controls (X^2 is 3.109 and p-value is 0.683). However our findings show that the proportion of cases that have university education as their highest level of education was 55.8% (67), while 58.3% (70) of controls had university education as their highest level of Education. Only 5.8 % (7) cases and 3.3% (4) controls were uneducated.

This finding is in agreement with that of James E. Evertart, Danita Byrd-Holt, and Amnon Sonnenberg⁶⁻¹⁰ who discovered that..... lower educational attainment was strongly associated with incident ulcers. For example, persons who had not attended high school had 4.7 times the incidence of persons who had attended graduate school. Again a greater proportion of controls 33.7% earned less than 10,000 naira monthly while 26.7% of the cases fell within the same range. On the other extreme 7.8% of cases and 10.1% of controls earned over 100,000 naira monthly.

This implies that more of the controls fall within the lower socio-economic group than the cases. This finding is at variance with that of James E. Evertart, Danita Byrd-Holt, and Amnon Sonnenberg⁶⁻¹⁰ who discovered that..... Incidence by family income showed a clear separation at \$20,000, with persons having a lower family income having about twice the incidence of ulcers as persons with a family income greater than \$20,000.

Conclusion: The present study showed that people who were well educated (higher educational status) had a lower incidence of PUD while those with poorer education had a higher incidence of PUD. On the other hand more of the controls fall within the lower socio-economic group (as shown by their monthly income) than the cases. The reason for the observed differences is due to the fact that within the environment in which our study was conducted, higher educational attainment does not necessarily mean higher monthly income.

In this country, most educated youths and middle-aged population are unemployed and therefore have a lower monthly income than their colleagues who never attended schools but took to trading early in their lives. We therefore advocate a governmental policy which lays emphasis on the provision of employment and other empowerment opportunities of the youths and young adults within this country to close this gap on socio-economic standards.

References:

1. Academy of Nutrition and Dietetics (AND). Peptic Ulcers: Nutrition Care Manual. 2013.
2. Johns Hopkins Medicine. Peptic Ulcer: U.S. News Health. 2009
3. Feinstein L, Holman R, Yorita Christensen K, Steiner C, Swerdlow D. Trends in Hospitalizations for Peptic Ulcer Disease, United States, 1998–2005. *Emerging Infectious Diseases*.2010; 16(9).
4. Fujinami H, Kudo T, Hosokawsa A. A Study of the Changes in the cause of Peptic Ulcer bleeding. *World Journal of Gastrointestinal Endoscopy*. 2012. 16; 4(7): 323-327.
5. James E. Evertiart, Danita Byrd-Holt, and Amnon Sonnenberg- -1998-*Incidence and Risk Factors for Self-reported Peptic Ulcer Disease in the United States*, *American Journal of Epidemiology* Vol.147, No. 6
6. Wolfe MM, Lichtenstein DR, Singh G. Gastrointestinal toxicity of nonsteroidal antiinflammatory drugs. *N Engl J Med*. 1999; 340:1888–1899.PubMed
7. Hopkins RJ, Girardi LS, Turney EA. Relationship between Helicobacter pylori eradication and reduced duodenal and gastric ulcer recurrence: a review. *Gastroenterology*. 1996; 110:1244–1252.PubMed
8. Atherton JC, Cao P, Peek RM, Jr, Tummuru MK, Blaser MJ, Cover TL. Mosaicism in vacuolating cytotoxin alleles of Helicobacter

- pylori. Association of specific vacA types with cytotoxin production and peptic ulceration. *J Biol Chem*. 1995; 270:17771–17777.PubMed
9. Hunt RH, Yuan Y. Acid-NSAID/aspirin interaction in peptic ulcer disease. *Dig Dis*. 2011; 29:465–468.PubMed
10. Yamaoka Y, Ojo O, Fujimoto S, et al. Helicobacter pylori outer membrane proteins and gastroduodenal disease. *Gut*. 2006; 55:775–781. [PMC free article] PubMed
11. Potamitis GS, Axon AT. Helicobacter pylori and Nonmalignant Diseases. *Helicobacter*. 2015;20 Suppl 1:26–29.PubMed
12. Thorat MA, Cuzick J. Prophylactic use of aspirin: systematic review of harms and approaches to mitigation in the general population. *Eur J Epidemiol*. 2015; 30:5–18. PubMed
13. Sasaki H, Nagahara A, Hojo M, et al. Ten-year trend of the cumulative Helicobacter pylori eradication rate for the ‘Japanese eradication strategy’*Digestion*.2013;88:272–278.PubMed

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